BLUE SPRINGS
MISSOURI

CITY COUNCIL MEETING
Monday, March 2, 2026, 6:00 PM

Council Chambers
Howard L. Brown Public Safety Building
1100 SW Smith Street
Blue Springs, Missouri 64015
This meeting can be viewed live on the City's website at
https://www.bluespringsgov.com/CityMeetingsLive

Anyone wishing to address the Mayor and Council, either in a Public Hearing or in the Visitors Section of the Agenda, must fill out a Speaker's Appearance Form. Forms are available online or located at the entrance of the Council Chambers. After completion, the form is to be given to the City Clerk prior to the start of the Council meeting.

Agenda

1. Call meeting to order and Pledge of Allegiance
2. Confirmation of a Quorum
3. Consent Agenda

   All matters under Item 3, Consent Agenda, are considered to be routing by the City Council and will be enacted by one motion of the Council with no separate discussion. If separate discussion is desired, that item may be removed from the Consent Agenda and placed on the Regular Agenda by request of a member of the City Council.

a. Minutes of February 18, 2026, City Council meeting

b. Resolution No. 018-2026 approving a Disposition of Records

c. Resolution No. 019-2026 approving an Amendment to the Labor Agreement with the International Association of Machinists and Aerospace Workers

d. Resolution No. 020-2026 approving a contract with John Moore Oil Company for Fuel Services

e. Resolution No. 021-2026 approving a contract with Superior Bowen Asphalt Company, LLC for the construction of the 12th Street Extension

f. Resolution No. 022-2026 approving Task Order #22 with Cochran Engineering for construction administration, inspections and geotechnical services for the 12th Street extension

4. **Public Hearing** – Luxe Two Rezoning (RZ-01-26-9776) and Planned Development Concept Plan (PDC-01-26-9775) – **Continue to April 6, 2026 City Council Meeting**

5. **Public Hearing** – Brookside Estates Amended Planned Unit Development Concept Plan (PUDC-10-25-9711)

6. Introduction and readings of Bill No. 5384 approving a Brookside Estates Amended Planned Unit Development Concept Plan (PUDC-10-25-9711)

7. **Public Hearing** – Epic Retail General Development Plan (GDP-12-25-9764)

8. Introduction and readings of Bill No. 5385 approving an Epic Retail General Development Plan (GDP-12-25-9764)

9. **Public Hearing** – Eclectic Tattoo Conditional Use Permit (CUP-01-26-9781)

10. Introduction and Readings of Bill No. 5386 approving an Eclectic Tattoo Conditional Use Permit (CUP-01-26-9781)

11. Public Comment – This section is reserved for public comment on Ordinances being considered at this meeting that do not require a public hearing

12. Introduction and Readings of Bill No. 5387 amending the Code of Ordinances related to prohibiting kratom and intoxicating hemp products

13. **Presentation** - 2025 Audit

14. Visitors - This section is reserved for public comments on topics not on the Agenda. While no immediate action will be taken, comments will be noted.

15. Councilmember Comments

16. Mayoral Comments

17. Adjourn

Upcoming Meetings

Park Commission Meeting – March 3, 6:00 PM

Planning Commission Meeting – March 9, 6:30 PM

Public Arts Commission Meeting – March 11, 4:00 PM

Land Bank – March 16, 3:00 PM

City Council Meeting – March 16, 6:00 PM

Planning Commission Meeting – March 23, 6:30 PM

Public Safety Citizen's Advisory Board Meeting – March 24, 6:00 PM

World Cup Task Force Meeting – April 1, 10:00 AM

City Council Meeting – April 6, 6:00 PM

This agenda was posted at City Hall and on the City's website on Friday, February 27, 2026.

Megan Rodgers, Deputy City Clerk

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EXPLANATIONS

DATE: February 27, 2026

TO: Mayor, City Council, Department Directors, and Press

FROM: City Administrator Christine Cates

SUBJECT: Agenda Explanations

Item 3b – Disposition of Records

Adopt a Resolution to approve the disposition of Information Technology and Administration records which have met the required retention period as prescribed by the Blue Springs Records Retention, Management, and Destruction Policy dated November 28, 2016, and in accordance with the Missouri Secretary of State's records retention guidelines. Refer to Council Information Form from City Clerk Erin Ford for additional information.

Item 3c – Labor Agreement Amendment with International Association of Machinists and Aerospace Workers

Adopt a Resolution approving an Amendment to the Labor Agreement with the International Association of Machinists and Aerospace Workers (IAM) Local 778 for Certain Public Works Employees. Refer to Council Information Form from Assistant Director of Public Works Operations Nathan Lea for additional information.

Item 3d – Fuel Services

Adopt a Resolution approving a contract with John Moore Oil Company for Fuel Services. Refer to Council Information Form from Assistant Director of Public Works Operations Nathan Lea for additional information.

Item 3e – 12th Street Extension

Adopt a Resolution approving a contract in the amount of $4,874,103.65 with Superior Bowen Asphalt Company, LLC for the construction of the 12th Street extension, Project ST-55 Bonds. This is approved as CIP ST-55 12th Street. Refer to Council Information Form from Assistant City Administrator Dennis Dovel for additional information.

Item 3f – Cochran Task Order #22

Adopt a Resolution approving a task contract in the amount of $259,237 with SC Engineering, LLC dba Cochran (Cochran) for construction administration, inspections and geotechnical services for the 12th Street extension, Project ST-55 Bonds. This is approved as CIP ST-55 12th Street. Refer to Council Information Form from Assistant City Administrator Dennis Dovel for additional information.

Items 4 – Luxe Two Rezoning and Planned Development Concept Plan Continuance

The City is requesting the public hearing for consideration of a rezoning from "GB/PUD/R-O" (General Business/Planned Unit Development/Restricted-Overlay) to "MF-18/PD" (High Density Multi-Family/Planned Development) (RZ-01-26-9776) for the 2.9 +/- acre development and to consider the approval of a Planned Development Concept Plan Lux Two, LLC mixed-use development (PDC-01-26-9775) located at 1500 NW North Ridge Drive be continued to the April 6, 2026 City Council Meeting to be scheduled with the incentive approval. A motion to continue is in order.

Items 5 & 6 – Brookside Estates Amended Planned Unit Development Concept Plan

A public hearing is being held at the request of the Applicant, Clint Loumaster, for

consideration to approve the Amended Planned Unit Development Concept Plan to develop a 75-lot single-family subdivision for Brookside Estates on 29.25 +/- acre property located west of SW 7 Highway, north and south of SW Brookside Drive (PUDC-10-25-9711). Upon conclusion of the public hearing, a Bill approving the Amended Planned Unit Development Concept Plan will be ready for introduction and readings. Refer to Council Information Form from Interim Director of City Development Nic Hutchison for additional information.

Items 7 & 8 – Epic Retail General Development Plan

A public hearing is being held at the request of the Applicant, Bart Fisher of Epic Concrete, Inc for consideration to approve a General Development Plan for Epic Retail located at 2850 NW 7 Highway, to allow a retail development on 0.65 acres of land (GDP-12-25-9764). Upon conclusion of the public hearing, a Bill approving the General Development Plan will be ready for introduction and readings. Refer to Council Information Form from Interim Director of City Development Nic Hutchison for additional information.

Items 9 & 10 – Eclectic Tattoo Conditional Use Permit

A public hearing is being held at the request of the Applicant, Daniel Kubin, on behalf of the property owner, Mike Brummel, for consideration to approve a Conditional Use Permit with Alternative Development Standards allowing the body art service use on a 0.71 +/- acres property generally located at Onawa Acres Industrial Park. The applicant is requesting to allow for body art services in light Industrial zoning within 500 feet of a residential use on property addressed 1121 SW 28th Street. Upon conclusion of the public hearing, a Bill approving the Conditional Use Permit will be ready for introduction and readings (CUP-01-26-9781). Refer to Council Information Form from Interim Director of City Development Nic Hutchison for additional information.

Item 12 – Code Amendment – Intoxicating Hemp and Kratom

Passage of a Bill amending the Code of Ordinances prohibiting the sales of Intoxicating Hemp and Kratom products to any person. Refer to Council Information Form from City Administrator Christine Cates for additional information.

Item 13– Presentation – 2025 Audit

Kristen Hughes, Managing Director, at RSM US LLP will present the City's financial year 2025 audit report. Refer to Council Information Form from Senior Director of Finance Karen Van Winkle for additional information.

BLUE SPRINGS
MISSOURI

MINUTES OF FEBRUARY 18, 2026 CITY COUNCIL MEETING

MEETING INFORMATION

A meeting of the City Council of the City of Blue Springs, Missouri, was held on Wednesday, February 18, 2026 at 6:00 p.m. in the Council Chambers of the Howard L. Brown Public Safety Building, 1100 SW Smith Street, Blue Springs, Missouri with Mayor Chris Lievsay presiding.

COUNCIL ATTENDANCE

Jerry Kaylor

Katie Tholen

Nick Brummel

Galen Ericson

Kent Edmondson

Jeremy Rowan

STAFF ATTENDANCE

Also present were City Administrator Christine Cates, City Attorney Jennifer Baird, and City Clerk Erin Ford.

PLEDGE

Mayor Lievsay led in the pledge of allegiance.

CALL MEETING TO ORDER AND CONFIRMATION OF QUORUM

Mayor Lievsay called the meeting to order at 6:01 p.m. The City Clerk confirmed a quorum of the Council was present.

DRAFT

CONSENT AGENDA

Councilmember Ericson moved to approve the Consent Agenda and the motion was seconded by Councilmember Kaylor.

- Minutes of the February 2, 2026 City Council Meeting
- **Resolution No. 013-2026** approving a contract in the amount of $13,125,866.46 with Superior Bowen Asphalt Co, LLC for the 2026 Preventive Pavement Management Program (street overlay), Project ST-06 Bonds.
- **Resolution No. 014-2026** approving a contract in the amount of $147,232.76 With De Lage Landen Public Finance LLC, for the lease/purchase of golf course maintenance equipment for Adams Pointe Golf Club.
- **Resolution No. 015-2026** authorizing the Assistant City Administrator to sign an application for State Revolving Funds (SRF) for improvements to the Sni-A-Bar Wastewater Treatment Plant.

The Consent Agenda was approved with the following:

VOTE

Kaylor – Aye

Tholen – Aye

Brummel – Aye

Ericson – Aye

Edmondson – Aye

Rowan – Aye

Mayor Lievsay – Aye

PUBLIC HEARING – ECLECTIC TATTOO CONDITIONAL USE PERMIT – MOTION TO CONTINUE

Mayor Lievsay opened the Public Hearing at 6:01 and advised the Council that the applicant, Daniel Kubin, requested the public hearing for the consideration of a

Conditional Use Permit allowing body art services be continued to the March 2, 2026 City Council meeting (CUP-01-26-9781).

Councilmember Ericson moved to continue the public hearing on February 18, 2026 to the March 2, 2026 Council meeting. Motion seconded by Councilmember Kaylor and carried unanimously.

PUBLIC HEARING – MCATEE MEADOWS GENERAL DEVELOPMENT PLAN – MOTION TO CONTINUE

Mayor Lievsay opened the Public Hearing at 6:02 and advised the Council that the applicant, Chad McAtee, requested the public hearing for the consideration of 13 single-family residential lots be continued to the April 6, 2026 City Council meeting (GDP-12-25-9747).

Councilmember Ericson moved to continue the public hearing on February 18, 2026 to the April 6, 2026 Council meeting. Motion seconded by Councilmember Kaylor and carried unanimously.

PUBLIC HEARING – UNIFIED CODE AMENDMENT RELATING TO SHORT TERM RENTALS – MOTION TO CONTINUE

Mayor Lievsay opened the Public Hearing at 6:02 and advised the Council that the applicant, the City of Blue Springs, requested the public hearing for the consideration of Unified Development Code Text Amendment relating to short-term rentals be continued to the March 16, 2026 City Council meeting (UDC-01-26-9774).

Councilmember Ericson moved to continue the public hearing on February 18, 2026 to the March 16, 2026 Council meeting. Motion seconded by Councilmember Kaylor and carried unanimously.

PUBLIC HEARING – TAX INCREMENT FINANCING AND ECONOMIC DEVELOPMENT UPDATES

Mayor Lievsay opened the Public Hearing at 6:03 to provide the Tax Increment Financing and Economic Development Incentives update. The minutes of the public hearing were recorded by a certified court reporter. The City Clerk entered one exhibit into the record.

STAFF REPORT

Senior Director of Finance Karen Van Winkle reviewed the details of the Tax Increment Financing and Economic Development Incentives update as required by Missouri Statutes and addressed questions from the Council. A copy of the PowerPoint presentation is attached to these minutes and incorporated herein.

The Mayor hearing no further comments for or against, closed the public hearing at 6:17 p.m.

INTRODUCTION AND FIRST READING OF BILL NUMBER 5381 – CODE AMENDMENT RELATING TO BUILDING CODES

Councilmember Kaylor introduced Bill Number 5381 amending various Sections of Chapter 500 Building Codes of the Code of Ordinances, City of Blue Springs, Missouri, to adopt International Building Codes and National Electrical Codes and make exceptions thereto and to amend the application provisions. City Clerk Erin Ford made the first reading of Bill No. 5381 by title; copies of the proposed Bill having previously been made available to the public.

Councilmember Ericson moved to approve Bill No. 5381 upon its first reading and proceed with the second reading. Motion seconded by Councilmember Tholen and carried unanimously.

SECOND READING – BILL NUMBER 5381

Ms. Ford made the second reading of Bill Number 5381 by title. Councilmember Edmondson moved to adopt Bill Number 5381 upon its second reading and give it ORDINANCE Number 5480, with a copy attached hereto and made a part of the minutes. Motion seconded by Councilmember Ericson and carried with the following:

VOTE

Tholen – Aye

Brummel – Aye

Ericson – Aye

Edmondson – Aye

Rowan – Aye

Kaylor – Aye

Mayor Lievsay – Aye

RESOLUTION 016-2026 – INTOXICATING HEMP PRODUCTS

Councilmember Edmondson moved to adopt Resolution No. 016-2026 supporting State efforts to regulate Intoxicating Hemp products. Motion seconded by Councilmember Tholen and carried unanimously.

RESOLUTION 017-2026 – KRATOM PRODUCTS

Councilmember Edmondson moved to adopt Resolution No. 017-2026 supporting State efforts to regulate Kratom products. Motion seconded by Councilmember Brummel and carried unanimously.

INTRODUCTION AND FIRST READING OF BILL NUMBER 5382 – PROHIBITING SALE OF INTOXICATING HEMP AND KRATOM TO MINORS

Councilmember Kaylor introduced Bill Number 5382 amending the Code of Ordinances prohibiting the sales of Intoxicating Hemp and Kratom products to any person under

the age of 21. City Clerk Erin Ford made the first reading of Bill No. 5382 by title; copies of the proposed Bill having previously been made available to the public.

Councilmember Ericson moved to approve Bill No. 5382 upon its first reading and proceed with the second reading. Motion seconded by Councilmember Tholen and carried unanimously.

MOTION TO CONTINUE – BILL NUMBER 5382

Councilmember Kaylor moved to continue Bill Number 5382 indefinitely. Motion seconded by Councilmember Ericson and carried unanimously.

MOTION TO DIRECT STAFF

Councilmember Kaylor moved to direct staff to bring forward a new Bill in either meeting in March that prohibits the substances defined in Bill 5382. Motion seconded by Councilmember Ericson and carried unanimously.

INTRODUCTION AND FIRST READING OF BILL NUMBER 5383 – JACKSON LEWIS LEGAL SERVICES

Councilmember Kaylor introduced Bill Number 5383 approving a contract for legal services between the City of Blue Springs, Missouri, and Jackson Lewis P.C. to provide representation of the City in labor relations advice and counsel. City Clerk Erin Ford made the first reading of Bill No. 5383 by title; copies of the proposed Bill having previously been made available to the public.

Councilmember Ericson moved to approve Bill No. 5383 upon its first reading and proceed with the second reading. Motion seconded by Councilmember Tholen and carried unanimously.

SECOND READING – BILL NUMBER 5383

Ms. Ford made the second reading of Bill Number 5383 by title. Councilmember Edmondson moved to adopt Bill Number 5383 upon its second reading and give it

ORDINANCE Number 5481, with a copy attached hereto and made a part of the minutes. Motion seconded by Councilmember Ericson and carried with the following:

VOTE

Brummel – Aye

Ericson – Aye

Edmondson – Aye

Rowan – Aye

Kaylor – Aye

Tholen – Aye

Mayor Lievsay - Aye

COUNCILMEMBER COMMENTS

Councilmember Ericson congratulated Councilmember Edmondson on being honored by the Rotary Club

Councilmember Edmondson stated that the City eagles, Freedom and Liberty, have three eagle eggs in the nest.

MAYORAL COMMENTS

- The Mayor's State of the City address will be held on February 19.
- The street maintenance contract approved covers paving of approximately 110 lane miles this calendar year.

CLOSED SESSION

At 6:30 p.m., Councilmember Kaylor moved for the Council go into closed session pursuant to Section 610.021(2) Revised Statutes of Missouri, for the purpose of privileged communications between a governmental body or its representative and legal counsel relating to real estate, and that any minutes, documents and other records discussed or taken during the closed session remain closed, and that the special

meeting of this body stand adjourned at the completion of such session. Motion seconded by Councilmember Ericson and carried with the following:

VOTE

Ericson – Aye

Edmondson – Aye

Rowan – Aye

Kaylor – Aye

Tholen – Aye

Brummel – Aye

Mayor Lievsay – Aye

February 18, 2026

SIGNATURES:

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST

_____

Erin Ford, City Clerk

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 13, 2026

ITEM TYPE: Resolution

SUBMITTED BY: Erin Ford

CONTRACT NUMBER: N/A

DEPARTMENT: Administration

STRATEGIC PLAN PRIORITY: Organizational Health

ITEM DESCRIPTION

Adopt a Resolution to approve the disposition of Information Technology and Administration department records which have met the required retention period as prescribed by the Blue Springs Records Retention, Management, and Destruction Policy dated November 28, 2016 and in accordance with the Missouri Secretary of State's records retention guidelines.

BACKGROUND

Exhibit A to the Resolution lists the records from the Information Technology and Administration Department to be disposed of by destruction or donation. Once the Certification of Destruction section of the disposition list has been signed, the disposition list will be filed and stored for permanent record to keep a history of all records the City destroys.

FINANCIAL IMPACT

Contractor:	N/A

PROJECT TIMELINE

Estimated Start Date	Immediately
Estimated End Date	N/A

STAFF RECOMMENDATION

Staff recommends approval.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: N/A

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Resolution with disposition list attached as Exhibit A.

REVIEWED BY

Requesting Director: Erin Ford

Legal: N/A

Administration: George Schmitz

City Administrator: Christine Cates

Budget: N/A

A RESOLUTION APPROVING THE DISPOSITION OF RECORDS THAT HAVE MET THE REQUIRED RETENTION PERIODS AND NO LONGER PROVIDE ANY VALUE TO THE CITY OF BLUE SPRINGS

WHEREAS, it has been determined by the Records Manager that Information Technology and Administration department records have met the required retention periods as set by the Blue Springs Records Retention Schedule within the Records Retention, Management, and Destruction Policy; and

WHEREAS, the disposition of records that have met the required retention periods provides for efficient and cost-effective management of City records, reduces physical and electronic storage costs, and reduces the liability of the City of Blue Springs for housing inactive records beyond the required retention period that may be subject to discovery during pending litigation; and

WHEREAS, a copy of the Disposition List that lists the records, the retention periods, and the allowed disposition dates is attached to this Resolution as Exhibit "A".

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BLUE SPRINGS, MISSOURI, as follows:

Section 1. The City Administrator is hereby authorized to direct the Records Manager or their designee to properly dispose of the records listed in the disposition list attached hereto as Exhibit "A" and incorporated herein.

Section 2. City staff is directed to perform all tasks necessary to implement said disposition.

Section 3. Scrivener's Errors. Typographical errors and other matters of a similar

nature that do not affect the intent of this Ordinance, as determined by the City Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

Exhibit A

BLUE SPRINGS
MISSOURI

Disposition of Records

Disposition List

The Records Manager respectfully requests authority to destroy the inactive records listed below:

BOX No. / Item	Date of Record(s)	Contents	Destruction Date
N/A		All data, media and content captured through third-party cameras, excluding records that have been retained for official investigative or other legal purpose	Ongoing per policy
N/A	01/31/2026 - 02/28/2026	All employee emails in Sent Items, Deleted Items, Junk, and Clutter Folders	03/03/2026
N/A	2018-2022	Completed Sunshine Law Requests	03/03/2026

Approved by Resolution _____-_____

To be completed by Records Manager:

STATE OF MISSOURI
COUNTY OF JACKSON
CITY OF BLUE SPRINGS

I, Erin Ford, Records Manager, City of Blue Springs, a municipal Corporation within and for said County and State aforesaid, do hereby certify that the attached is a true and complete enumeration of records which will be destroyed by recycling, throwing away, deleting, or shredding.

IN WITNESS WHEREOF, I hereunto set my hand and affix the seal of said City of Blue Springs, Missouri, at its office in Blue Springs, Missouri, on this _____ day of _____ _____, 20___.

_____

To be completed by Records Manager:	**Approved by Resolution _____**
STATE OF MISSOURI COUNTY OF JACKSON CITY OF BLUE SPRINGS I, Erin Ford, Records Manager, City of Blue Springs, a municipal Corporation within and for said County and State aforesaid, do hereby certify that the attached is a true and complete enumeration of records which will be destroyed by recycling, throwing away, deleting, or shredding. IN WITNESS WHEREOF, I hereunto set my hand and affix the seal of said City of Blue Springs, Missouri, at its office in Blue Springs, Missouri, on this _____day of _____, 20___.	

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 9, 2026

ITEM TYPE: Resolution

SUBMITTED BY: Nathan Lea

CONTRACT NUMBER: 2024-145

DEPARTMENT: Public Works

STRATEGIC PLAN PRIORITY: Organizational Health

ITEM DESCRIPTION

Adopt a Resolution approving an Amendment to the Labor Agreement with the International Association of Machinists and Aerospace Workers (IAM) Local 778 for Certain Public Works Employees.

BACKGROUND

Resolution No. 0067-2024 was approved on September 18, 2024, adopting a three-year collective bargaining agreement with the International Association of Machinists and Aerospace Workers (IAM) Local 778 for certain Public Works employees. The agreement is effective from October 1, 2024, through September 30, 2027.

As part of the ongoing review of Public Works operations, an opportunity for operational improvement was identified that required negotiation and modification of the existing agreement. This amendment includes the addition of a new Section 22.08, with existing Sections 22.08 through 22.16 renumbered accordingly. The newly added

Section 22.08 addresses the selection and compensation of in-house trainers for Commercial Driver's License (CDL) training, American Traffic Safety Services Association (ATSSA) training, and other similar trainer positions.

FINANCIAL IMPACT

INFORMATION	DETAIL
Contractor:	N/A

PROJECT TIMELINE

INFORMATION	DETAIL
Estimated Start Date	March 2, 2026
Estimated End Date	September 30, 2027
Years and Months Contract in effect	1 Year, 7 Months
Number of times renewable	N/A

STAFF RECOMMENDATION

Staff recommends approval.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: N/A

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Resolution with proposed Amendment to Labor Agreement attached as Exhibit A.

REVIEWED BY

Requesting Director: Nathan Lea **Administration: George Schmitz**

Budget: N/A **City Administrator: Christine Cates**

Legal: Jeff Place

A RESOLUTION APPROVING AN AMENDMENT TO THE LABOR AGREEMENT WITH THE INTERNATIONAL ASSOCIATION OF MACHINISTS AND AEROSPACE WORKERS (IAM) LOCAL 778 FOR CERTAIN PUBLIC WORKS STAFF

WHEREAS, the State of Missouri provides the right of collective bargaining for groups of employees such as Public Works employees for the City of Blue Springs; and

WHEREAS, a three-year agreement was approved by Resolution 0067-2024 for October 1, 2024 through September 30, 2027; and

WHEREAS, representatives from IAM Local 778 and the City have bargained in good faith and discussed conditions and terms of employment and mutually agreeable language for a memorandum of understanding to add Section 22.08 Trainer Selection and Pay for the bargaining unit consisting of certain Public Works employees, with existing Sections 22.08 through 22.16 renumbered accordingly; and

WHEREAS, the City has been informed that the members of the bargaining unit have voted in the affirmative to approve the Amendment to the Labor Agreement which is attached hereto as Exhibit "A" and now IAM Local 778 requests that the City Council consider approving same; and

WHEREAS, the City Council has reviewed this agreement with members of management and its legal counsel.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BLUE SPRINGS, MISSOURI, as follows:

Section 1. The City Administrator is hereby authorized to enter into an Amendment to Labor Agreement with the International Association of Machinists and

Aerospace Workers Local 778 , covering terms and conditions of employment contained therein, and no other terms and conditions. A copy of the proposed Contract is attached hereto as Exhibit "A" and is incorporated herein.

Section 2. City staff is directed to perform all tasks necessary to implement said contract.

Section 3. Scrivener's Errors. Typographical errors and other matters of a similar nature that do not affect the intent of this Resolution, as determined by the City Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

EXHIBIT A

Memorandum of Agreement

City of Blue Springs and IAM Local Lodge 778

The undersigned parties hereby agree to amend their 2024-2027 labor agreement effective February 1, 2026, by making the following changes:

1. Insert a new Section 22.08, then renumber existing Sections 22.08 to 22.16 accordingly. New Section 22.08 shall read as follows:

   22.08 Trainer Selection and Pay.

   The City shall have the sole right to select its Trainers from among qualified bargaining unit personnel who are interested in serving as Trainers. Selected Trainers may be required to obtain CDL Trainer certification, ATSSA instructor certification, and/or other similar certifications at the City's expense. Time spent obtaining or renewing any City-required Trainer certification shall be paid at the employee's regular rate of pay and shall not be eligible for the Trainer premium described below, because the employee is not actively training or supervising other employees during that time. Eligibility for the Trainer premium shall begin only after the employee is formally designated by the City as a Trainer, receives any required certification, and begins actively performing training or training-related duties as defined in this Article.

   The City shall pay a $2.00 per hour Trainer premium to employees formally designated by the City as Trainers for all time spent training other City employees to qualify them for a Commercial Driver's License (CDL), ATSSA Certified Flagger certification, or other City-required certification or licensure. The Trainer premium shall apply only during periods of direct instruction, hands-on field training, skills testing, evaluation, and other tasks directly related to the training, including but not limited to training setup, grading or reviewing tests, completing required documentation, and inputting training data.

   All Trainer time must be pre-approved by an appropriate supervisor and documented in accordance with City procedures.

So agreed this ____ day of _____, 2026.

Christine Cates
City Administrator

_____

On behalf of
The City of Blue Springs

Scott Brown
Directing Business Representative

Scott Brown

On behalf of
IAM Local Lodge 778

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 9, 2026

ITEM TYPE: Resolution

SUBMITTED BY: Nathan Lea

CONTRACT NUMBER: 2026-033

DEPARTMENT: Public Works

STRATEGIC PLAN PRIORITY: Organizational Health

ITEM DESCRIPTION

Adopt a Resolution approving a contract with John Moore Oil Company for Fuel Services.

BACKGROUND

The City had a fuel island installed at the City's Public Works facility in the fall of 2011 during the building's renovation for Central Garage. This fuel island included one 12,000-gallon unleaded fuel tank, one 10,000-gallon diesel fuel tank, and one fuel pump that was utilized to pull fuel from both tanks to supply fuel as needed. Since the installation was complete, the fuel island has been utilized for all City vehicles and equipment, as well as vehicles and equipment for outside agencies, such as Central Jackson County Fire Protection District. Fuel is supplied to the fuel tanks via fuel delivery from outside vendors.

As the fuel island has aged several issues have arisen with different components in the

fuel tanks, as well as the pumps. Due to the age of the tanks and pumps there is a limited number of vendors in the area knowledgeable in working on them, and replacement parts are becoming harder to locate and receive in a timely manner. Because of these issues, and the fact that both fuel tanks share one pump, the fuel island has been shut down for extended periods of time, sometimes a week or more, while waiting for parts and repairs. During the periods when the fuel island is down, City employees, as well as the outside agencies utilizing the City's fuel island, are responsible for getting fuel off site at a location that would honor the City's tax exemption status. This was typically done through the utilization of John Moore Oil Company, which the City has a very limited number of keys to access.

Over the last year the fuel island has experienced multiple pump and tank issues that have led to costly repairs as well as multiple combined weeks of the fuel island being down. During this down time and due to increasing repair costs, the Public Works Department began to explore other options for fuel services that would be more consistent and reliable for City employees.

The Public Works Department solicited proposals for fuel services from multiple vendors, including WEX Bank, QuikTrip, UMB Bank, and John Moore Oil Company. After reviewing the proposals received, the Public Works Department recommends moving forward with a contract with John Moore Oil Company for fuel services.

This contract will allow all City vehicles and equipment to obtain fuel through John Moore Oil Company, located in Blue Springs, Missouri. John Moore Oil Company will provide one initial fuel key for each piece of equipment at no cost to the City. Replacement fuel keys will be available at a cost of $10 per key.

John Moore Oil Company will apply the City's federal tax exemption to all invoices and will provide an additional $0.15 per gallon discount on all fuel purchases beginning on

the first day of service. Invoicing will occur on a monthly basis, with charges separated by department.

By entering into this contract, the City will eliminate costs associated with the maintenance and repair of the existing fuel island, while also ensuring more consistent and reliable fuel access for City vehicles and equipment.

FINANCIAL IMPACT

INFORMATION	DETAIL
Contractor:	John Moore Oil Company
Amount of Request/ Contract:	N/A
Amount Budgeted:	Various department budgets XXX-XXXXX-520500
Budget Year:	FY 2025-26
Funding Source/Account #:	XXX-XXXXX-520500

PROJECT TIMELINE

INFORMATION	DETAIL
Estimated Start Date	March 2, 2026
Estimated End Date	September 30, 2030
Years and Months Contract in effect	4 Years, 7 Months
Number of times renewable	N/A

STAFF RECOMMENDATION

Staff recommends approval.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: N/A

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Resolution with Contract attached as Exhibit A.

REVIEWED BY

Requesting Director: Nathan Lea

Legal: James Newell

Administration: George Schmitz

City Administrator: Christine Cates

Budget: Lori Turner

SUPPORTING DOCUMENTS

Document	Required	If not required, explain
Certificate of Insurance:	Yes	
E-Verify:	Yes	
Bond:	N/A	
IRS Form W-9	Yes	Finance Review: February 17, 2026
Bid/RFP/RFQ and Tabulation	Yes	
Bid Waiver: (less than three bids)	N/A	
Contractor address and email:	Yes	PO Box 416 Blue Springs, MO 64013 jmoc@att.net
Project Exemption Certificate needed:	No	

RESOLUTION 020-2026

A RESOLUTION APPROVING A CONTRACT WITH JOHN MOORE OIL COMPANY FOR FUEL SERVICES

WHEREAS, the City had a fuel island installed at the City's Public Works facility in the fall of 2011 during the renovation of the building's Central Garage renovation; and

WHEREAS, the City's fuel island is experiencing an increasing need for continuous and costly repairs, resulting in extended down time for fuel supply to City vehicles and equipment; and

WHEREAS, the Public Works Department evaluated different fuel supply options and now recommends that the City award a contract to John Moore Oil Company for fuel card services.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BLUE SPRINGS, MISSOURI, as follows:

Section 1. The City Administrator is hereby authorized to enter into a contract with John Moore Oil Company for Fuel Services. A copy of the proposed Contract is attached hereto as Exhibit "A" and is incorporated herein.

Section 2. City staff is directed to perform all tasks necessary to implement said contract.

Section 3. Scrivener's Errors. Typographical errors and other matters of a similar nature that do not affect the intent of this Resolution, as determined by the City Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

EXHIBIT A

BLUE SPRINGS
MISSOURI

GOODS AND SERVICES CONTRACT

EFFECTIVE DATE: March 2, 2026

TERMINATION DATE: September 30, 2030

CONTRACT NUMBER: 2026-033

City	Contractor
City of Blue Springs 903 West Main Street Blue Springs, MO 64015	John Moore Oil Company PO Box 416 Blue Springs, MO 64013
Department: Public Works	Attention: Jennifer Moore
Phone: 816-228-0195	Phone: 816-229-5662

THIS CONTRACT, made and entered into this _____ day of _____, 2026, by the parties identified above.

WHEREAS, the City of Blue Springs desires to engage the Contractor to perform certain professional and technical services, construction and labor and/or provide, materials and equipment as hereafter described in connection with a project more particularly described in ***Exhibit 1***; and

WHEREAS, the Contractor made certain representations and statements to the City with respect to the provision of such services and the City has accepted said proposal.

NOW, THEREFORE, for the considerations herein expressed, it is agreed by and between the City and the Contractor as follows:

1. **Services**

The City agrees to engage the services of the Contractor, and the Contractor agrees to perform the services hereinafter set forth in connection with projects described in ***Exhibit 1*** in accordance with the standard of care, skill, expertise, materials, and requirements set forth in the drawings and specifications. To the extent any conflict exists between the terms of this Contract and any Contractor terms attached hereto or otherwise incorporated, the terms of this Contract control and supersede.

2. **Addition to Services**

The City may add to the Contractor services or delete therefrom activities based on unit cost as set forth in ***Exhibit 1*** or the bid document(s) associated with this Contract, or by written Change Orders that may be agreed to by both the City and Contractor, provided that the total cost of such work will be added to, or deleted from, the total cost as specified in Paragraph 6 hereof. The Contractor shall undertake such changed activities only upon the direction of the City. All such directives and changes shall be in written form and prepared and approved by the Department Head for the City as related to this contract, or his designee, with approval of the City Council if required, and shall be accepted and countersigned by the Contractor.

3. **Non-Exclusive Contract**

This Contract is entered into with the understanding and agreement that it is for the sole convenience of the City. The City reserves the right to obtain like goods and services from another source.

4. **Exchange of Data**

All information, data, plans, and reports in the City's possession and necessary for the

carrying out of the work, shall be furnished to the Contractor without charge, and the parties shall cooperate with each other in every way possible in carrying out the scope of services.

5. **Personnel**

The Contractor represents that Contractor will secure, at Contractor's own expense, all personnel required to perform the services called for under this Contract by Contractor. Such personnel shall not be employees of or have any contractual relationship with the City except as employees of the Contractor. All services required hereunder will be performed by the Contractor or under Contractor's direct supervision and all personnel engaged in the work shall be fully qualified and shall be authorized under state and local law to perform such services. None of the work or services covered by this Contract shall be subcontracted without the written approval of the City.

6. **Term**

The services of the Contractor shall commence as soon as practicable after the execution of this Contract, unless otherwise directed in writing, and shall be undertaken and completed in such sequence as to assure their expeditious completion in the light of the purposes of this Contract, but in any event, all of the services required hereunder shall be completed as set forth in the schedule for the project which is attached hereto as ***Exhibit 1***.

7. **Costs not to Exceed**

The City of Blue Springs is limited by law and its bidding and procurement process with respect to the amount of money it can pay. Therefore, the City has established a fixed sum amount, based on the bid proposal after a competitive bidding process if required by City Policy, as described in the Maximum Payment section of ***Exhibit 1*** for this Contract and Paragraph 8.b which cannot be exceeded unless this Contract is amended.

The Contractor shall notify the City if Contractor anticipates that the contract amount may be exceeded to determine whether or not the City is prepared to increase the total compensation.

8. **Payment**

a. Conditioned upon acceptable performance. Provided Contractor performs the services in the manner set forth in Paragraph 1 hereof, the City agrees to pay the Contractor in accordance with the terms set forth in Exhibit 1, which shall constitute complete compensation for all services to be rendered under this Contract; provided, that where payments are to be made periodically to Contractor for services rendered under this contract, the City expressly reserves the right to disapprove in whole or in part a request for payment where the services rendered during the period for which payment is claimed are not performed in a timely and satisfactory manner in accordance with the schedule and description of services set forth in Exhibit 1.

b. Total compensation not to exceed. It is expressly understood that in no event will the total compensation and reimbursement to be paid to the Contractor under the terms of this Contract exceed the sum of $N/A unless agreed to by City and Contractor in writing.

9. **Termination of Contract**

a. **Termination for breach.** Failure of the Contractor to fulfill Contractor's obligations under this Contract in a timely and satisfactory manner in accordance with the schedule and description of services set forth in ***Exhibit 1*** shall constitute a breach of this Contract, and the City shall thereupon have the right to immediately terminate this Contract. The City shall give written notice of termination to the Contractor by U.S. Postal Service Mail or by hand delivering a copy of the same to the Contractor; or may give notice by any combination of these methods. The date of termination shall be the

date upon which notice of termination is hand delivered to Contractor or the third day following mailing of the notice of termination, whichever first occurs. In the event of termination for breach, all finished or unfinished deconstruction, reconstruction, new construction, repairs, materials, drawings, plans, specifications, and other documents as required of the Contractor under this Contract shall at the option of the City become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such project; provided, that the Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any such breach of the contract by the Contractor. If this Contract is terminated, Contractor shall assist City in the orderly termination of services, including timely transfer of services to another designated provider. Anticipatory profits and consequential damages shall not be recoverable by Contractor.

b. **Termination for Convenience.** The City shall have the right at any time by written notice to Contractor to terminate and cancel this Contract, without cause, for the convenience of the City, and Contractor shall immediately stop work. In such event City shall not be liable to Contractor except for payment for actual work performed prior to such notice in an amount proportionate to the completed contract price and for the actual costs of preparations made by Contractor for the performance of the cancelled portions of the contract, including a reasonable allowance of profit applicable to the actual work performed and such preparations. Further, all finished or unfinished deconstruction, reconstruction, new construction, repairs, materials, drawings, plans, specifications, and other documents as required of the Contractor under this Contract shall at the option of the City become its property. If City terminates this Contract, Contractor will assist City in the orderly termination of services, including timely transfer of services to another designated provider. If this Contract is terminated by the City without cause, the City shall reimburse the Contractor, no more than $10.00 per key, for

the cost of all keys that Contractor provided to the City after the signing of this Contract. Anticipatory profits and consequential damages shall not be recoverable by Contractor.

10. **City's Limitation on Indebtedness**

In accordance with the laws of the State of Missouri, specifically Missouri Constitution, Art. VI, Section 26, notwithstanding any provision to this contract, nothing in this Contract shall be construed as creating an obligation or debt beyond the City's fiscal year, and in the event that it does, performance of the City's obligations under this Contract is expressly subject to appropriation of funds by the City year-to-year during the duration of this Contract.

11. **Conflicts**

No salaried officer or employee of the City and no member of the City Council shall have a financial interest, direct or indirect, in this Contract. A violation of this provision renders the Contract void. Any federal regulations and applicable provisions in Section 105.450 *et seq*. RSMo. shall not be violated. Contractor covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services to be performed under this Contract. The Contractor further covenants that in the performance of this Contract no person having such interest shall be employed.

12. **Assignment**

The Contractor shall not assign any interest in this Contract and shall not transfer any interest in the same (whether by assignment or novation), without prior written consent of the City thereto. Provided, however, that claims for money due or to become due to the Contractor from the City under this Contract may be assigned to a bank, trust company, or other financial institution without such approval. Notice of such assignment

or transfer shall be furnished in writing promptly to the City. Any such assignment is expressly subject to all rights and remedies of the City under this Contract, including the right to change or delete activities from this Contract or to terminate the same as provided herein, and no such assignment shall require the City to give any notice to any such assignee of any actions which the City may take under this Contract, though City will attempt to so notify any such assignee.

13. **Discrimination**

The Contractor agrees in the performance of this Contract not to discriminate on the ground or because of race, creed, color, national origin or ancestry, sex, religion, handicap, age, or political opinion or affiliation, against any employee of Contractor or applicant for employment and shall include a similar provision in all subcontracts let or awarded hereunder.

14. **Occupational License**

The Contractor shall obtain and maintain an occupational license with the City of Blue Springs, Missouri, if required by City Code and any required state or federal license. The cost for this occupational license shall be borne by the Contractor. Contractor shall not purchase materials or begin work on this Contract until this occupational license has been obtained.

15. **Compliance with Laws**

Contractor agrees to comply with all applicable federal, state and local laws or rules and regulations applicable to the provision of services and products hereunder. Contractor affirmatively states that payment of all local, state, and federal taxes and assessments owed by contractor is current.

16. **American Made Products**

Pursuant RSMo 34.353, as amended, if this Contract is for more than $25,000.00, and is

for the purchase or lease of manufactured goods or commodities by the City, or is a contract with the City for construction, alteration, repair, or maintenance of any public works, then any manufactured goods or commodities used or supplied in the performance of this Contract or any subcontract thereto shall be manufactured or produced in the United States, unless that requirement is determined to not apply or be exempted based on the provisions in said referenced statute.

17. **Nonresident/Foreign Contractors**

The Contractor shall procure and maintain during the life of this Contract:

a. If the Contractor is a foreign corporation, a certificate of authority to transact business in the State of Missouri from the Secretary of State, unless exempt pursuant to the provisions of Section 351.572 RSMo. (See also, Section 351.574 RSMo. as to consequences of failing to comply.)

b. A certificate from the Missouri Director of Revenue evidencing compliance with the transient employer financial assurance law, unless exempt pursuant to the provisions of Section 285.230 RSMo.

18. **General Independent Contractor Clause**

This Contract does not create an employee/employer relationship between the parties. It is the parties' intention that the Contractor will be an independent contractor and not the City's employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, Missouri Prevailing Wage requirements, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Missouri revenue and taxation laws, Missouri workers' compensation and unemployment insurance laws. The Contractor will retain sole and absolute discretion in the judgment of the manner and means of carrying out the Contractor's activities and responsibilities

hereunder. The Contractor agrees that it is a separate and independent enterprise from the public employer, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This Contract shall not be construed as creating any joint employment relationship between the Contractor and the City, and the City will not be liable for any obligation incurred by the Contractor, including but not limited to unpaid minimum wages and/or overtime premiums.

19. **No Third-Party Benefits**

This Contract shall not be deemed to create any third-party benefit hereunder for any member of the public or to authorize anything or anyone, not a party hereto, to maintain suit pursuant to the terms of this Contract.

20. **City Benefits**

The Contractor shall not be entitled to any of the benefits established for the employees of the City nor be covered by the Worker's Compensation Program of the City.

21. **Insurance**

Contractor agrees to maintain insurance as set forth below and provide to City certificates of coverage evidencing said coverage at the time of signing this Contract and on each anniversary of such insurance coverage during the term of this Contract and any renewals, which certificates shall contain a provision that the policy will not be cancelled unless and until thirty (30) days' notice of said cancellation has been given to the City, but, in any event, the Contractor, any time after the Contract has been signed, shall notify the City of any impending cancellation, actual cancellation, termination or nonrenewal of the policy by faxing or delivering to the City a copy of the insurer's cancellation, termination or nonrenewal notice to Contractor within two (2) business days of Contractor's receipt of said notice. Contractor shall also advise the City in writing

within two (2) business days of any oral or other advisement by the insurer of any impending cancellation, actual cancellation, termination or nonrenewal of the policy. (If the City gives written permission for some of the work under this Contract to be subcontracted or it is subcontracted, Contractor shall assure that the subcontractor has the insurance set forth below and that the City and Contractor are listed as an additional insured on all of subcontractor's policies):

a. **Comprehensive General Liability.** Minimum limit of $1,000,000 combined single limit, $2,000,000 annual aggregate for bodily injury and property damage per occurrence with City named as an additional insured on the policy.

b. **Comprehensive Automobile Liability.** $1,000,000 combined single limit with City named as an additional insured on the policy.

c. **Workers' Compensation.** Statutory requirements.

Choose a building block.The provision of insurance shall not be construed, nor is it intended to be a waiver of sovereign immunity or any other defense available to City, its officers, agents or employees except to the extent insurance coverage is actually provided.

22. **Liability and Indemnity**

The parties mutually agree to the following:

a. In no event shall the City be liable to the Contractor for special, indirect, or consequential damages. The maximum liability of the City shall be limited to the amount of money to be paid or received by the City under this Contract.

b. The Contractor shall defend, indemnify, and hold the City and its elected or appointed officials, officers, employees and agents harmless from and against all actual

claims and alleged claims and all damages, including but not limited to losses, liabilities, costs, expenses and attorney fees arising out of personal injuries, including illness or death, and damage to, or destruction of, property, which are caused by the Contractor or the Contractor's agents, employees, sub-contractors or by others for whom Contractor is liable arising out of or in any way connected with or resulting from, performance of, or failure to perform, this Contract.

c. The Contractor shall indemnify and hold the City harmless from all wages or overtime compensation due its employees in rendering services pursuant to this Contract, including payment of reasonable attorneys' fees and costs in the defense of any claim made under the Fair Labor Standards Act or any other federal or state law.

d. All the provisions in this Agreement are subject to the terms of Missouri Sovereign Immunity as set forth in section 537.610.2 and 537.610.5 of the Missouri Revised Statutes. Further, this Contract is not intended to act as a waiver or limitation of City, or any of its officer's, agent's or employee's rights and/or defenses regarding sovereign or any other immunity or defense under Federal Law, Missouri Law, or Municipal Law or Regulation. The parties agree that the City is not indemnifying this Contract for any reason whatsoever.

e. Notwithstanding any provision to the contrary, in no event shall Contractor's aggregate liability for all damages connected with its services under the Contract be less than the actual damages incurred by City.

f. In the event of litigation by the City against Contractor to enforce the terms of this Contract, or to remedy a breach of the terms of this Contract (either in law or in equity), the City shall be entitled to recover from the Contractor its reasonable attorney fees, costs, and expenses arising from such litigation if the City is a prevailing party.

23. **Enrollment in Work Authorization Program and Affidavit Concerning Employment of Unauthorized Aliens**

If this Contract, awarded to a business entity, exceeds five thousand dollars, the business entity, and any subcontractors of the business entity, shall, by affidavit and provision of documentation, affirm it's or their enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity, and any subcontractors of the business entity, shall also affirm by the affidavit that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. A subcontractor shall provide similar affidavit and documentation to the Contractor at the time the subcontractor is hired pursuant to Section 15 CSR 60-15.020. The business entity and any subcontractor of the business entity shall be required to provide the affidavits described in this section to the City on an annual basis. The business entity is not required to provide the E-Verify Memorandum of Understanding, or similar document, showing the business entity is in fact, enrolled in E-Verify or similar program each year unless the business entity has updated or entered into a new Memorandum of Understanding. A federal work authorization program is any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L.99-603. *A business entity is any person or group of persons performing or engaging in any activity, enterprise, profession, or occupation for gain, benefit, advantage, or livelihood. The term business entity shall include but not be limited to self-employed individuals (except it shall not include a self-employed individual with no employees), partnerships, corporations, contractors, and subcontractors.*

The following Affidavit shall be used by the contractor and any subcontractors that are required to sign:

Work Authorization Affidavit

STATE OF MISSOURI)
) ss.
COUNTY OF Jackson)

As used in this Affidavit, the following terms shall have the following meanings:

EMPLOYEE: Any person performing work or service of any kind or character for hire within the State of Missouri.

FEDERAL WORK AUTHORIZATION PROGRAM: Any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603.

KNOWINGLY: A person acts knowingly or with knowledge, (a) with respect to the person's conduct or to attendant circumstances when the person is aware of the nature of the person's conduct or that those circumstances exist; or (b) with respect to a result of the person's conduct when the person is aware that the person's conduct is practically certain to cause that result.

UNAUTHORIZED ALIEN: An alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. 1324a(h)(3).

BEFORE ME, the undersigned authority, personally appeared Brenda Moore who, being duly sworn, states on his oath or affirmation as follows:

1. My name is Brenda Moore and I am currently the Sec/Treas of John Moore Oil Co. (hereinafter "Company"), whose business address is Po Box 416, Blue Springs, MO, and I am authorized to make this Affidavit.
2. I am of sound mind and capable of making this Affidavit and am personally acquainted with the facts stated herein.
3. Company is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted Project Services.
4. Company does not knowingly employ any person who is an unauthorized alien in connection with the contracted services set forth above.

Brenda Moore
Affiant / Contractor

Brenda Moore
Printed Name

Subscribed and sworn to before me this 17th day of February, 2026.

Michelle Huie
Notary Public

SEAL

MICHELLE HUIE
Notary Public - Notary Seal
STATE OF MISSOURI
Jackson County
My Commission Expires: Oct. 13, 2026
Commission # 14630678

2025Q1E-Verify

24. **Anti-Discrimination Against Israel Act**

If this agreement has a total potential value of $100,000 or more and Contractor has 10 or more employees, the following applies: Pursuant to Section 34.600, RSMo, Contractor agrees to comply with Missouri law regarding the Anti-Discrimination Against Israel Act, and execution of this Contract constitutes Contractor's certification of compliance with the Anti-Discrimination Against Israel Act, including that it is not currently engaged in, and shall not, for the duration of this Contract, engage in a boycott of goods or services from the State of Israel; companies doing business in, or with, Israel companies authorized by, licensed by, or organized under, the laws of the State of Israel; or persons or entities doing business in the State of Israel.

25. **Notices**

All notices required or permitted under this Contract are required to be in writing and may be given by first class mail addressed to City or Contractor at the addresses shown above or by hand delivering a copy of the same to the City or Contractor or may be given by any combination of these methods. The date of delivery of any notice given by mail shall be the date falling on the third day after the day of its mailing.

26. **Jurisdiction**

This Contract and every question arising hereunder shall be construed or determined according to the laws of the State of Missouri. Should any part of this Contract be litigated, venue shall be proper only in the Circuit Court of Jackson County, Missouri at Independence or the Federal District Court for the Western District of Missouri, as appropriate. Contractor submits to the personal jurisdiction of and waives any personal jurisdiction or inconvenient forum objection to those courts.

27. **Severability**

The invalidity, illegality, or unenforceability of any provision of this Contract or the

occurrence of any event rendering any portion or provision of this Contract void shall in no way affect the validity or enforceability of any other portion or provision of this Contract. Any void provision shall be deemed severed from this Contract, and the balance of this Contract shall be construed and enforced as if this Contract did not contain the particular portion or provision held to be void.

28. **Entire Contract**

This Contract contains the entire contract of the parties. No modification, amendment, or waiver of any of the provisions of this Contract shall be effective unless in writing specifically referring hereto and signed by both parties. This Contract supersedes all other agreements and conditions, including, but not limited to the Exhibits attached to this Contract.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals on the day and year herein stated.

SIGNATURES

JOHN MOORE OIL COMPANY

Josh Moore Vice President

Name, Title

CITY OF BLUE SPRINGS

_____

Christine Cates, City Administrator

APPROVED AS TO FORM

/s/ James Newell

City Attorney

EXHIBIT 1 – SCOPE OF WORK

Name of Contractor: John Moore Oil Company

Scope of Work (Job Description):

Provide fuel services and associated support for all City-owned vehicles and equipment in support of daily City operations. Services shall include the supply of fuel; provision of support services such as issuing new and replacement fuel keys and troubleshooting fueling issues; and the preparation and delivery of monthly invoices to each department based on fleet assignment.

All work shall be performed in accordance with Contractor's Quote dated January 31, 2026 attached hereto and incorporated herein as Attachment A.

Start Date: March 2, 2026

Interim Deadlines (if applicable): N/A

Final Completion Date: September 30, 2030

Reimbursable Expenses: N/A

Maximum Payment:

Dollar Amount	Type or Total Payment / Expense
$N/A	Maximum payment for services rendered
$N/A	Maximum amount of expenses to be reimbursed
$N/A	Total Maximum amount to be paid to the Contractor

Payment Schedule:

Monthly – Contractor will provide invoicing by department for the previous month's fuel

usage. Payments are due by the 20th of each month.

PO Box 416
Blue Springs, MO 64013
Ph: (816)229-5662 Fax: (816)229-5665
jmoc@att.net

January 31, 2026

Proposal for City of Blue Springs fueling:

- Fueling at John Moore Oil Company Downtown location
  - We utilize a Fuel Master system similar to the one you currently use
- Monthly Invoicing: Each department invoiced separately
- Retain your Federal Tax exemption due to city status
  - -$.244 for Diesel
  - -$.184 for Unleaded
- Assuming the annual usage of 100K-150K gallons
  - Additional $.15 per gallon discount on all gallons, applicable day 1.
    - For annual usage <50,000 gallons: $.05 discount
    - For annual usage 50k-100k gallons: $.10 discount
  - First set of ProKeys provided to city at no cost, including newly purchased equipment. Replacements can be purchased at our cost (currently $10 each)
  - Any change in fuel supplier, or termination of contract, the City will be liable for the cost of initial keys. This amount will be invoiced and due within 20 business days.
- Diesel will be treated for the weather year-round.
  - We use the same fuel and run in all conditions and temperatures

We feel this proposal offers a reliable and local solution while getting you as close to current wholesale price as possible.

Sample pricing based on 1/15/2026:

	Diesel	**Unleaded**
Posted Price	$2.949	2.299
Less:		
Federal tax deduction	0.244	0.184
Discount	0.15	0.15
Total discount per gallon	0.394	0.334
City of Blue Springs price per gallon	$2.555	$1.965

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 20, 2026

ITEM TYPE: Resolution

SUBMITTED BY: Dennis Dovel

CONTRACT NUMBER: 2026-034

DEPARTMENT: Public Works

STRATEGIC PLAN PRIORITY: Infrastructure

ITEM DESCRIPTION

Adopt a Resolution approving a contract in the amount of $4,874,103.65 with Superior Bowen Asphalt Company, LLC for the construction of the 12th Street extension, Project ST-55 Bonds. This is approved as CIP ST-55 12th Street.

BACKGROUND

Staff utilized Stantec Consulting Services, Wilson Engineering, and Cochran Engineering to develop bid specifications, advertising the bid and vetting the bids received for the extension of 12th Street between SW Southcrest Drive and Wyatt Road. Bids were advertised on the City's website and plan rooms. The Engineers and staff are recommending utilizing the base bid and alternate 2 (concrete paths) for the project as bid. Four bids were received from the advertisement of the project and are listed below based upon the recommended scope:

Superior Bowen Asphalt Company	$4,874,103.65
Infrastructure Solutions	$4,859,926.00
Amino Brothers	$5,445,947.45
Radmacher Brothers Excavating	$5,485,741.20

The Public Works Department along with Cochran Engineering recommends the contract for the 12th Street extension be awarded to Superior Bowen Asphalt Company, LLC. While not the lowest bidder for the project, Superior Bowen Asphalt Company, LLC has extensive experience in road construction with high recommendations for their work and the difference between the lowest bids received is $14,177.65. Although Infrastructure Solutions was the lowest bid received, they have only provided one road project for "history of other relevant projects" and that road is currently being constructed, which would not qualify as a successful project experience.

Superior Bowen Asphalt Company, LLC has successfully executed contracts for the City of Blue Springs and other municipal entities along with working with Cochran Engineering successfully on other similar projects and references for this contractor are very favorable.

This project includes 11,850 square yards of new street pavement, curbs, utility construction, two aluminum arch structures for creek crossings and modular block walls, sidewalk and shared use paths, pavement markings and permanent signage. The project addresses the priorities reflected in the Citizen Survey and the City's ongoing efforts to maintain critical infrastructure as outlined in the CIP and Bond projects.

Staff recommends approval of a contract with Superior Bowen Asphalt Company, LLC for $4,874,103.65 to complete the extension of 12th Street from SW Southcrest Drive to Wyatt Road.

FINANCIAL IMPACT

INFORMATION	DETAIL
Contractor:	Superior Bowen Asphalt Company, LLC
Amount of Request/ Contract:	$4,874,103.65
Amount Budgeted:	$4,936,584
Budget Year:	FY 2025-26
Funding Source/Account #:	310-72000-543100 Project # ST-55 Bonds
Account Balance:	$4,475,555.72 Date: 2/24/2026
Additional Funds Needed:	$460,250.65
Funding Source/Account #:	310-72000-543100 Project #ST-49 Bonds

PROJECT TIMELINE

INFORMATION	DETAIL
Estimated Start Date	March 16, 2026
Estimated End Date	March 1, 2027
Years and Months Contract in effect	1 year
Number of times renewable	0

STAFF RECOMMENDATION

Staff recommends approval.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: N/A

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Recommendation of Award letter from Cochran Engineering.

2. Resolution with contract attached as Exhibit A.

REVIEWED BY

Requesting Director: Dennis Dovel

Legal: Jennifer Baird

Administration: George Schmitz

City Administrator: Christine Cates

Budget: Lori Turner

SUPPORTING DOCUMENTS

Document	**Required**	**If not required, explain**
Certificate of Insurance:	Yes	On File
E-Verify:	Yes	On File
Bond:	Yes	Attached
IRS Form W-9	Yes	Finance Review: December 24, 2025
Bid/RFP/RFQ and Tabulation	Yes	Included in CIF
Bid Waiver: (less than three bids)	N/A	
Contractor address and email:	Yes	Superior Bowen Asphalt Company, LLC 520 W. Pennway Street Suite 300 Kansas City, MO 64108 816-921-8200 Mike Morrison mmorrison@superiorbowen.com
Project Exemption Certificate	Yes	

needed:		

February 20, 2026

Dennis Dovel
Assistant City Administrator
Blue Springs, Missouri

RE: Recommendation of Award
12th Street Extension
Project No. 2400101800

Dear Mr. Dovel,

This letter serves to advise that Cochran has completed a comprehensive review of the bids received by the City for the above-referenced project. A total of four (4) bids were submitted for consideration. After careful evaluation of the bid tabulation, we recommend awarding the project to Superior Bowen Asphalt Company, which appears well-qualified to perform the work associated with this project.

Our review of the submitted paperwork and bonds indicates that all documents are in compliance with the requirements outlined in the Bid Proposal.

Superior Bowen Asphalt Company's bid totaled $4,874,103.65, including the bid alternate for the concrete pavement shared use path, and was approximately 11% below the engineer's estimate for the project. An analysis of their unit prices shows that the cost savings are primarily related to their mobilization, clearing and grubbing, excavation, and underground conduit.

As part of our standard bid review process, we assess a company's ability to perform the work associated with the project. Although Infrastructure Solutions was the apparent low bidder, the supplied project experience does not provide a history of relevant experience in projects similar to the scope included in the 12th Street Extension project. The most relevant project is currently under construction and cannot be evaluated for the criteria that would deem it successful project experience. On the other hand, Superior Bowen Asphalt Company has a good standing with the City of Blue Springs and Cochran Engineering, has experience in several projects directly related to the project scope and is well positioned to perform the work required for this project.

The Bid Tabulation is attached for your reference. Please do not hesitate to reach out if you have any questions or need additional information.

Sincerely,



Toby Williams, PE, PMP
KC Regional Manager
Cochran Engineering
twilliams@cochraneng.com
816-207-5771

attachments: Bid Tabulation

A RESOLUTION APPROVING A CONTRACT WITH SUPERIOR BOWEN ASPHALT COMPANY, LLC FOR THE EXTENSION OF 12TH STREET FROM SW SOUTHCREST DRIVE TO WYATT ROAD, PROJECT ST-55

WHEREAS, OSHA requirements under Section 292.675, RSMo 2009, require:

a. Any contractor for any public body for purposes of construction of public works and any subcontractor (any person entering into a subcontract with a contractor for construction of public works which employs "on-site employees" for purposes of completion of the contract) to such contractor shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the department which is at least as stringent as an approved OSHA program, unless such employees have previously completed the required program. All employees who have not previously completed the program are required to complete the program within sixty days of beginning work on such construction project.

b. Any employee found on a work site subject to this section without documentation of the successful completion of the required course shall be afforded twenty days to produce such documentation before being subject to removal from the project.

c. The contractor to whom the contract is awarded and any subcontractor under such contractor shall require all on-site employees to complete the above referenced ten-hour training program or such employees must hold documentation of prior completion of the program. Said contractor and subcontractor(s) shall comply with

Section 292.675, RSMo 2009, in all respects as required in relation to work done pursuant to this contract.

d. The contractor shall forfeit as a penalty to the public body on whose behalf the contract is made or awarded, two thousand five hundred dollars plus one hundred dollars for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training. The penalty shall not begin to accrue until the time period referenced in subparagraphs a and b above have elapsed.

e. The public body awarding the contract shall withhold and retain therefrom all sums and amounts due and owing as a result of any violations of this section when making payments to the contractor under the contract. The contractor may withhold from any subcontractor sufficient sums to cover any penalties the public body has withheld from the contractor resulting from the subcontractor's failure to comply with the terms of this section. If the payment has been made to the subcontractor without withholding, the contractor may recover the amount of the penalty resulting from the fault of the subcontractor in an action maintained in the circuit court in the county in which the public works project is located from the subcontractor.

f. “On-site employees” are defined as laborers, workmen, drivers, equipment operators, and craftsmen employed by contractors and subcontractors to be directly engaged in construction at the site of the public works. "Directly engaged in construction" shall mean work performed in the actual erection of the structure or completion of the improvement constituting the public works. In addition, employees working at a nearby or adjacent facility used by the contractor or subcontractor for construction of the public works shall be deemed "on-site employees." Persons engaged

solely in the transportation of materials, fuel, or equipment to the site of the public works shall not be deemed to be "directly engaged in construction;" and

WHEREAS, not less than the prevailing hourly rate of wages for work of a similar character in this locality, as established and amended at any time by the Department of Labor and Industrial Relations of the State of Missouri, shall be paid to all workers performing work under this Contract; and

WHEREAS, the Public Works Department along with Stantec Consulting, Wilson Engineering and Cochran Engineering prepared specifications and secured quotations for the extension of 12th Street from SW Southcrest Drive to Wyatt Road, project # CIP ST-55 Bonds; and

WHEREAS, the Department received four bids and now recommends that the City award a contract to Superior Bowen Asphalt Company, LLC, for work based on scope of services in the amount of $4,874,103.65.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BLUE SPRINGS, MISSOURI, as follows:

Section 1. Section 1. The City Administrator is hereby authorized to enter into a contract between with Superior Bowen Asphalt Company, LLC, 520 W. Pennway Street, Suite 300, Kansas City, MO 64108 for the extension of 12th Street from SW Southcrest Drive to Wyatt Road, project # CIP ST-55 Bonds in the amount of $4,874,103.65. A copy of the proposed Contract is attached hereto as Exhibit “A” and is incorporated herein.

Section 2. City staff is directed to perform all tasks necessary to implement said contract.

Section 3. Scrivener's Errors. Typographical errors and other matters of a similar nature that do not affect the intent of this Resolution, as determined by the City Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

EXHIBIT A

BLUE SPRINGS
MISSOURI

PUBLIC WORKS CONTRACT

EFFECTIVE DATE: March 16, 2026

TERMINATION DATE: March 1, 2027

CONTRACT NUMBER: 2026-034

City	Contractor
City of Blue Springs 903 West Main Street Blue Springs, MO 64015	Superior Bowen Asphalt Co, LLC 520 W Pennway Suite 300 Kansas City, MO 64108
Department: Public Works	Attention: Michael J. Morrison
Phone: 816-228-0265	Phone: 816-921-8200

THIS CONTRACT, made and entered into this _____ day of _____ 2026, by the parties identified above.

WHEREAS, the City of Blue Springs desires to engage the Contractor to perform certain professional and technical services, construction and labor, and/or provide materials and equipment as hereafter described in connection with a project more particularly described in Exhibit 1; and

WHEREAS, the Contractor made certain representations and statements to the City with respect to the provision of such services and the City has accepted said

proposal.

NOW, THEREFORE, for the considerations herein expressed, it is agreed by and between the City and the Contractor as follows:

1. **Services**

The City agrees to engage the services of the Contractor, and the Contractor agrees to perform the services hereinafter set forth in connection with projects described in Exhibit 1 in accordance with the standard of care, skill, expertise, materials, and requirements set forth in the drawings and specifications. The terms of the City's Request for Proposals are incorporated by reference as if fully set forth herein. To the extent any conflict exists between the terms of this Contract and any Contractor terms attached hereto or otherwise incorporated, the terms of this Contract control and supersede.

2. **Addition to Services**

The City may add to the Contractor services or delete therefrom activities based on unit cost as set forth in Exhibit 1 or the bid document(s) associated with this contract, or by written Change Orders that may be agreed to by both the City and Contractor, provided that the total cost of such work will be added to, or deleted from, the total cost as specified in Paragraph 6 hereof. The Contractor shall undertake such changed activities only upon the direction of the City. All such directives and changes shall be in written form and prepared and approved by the Department Head for the City as related to this contract, or his designee, with approval of the City Council if required, and shall be accepted and countersigned by the Contractor.

3. **Exchange of Data**

All information, data, plans, and reports in the City's possession and necessary for the carrying out of the work, shall be furnished to the Contractor without charge, and the

parties shall cooperate with each other in every way possible in carrying out the scope of services.

4. **Personnel**

The Contractor represents that Contractor will secure, at Contractor's own expense, all personnel required to perform the services called for under this Contract by Contractor. Such personnel shall not be employees of or have any contractual relationship with the City except as employees of the Contractor. All services required hereunder will be performed by the Contractor or under Contractor's direct supervision and all personnel engaged in the work shall be fully qualified and shall be authorized under state and local law to perform such services. None of the work or services covered by this Contract shall be subcontracted without the written approval of the City.

5. **Term**

The services of the Contractor shall commence as soon as practicable after the execution of this Contract, unless otherwise directed in writing, and shall be undertaken and completed in such sequence as to assure their expeditious completion in the light of the purposes of the contract, but in any event, all of the services required hereunder shall be completed as set forth in the schedule for the project which is attached hereto as Exhibit 1.

6. **Costs not to Exceed**

The City of Blue Springs is limited by law and its bidding and procurement process with respect to the amount of money it can pay. Therefore, the City has established a fixed sum amount, based on the bid proposal after a competitive bidding process, if required by City policy, as described in the Maximum Payment section of Exhibit 1 for this Contract and Paragraph 7.b which cannot be exceeded unless this Contract is amended. The Contractor shall notify the City if Contractor anticipates that the Contract amount

may be exceeded to determine whether or not the City is prepared to increase the total compensation.

7. **Payment**

a. **Conditioned upon acceptable performance.** Provided Contractor performs the services in the manner set forth in Paragraph 1 hereof, the City agrees to pay the Contractor in accordance with the terms set forth in Exhibit 1, which shall constitute complete compensation for all services to be rendered under this Contract; provided, that where payments are to be made periodically to Contractor for services rendered under this Contract, the City expressly reserves the right to disapprove in whole or in part a request for payment where the services rendered during the period for which payment is claimed are not performed in a timely and satisfactory manner in accordance with the schedule and description of services set forth in Exhibit 1.

b. **Total compensation not to exceed.** It is expressly understood that in no event will the total compensation and reimbursement to be paid to the Contractor under the terms of this Contract exceed the sum of $4,874,103.65 unless agreed to by City and Contractor in writing.

8. **Termination of Contract**

a. **Termination for breach.** Failure of the Contractor to fulfill Contractor's obligations under this Contract in a timely and satisfactory manner in accordance with the schedule and description of services set forth in Exhibit 1 shall constitute a breach of this Contract, and the City shall thereupon have the right to immediately terminate this Contract. The City shall give written notice of termination to the Contractor by U.S. Postal Service Mail or by hand delivering a copy of the same to the Contractor; or may give notice by any combination of these methods. The date of termination shall be the date upon which notice of termination is hand delivered to Contractor or the third day

following mailing of the notice of termination, whichever first occurs. In the event of termination for breach, all finished or unfinished deconstruction, reconstruction, new construction, repairs, materials, drawings, plans, specifications, and other documents as required of the Contractor under this Contract shall at the option of the City become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such project; provided, that the Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any such breach of this Contract by the Contractor. If this Contract is terminated, Contractor shall assist City in the orderly termination of services, including timely transfer of services to another designated contractor. Anticipatory profits and consequential damages shall not be recoverable by Contractor.

b. **Termination for Convenience.** The City shall have the right at any time by written notice to Contractor to terminate and cancel this Contract, without cause, for the convenience of the City, and Contractor shall immediately stop work. In such event City shall not be liable to Contractor except for payment for actual work performed prior to such notice in an amount proportionate to the completed contract price and for the actual costs of preparations made by Contractor for the performance of the cancelled portions of this Contract, including a reasonable allowance of profit applicable to the actual work performed and such preparations. Further, all finished or unfinished deconstruction, reconstruction, new construction, repairs, materials, drawings, plans, specifications, and other documents as required of the Contractor under this Contract shall at the option of the City become its property. If this Contract is terminated, Contractor shall assist City in the orderly termination of services, including timely transfer of services to another designated contractor. Anticipatory profits and consequential damages shall not be recoverable by Contractor.

9. **Conflicts**

No salaried officer or employee of the City and no member of the City Council shall have a financial interest, direct or indirect, in this contract. A violation of this provision renders the Contract void. Any federal regulations and applicable provisions in Section 105.450 et seq. RSMo. shall not be violated. Contractor covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services to be performed under this contract. The Contractor further covenants that in the performance of this Contract no person having such interest shall be employed.

10. **Assignment**

The Contractor shall not assign any interest in this Contract and shall not transfer any interest in the same (whether by assignment or novation), without prior written consent of the City thereto. Provided, however, that claims for money due or to become due to the Contractor from the City under this Contract may be assigned to a bank, trust company, or other financial institution without such approval. Notice of such assignment or transfer shall be furnished in writing promptly to the City. Any such assignment is expressly subject to all rights and remedies of the City under this contract, including the right to change or delete activities from the Contractor to terminate the same as provided herein, and no such assignment shall require the City to give any notice to any such assignee of any actions which the City may take under this contract, though City will attempt to so notify any such assignee.

11. **Discrimination**

The Contractor agrees in the performance of this Contract not to discriminate on the ground or because of race, creed, color, national origin or ancestry, sex, religion, handicap, age, or political opinion or affiliation, against any employee of Contractor or applicant for employment and shall include a similar provision in all subcontracts let or

awarded hereunder.

12. **Occupational License**

The Contractor shall obtain and maintain an occupational license with the City of Blue Springs, Missouri, if required by City Code and any required state or federal license. The cost for this occupational license shall be borne by the Contractor. Contractor shall not purchase materials or begin work on this Contract until this occupational license has been obtained.

13. **Compliance with Laws**

Contractor agrees to comply with all applicable federal, state and local laws or rules and regulations applicable to the provision of services and products hereunder. Contractor affirmatively states that payment of all local, state, and federal taxes and assessments owed by Contractor is current.

14. **American Made Products.**

Pursuant to section 34.353 RSMo, as amended, if this Contract is for more than $25,000.00, and is for the purchase or lease of manufactured goods or commodities by the City, or is a contract with the City for construction, alteration, repair, or maintenance of any public works, then any manufactured goods or commodities used or supplied in the performance of this Contract or any subcontract thereto shall be manufactured or produced in the United States, unless that requirement is determined to not apply or be exempted based on the provisions in said referenced statute.

15. **Nonresident/Foreign Contractors**

The Contractor shall procure and maintain during the life of this contract:

a. If the Contractor is a foreign corporation, a certificate of authority to transact business in the State of Missouri from the Secretary of State, unless exempt pursuant to

the provisions of Section 351.572 RSMo. (See also, Section 351.574 RSMo. as to consequences of failing to comply.)

b. A certificate from the Missouri Director of Revenue evidencing compliance with the transient employer financial assurance law, unless exempt pursuant to the provisions of Section 285.230 RSMo.

16. **General Independent Contractor Clause**

This Contract does not create an employee/employer relationship between the parties. It is the parties' intention that the Contractor will be an independent contractor and not the City's employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, Missouri Prevailing Wage requirements, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Missouri revenue and taxation laws, Missouri workers' compensation and unemployment insurance laws. The Contractor will retain sole and absolute discretion in the judgment of the manner and means of carrying out the Contractor's activities and responsibilities hereunder. The Contractor agrees that it is a separate and independent enterprise from the public employer, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This Contract shall not be construed as creating any joint employment relationship between the Contractor and the City, and the City will not be liable for any obligation incurred by the Contractor, including but not limited to unpaid minimum wages and/or overtime premiums.

17. **City Benefits**

The Contractor shall not be entitled to any of the benefits established for the employees of the City nor be covered by the Worker's Compensation Program of the City.

18. **Insurance**

Contractor agrees to maintain insurance as set forth below and provide to City certificates of coverage evidencing said coverage at the time of signing of this Contract and on each anniversary of such insurance coverage during the term of this Contract and any renewals, which certificates, if available and possible, contains a provision that the policy will not be cancelled unless and until thirty (30) days' notice of said cancellation has been given to the City, but, in any event, the Contractor, any time after the Contract has been signed, shall notify the City of any impending cancellation, actual cancellation, termination or nonrenewal of the policy by faxing or delivering to the City a copy of the insurer's cancellation, termination or nonrenewal notice to Contractor within two (2) business days of Contractor's receipt of said notice. Contractor shall also advise the City in writing within two (2) business days of any oral or other advisement by the insurer of any impending cancellation, actual cancellation, termination or nonrenewal of the policy. (If the City gives written permission for some of the work under this Contract to be subcontracted or it is subcontracted, Contractor shall assure that the subcontractor has the insurance set forth below and that the City and Contractor are listed as an additional insured on all of subcontractor's policies):

a. Comprehensive General Liability. Minimum limit of $1,000,000 combined single limit, $2,000,000 annual aggregate for bodily injury and property damage per occurrence with City named as an additional insured on the policy.

b. Comprehensive Automobile Liability. $1,000,000 combined single limit with City named as an additional insured on the policy.

c. Workers' Compensation. Statutory requirements.Choose a building block.

The provision of insurance shall not be construed, nor is intended, to be a waiver of sovereign immunity or any other defense available to City, its officers, agents or

employees except to the extent insurance coverage is actually provided.

19. **Liability and Indemnity**

The parties mutually agree to the following:

a. In no event shall the City be liable to the Contractor for special, indirect, or consequential damages. The maximum liability of the City shall be limited to the amount of money to be paid or received by the City under this Contract.

b. The Contractor shall defend, indemnify, and hold the City and its elected or appointed officials, officers, employees, and agents harmless from and against all actual claims and alleged claims and all damages, including but not limited to losses, liabilities, costs, expenses and attorney fees arising out of personal injuries, including illness or death, and damage to, or destruction of, property, which are caused by the Contractor or the Contractor's agents, employees, sub-contractors or by others for whom Contractor is liable arising out of or in any way connected with or resulting from, performance of, or failure to perform, this contract, regardless of whether or not caused in part by any act or omission of City, its elected or appointed officials, officers, employees or agents. Contractor affirms that it has had the opportunity to recover the costs of the liability insurance required in this Contract in its Contract price.

c. The Contractor shall indemnify and hold the City harmless from all wages or overtime compensation due its employees in rendering services pursuant to this contract, including payment of reasonable attorneys' fees and costs in the defense of any claim made under the Fair Labor Standards Act, the Missouri Prevailing Wage Law, or any other federal or state law.

d. The indemnification obligations of Contractor hereunder shall not be limited by any limitations as to the amount or type of damages, compensation, or benefits payable

by or for the Contractor, under any federal or state law, to any person asserting the claim against City, its elected or appointed officials, officers, agents and employees, for which indemnification is sought.

e. The indemnification obligations herein shall not negate, abridge, or reduce in any way any additional indemnification rights of the City, its elected or appointed officials, officers, agents and employees, which are otherwise available under statute, or in law or equity.

f. All the provisions in this Agreement are subject to the terms of Missouri Sovereign Immunity as set forth in section 537.610.2 and 537.610.5 of the Missouri Revised Statutes. Further, this Contract is not intended to act as a waiver or limitation of City, or any of its officer's, agent's or employee's rights and/or defenses regarding sovereign or any other immunity or defense under Federal Law, Missouri Law or Municipal Regulation.

20. **Excessive Unemployment Requirements**

Whenever there is a period of excessive unemployment in this State (Missouri), as defined by Section 290.550 RSMo., any contractor constructing or building any public works project or improvement as defined in Section 290.210 RSMo. shall employ only Missouri laborers and laborers from nonrestrictive states on such project or improvement in compliance with Sections 290.550 thru 290.580 RSMo.

21. **Bonds**

Pursuant to Section 107.170 RSMo.

a. **Labor and Material Payment Bond.** If this Contract is estimated to exceed $50,000.00, the Contractor shall furnish a Labor and Materials Payment Bond with surety approved by the City and on the forms approved by the City. The bond shall be in the

total amount of the Contract conditioned upon the major terms and conditions of this Contract and payment of all labor and material suppliers. It is further mutually agreed between the parties hereto that if, at any time after the execution of this Contract and the surety bond(s) hereto attached for its faithful payment of labor and material suppliers, the City shall deem the surety or sureties upon such bond(s) to be unsatisfactory, or if, for any reason, such bond(s) ceases to be adequate to cover the performance of the work, the Contractor shall, at its expense, within five (5) days after the receipt of notice from the City to do so, furnish an additional bond or bonds, in such form and amount, and with such surety or sureties as shall be satisfactory to the City. In such event no further payment to the Contractor shall be deemed to be due under this Contract until such new or additional security for the payment of labor and material suppliers shall be furnished in a manner and form satisfactory to the City. The corporate surety on any payment bond must be licensed by the State of Missouri and if the required bond exceeds $25,000.00 must be listed in United States Treasury Circular 570.

b. **Performance Bond.** If the City deems a Performance Bond is necessary, the Contractor shall furnish a Performance Bond with surety approved by the City and on the forms approved by the City. The bond shall be in the total amount of the Contract conditioned upon the full and faithful performance of all major terms and conditions of this Contract. It is further mutually agreed between the parties hereto that if, at any time after the execution of this Contract and the surety bond(s) hereto attached for its faithful performance, the City shall deem the surety or sureties upon such bond(s) to be unsatisfactory, or if, for any reason, such bond(s) ceases to be adequate to cover the performance of the work, the Contractor shall, at its expense, within five (5) days after the receipt of notice from the City to do so, furnish an additional bond or bonds, in such form and amount, and with such surety or sureties as shall be satisfactory to the City. In such event no further payment to the Contractor shall be deemed to be due under this

Contract until such new or additional security for the faithful performance of the work shall be furnished in a manner and form satisfactory to the City. The corporate surety on any performance must be licensed by the State of Missouri and if the required bond exceeds $25,000.00 must be listed in United States Treasury Circular 570.

c. **Maintenance Bond.** If the City deems a Maintenance Bond is necessary, prior to acceptance of the Work, Contractor shall provide a maintenance bond in a form acceptable to the City Attorney and in an amount equal to 50% of the cost of the Work as approved by the City, which shall be in effect for a term of two (2) years from the date that the City issues a certificate of substantial completion for such work covered by the bond, conditioned upon the faithful performance of the provisions, terms and conditions of this contract. The maintenance bond shall name the City as an obligee and copies of the certificates such bond shall be delivered to the City.

22. **Liquidated Damages**

Time of completion of the work by the Contractor is of the essence. Should Contractor fail to complete the work within the time specified in this contract, Contractor shall be liable to the City in the amount of $500.00 per day for each and every calendar day that the Contract remains uncompleted after the time allowed for completion, as liquidated damages, and not as a penalty, it being stipulated that actual damages to the City and the public arising from Contractor's failure to timely complete the work would be difficult, if not impossible, to ascertain. The amount assessed as liquidated damages may be withheld from any moneys otherwise due to Contractor from the City. Total working days allotted for the project is 270 calendar days, with no work on weekends allowed.

23. **Site**

Contractor shall at all times, during the performance of the work, keep the project site clean and free from debris resulting from the work. Prior to discontinuing work in an

area, Contractor shall clean the area and remove all rubbish and its construction equipment, tools, machinery, waste, and surplus materials.

24. **Prevailing Wage**

If this Contract is estimated to exceed $75,000 for the total project cost, not less than the prevailing hourly rate of wages for work of a similar character in this locality, as established by Prevailing Wage Order No. 32, Jackson County, and amended at any time by the Department of Labor and Industrial Relations of the State of Missouri, shall be paid to all workers performing work under this contract. The penalties forfeited to the City for violations of the Prevailing Wage Act for each workman employed, for each calendar day, or portion thereof, such workman is paid less than their said stipulated rates for any work done under said Contract shall be one hundred dollars ($100) per worker, per day.

25. **OSHA Requirements**

Pursuant to Section 292.675 RSMo.

a. Any contractor for any public body for purposes of construction of public works and any subcontractor (any person entering into a subcontract with a contractor for construction of public works which employs "on-site employees" for purposes of completion of the contract) to such contractor shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the department which is at least as stringent as an approved OSHA program, unless such employees have previously completed the required program. All employees who have not previously completed the program are required to complete the program within sixty days of beginning work on such construction project.

b. Any employee found on a work site subject to this section without documentation of the successful completion of the required course shall be afforded twenty days to produce such documentation before being subject to removal from the project.

c. The contractor to whom the Contract is awarded and any subcontractor under such contractor shall require all on-site employees to complete the above referenced ten-hour training program or such employees must hold documentation of prior completion of the program. Said contractor and subcontractor(s) shall comply with Section 292.675, RSMo., in all respects as required in relation to work done pursuant to this contract.

d. The contractor shall forfeit as a penalty to the public body on whose behalf the contract is made or awarded, two thousand five hundred dollars ($2,500.00) plus one hundred dollars ($100.00) for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training. The penalty shall not begin to accrue until the time period referenced in subparagraphs (a) and (b) above have elapsed.

e. The public body awarding the Contract shall withhold and retain therefrom all sums and amounts due and owing as a result of any violations of this section when making payments to the contractor under the contract. The contractor may withhold from any subcontractor sufficient sums to cover any penalties the public body has withheld from the contractor resulting from the subcontractor's failure to comply with the terms of this section. If the payment has been made to the subcontractor without withholding, the contractor may recover the amount of the penalty resulting from the fault of the subcontractor in an action maintained in the circuit court in the county in which the public works project is located from the subcontractor.

f. “On-site employees” are defined as laborers, workmen, drivers, equipment operators, and craftsmen employed by contractors and subcontractors to be directly engaged in construction at the site of the public works. "Directly engaged in construction" shall mean work performed in the actual erection of the structure or completion of the improvement constituting the public works. In addition, employees working at a nearby or adjacent facility used by the contractor or subcontractor for construction of the public works shall be deemed "on-site employees." Persons engaged solely in the transportation of materials, fuel, or equipment to the site of the public works shall not be deemed to be "directly engaged in construction.”

26. **Enrollment in Work Authorization Program and Affidavit Concerning Employment of Unauthorized Aliens**

If this contract, awarded to a business entity, exceeds five thousand dollars, the business entity, and any subcontractors of the business entity, shall, by affidavit and provision of documentation, affirm its or their enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity, and any subcontractors of the business entity, shall also affirm by the affidavit that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. A subcontractor shall provide similar affidavit and documentation to the Contractor at the time the subcontractor is hired pursuant to Section 15 CSR 60-15.020. The business entity and any subcontractor of the business entity shall be required to provide the affidavits described in this section to the City on an annual basis. The business entity is not required to provide the E-Verify Memorandum of Understanding, or similar document, showing the business entity is in fact, enrolled in E-Verify or similar program each year unless the business entity has updated or entered into a new Memorandum of Understanding. A federal work authorization program is any of the electronic verification

of work authorization programs operated by the United States Department of Homeland Security or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L.99-603. *A business entity is any person or group of persons performing or engaging in any activity, enterprise, profession, or occupation for gain, benefit, advantage, or livelihood. The term business entity shall include but not be limited to self-employed individuals (except it shall not include a self-employed individual with no employees), partnerships, corporations, contractors, and subcontractors.*

The following Affidavit shall be used by the Contractor and any subcontractors that are required to sign:

Work Authorization Affidavit

STATE OF MISSOURI)
) ss.
COUNTY OF Jackson)

As used in this Affidavit, the following terms shall have the following meanings:

EMPLOYEE: Any person performing work or service of any kind or character for hire within the State of Missouri.

FEDERAL WORK AUTHORIZATION PROGRAM: Any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603.

KNOWINGLY: A person acts knowingly or with knowledge, (a) with respect to the person's conduct or to attendant circumstances when the person is aware of the nature of the person's conduct or that those circumstances exist; or (b) with respect to a result of the person's conduct when the person is aware that the person's conduct is practically certain to cause that result.

UNAUTHORIZED ALIEN: An alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. 1324a(h)(3).

BEFORE ME, the undersigned authority, personally appeared Mathew Bowen, who, being duly sworn, states on his oath or affirmation as follows:

1. My name is Mathew Bowen and I am currently the COO of Superior Bowen Asphalt Co., LLC (hereinafter "Company"), whose business address is 520 W. Pennway St., Suite 300, Kansas City, MO 64108, and I am authorized to make this Affidavit.

2. I am of sound mind and capable of making this Affidavit and am personally acquainted with the facts stated herein.

3. Company is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted Project Services.

4. Company does not knowingly employ any person who is an unauthorized alien in connection with the contracted services set forth above.

Superior Bowen Asphalt Co., LLC
Affiant / Contractor

Printed Name Mathew Bowen

Subscribed and sworn to before me this 24th day of February, 2026.

SEAL

ALAN VASSMER
Comm. Exp. 02-26-2027
NOTARY PUBLIC NOTARY SEAL
#19211115
Jackson County
STATE OF MISSOURI

Notary Public

2025Q1PW

27. **Anti-Discrimination Against Israel Act**

If this agreement has a total potential value of $100,000 or more and Contractor has ten or more employees, the following applies: Pursuant to Section 34.600, RSMo, Contractor agrees to comply with Missouri law regarding the Anti-Discrimination Against Israel Act, and execution of this Contract constitutes Contractor's certification of compliance with the Anti-Discrimination Against Israel Act, including that it is not currently engaged in, and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel; companies doing business in, or with, Israel companies authorized by, licensed by, or organized under, the laws of the State of Israel; or persons or entities doing business in the State of Israel.

28. **Notices**

All notices required or permitted under this Contract are required to be in writing and may be given by first class mail addressed to City or Contractor at the addresses shown above or by hand delivering a copy of the same to the City or Contractor or may be given by any combination of these methods. The date of delivery of any notice given by mail shall be the date falling on the third day after the day of its mailing.

29. **Jurisdiction**

This Contract and every question arising hereunder shall be construed or determined according to the laws of the State of Missouri. Should any part of this Contract be litigated, venue shall be proper only in the Circuit Court of Jackson County, Missouri at Independence or the Federal District Court for the Western District of Missouri, as appropriate. Contractor submits to the personal jurisdiction of and waives any personal jurisdiction or inconvenient forum objection to those courts.

30. **Warranty**

Contractor warrants that all workmanship shall be of good quality, in conformance with

bid specifications and guarantees all materials, equipment furnished, and work performed for a period of two (2) years from the date of completion and acceptance of the work that the completed work is free from all defects due to faulty materials or workmanship. The date of completion for all scopes of work shall be the last date of acceptance of all work in this Contract. Contractor shall, within ten (10) days' notice from the City, correct any work found to be defective, incorrect, or not in accordance with bid specifications.

31. **Severability**

The invalidity, illegality, or unenforceability of any provision of this Contract or the occurrence of any event rendering any portion or provision of this Contract void shall in no way affect the validity or enforceability of any other portion or provision of this Contract. Any void provision shall be deemed severed from this Contract, and the balance of this Contract shall be construed and enforced as if this Contract did not contain the particular portion or provision held to be void.

32. **Entire Contract**

This Contract contains the entire Contract of the parties. No modification, amendment, or waiver of any of the provisions of this Contract shall be effective unless in writing specifically referring hereto and signed by both parties. This Contract supersedes all other agreements and conditions, including, but not limited to the Exhibits attached to this Contract.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals on the day and year herein stated.

SIGNATURES

SUPERIOR BOWEN ASPHALT CO. LLC

Greg Pfau

Digitally signed by Greg Pfau
DN: C=US,
E=gpfau@superiorbowen.com,
O=Superior Bowen,
OU=Siteworks, CN=Greg Pfau
Date: 2026.02.24 16:39:52-06'00'

_____

Greg Pfau, Vice President, Siteworks

CITY OF BLUE SPRINGS

_____

Christine Cates, City Administrator

APPROVED AS TO FORM

_____

City Attorney

EXHIBIT 1 – SCOPE OF WORK

Name of Contractor: Superior Bowen Asphalt Co, LLC

Scope of Work (Job Description):

This project includes 11,850 square yards of new street pavement including base and surface type, curbs, utility construction, two aluminum arch structures for creek crossings and modular block walls, sidewalk and shared use paths, pavement markings and permanent signage. Attachment B provides the Construction Manual, Plans, Addendum 1 & 2.

All work shall be performed in accordance with Contractor's Bid Form Proposal dated February 17, 2026 attached hereto and incorporated herein as Attachment A.

Start Date: March 16, 2026

Interim Deadlines (if applicable): N/A

Final Completion Date: March 1, 2027

Reimbursable Expenses: N/A

Maximum Payment:

Dollar Amount	Type or Total Payment / Expense
$4,874,103.65	Maximum payment for services rendered
$0.00	Maximum amount of expenses to be reimbursed
$4,874,103.65	Total Maximum amount to be paid to the Contractor

Payment Schedule: Monthly as billed based on percentage of work complete. 5% retainage held until completion of project.

ARTICLE 10
BID FORM PROPOSAL

PROJECT NUMBER 2400101800 BID TIME 2:00 PM

PROJECT LOCATION Blue Springs, MO BID DATE February 17, 2026

BIDDER NAME Superior Bowen Asphalt Co., LLC

TO: City of Blue Springs ("Owner")

In response to the Invitation for Bids for Project No. 12th Street Extension, and in accordance with the Instructions to Bidders and other Bidding Documents, the undersigned Bidder declares that he has had an opportunity to examine the site of the Work and has carefully examined the Contract Documents therefore, including the Addenda identified below, and on the basis thereof, and being fully familiar with the local conditions affecting the Work, and upon written notice of award of contract, acknowledges and agrees to provide all labor, material, equipment, tools, management and supervision, safety and technical services, insurance, bonds and incidentals necessary or required for the faithful performance of the Contract Work in accordance with the above-referenced documents in a safe, timely and workmanlike manner for the following Base Bid Price:

BASE BID: Four million seven hundred ninety-one thousand twenty-two dollars and thirty-five cents Dollars ($ 4,791,022.35)
(Amount in Words)

The Base Bid (12th Street Extension) amount is more fully itemized as follows:

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED PRICE
1	Mobilization	LS	1	$70,745.00	$70,745.00
2	Removal of Existing Structures	LS	1	$15,585.00	$15,585.00
3	Clearing and Grubbing	LS	1	$44,100.00	$44,100.00
4	Contractor Furnished Staking	LS	1	$110,500.00	$110,500.00
5	Unclassified Excavation	CY	20,235	$7.35	$148,727.25
6	Embankment	CY	21,830	$8.20	$179,006.00
7	12' x 5' Single Radius Aluminum Arch (W/ Reinforced Conc. Strip Foundations)	EA	2	$116,550.00	$233,100.00
8	Reinforced Concrete Headwall (W/ From Liner)	EA	4	$50,400.00	$201,600.00
9	Modular Block Retaining Wall (W/Stain)	FSF	5,168	$96.35	$497,936.80
10	Connection to Existing Water Main (STA: 10+00)	LS	1	$11,025.00	$11,025.00
11	12" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	3,415	$110.25	$376,503.75
12	8" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	101	$105.00	$10,605.00
13	4" PVC Water Service Line (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	21	$89.25	$1,874.25
14	2" PVC Water Service Line (w/ Temporary Blowoff Assemblly)	LF	175	$73.50	$12,862.50
15	Gate Valve	EA	11	$5,145.00	$56,595.00
16	Fire Hydrant Assembly	EA	3	$9,975.00	$29,925.00
17	Backflow Preventor Assembly & Manhole	LS	1	$23,885.00	$23,885.00
18	Remove & Reset Existing 15" Flared End Section (w/ Toe Wall)	LS	1	$1,837.50	$1,837.50
19	15" Storm Pipe (N-12 HDPE)	LF	1,041	$52.50	$54,652.50
20	18" Storm Pipe (N-12 HDPE)	LF	228	$78.75	$17,955.00
21	24" Storm Pipe (N-12 HDPE)	LF	707	$80.85	$57,160.95

22	36" Storm Pipe (N-12 HDPE)	LF	166	$136.50	$22,659.00
23	4' x 4' Junction Box	EA	1	$6,615.00	$6,615.00
24	4.5' x 4' Junction Box	EA	1	$9,450.00	$9,450.00
25	5.5' x 4' Junction Box	EA	2	$7,350.00	$14,700.00
26	4' x 4' Curb Inlet	EA	15	$7,090.00	$106,350.00
27	5' x 3' Curb Inlet	EA	1	$6,615.00	$6,615.00
28	4.5' x 4' Curb Inlet	EA	1	$9,450.00	$9,450.00
29	6' x 4' Curb Inlet	EA	1	$8,137.50	$8,137.50
30	7' x 4' Curb Inlet	EA	1	$9,450.00	$9,450.00
31	5' x 5' Detention Pond Outlet Structure	EA	2	$17,065.00	$34,130.00
32	15" RC Flared End Section (W/ Toe Wall)	EA	4	$892.50	$3,570.00
33	24" RC Flared End Section (W/ Toe Wall)	EA	3	$1,260.00	$3,780.00
34	36" RC Flared End Section (W/ Toe Wall)	EA	1	$1,995.00	$1,995.00
35	Concrete Arch	LF	39	$162.75	$6,347.25
36	Riprap (D50 = 9") (TH = 18")	SY	256	$113.40	$29,030.40
37	Riprap (D50 = 18") (TH = 27")	SY	354	$136.50	$48,321.00
38	Riprap (D50 = 24") (TH = 36")	SY	212	$183.75	$38,955.00
39	Compaction of Subgrade	STA	34	$1,290.00	$43,860.00
40	MoDOT Type 5 Aggregate Base (6")	SY	14,174	$10.40	$147,409.60
41	MoDOT Type 5 Aggregate Base (4")	SY	5,102	$8.80	$44,897.60
42	Concrete Curb & Gutter (Combined)	LF	6,971	$29.95	$208,781.45
43	ADA Curb Ramp (W/ Landing)	EA	13	$2,870.00	$37,310.00
44	Concrete Flume	EA	1	$2,380.00	$2,380.00
45	Asphaltic Concrete Surface (Type 5-01) (2") (Roadway)	SY	11,850	$12.60	$149,310.00
46	Asphaltic Concrete Base (Type 3-01) (8") (Roadway)	SY	11,850	$47.60	$564,060.00
47	Asphaltic Concrete Surface (Type 5-01) (4") (Shared-Use Path)	SY	2,774	$29.20	$81,000.80
48	Concrete Driveway (8" Uniform) (AE)	SY	655	$119.25	$78,108.75
49	Sidewalk Construction (4") (AE)	SY	1,425	$60.15	$85,713.75
50	Electrical Service Connection (Includes Electrical Rack)	LS	1	$5,080.00	$5,080.00
51	Street Light (Includes Foundation, Pole, Fixture, Wiring, & Conduit)	EA	24	$6,490.00	$155,760.00
52	Underground Conduit (1-1/2" SCH40 PVC)	LF	8,600	$8.25	$70,950.00
53	Electrical Pull Box	EA	10	$1,215.00	$12,150.00
54	Electrical Wire	LF	5,225	$10.25	$53,556.25
55	Tracer Wire	LF	3,375	$0.90	$3,037.50
56	Permanent Restoration	AC	7	$3,150.00	$22,050.00
57	Erosion Control	LS	1	$62,150.00	$62,150.00
58	Permanent Pavement Markings	LS	1	$5,200.00	$5,200.00
59	Permanent Signage	LS	1	$8,450.00	$8,450.00
60	Wall Mounted Pedestrian Fence	LF	512	$840.00	$430,080.00

2

61	Traffic Control	LS	1	$3,990.00	$3,990.00
				Total Base Bid	**$4,791,022.35**

1

Bid Alternate NO. 1 (Replaces Bid Items 45-47)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED PRICE
62	Concrete Pavement (8" Uniform) (AE) (Roadway)	SY	11,850	$95.50	$1,131,675.00
63	Concrete Pavement (5" Uniform) (AE) (Shared-Use Path)	SY	2,774	$59.15	$164,082.10

1

By submitting this Bid, the Bidder agrees to waive any claim it has or may have against the Owner or Engineer, and their respective employees, arising out of or in connection with the administration, evaluation or recommendation of any bid(s).

Addenda

The undersigned Bidder acknowledges the following Addenda, if any:

Addendum No.: 1 dated 1/28/2026 pages All Revisions

Addendum No.: 2 dated 2/13/2026 pages All Revisions

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

Acknowledgements

Bidder understands that Owner reserves the right to reject any and all bids and to waive any informality in the bidding.

The Bidder agrees that this Bid shall be valid and may not be withdrawn for a period of sixty (60) days after the scheduled closing time for receiving bids.

Within five (5) working days after receipt of written notice of award of contract, Bidder will execute and deliver to the Owner the formal Owner-Contractor Agreement included in the Bid Package, and deliver to the Owner the surety bond or bonds as required by the Contract Documents.

The Bid Security attached hereto, in the sum of 5% of Amount Bid Dollars ($ $ - 5%) shall become the property of the Owner in the event that the Owner-Contractor Agreement and the Bond(s) are not executed and delivered to the Owner within the time set forth above, as liquidated damages (and not as a penalty) for the delay and additional expense to the Owner caused thereby.

(Signature)

Mathew Bowen
(Print Name)

Superior Bowen Asphalt Co., LLC
(Company Name)

520 W. Pennway, Suite 300, KCMO 64108
(Address)

913-238-9848
(Telephone Number)

(Seal – If bid by a Corporation)

SUBCONTRACTOR APPROVAL FORM

This report must accompany and be part of the sealed Bid Proposal.

1. Name of Bidder: Superior Bowen Asphalt Co., LLC
2. Address Bidder: 520 W. Pennway St, Suite 300

Kansas City	MO	64108	913-238-9848
City	State	Zip	Phone

3. The above-named Bidder intends to subcontract for materials, services, supplies, specialty contractors, etc., in the following fashion:

Names and Addresses of Subcontractor Which the Contractor Anticipates Utilizing	Nature of Participation	$ Value of Subcontractor
Stoyko Tree Service	Tree Clearing	$42,000.00
Capital Electric Line Builders	Electrical	$286,050.50
Advanced Erosion Control	Erosion Control	$42,470.00
Collins & Hermann	Fence	$412,600.00
Advanced Erosion Control	Landscaping	$21,000.00
Streetwise, Inc	Traffic Control	$16,795.00
Redford Construction Co.	Utilities	$1,426,592.00
BC Hardscapes	Ret. Wall	$392,894.00

A. Total of Above $2,640,401.50

B. Total Bid Amount $4,791,022.35

Subcontractor Utilization as a % of Total Bid Amount: (A/B x 100) 55%

Mathew Bowen, COO
Name-Authorized Officer of Bidder

Signature-Office Bidder

2/17/2026
Date

NON-COLLUSION AFFIDAVIT

State of Missouri)
S.S.
County of Jackson)

Mathew Bowen, being first duly sworn, deposes and says that:

1. They are the (owner, partner, officer, representative, or agent) of Superior Bowen Asphalt Co., LLC, the Bidder that has submitted the attached Bid;

2. They are fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

3. Such bid is genuine and is not a collusive or sham bid; and that all statements made, and fact set out in the Proposal are true and correct;

4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest including this affidavit, has in any way colluded, considered, connived, or agreed, directly or indirectly with any other bidder, firm, or person, to submit a sham bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract; or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm, or person to fix the price or prices in the attached Bid or of any other bidder, or to fix the overhead, profit, or cost element of the Bid price of the other bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Blue Springs or any person interested in the Proposed Contact.

5. The price or prices quoted in the attached Bid are fair and proper, and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit; and

6. They further certify that Bidder is not financially interested in or financially affiliated with any other bidder on this project.

7. No Councilmember, City Administrator, Director of Finance, or any City employee, either direct or indirect, is financially interested in the Bid submitted to the City pursuant to this invitation, nor is the Bidder a City employee or Councilmember whose bid creates a conflict of interest, and further Bidder certifies that no member or officer of its firm or corporation is an officer or employee of the City. A conflict of interest would arise if any person named in this section is in a position to affect either the decision to solicit bids or the selection of the successful Bidder. All applicable federal regulations and provisions of RSMo. Section 105.450 et seq. shall not be violated.

Signed: _____

Title: COO

Subscribed and sworn to before me this 17th day of February, 20 26.

_____
Notary Public

My Commission expires: 2-26-2027

ALAN VASSMER
Comm. Exp. 02-26-2022
NOTARY PUBLIC NOTARY SEAL #19211115
Jackson County
STATE OF MISSOURI

SUBCONTRACTOR CERTIFICATION REGARDING AFFIRMATIVE ACTION

Project: 12th Street Extension

Job No. 2400101800

Route: _____

County: Jackson

Certification Regarding Affirmative Action and Equal Opportunity: The bidder (prospective prime contractor) or proposed subcontractor certifies:

1. Affirmative Action Program: That it has developed and has on file at each of its establishments affirmative action programs pursuant to 41 CFR Part 60-2.

2. Equal Opportunity Clause: That it has participated in a previous contract or subcontract subject to the equal opportunity clause set forth in 41 CFR part 69-1.4 and executive order no. 11246.

3. Compliance Reports: That it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs and his designate, or the Equal Employment Opportunity Commission, all reports due under the applicable filing requirements contained in 41 CFR Part 60-1.

If the test of the certification above is incorrect, the bidder or subcontractor making the certification shall correct it below:

_____

_____

_____

NOTE: This certification applies to and must be executed by each bidder (prospective prime contractor) or proposed subcontractor if its proposed contract or subcontract on this project will equal or exceed $10,000 or that contractor or subcontractor has contracts or subcontracts on federally assisted project in any 12-month period which have or can reasonably be expected to have, an aggregate total value exceeding $10,000 41 CFR Part 60-1.5(a)(1). It is a duty and contract obligation of the prime contractor to insure that each of its subcontractors, which meet this criterion, executes and submits to the commission this certification also.

Superior Bowen Asphalt Co., LLC
Company

By: _____

Title: COO

Date: 02/17/2026

BID BOND

CONTRACTOR (Name and Address):

Superior Bowen Asphalt Company, LLC
520 West Pennway Street, Suite 300
Kansas City, MO 64108

SURETY (Name and Address of Principal Place of Business):

Travelers Casualty and Surety Company of America
ONE TOWER SQUARE
HARTFORD, CT 06183

CITY (Name and Address):

City of Blue Springs, 903 W. Main Street, Blue Springs, Missouri 64015

BID

BID DUE DATE: February 17, 2026 at 3:00 p.m.
Project: 12th Street Extension - 2400101800

BOND

BOND NUMBER: N/A
DATE: (Not Later than Bid Due Date): February 17, 2026
PENAL SUM: Five Percent of Amount Bid (5%)

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized agent, officer or representative.

CONTRACTOR

Superior Bowen Asphalt Company, LLC
Contractor's Name and Corporate Seal

By: _____
Signature and Title COO

Attest: _____
Signature and Title Asst. Sec.

SURETY

Travelers Casualty and Surety Company of America
Surety's Name and Corporate Seal

By: _____ Adam Martin
Signature and Title Attorney-In-Fact
(Attach Power of Attorney)

Attest: _____
Signature and Title
Stephen Bowen, Witness

Note:
1. Above addresses are to be used for giving required notice.
2. Any singular reference to Contractor, Surety, City, or other party shall be considered plural where applicable.
3. Surety companies executing BONDS shall be named in current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department and be authorized to transact business in the State of Missouri.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assign to pay to City upon default of Contractor the penal sum set forth on the face of this Bond.

2. Default of Contractor shall occur upon the failure of Contractor to deliver within the time required by the Bidding Documents the executed Contract required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.

3. This obligation shall be null and void if:

   a. City accepts Contractor's bid and Contractor delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by City) the executed Contract required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

   b. All bids are rejected by City, or

   c. City fails to issue a notice of award to Contractor within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Contractor and, if applicable, consented to by surety when required by Paragraph 5 hereof).

4. Payment under this Bond shall be due and payable upon default of Contractor and within thirty calendar days after receipt by Contractor and surety of written notice of default from City which notice will be given with reasonable promptness, identifying this Bond and the Project, and including a statement of the amount due.

5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by City and Contractor, provided that the time for issuing notice of award including extensions shall not in the aggregate exceed 120 days from bid due date without surety's written consent.

6. No suit or action shall be commenced under this Bond prior to thirty calendar days after the notice of default required in Paragraph 4 above is received by Contractor and surety, and in no case later than one year after bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notice required hereunder shall be in writing and sent to Contractor and surety at their

respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective power of attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of surety to execute, seal and deliver such Bond and bind the surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "bid" as used herein includes a bid, offer, or proposal as applicable.

TRAVELERS

Travelers Casualty and Surety Company of America
Travelers Casualty and Surety Company
St. Paul Fire and Marine Insurance Company

POWER OF ATTORNEY

Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and the Companies do hereby make, constitute and appoint **Adam Martin** of **KANSAS CITY** , **Missouri** , their true and lawful Attorney(s)-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed, and their corporate seals to be hereto affixed, this **16th** day of **February, 2024.**

SEAL SEAL SEAL

State of Connecticut

By: _____
Bryce Grissom, Senior Vice President

City of Hartford ss.

On this the **16th** day of **February, 2024**, before me personally appeared **Bryce Grissom**, who acknowledged himself to be the Senior Vice President of each of the Companies, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of said Companies by himself as a duly authorized officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June, 2026**

ANNA P NOWIK NOTARY PUBLIC CONNECTICUT

_____
Anna P. Nowik, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of each of the Companies, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, **Kevin E. Hughes**, the undersigned, Assistant Secretary of each of the Companies, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this **17th** day of **February** , **2026** .

SEAL SEAL SEAL

_____
Kevin E. Hughes, Assistant Secretary

To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.
Please refer to the above-named Attorney(s)-in-Fact and the details of the bond to which this Power of Attorney is attached.

ATTACHMENT B

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WILSON &COMPANY

discipline | intensity | collaboration | shared ownership | solutions

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INVITATION FOR BIDS

Sealed bids for the 12th Street Extension (hereinafter "Project") will be received by the City of Blue Springs, 903 W. Main Street, Blue Springs, MO 64015, until 2:00 PM, on Tuesday, February 17, 2026. The bids will be publicly opened and read aloud at 2:00 PM, on Tuesday, February 17, 2026 at City Hall.

The Scope of Work includes removal of existing structures, clearing and grubbing, excavation, constructing modular block retaining wall, construction of approximately 3426 linear feet of roadway, 3,208 linear feet of 12-inch diameter PVC water main with service lines, gate valves, and fire hydrants, storm sewer piping, curb inlets, junction boxes and end sections, rip-rap, sidewalk construction and ADA ramps, street lights, and fencing. The roadway will extend from an existing residential neighborhood southward to SW Wyatt Road.

Bid packages will be available after 2:00 PM on Friday, January 16, 2026. To ensure that you receive all addenda, request bid documents by email from Nick Weber at nweber@cochraneng.com. Bid packages will be distributed electronically at no cost to the bidder. When requesting the documents, you will be required to provide your company name, contact person and phone number, a complete company address and an e-mail address to be added to the Plan Holders List and for receiving official bidding communications and addenda. If you are not on the Plan Holders List, you will not receive any addenda issued. Hard copies will not be available for purchase. Bidders may make printed copies of the bid documents (plans, project manual, and a bid packet) at their own expense. Project and bidding questions shall be conducted exclusively via e-mail. Any questions regarding this project must be submitted to: darren.meyer@wilsonco.com, by 4:00 pm local time on February 12, 2026. No written questions after this date or any verbal questions will be recognized.

A bid security in the amount of five percent (5%) of the bid amount must accompany each bid, in accordance with the Instructions to Bidders.

The City of Blue Springs anticipates issuing notice to proceed in March 2026 with a contract length of two hundred seventy (270) calendar days.

The wage rates applicable to this project have been predetermined as required by law and are set forth in this specification. When Federal wage rates are applicable and included, this contract is subject to the "Work Hours Act of 1962," (P.L. 87-581: 76 Stat. 357) and implementing regulations.

Effective January 1, 2009, and pursuant to RSMo 285.530 (1), No business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri. The successful bidder must submit a sworn affidavit and documentation affirming the business entity's enrollment and participation in the federal work authorization program and that all of its employees working for the contracted services are not illegal immigrants.

Bidders on this work will be required to comply with the President's Executive Order Number 11246. Requirements for bidders and contractors under this order are explained in the specifications.

Upon signing the contract, the successful contractor and any subcontractor performing the work shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees.

The City of Blue Springs hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

THE OWNER INTENDS TO AWARD THE CONTRACT TO THE MOST RESPONSIVE, RESPONSIBLE BIDDER SUBMITTING THE LOWEST BID. THE OWNER RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS, AND TO WAIVE ANY IRREGULARITIES IN THE BEST INTEREST OF THE OWNER.

INSTRUCTIONS TO BIDDERS

ARTICLE 1

DEFINITIONS

1.1 **Bidding Documents** include the Invitation to Bid, Instructions to Bidders, the Bid Form and the proposed Contract Documents including any Addenda issued prior to receipt of Bids. The **Contract Documents** proposed for the Work consists of the Owner-Contractor Agreement, State Wage Determination, Non-Collusion Affidavit, Performance and Payment Bond, the Specifications, the Drawings, the Construction Schedule, all Addenda, and all Modifications.

1.2 All definitions set forth in the General Conditions of Owner-Contractor Agreement or in other Contract Documents are applicable to the Bidding Documents.

1.3 **Addenda** are written or graphic instruments issued prior to the execution of the Owner-Contractor Agreement, which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

1.4 A **Bid** is a complete and properly signed proposal to do the Work, or a designated portion thereof, for the sums stipulated therein, submitted in accordance with the Bidding Documents.

1.5 The **Base Bid** is the sum stated in the bid for which the bidder offers to perform the Work described in the Bidding Documents as the base to which work may be added or from which work may be deleted for sums stated in alternate bids.

1.6 An **Alternate Bid** is an amount stated in the bid to be considered in addition to the Base Bid if the corresponding Change in the Work, as described in the Bidding Documents, is accepted.

1.7 A **Unit Price** is an amount stated in the bid as a price per unit of measurement for materials or services as described in the Bidding Documents or in the proposed Contract Documents.

1.8 A **Bidder** is a person or entity who submits a bid.

1.9 A **Sub-Bidder** is a person or entity who submits a bid to a bidder for materials or labor for a portion of the Work.

ARTICLE 2

BIDDER'S REPRESENTATIONS

2.1 Each bidder by making his bid represents and warrants that:

2.1.1 He has read and understands the Bidding Documents and his bid is made in accordance therewith.

2.1.2 He has visited and carefully examined the site of the Work, and has familiarized himself with and satisfied himself of the following:

1. the nature and location of the Work;
2. the character, quality and quantity of materials to be encountered;
3. the character and quantity of equipment and facilities needed prior to and during performance of the Work;
4. the local conditions under which the Work is to be performed, including the availability of necessary labor;
5. the requirements for maintaining existing facilities in continuous service, if necessary or required.

2.1.3 He has correlated his examination and observations with the requirements of the proposed Contract Documents.

2.1.4 His bid is based upon the materials, products, systems and equipment required by the Bidding Documents.

ARTICLE 3

BIDDING DOCUMENTS

3.1 COPIES

3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Invitation to Bid in the number and for the deposit sum, if any, stated therein.

3.1.2 Each bidder shall use a complete set of Bidding Documents in preparing his bid.

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

3.2.1 Bidders shall promptly notify the Owner in writing of any ambiguity, inconsistency or error which they may discover upon examination of the Bidding Documents or of the site and local conditions.

3.2.2 Bidders may request clarification or interpretation of the Bidding Documents by making a written request which shall reach the Owner at least seven (7) days prior to the date for receipt of bids.

3.2.3 Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding on the Owner, and bidders shall not rely upon such interpretations, corrections and changes.

3.2.4 If the Owner determines that clarification of the terms and conditions of the Bidding Documents is necessary, an Addendum will be made available to all bidders setting forth-such clarification.

3.3 SUBSTITUTIONS

3.3.1 The materials, products, systems and equipment described in the Bidding Documents establish a minimum standard of required function, dimension, appearance and quality which must be met by any proposed substitution.

3.3.2 No substitution of the materials, products, systems and equipment described in the Bidding Documents will be considered prior to receipt of bids unless written request for approval has been received by the Owner at least ten (10) days prior to the date for receipt of bids. Each such request shall include the name of the material, product, system or equipment for which substitution will be made and a complete description of the proposed substitute including drawings, costs, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, products, systems or equipment or other work that incorporation of the substitute would require shall be included in each such request. The Owner, in its sole discretion, may approve or disapprove the proposed substitute.

3.3.3 If the Owner approves any proposed substitution prior to receipt of bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

3.3.4 No substitutions will be considered after the Contract is awarded unless specifically provided in the Contract Documents.

3.4 ADDENDA

3.4.1 Addenda will be mailed or delivered to all who are known by the Owner to have received a complete set of Bidding Documents.

3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3.4.3 Prior to submitting his bid, each bidder shall ascertain that he has received all Addenda issued, and he shall acknowledge receipt of all such Addenda in his bid.

ARTICLE 4

BIDDING PROCEDURE

4.1 FORM AND STYLE OF BIDS

4.1.1 Attached to the Contract Documents is a separate, complete set of Bid Forms to be signed and submitted as the Bidder's formal bid. To be considered, a bid shall be properly completed using these Bid Forms.

4.1.2 All blanks on the Bid Form shall be filled in by typewriter or manually in ink.

4.1.3 Where so indicated by the make-up of the Bid Form, dollar amounts shall be expressed in both words and figures and in case of discrepancy between the two, the amount written in words shall govern.

4.1.4 Any interlineation, alteration or erasure must be initialed by the signer of the bid.

4.1.5 Where two or more bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of his bid security, state his refusal to accept award of less than the combination of bids if he so stipulates. The Bidder shall make no additional stipulations on the Bid Form nor qualify his bid in any other manner.

4.1.6 Each copy of the bid shall include the legal name of the Bidder and a statement that the Bidder is a sole proprietor, a partnership, a corporation, or some other legal entity. Each copy shall be signed by the person or persons legally authorized to bind the bidder to a contract. A bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

4.1.7 The Owner shall not be responsible in any way for any costs or expenses related to the preparation or submission of any bid.

4.1.8 In the case of discrepancy between unit pricing and extended price or total bid, the unit pricing shall govern.

4.2 BID SECURITY

4.2.1 Each bid shall be accompanied by a certified check or bank draft on a responsible solvent Missouri bank, or a satisfactory bid bond executed by the bidder and an acceptable Surety company, naming the Owner as Obligee, in the amount of not less than five percent (5%) of the Base bid plus the greatest of the Alternate bids (“Bid Security”). If the bidder fails to enter into a Contract with the Owner on the terms stated in his bid, or fails to furnish Performance and Payment Bonds as required by the Contract Documents, the amount of the Bid Security shall be forfeited to the Owner as liquidated damages, not as a penalty.

4.2.2 IMPORTANT – Surety companies executing BONDS must appear on the Treasury Department’s most current list (Circular 570 as amended) and be authorized to transact business in Missouri.

4.2.3 The Owner will have the right to retain the Bid Security of bidders to whom an award is being considered until either, (a) the Owner-Contractor Agreement has been executed and the Performance and Payment Bonds have been furnished, (b) the specified time has elapsed so that bids may be withdrawn, or (c) all bids have been rejected.

4.3 SUBMISSION OF BIDS

4.3.1 Bidders must complete and submit with their bids the "Non-Collusion Affidavit" included with the Bid Form and 5% Bid Security. Bidders shall also complete and submit the following:

1. a designation of the Work, item by item, including the related dollar amount and total dollar amount, to be performed by the bidder with his own forces;

2. the proprietary names and the suppliers of principal items or systems of materials and equipment proposed for the Work;

3. "Subcontractor Approval Form" for each and every proposed Subcontractor, or other persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

4.3.2 All copies of the bid, the Bid Security and any other documents required to be submitted with the bid shall be enclosed in a sealed envelope identified "SEALED BID ENCLOSED" on the face thereof. The envelope shall be addressed and delivered to the Owner and shall be identified with the 2400101800, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

4.3.3 Bids shall be deposited at the designated location prior to the time and date for receipt of bids indicated in the Invitation to Bid or any extension thereof made by an Addendum. Bids received after the time and date for receipt of bids will be returned unopened.

4.3.4 The bidder shall assume full responsibility for timely delivery at the location designated for receipt of bids.

4.4 MODIFICATION OR WITHDRAWAL OF BID

4.4.1 A bid may not be modified, withdrawn or cancelled by the bidder within sixty (60) days following the time and date designated for the receipt of bids, and each bidder so agrees in submitting his bid.

4.4.2 Prior to the time and date designated for receipt of bids, any bid submitted may be modified or withdrawn by notice to the party receiving bids at the place designated for receipt of bids. Such notice shall be in writing over the signature of the bidder. A letter of protest must be received by the soliciting entity by the close of business ten (10) business days prior to the due date for bid response.

4.4.3 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids provided that they are then fully in conformance with these Instructions to Bidders.

4.4.4 The amount of the Bid Security shall be in an amount sufficient for the bid as modified or resubmitted.

ARTICLE 5

CONSIDERATION OF BIDS

5.1 OPENING OF BIDS

5.1.1 Unless stated otherwise in the Invitation to Bid, the properly identified bids received on time will be opened publicly and will be read aloud.

5.2 REJECTION OF BIDS

5.2.1 The Owner shall have the right to reject any or all bids, to reject a bid not accompanied by the Bid Security or by other data required by the Bidding Documents, to reject a bid which is in any way incomplete or irregular, and to rebid the Work at a later date, if all bids are rejected.

5.3 ACCEPTANCE OF BID (AWARD)

5.3.1 The Owner may make any investigation of a bidder as it deems necessary to determine that the bidder is responsible and properly qualified to perform the Work. Bidders shall furnish information regarding their qualifications upon the reasonable request of the Owner. The Owner reserves the right to reject any bid if the evidence submitted by, or other investigation of, the bidder fails to satisfy the Owner that, in the Owner’s opinion, the bidder has the proper qualifications to perform the Work in accordance with the Contract.

5.3.2 It is the intent of the Owner to award the Contract to the lowest responsive, responsible bidder provided the bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available.

5.3.3 The Owner shall have the right to accept alternates and to determine the low bidder on the basis of the sum of the base bid and the alternates accepted.

ARTICLE 6

POST BID INFORMATION

6.1 **SUBMITTALS**

6.1.1 The bidder will be required to establish, to the satisfaction of the Owner, the reliability and responsibility of the persons or entities proposed to furnish and perform the Work.

6.1.2 Prior to the award of the Contract, the Owner will notify the bidder in writing if the Owner, after due investigation, objects to any such person or entity proposed by the bidder pursuant to Subparagraph 4.3.1 above. If the Owner objects to any such proposed person or entity, the bidder may, at his option, (1) withdraw his bid, or (2) submit an acceptable substitute person or entity with no adjustment in his bid price.

6.1.3 Persons and entities proposed by the bidder and to whom the Owner has made no objection under the provisions of Subparagraph 6.1.2 must be used on the Work for which they were proposed and shall not be changed except with the prior written consent of the Owner.

ARTICLE 7

AWARD OF CONTRACT

7.1 Following receipt, to the satisfaction of the Owner, of all information required under Paragraph 6.1 above, the Owner shall mail to the successful bidder the Notice of Award of the Contract.

7.2 Within five (5) working days from the date of receipt of the Notice of Award, the successful bidder shall execute and deliver to the Owner the Contract Documents, and shall furnish the Bonds required by Paragraph 8.1 below and the Certificates of Insurance required by Subparagraph 10.1.3 of the General Conditions. In the event the successful bidder fails to execute and deliver the Contract Documents, the Bonds and the Certificates of Insurance as aforesaid, the Owner may, at its option, consider the bidder in default and award the Contract to another bidder, in which case the Bid Security of the defaulting bidder shall be forfeited to the Owner as liquidated damages, and not as a penalty.

7.3 The Contract, when executed, shall be deemed to include the entire agreement between the parties thereto, and the Bidder shall not claim any modification thereof resulting from any claimed representation or promise made at any time prior thereto by any officer, agency or employee of the Owner or by any other person.

7.4 PROTEST AFTER AWARD IS RECOMMENDED BUT BEFORE CONTRACT AWARD

7.4.1 After bids are accepted and an award recommendation is made to the governing body for approval, but before approval of a contract for services, a Bidder may submit a written letter of protest. The written letter of protest must set forth one of the following bases for the protest:

1. Arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.
2. Contrary to constitutional right, power, privilege, or immunity.
3. In excess of statutory jurisdiction, authority, or limitations, or short of statutory right.
4. Without observance of procedure required by law.
5. Unsupported by substantial evidence that may include, but is not limited to:
    a. A technical or mathematical mistake or error occurred during the evaluation process.
    b. There is reason to believe that the bids or proposals may not have been independently arrived at in open competition, may have been collusive, or may have been submitted in bad faith; or
    c. An Offeror was not accorded fair and equal treatment with respect to any opportunity for discussion and revision of proposals.

7.4.2 The letter of protest must be received by the soliciting entity by close of business within five (5) days after the date of award recommendation.

7.4.3 All protests will be reviewed and acted upon by the governing board of the entity within five (5) business days after the deadline for submitting protests. The decision of the board will be provided to the protestor in writing within two (2) business days following the decision. The decision of the governing board is final.

If a protest is received for a bid award, the award will be delayed until the board has reviewed the protest and made a final decision regarding the protest.

ARTICLE 8

PERFORMANCE BOND, MAINTENANCE BOND, AND LABOR AND MATERIAL PAYMENT BOND

8.1 BOND REQUIREMENTS

8.1.1 The successful bidder shall furnish a Performance Bond in an amount equal to one hundred percent (100%) of the Contract Sum as security for the faithful performance of all major terms and conditions of the Contract, a Maintenance Bond in an amount equal to fifty percent (50%) of the Contract Sum as security for the faithful performance of the Contract, and also a Labor and Material Payment Bond in an amount not less than one hundred percent (100%) of the Contract Sum as security for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract. The Surety shall be a company licensed to do business in the State of Missouri and shall be acceptable to the Owner.

8.2 TIME OF DELIVERY AND FORM OF BONDS

8.2.1 The bidder shall deliver the required bonds to the Owner not later than the date of execution of the Owner-Contractor Agreement, or if the Work is to be commenced prior thereto in response to a Letter of Intent, the bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.

8.2.2 The bidder shall require the attorney-in-fact who executes the required bonds on behalf of the Surety to affix thereto a certified and current copy of his power of attorney.

ARTICLE 9

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

9.1 FORM TO BE USED

9.1.1 Unless otherwise required in the Bidding Documents, the Owner-Contractor Agreement for the Work shall be in the form attached hereto.

(The remainder of this page is intentionally left blank.)

ARTICLE 10
BID FORM PROPOSAL

PROJECT NUMBER 2400101800 BID TIME 2:00 PM

PROJECT LOCATION Blue Springs, MO BID DATE February 17, 2026

BIDDER NAME _____

TO: City of Blue Springs ("Owner")

In response to the Invitation for Bids for Project No. 12th Street Extension, and in accordance with the Instructions to Bidders and other Bidding Documents, the undersigned Bidder declares that he has had an opportunity to examine the site of the Work and has carefully examined the Contract Documents therefore, including the Addenda identified below, and on the basis thereof, and being fully familiar with the local conditions affecting the Work, and upon written notice of award of contract, acknowledges and agrees to provide all labor, material, equipment, tools, management and supervision, safety and technical services, insurance, bonds and incidentals necessary or required for the faithful performance of the Contract Work in accordance with the above-referenced documents in a safe, timely and workmanlike manner for the following Base Bid Price:

BASE BID: _____ Dollars ($_____)
(Amount in Words)

The Base Bid (12th Street Extension) amount is more fully itemized as follows:

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED PRICE
1	Mobilization	LS	1		
2	Removal of Existing Structures	LS	1		
3	Clearing and Grubbing	LS	1		
4	Contractor Furnished Staking	LS	1		
5	Unclassified Excavation	CY	20,235		
6	Embankment	CY	21,830		
7	12' x 5' Single Radius Aluminum Arch (W/ Reinforced Conc. Strip Foundations)	EA	2		
8	Reinforced Concrete Headwall (W/ From Liner)	EA	4		
9	Modular Block Retaining Wall (W/Stain)	FSF	5,168		
10	Connection to Existing Water Main (STA: 10+00)	LS	1		
11	12" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	3,415		
12	8" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	101		
13	4" PVC Water Service Line (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	21		
14	2" PVC Water Service Line (w/ Temporary Blowoff Assemblly)	LF	175		
15	Gate Valve	EA	11		
16	Fire Hydrant Assembly	EA	3		
17	Backflow Preventor Assembly & Manhole	LS	1		
18	Remove & Reset Existing 15" Flared End Section (w/ Toe Wall)	LS	1		
19	15" Storm Pipe (N-12 HDPE)	LF	1,041		
20	18" Storm Pipe (N-12 HDPE)	LF	228		
21	24" Storm Pipe (N-12 HDPE)	LF	707		

22	36” Storm Pipe (N-12 HDPE)	LF	166		
23	4’ x 4’ Junction Box	EA	1		
24	4.5’ x 4’ Junction Box	EA	1		
25	5.5’ x 4’ Junction Box	EA	2		
26	4’ x 4’ Curb Inlet	EA	15		
27	5’ x 3’ Curb Inlet	EA	1		
28	4.5’ x 4’ Curb Inlet	EA	1		
29	6’ x 4’ Curb Inlet	EA	1		
30	7’ x 4’ Curb Inlet	EA	1		
31	5’ x 5’ Detention Pond Outlet Structure	EA	2		
32	15” RC Flared End Section (W/ Toe Wall)	EA	4		
33	24” RC Flared End Section (W/ Toe Wall)	EA	3		
34	36” RC Flared End Section (W/ Toe Wall)	EA	1		
35	Concrete Arch	LF	39		
36	Riprap (D50 = 9”) (TH = 18”)	SY	256		
37	Riprap (D50 = 18”) (TH = 27”)	SY	354		
38	Riprap (D50 = 24”) (TH = 36”)	SY	212		
39	Compaction of Subgrade	STA	34		
40	MoDOT Type 5 Aggregate Base (6”)	SY	14,174		
41	MoDOT Type 5 Aggregate Base (4”)	SY	5,102		
42	Concrete Curb & Gutter (Combined)	LF	6,971		
43	ADA Curb Ramp (W/ Landing)	EA	13		
44	Concrete Flume	EA	1		
45	Asphaltic Concrete Surface (Type 5-01) (2”) (Roadway)	SY	11,850		
46	Asphaltic Concrete Base (Type 3-01) (8”) (Roadway)	SY	11,850		
47	Asphaltic Concrete Surface (Type 5-01) (4”) (Shared-Use Path)	SY	2,774		
48	Concrete Driveway (8” Uniform) (AE)	SY	655		
49	Sidewalk Construction (4”) (AE)	SY	1,425		
50	Electrical Service Connection (Includes Electrical Rack)	LS	1		
51	Street Light (Includes Foundation, Pole, & Fixture)	EA	24		
52	Underground Conduit (1-1/2” SCH80 PVC)	LF	4,500		
53	Electrical Pull Box	EA	26		
54	Electrical Wire	LF	4,500		
55	Permanent Restoration	AC	7		
56	Erosion Control	LS	1		
57	Permanent Pavement Markings	LS	1		
58	Permanent Signage	LS	1		
	Wall Mounted Pedestrian Fence	LF	512		
				Total Base Bid	

Bid Alternate NO. 1 (Replaces Bid Items 43-45)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED PRICE
59	Concrete Pavement (8" Uniform) (AE) (Roadway)	SY	11,850		
60	Concrete Pavement (5" Uniform) (AE) (Shared-Use Path)	SY	2,774		

By submitting this Bid, the Bidder agrees to waive any claim it has or may have against the Owner or Engineer, and their respective employees, arising out of or in connection with the administration, evaluation or recommendation of any bid(s).

Addenda

The undersigned Bidder acknowledges the following Addenda, if any:

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

Acknowledgements

Bidder understands that Owner reserves the right to reject any and all bids and to waive any informality in the bidding.

The Bidder agrees that this Bid shall be valid and may not be withdrawn for a period of sixty (60) days after the scheduled closing time for receiving bids.

Within five (5) working days after receipt of written notice of award of contract, Bidder will execute and deliver to the Owner the formal Owner-Contractor Agreement included in the Bid Package, and deliver to the Owner the surety bond or bonds as required by the Contract Documents.

The Bid Security attached hereto, in the sum of _____ Dollars ($_____) shall become the property of the Owner in the event that the Owner-Contractor Agreement and the Bond(s) are not executed and delivered to the Owner within the time set forth above, as liquidated damages (and not as a penalty) for the delay and additional expense to the Owner caused thereby.

_____
(Signature)

_____
(Print Name)

_____
(Company Name)

_____
(Address)

_____
(Telephone Number)

(Seal – If bid by a Corporation)

SUBCONTRACTOR APPROVAL FORM

This report must accompany and be part of the sealed Bid Proposal.

1. Name of Bidder: _____

2. Address Bidder: _____

_____
City State Zip Phone

3. The above-named Bidder intends to subcontract for materials, services, supplies, specialty contractors, etc., in the following fashion:

Names and Addresses of Subcontractor Which the Contractor Anticipates Utilizing	Nature of Participation	$ Value of Subcontractor

A. Total of Above _____

B. Total Bid Amount _____

Subcontractor Utilization as a % of Total Bid Amount: (A/B x 100) _____

_____
Name-Authorized Officer of Bidder

_____
Signature-Office Bidder

_____
Date

NON-COLLUSION AFFIDAVIT

State of Missouri)
S.S.
County of _____)

_____, being first duly sworn, deposes and says that:

1. They are the (owner, partner, officer, representative, or agent) of _____ , the Bidder that has submitted the attached Bid;

2. They are fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

3. Such bid is genuine and is not a collusive or sham bid; and that all statements made, and fact set out in the Proposal are true and correct;

4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest including this affidavit, has in any way colluded, considered, connived, or agreed, directly or indirectly with any other bidder, firm, or person, to submit a sham bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract; or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm, or person to fix the price or prices in the attached Bid or of any other bidder, or to fix the overhead, profit, or cost element of the Bid price of the other bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Blue Springs or any person interested in the Proposed Contact.

5. The price or prices quoted in the attached Bid are fair and proper, and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit; and

6. They further certify that Bidder is not financially interested in or financially affiliated with any other bidder on this project.

7. No Councilmember, City Administrator, Director of Finance, or any City employee, either direct or indirect, is financially interested in the Bid submitted to the City pursuant to this invitation, nor is the Bidder a City employee or Councilmember whose bid creates a conflict of interest, and further Bidder certifies that no member or officer of its firm or corporation is an officer or employee of the City. A conflict of interest would arise if any person named in this section is in a position to affect either the decision to solicit bids or the selection of the successful Bidder. All applicable federal regulations and provisions of RSMo. Section 105.450 et seq. shall not be violated.

Signed: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20_____.

_____
Notary Public

My Commission expires: _____

AFFIDAVIT OF COMPLIANCE
ANTI-DISCRIMINATION AGAINST ISRAEL ACT

Affidavit of Compliance with Section 34.600 RSMo for Contracts over $100,000 or for Contractors with Ten (10) or more employees:

I,_____ [Contractor Agent], being duly sworn, attest and state, under penalty of perjury, as follows:

1. I am employed by _____[Contractor] and serve as the _____ [Position with Contractor].

2. I hereby affirm that _____ [Contractor]:

   a) is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel; or

   b) is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or

   c) is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from persons or entities doing business in the State of Israel.

Further Affiant Sayeth Not.

_____
[Contractor Agent]

STATE OF MISSOURI)
) ss.
_____ COUNTY)

Subscribed and sworn to me, a notary public, this _____ day of _____, 20___.

_____
Notary Public

My commission expires: _____

SUBCONTRACTOR CERTIFICATION REGARDING AFFIRMATIVE ACTION

Project: _____

Job No. _____

Route: _____

County: _____

Certification Regarding Affirmative Action and Equal Opportunity: The bidder (prospective prime contractor) or proposed subcontractor certifies:

1. Affirmative Action Program: That it has developed and has on file at each of its establishments affirmative action programs pursuant to 41 CFR Part 60-2.

2. Equal Opportunity Clause: That it has participated in a previous contract or subcontract subject to the equal opportunity clause set forth in 41 CFR part 69-1.4 and executive order no. 11246.

3. Compliance Reports: That it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs and his designate, or the Equal Employment Opportunity Commission, all reports due under the applicable filing requirements contained in 41 CFR Part 60-1.

If the test of the certification above is incorrect, the bidder or subcontractor making the certification shall correct it below:

_____

_____

_____

NOTE: This certification applies to and must be executed by each bidder (prospective prime contractor) or proposed subcontractor if its proposed contract or subcontract on this project will equal or exceed $10,000 or that contractor or subcontractor has contracts or subcontracts on federally assisted project in any 12-month period which have or can reasonably be expected to have, an aggregate total value exceeding $10,000 41 CFR Part 60-1.5(a)(1). It is a duty and contract obligation of the prime contractor to insure that each of its subcontractors, which meet this criterion, executes and submits to the commission this certification also.

_____

Company

By: _____

Title: _____

Date: _____

NOTICE TO BIDDERS REGARDING STATE IMMIGRATION LAW

Effective January 1, 2009 and pursuant to RSMo 285.530 (1), No business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri.

http://oa.mo.gov/purch/vendorinfo/employ.pdf
http://www.moga.mo.gov/statutes/C200-299/2850000530.HTM

Pursuant to 285.530 RSMo, the bidder must affirm its enrollment and participation in a federal work authorization program with respect to the employees proposed to work in connection with the services requested herein by:

- submitting a completed, notarized copy of WORKER ELIGIBILITY VERIFICATION AFFIDAVIT (attached),
- submitting a completed, notarized copy of the SIGNATURE AND IDENTITY OF BIDDER (attached) and,
- providing documentation affirming the bidder's enrollment and participation in a federal work authorization program (see below) with respect to the employees proposed to work in connection with the services requested herein.

E-Verify is an example of a federal work authorization program. Acceptable enrollment and participation documentation consists of completed copy of the E-Verify Memorandum of Understanding (MOU). For vendors that are not already enrolled and participating in a federal work authorization program, E-Verify is available at http://www.dhs.gov/xprevprot/programs/gc_1185221678150.shtm.

The contractor understands and agrees that by signing the RFB document or contract they certify that:

- The contractor shall only utilize personnel authorized to work in the United States in accordance with applicable federal and state laws. This includes but is not limited to the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and INA Section 274A.
- If the contractor is found to be in violation of this requirement or the applicable state, federal and local laws and regulations, and if the State of Missouri has reasonable cause to believe that the contractor has knowingly employed individuals who are not eligible to work in the United States, the state shall have the right to cancel the contract immediately without penalty or recourse and suspend or debar the contractor from doing business with the state.
- The contractor agrees to fully cooperate with any audit or investigation from federal, state or local law enforcement agencies.
- The contractor shall maintain enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services included herein.

SIGNATURE AND IDENTITY OF BIDDER

The undersigned states that the correct LEGAL NAME and ADDRESS of (1) the individual Bidder, (2) each partner or joint venture (whether individuals or corporations, and whether doing business under a fictitious name), or (3) the corporation (with the state in which it is incorporated) are shown below; that (if not signing with the intention of binding himself to become the responsible and sole contractor) he is the agent of, and duly authorized in writing to sign for the Bidder or Bidders; and that he is signing and executing this (as indicated in the proper spaces below) as the proposal of a

( ) sole individual ( ) partnership ( ) joint venture

( ) corporation, incorporated under laws of state of _____

Dated _____

Name of individual, all partners, or joint ventures:	Address of each:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

doing business under the name of:	Address of principal place of business in Missouri
_____	_____
(If using a fictitious name, show this name above in addition to legal names)	
_____	_____
(If a corporation, show its name above)	

ATTEST: (SEAL)

_____ _____

Secretary Title

NOTE: If the Bidder is doing business under a FICTITIOUS NAME, the Proposal shall be executed in the legal name of the individual, partners, joint ventures, or corporation, with the legal address shown, and REGISTRATION OF FICTITIOUS NAME filed with the Secretary of State, as required by Sections 417.200 to 417.230, RS Mo. If the Bidder is a CORPORATION NOT ORGANIZED UNDER THE LAWS OF MISSOURI, it shall procure a CERTIFICATE OF AUTHORITY TO DO BUSINESS IN MISSOURI, as required by Section 351.570 and following, RS Mo.



Company ID Number:

THE E-VERIFY
MEMORANDUM OF UNDERSTANDING
FOR E-VERIFY EMPLOYER AGENTS

ARTICLE I
PURPOSE AND AUTHORITY

The parties to this agreement are the Department of Homeland Security (DHS) and _____ (E-Verify Employer Agent). The purpose of this agreement is to set forth terms and conditions which the E-Verify Employer Agent will follow while participating in E-Verify.

E-Verify is a program that electronically confirms an employee's eligibility to work in the United States after completion of Form I-9, Employment Eligibility Verification (Form I-9). This Memorandum of Understanding (MOU) explains certain features of the E-Verify program and describes specific responsibilities of the E-Verify Employer Agent, the Employer, DHS, and the Social Security Administration (SSA).

The Employer is not a party to this MOU; however, this MOU contains a section titled Responsibilities of the Employer. This section is provided to inform E-Verify Employer Agents acting on behalf of the Employer of the responsibilities and obligations their clients are required to meet. The Employer is bound by these responsibilities through signing a separate MOU during their enrollment as a client of the E-Verify Employer Agent. The E-Verify program requires an initial agreement between DHS and the E-Verify Employer Agent as part of the enrollment process. After agreeing to the MOU as set forth herein, completing the tutorial, and obtaining access to E-Verify as an E-Verify Employer Agent, the E-Verify Employer Agent will be given an opportunity to add a client once logged into E-Verify. All parties, including the Employer, will then be required to sign and submit a separate MOU to E-Verify. The responsibilities of the parties remain the same in each MOU.

Authority for the E-Verify program is found in Title IV, Subtitle A, of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), Pub. L. 104-208, 110 Stat. 3009, as amended (8 U.S.C. § 1324a note). The Federal Acquisition Regulation (FAR) Subpart 22.18, "Employment Eligibility Verification" and Executive Order 12989, as amended, provide authority for Federal contractors and subcontractors (Federal contractor) to use E-Verify to verify the employment eligibility of certain employees working on Federal contracts.

ARTICLE II
RESPONSIBILITIES

A. RESPONSIBILITIES OF E-VERIFY EMPLOYER AGENT

1. The E-Verify Employer Agent agrees to provide to the SSA and DHS the names, titles, addresses, and telephone numbers of the E-Verify Employer Agent representatives who will be accessing

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information under E-Verify and shall update them as needed to keep them current.

2. The E-Verify Employer Agent agrees to become familiar with and comply with the E-Verify User Manual and provide a copy of the most current version of the E-Verify User Manual to the Employer so that the Employer can become familiar with and comply with E-Verify policy and procedures. The E-Verify Employer Agent agrees to obtain a revised E-Verify User Manual as it becomes available and to provide a copy of the revised version to the Employer no later than 30 days after the manual becomes available.

3. The E-Verify Employer Agent agrees that any person accessing E-Verify on its behalf is trained on the most recent E-Verify policy and procedures.

4. The E-Verify Employer Agent agrees that any E-Verify Employer Agent Representative who will perform employment verification cases will complete the E-Verify Tutorial before that individual initiates any cases.

a. The E-Verify Employer Agent agrees that all E-Verify Employer Agent representatives will take the refresher tutorials initiated by the E-Verify program as a condition of continued use of E-Verify, including any tutorials for Federal contractors, if any of the Employers represented by the E-Verify Employer Agent is a Federal contractor.

b. Failure to complete a refresher tutorial will prevent the E-Verify Employer Agent and Employer from continued use of E-Verify.

5. The E-Verify Employer Agent agrees to grant E-Verify access only to current employees who need E-Verify access. The E-Verify Employer Agent must promptly terminate an employee's E-Verify access if the employee is separated from the company or no longer needs access to E-Verify.

6. The E-Verify Employer Agent agrees to obtain the necessary equipment to use E- Verify as required by the E-Verify rules and regulations as modified from time to time.

7. The E-Verify Employer Agent agrees to, consistent with applicable laws, regulations, and policies, commit sufficient personnel and resources to meet the requirements of this MOU.

8. The E-Verify Employer Agent agrees to provide its clients with training on E-Verify processes, policies, and procedures. The E-Verify Employer Agent also agrees to provide its clients with ongoing E-Verify training as needed. E-Verify is not responsible for providing training to clients of E-Verify Employer Agents.

9. The E-Verify Employer Agent agrees to provide the Employer with the notices described in Article II.B.1 below.

10. The E-Verify Employer Agent agrees to create E-Verify cases for the Employer it represents in accordance with the E-Verify Manual, the E-Verify Web-Based Tutorial and all other published E-Verify rules and procedures. The E-Verify Employer Agent will create E-Verify cases using information provided by the Employer and will immediately communicate the response back to the Employer. If E-Verify is temporarily unavailable, the three-day time period will be extended until it is again operational in order to accommodate the E-Verify Employer Agent's attempting, in good faith, to

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make inquiries on behalf of the Employer during the period of unavailability.

11. When the E-Verify Employer Agent receives notice from a client company that it has received a contract with the FAR clause, then the E-Verify Employer Agent must update the company's E-Verify profile within 30 days of the contract award date.

12. If data is transmitted between the E-Verify Employer Agent and its client, then the E-Verify Employer Agent agrees to protect personally identifiable information during transmission to and from the E-Verify Employer Agent.

13. The E-Verify Employer Agent agrees to notify DHS immediately in the event of a breach of personal information. Breaches are defined as loss of control or unauthorized access to E-Verify personal data. All suspected or confirmed breaches should be reported by calling 1-888-464-4218 or via email at E-Verify@dhs.gov. Please use "Privacy Incident – Password" in the subject line of your email when sending a breach report to E-Verify.

14. The E-Verify Employer Agent agrees to fully cooperate with DHS and SSA in their compliance monitoring and evaluation of E-Verify, including permitting DHS, SSA, their contractors and other agents, upon reasonable notice, to review Forms I-9, employment records, and all records pertaining to the E-Verify Employer Agent's use of E-Verify, and to interview it and its employees regarding the use of E-Verify, and to respond in a timely and accurate manner to DHS requests for information relating to their participation in E-Verify.

15. The E-Verify Employer Agent shall not make any false or unauthorized claims or references about its participation in E-Verify on its website, in advertising materials, or other media. The E-Verify Employer Agent shall not describe its services as federally-approved, federally-certified, or federally-recognized, or use language with a similar intent on its website or other materials provided to the public. Entering into this MOU does not mean that E-Verify endorses or authorizes your E-Verify Employer Agent services and any claim to that effect is false.

16. The E-Verify Employer Agent shall not state in its website or other public documents that any language used therein has been provided or approved by DHS, USCIS or the Verification Division, without first obtaining the prior written consent of DHS.

17. The E-Verify Employer Agent agrees that E-Verify trademarks and logos may be used only under license by DHS/USCIS (see M-795 (Web)) and, other than pursuant to the specific terms of such license, may not be used in any manner that might imply that the E-Verify Employer Agent's services, products, websites, or publications are sponsored by, endorsed by, licensed by, or affiliated with DHS, USCIS, or E-Verify.

18. The E-Verify Employer Agent understands that if it uses E-Verify procedures for any purpose other than as authorized by this MOU, the E-Verify Employer Agent may be subject to appropriate legal action and termination of its participation in E-Verify according to this MOU.

B. RESPONSIBILITIES OF THE EMPLOYER

The E-Verify Employer Agent shall ensure that the E-Verify Employer Agent and the Employers represented by the E-Verify Employer Agent carry out the following responsibilities. It is the E-Verify

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Employer Agent's responsibility to ensure that its clients are in compliance with all E-Verify policies and procedures.

1. The Employer agrees to display the following notices supplied by DHS in a prominent place that is clearly visible to prospective employees and all employees who are to be verified through the system:

   a. Notice of E-Verify Participation

   b. Notice of Right to Work

2. The Employer agrees to provide to the SSA and DHS the names, titles, addresses, and telephone numbers of the Employer representatives to be contacted about E-Verify. The Employer also agrees to keep such information current by providing updated information to SSA and DHS whenever the representatives' contact information changes.

3. The Employer shall become familiar with and comply with the most recent version of the E-Verify User Manual. The Employer will obtain the E-Verify User Manual from the E-Verify Employer Agent.

4. The Employer agrees to comply with current Form I-9 procedures, with two exceptions:

   a. If an employee presents a "List B" identity document, the Employer agrees to only accept "List B" documents that contain a photo. (List B documents identified in 8 C.F.R. § 274a.2(b)(1)(B)) can be presented during the Form I-9 process to establish identity.) If an employee objects to the photo requirement for religious reasons, the Employer should contact E-Verify at 1-888-464-4218.

   b. If an employee presents a DHS Form I-551 (Permanent Resident Card), Form I-766 (Employment Authorization Document), or U.S. Passport or Passport Card to complete Form I-9, the Employer agrees to make a photocopy of the document and to retain the photocopy with the employee's Form I-9. The Employer will use the photocopy to verify the photo and to assist DHS with its review of photo mismatches that employees contest. DHS may in the future designate other documents that activate the photo screening tool.

Note: Subject only to the exceptions noted previously in this paragraph, employees still retain the right to present any List A, or List B and List C, document(s) to complete the Form I-9.

5. The Employer agrees to record the case verification number on the employee's Form I-9 or to print the screen containing the case verification number and attach it to the employee's Form I-9.

6. The Employer agrees that, although it participates in E-Verify, the Employer has a responsibility to complete, retain, and make available for inspection Forms I-9 that relate to its employees, or from other requirements of applicable regulations or laws, including the obligation to comply with the antidiscrimination requirements of section 274B of the INA with respect to Form I-9 procedures.

   a. The following modified requirements are the only exceptions to an Employer's obligation to not employ unauthorized workers and comply with the anti-discrimination provision of the INA: (1) List B identity documents must have photos, as described in paragraph 4 above; (2) When an Employer confirms the identity and employment eligibility of newly hired employee using E-Verify procedures, the Employer establishes a rebuttable presumption that it has not violated section 274A(a)(1)(A) of the Immigration and Nationality Act (INA) with respect to the hiring of that employee; (3) If the Employer receives a final nonconfirmation for an employee, but continues to employ that person,

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the Employer must notify DHS and the Employer is subject to a civil money penalty between $550 and $1,100 for each failure to notify DHS of continued employment following a final nonconfirmation; (4) If the Employer continues to employ an employee after receiving a final nonconfirmation, then the Employer is subject to a rebuttable presumption that it has knowingly employed an unauthorized alien in violation of section 274A(a)(1)(A); and (5) no E-Verify participant is civilly or criminally liable under any law for any action taken in good faith based on information provided through the E-Verify.

b. DHS reserves the right to conduct Form I-9 compliance inspections, as well as any other enforcement or compliance activity authorized by law, including site visits, to ensure proper use of E-Verify.

7. The Employer is strictly prohibited from creating an E-Verify case before the employee has been hired, meaning that a firm offer of employment was extended and accepted and Form I-9 was completed. The Employer agrees to create an E-Verify case for new employees within three Employer business days after each employee has been hired (after both Sections 1 and 2 of Form I-9 have been completed), and to complete as many steps of the E-Verify process as are necessary according to the E-Verify User Manual. If E-Verify is temporarily unavailable, the three-day time period will be extended until it is again operational in order to accommodate the Employer's attempting, in good faith, to make inquiries during the period of unavailability.

8. The Employer agrees not to use E-Verify for pre-employment screening of job applicants, in support of any unlawful employment practice, or for any other use that this MOU or the E-Verify User Manual does not authorize.

9. The Employer must use E-Verify (through its E-Verify Employer Agent) for all new employees. The Employer will not verify selectively and will not verify employees hired before the effective date of this MOU. Employers who are Federal contractors may qualify for exceptions to this requirement as described in Article II.B of this MOU.

10. The Employer agrees to follow appropriate procedures (see Article III below) regarding tentative nonconfirmations. The Employer must promptly notify employees in private of the finding and provide them with the notice and letter containing information specific to the employee's E-Verify case. The Employer agrees to provide both the English and the translated notice and letter for employees with limited English proficiency to employees. The Employer agrees to provide written referral instructions to employees and instruct affected employees to bring the English copy of the letter to the SSA. The Employer must allow employees to contest the finding, and not take adverse action against employees if they choose to contest the finding, while their case is still pending. Further, when employees contest a tentative nonconfirmation based upon a photo mismatch, the Employer must take additional steps (see Article III.B below) to contact DHS with information necessary to resolve the challenge.

11. The Employer agrees not to take any adverse action against an employee based upon the employee's perceived employment eligibility status while SSA or DHS is processing the verification request unless the Employer obtains knowledge (as defined in 8 C.F.R. § 274a.1(l)) that the employee is not work authorized. The Employer understands that an initial inability of the SSA or DHS automated verification system to verify work authorization, a tentative nonconfirmation, a case in continuance (indicating the need for additional time for the government to resolve a case), or the finding of a photo

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mismatch, does not establish, and should not be interpreted as, evidence that the employee is not work authorized. In any of such cases, the employee must be provided a full and fair opportunity to contest the finding, and if he or she does so, the employee may not be terminated or suffer any adverse employment consequences based upon the employee's perceived employment eligibility status (including denying, reducing, or extending work hours, delaying or preventing training, requiring an employee to work in poorer conditions, withholding pay, refusing to assign the employee to a Federal contract or other assignment, or otherwise assuming that he or she is unauthorized to work) until and unless secondary verification by SSA or DHS has been completed and a final nonconfirmation has been issued. If the employee does not choose to contest a tentative nonconfirmation or a photo mismatch or if a secondary verification is completed and a final nonconfirmation is issued, then the Employer can find the employee is not work authorized and terminate the employee's employment. Employers or employees with questions about a final nonconfirmation may call E-Verify at 1-888-464-4218 (customer service) or 1-888-897-7781 (worker hotline).

12. The Employer agrees to comply with Title VII of the Civil Rights Act of 1964 and section 274B of the INA as applicable by not discriminating unlawfully against any individual in hiring, firing, employment eligibility verification, or recruitment or referral practices because of his or her national origin or citizenship status, or by committing discriminatory documentary practices. The Employer understands that such illegal practices can include selective verification or use of E-Verify except as provided in part D below, or discharging or refusing to hire employees because they appear or sound "foreign" or have received tentative nonconfirmations. The Employer further understands that any violation of the immigration-related unfair employment practices provisions in section 274B of the INA could subject the Employer to civil penalties, back pay awards, and other sanctions, and violations of Title VII could subject the Employer to back pay awards, compensatory and punitive damages. Violations of either section 274B of the INA or Title VII may also lead to the termination of its participation in E-Verify. If the Employer has any questions relating to the anti-discrimination provision, it should contact OSC at 1-800-255-8155 or 1-800-237-2515 (TDD).

13. The Employer agrees that it will use the information it receives from E-Verify (through its E-Verify Employer Agent) only to confirm the employment eligibility of employees as authorized by this MOU. The Employer agrees that it will safeguard this information, and means of access to it (such as PINS and passwords), to ensure that it is not used for any other purpose and as necessary to protect its confidentiality, including ensuring that it is not disseminated to any person other than employees of the Employer who are authorized to perform the Employer's responsibilities under this MOU, except for such dissemination as may be authorized in advance by SSA or DHS for legitimate purposes.

14. The Employer agrees to notify DHS immediately in the event of a breach of personal information. Breaches are defined as loss of control or unauthorized access to E-Verify personal data. All suspected or confirmed breaches should be reported by calling 1-888-464-4218 or via email at E-Verify@dhs.gov. Please use "Privacy Incident – Password" in the subject line of your email when sending a breach report to E-Verify.

15. The Employer acknowledges that the information it receives through the E-Verify Employer Agent from SSA is governed by the Privacy Act (5 U.S.C. § 552a(i)(1) and (3)) and the Social Security Act (42 U.S.C. 1306(a)). Any person who obtains this information under false pretenses or uses it for any purpose other than as provided for in this MOU may be subject to criminal penalties.

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16. The Employer agrees to cooperate with DHS and SSA in their compliance monitoring and evaluation of E-Verify (whether directly or through their E-Verify Employer Agent), which includes permitting DHS, SSA, their contractors and other agents, upon reasonable notice, to review Forms I-9 and other employment records and to interview it and its employees regarding the Employer's use of E-Verify, and to respond in a prompt and accurate manner to DHS requests for information relating to their participation in E-Verify.

17. The Employer shall not make any false or unauthorized claims or references about its participation in E-Verify on its website, in advertising materials, or other media. The Employer shall not describe its services as federally-approved, federally-certified, or federally-recognized, or use language with a similar intent on its website or other materials provided to the public. Entering into this MOU does not mean that E-Verify endorses or authorizes your E-Verify services and any claim to that effect is false.

18. The Employer shall not state in its website or other public documents that any language used therein has been provided or approved by DHS, USCIS or the Verification Division, without first obtaining the prior written consent of DHS.

19. The Employer agrees that E-Verify trademarks and logos may be used only under license by DHS/USCIS (see M-795 (Web)) and, other than pursuant to the specific terms of such license, may not be used in any manner that might imply that the Employer's services, products, websites, or publications are sponsored by, endorsed by, licensed by, or affiliated with DHS, USCIS, or E-Verify.

20. The Employer understands that if it uses E-Verify procedures for any purpose other than as authorized by this MOU, the Employer may be subject to appropriate legal action and termination of its participation in E-Verify according to this MOU.

C. RESPONSIBILITIES OF FEDERAL CONTRACTORS

The E-Verify Employer Agent shall ensure that the E-Verify Employer Agent and the Employers represented by the E-Verify Employer Agent carry out the following responsibilities if the Employer is a federal contractor or becomes a Federal contractor. The E-Verify Employer Agent should instruct the client to keep the E-Verify Employer Agent informed about any changes or updates related to federal contracts. It is the E-Verify Employer Agent's responsibility to ensure that its clients are in compliance with all E-Verify policies and procedures.

1. If the Employer is a Federal contractor with the FAR E-Verify clause subject to the employment verification terms in Subpart 22.18 of the FAR, it will become familiar with and comply with the most current version of the E-Verify User Manual for Federal Contractors as well as the E-Verify Supplemental Guide for Federal Contractors.

2. In addition to the responsibilities of every employer outlined in this MOU, the Employer understands that if it is a Federal contractor subject to the employment verification terms in Subpart 22.18 of the FAR it must verify the employment eligibility of any "employee assigned to the contract" (as defined in FAR 22.1801). Once an employee has been verified through E-Verify by the Employer, the Employer may not reverify the employee through E-Verify.

   a. An Employer that is not enrolled in E-Verify as a Federal contractor at the time of a contract award must enroll as a Federal contractor in the E-Verify program within 30 calendar days of

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contract award and, within 90 days of enrollment, begin to verify employment eligibility of new hires using E-Verify. The Employer must verify those employees who are working in the United States, whether or not they are assigned to the contract. Once the Employer begins verifying new hires, such verification of new hires must be initiated within three business days after the hire date. Once enrolled in E-Verify as a Federal contractor, the Employer must begin verification of employees assigned to the contract within 90 calendar days after the date of enrollment or within 30 days of an employee's assignment to the contract, whichever date is later.

b. Employers enrolled in E-Verify as a Federal contractor for 90 days or more at the time of a contract award must use E-Verify to begin verification of employment eligibility for new hires of the Employer who are working in the United States, whether or not assigned to the contract, within three business days after the date of hire. If the Employer is enrolled in E-Verify as a Federal contractor for 90 calendar days or less at the time of contract award, the Employer must, within 90 days of enrollment, begin to use E-Verify to initiate verification of new hires of the contractor who are working in the United States, whether or not assigned to the contract. Such verification of new hires must be initiated within three business days after the date of hire. An Employer enrolled as a Federal contractor in E-Verify must begin verification of each employee assigned to the contract within 90 calendar days after date of contract award or within 30 days after assignment to the contract, whichever is later.

c. Federal contractors that are institutions of higher education (as defined at 20 U.S.C. 1001(a)), state or local governments, governments of Federally recognized Indian tribes, or sureties performing under a takeover agreement entered into with a Federal agency under a performance bond may choose to only verify new and existing employees assigned to the Federal contract. Such Federal contractors may, however, elect to verify all new hires, and/or all existing employees hired after November 6, 1986. Employers in this category must begin verification of employees assigned to the contract within 90 calendar days after the date of enrollment or within 30 days of an employee's assignment to the contract, whichever date is later.

d. Upon enrollment, Employers who are Federal contractors may elect to verify employment eligibility of all existing employees working in the United States who were hired after November 6, 1986, instead of verifying only those employees assigned to a covered Federal contract. After enrollment, Employers must elect to verify existing staff following DHS procedures and begin E-Verify verification of all existing employees within 180 days after the election.

e. The Employer may use a previously completed Form I-9 as the basis for creating an E-Verify case for an employee assigned to a contract as long as:

i. That Form I-9 is complete (including the SSN) and complies with Article II.B.6,

ii. The employee's work authorization has not expired, and

iii. The Employer has reviewed the Form I-9 information either in person or in communications with the employee to ensure that the employee's Section 1, Form I-9 attestation has not changed (including, but not limited to, a lawful permanent resident alien having become a naturalized U.S. citizen).

f. The Employer shall complete a new Form I-9 consistent with Article II.A.6 or update the previous Form I-9 to provide the necessary information if:

i. The Employer cannot determine that Form I-9 complies with Article II.A.6,

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ii. The employee's basis for work authorization as attested in Section 1 has expired or changed, or

iii. The Form I-9 contains no SSN or is otherwise incomplete.

Note: If Section 1 of the Form I-9 is otherwise valid and up-to-date and the form otherwise complies with Article II.C.5, but reflects documentation (such as a U.S. passport or Form I-551) that expired after completing Form I-9, the Employer shall not require the production of additional documentation, or use the photo screening tool described in Article II.A.5, subject to any additional or superseding instructions that may be provided on this subject in the E-Verify User Manual.

g. The Employer agrees not to require a second verification using E-Verify of any assigned employee who has previously been verified as a newly hired employee under this MOU or to authorize verification of any existing employee by any Employer that is not a Federal contractor based on this Article.

3. The Employer understands that if it is a Federal contractor, its compliance with this MOU is a performance requirement under the terms of the Federal contract or subcontract, and the Employer consents to the release of information relating to compliance with its verification responsibilities under this MOU to contracting officers or other officials authorized to review the Employer's compliance with Federal contracting requirements.

D. RESPONSIBILITIES OF SSA

1. SSA agrees to allow DHS to compare data provided by the Employer (through the E-Verify Employer Agent) against SSA's database. SSA sends DHS confirmation that the data sent either matches or does not match the information in SSA's database.

2. SSA agrees to safeguard the information the Employer provides (through the E-Verify Employer Agent) through E-Verify procedures. SSA also agrees to limit access to such information, as is appropriate by law, to individuals responsible for the verification of Social Security numbers or responsible for evaluation of E-Verify or such other persons or entities who may be authorized by SSA as governed by the Privacy Act (5 U.S.C. § 552a), the Social Security Act (42 U.S.C. 1306(a)), and SSA regulations (20 CFR Part 401).

3. SSA agrees to provide case results from its database within three Federal Government work days of the initial inquiry. E-Verify provides the information to the E-Verify Employer Agent.

4. SSA agrees to update SSA records as necessary if the employee who contests the SSA tentative nonconfirmation visits an SSA field office and provides the required evidence. If the employee visits an SSA field office within the eight Federal Government work days from the date of referral to SSA, SSA agrees to update SSA records, if appropriate, within the eight-day period unless SSA determines that more than eight days may be necessary. In such cases, SSA will provide additional instructions to the employee. If the employee does not visit SSA in the time allowed, E-Verify may provide a final nonconfirmation to the E-Verify Employer Agent.

Note: If an Employer experiences technical problems, or has a policy question, the employer should contact E-Verify at 1-888-464-4218.

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E. RESPONSIBILITIES OF DHS

1. DHS agrees to provide the Employer with selected data from DHS databases to enable the Employer (through the E-Verify Employer Agent) to conduct, to the extent authorized by this MOU

   a. Automated verification checks on alien employees by electronic means, and

   b. Photo verification checks (when available) on employees.

2. DHS agrees to assist the E-Verify Employer Agent with operational problems associated with its participation in E-Verify. DHS agrees to provide the E-Verify Employer Agent names, titles, addresses, and telephone numbers of DHS representatives to be contacted during the E-Verify process.

3. DHS agrees to provide to the E-Verify Employer Agent with access to E-Verify training materials as well as an E-Verify User Manual that contain instructions on E-Verify policies, procedures, and requirements for both SSA and DHS, including restrictions on the use of E-Verify.

4. DHS agrees to train E-Verify Employer Agents on all important changes made to E-Verify through the use of mandatory refresher tutorials and updates to the E-Verify User Manual. Even without changes to E-Verify, DHS reserves the right to require E-Verify Employer Agents to take mandatory refresher tutorials.

5. DHS agrees to provide to the Employer (through the E-Verify Employer Agent) a notice, which indicates the Employer's participation in E-Verify. DHS also agrees to provide to the Employer anti-discrimination notices issued by the Office of Special Counsel for Immigration-Related Unfair Employment Practices (OSC), Civil Rights Division, U.S. Department of Justice.

6. DHS agrees to issue each of the E-Verify Employer Agent's E-Verify users a unique user identification number and password that permits them to log in to E-Verify.

7. DHS agrees to safeguard the information the Employer provides (through the E-Verify Employer Agent), and to limit access to such information to individuals responsible for the verification process, for evaluation of E-Verify, or to such other persons or entities as may be authorized by applicable law. Information will be used only to verify the accuracy of Social Security numbers and employment eligibility, to enforce the INA and Federal criminal laws, and to administer Federal contracting requirements.

8. DHS agrees to provide a means of automated verification that provides (in conjunction with SSA verification procedures) confirmation or tentative nonconfirmation of employees' employment eligibility within three Federal Government work days of the initial inquiry.

9. DHS agrees to provide a means of secondary verification (including updating DHS records) for employees who contest DHS tentative nonconfirmations and photo mismatch tentative nonconfirmations. This provides final confirmation or nonconfirmation of the employees' employment eligibility within 10 Federal Government work days of the date of referral to DHS, unless DHS determines that more than 10 days may be necessary. In such cases, DHS will provide additional verification instructions.

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ARTICLE III

REFERRAL OF INDIVIDUALS TO SSA AND DHS

The E-Verify Employer Agent shall ensure that the E-Verify Employer Agent and the Employers represented by the E-Verify Employer Agent carry out the following responsibilities. It is the E-Verify Employer Agent's responsibility to ensure that its clients are in compliance with all E-Verify policies and procedures.

A. REFERRAL TO SSA

1. If the Employer receives a tentative nonconfirmation issued by SSA, the Employer must print the tentative nonconfirmation notice as directed by E-Verify. The Employer must promptly notify employees in private of the finding and provide them with the notice and letter containing information specific to the employee's E-Verify case. The Employer also agrees to provide both the English and the translated notice and letter for employees with limited English proficiency to employees. The Employer agrees to provide written referral instructions to employees and instruct affected employees to bring the English copy of the letter to the SSA. The Employer must allow employees to contest the finding, and not take adverse action against employees if they choose to contest the finding, while their case is still pending.

2. The Employer agrees to obtain the employee's response about whether he or she will contest the tentative nonconfirmation as soon as possible after the Employer receives the tentative nonconfirmation. Only the employee may determine whether he or she will contest the tentative nonconfirmation.

3. After a tentative nonconfirmation, the Employer will refer employees to SSA field offices only as directed by E-Verify. The Employer must record the case verification number, review the employee information submitted to E-Verify to identify any errors, and find out whether the employee contests the tentative nonconfirmation. The Employer will transmit the Social Security number, or any other corrected employee information that SSA requests, to SSA for verification again if this review indicates a need to do so.

4. The Employer will instruct the employee to visit an SSA office within eight Federal Government work days. SSA will electronically transmit the result of the referral to the Employer (through the E-Verify Employer Agent) within 10 Federal Government work days of the referral unless it determines that more than 10 days is necessary.

5. While waiting for case results, the Employer agrees to check the E-Verify system regularly for case updates.

6. The Employer agrees not to ask the employee to obtain a printout from the Social Security Administration number database (the Numident) or other written verification of the SSN from the SSA.

B. REFERRAL TO DHS

1. If the Employer receives a tentative nonconfirmation issued by DHS, the Employer must promptly notify employees in private of the finding and provide them with the notice and letter containing information specific to the employee's E-Verify case. The Employer also agrees to provide both the English and the translated notice and letter for employees with limited English proficiency to employees. The Employer must allow employees to contest the finding, and not take adverse action

against employees if they choose to contest the finding, while their case is still pending.

2. The Employer agrees to obtain the employee's response about whether he or she will contest the tentative nonconfirmation as soon as possible after the Employer receives the tentative nonconfirmation. Only the employee may determine whether he or she will contest the tentative nonconfirmation.

3. The Employer agrees to refer individuals to DHS only when the employee chooses to contest a tentative nonconfirmation.

4. If the employee contests a tentative nonconfirmation issued by DHS, the Employer will instruct the employee to contact DHS through its toll-free hotline (as found on the referral letter) within eight Federal Government work days.

5. If the Employer finds a photo mismatch, the Employer must provide the photo mismatch tentative nonconfirmation notice and follow the instructions outlined in paragraph 1 of this section for tentative nonconfirmations, generally.

6. The Employer agrees that if an employee contests a tentative nonconfirmation based upon a photo mismatch, the Employer will send a copy of the employee's Form I-551, Form I-766, U.S. Passport, or passport card to DHS for review by:

   a. Scanning and uploading the document, or

   b. Sending a photocopy of the document by express mail (furnished and paid for by the employer).

7. The Employer understands that if it cannot determine whether there is a photo match/mismatch, the Employer must forward the employee's documentation to DHS as described in the preceding paragraph. The Employer agrees to resolve the case as specified by the DHS representative who will determine the photo match or mismatch.

8. DHS will electronically transmit the result of the referral to the Employer (though the E-Verify Employer Agent) within 10 Federal Government work days of the referral unless it determines that more than 10 days is necessary.

9. While waiting for case results, the Employer agrees to check the E-Verify system regularly for case updates.

ARTICLE IV
SERVICE PROVISIONS

A. NO SERVICE FEES

1. SSA and DHS will not charge the Employer or the E-Verify Employer Agent for verification services performed under this MOU. The E-Verify Employer Agent is responsible for providing equipment needed to make inquiries. To access E-Verify, an E-Verify Employer Agent will need a personal computer with Internet access.

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ARTICLE V
MODIFICATION AND TERMINATION

A. MODIFICATION

1. This MOU is effective upon the signature of all parties and shall continue in effect for as long as the SSA and DHS operates the E-Verify program unless modified in writing by the mutual consent of all parties.

2. Any and all E-Verify system enhancements by DHS or SSA, including but not limited to E-Verify checking against additional data sources and instituting new verification policies or procedures, will be covered under this MOU and will not cause the need for a supplemental MOU that outlines these changes.

B. TERMINATION

1. The E-Verify Employer Agent may terminate this MOU and its participation in E-Verify at any time upon 30 days prior written notice to the other parties. In addition, any Employer represented by the E-Verify Employer Agent may voluntarily terminate its MOU upon giving DHS 30 days' written notice.

2. Notwithstanding Article V, part A of this MOU, DHS may terminate this MOU, and thereby the E-Verify Employer Agent's participation in E-Verify, with or without notice, at any time if deemed necessary because of the requirements of law or policy, or upon a determination by SSA or DHS that there has been a breach of system integrity or security by the E-Verify Employer Agent or the Employer, or a failure on the part of either party to comply with established E-Verify procedures and/or legal requirements. The Employer understands that if it is a Federal contractor, termination of this MOU by any party for any reason may negatively affect the performance of its contractual responsibilities. Similarly, the Employer understands that if it is in a state where E-Verify is mandatory, termination of this by any party MOU may negatively affect the Employer's business.

3. An E-Verify Employer Agent for an Employer that is a Federal contractor may terminate this MOU for that Employer when the Federal contract that requires its participation in E-Verify is terminated or completed. In such cases, the E-Verify Employer Agent must provide written notice to DHS. If the E-Verify Employer Agent fails to provide such notice, then that Employer will remain an E-Verify participant, will remain bound by the terms of this MOU that apply to non-Federal contractor participants, and will be required to use the E-Verify procedures to verify the employment eligibility of all newly hired employees.

4. The E-Verify Employer Agent agrees that E-Verify is not liable for any losses, financial or otherwise, if the E-Verify Employer Agent or the Employer is terminated from E-Verify.

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ARTICLE VI
PARTIES

A. Some or all SSA and DHS responsibilities under this MOU may be performed by contractor(s), and SSA and DHS may adjust verification responsibilities between each other as necessary. By separate agreement with DHS, SSA has agreed to perform its responsibilities as described in this MOU.

B. Nothing in this MOU is intended, or should be construed, to create any right or benefit, substantive or procedural, enforceable at law by any third party against the United States, its agencies, officers, or employees, or against the E-Verify Employer Agent, its agents, officers, or employees.

C. The E-Verify Employer Agent may not assign, directly or indirectly, whether by operation of law, change of control or merger, all or any part of its rights or obligations under this MOU without the prior written consent of DHS, which consent shall not be unreasonably withheld or delayed. Any attempt to sublicense, assign, or transfer any of the rights, duties, or obligations herein is void.

D. Each party shall be solely responsible for defending any claim or action against it arising out of or related to E-Verify or this MOU, whether civil or criminal, and for any liability wherefrom, including (but not limited to) any dispute between the Employer and any other person or entity regarding the applicability of Section 403(d) of IIRIRA to any action taken or allegedly taken by the Employer.

E. The E-Verify Employer Agent understands that its participation in E-Verify is not confidential information and may be disclosed as authorized or required by law and DHS or SSA policy, including but not limited to, Congressional oversight, E-Verify publicity and media inquiries, determinations of compliance with Federal contractual requirements, and responses to inquiries under the Freedom of Information Act (FOIA).

F. The individuals whose signatures appear below represent that they are authorized to enter into this MOU on behalf of the E-Verify Employer Agent and DHS respectively. The E-Verify Employer Agent understands that any inaccurate statement, representation, data or other information provided to DHS may subject the Employer or the E-Verify Employer Agent, as the case may be, its subcontractors, its employees, or its representatives to: (1) prosecution for false statements pursuant to 18 U.S.C. 1001 and/or; (2) immediate termination of its MOU and/or; (3) possible debarment or suspension.

G. The foregoing constitutes the full agreement on this subject between DHS and the E-Verify Employer Agent.

If you have any questions, contact E-Verify at 1-888-464-4218.

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Approved by:

E-Verify Employer Agent Employer	
Name (Please Type or Print)	Title
Signature	Date
Department of Homeland Security – Verification Division	
Name (Please Type or Print)	Title
Signature	Date

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Information Required for the E-Verify Program **Information relating to your Company:**	
Company Name	
Company Facility Address	
Company Alternate Address	
County or Parish	
Employer Identification Number	
North American Industry Classification Systems Code	
Parent Company	
Number of Employees	
Number of Sites Verified for	

INSTRUCTIONS FOR EXECUTING CONTRACT

The Contractor, in executing the Contract, shall follow the following requirements:

The Contractor and the Owner shall sign the Contract Documents in not less than triplicate.

If the Contractor is a corporation, the following certificate shall be executed:

"I, _____ certify that I am the _____ of the corporation named as Contractor herein above, that _____ who signed the foregoing Contract on behalf of the Contractor was then of said corporation; that said Contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers."

If the Contract is signed by the secretary of the corporation, the above certificate shall be executed by some other officer of the corporation under the corporate seal. In lieu of the foregoing certificate there may be attached to the Contract, copies of as much of the records of the corporation as will show the official character and authority of the officers signing, duly certified by the secretary or assistant secretary under the corporate seal to be true copies.

If the Contractor is a partnership, each partner shall sign the Contract. If the Contract is not signed by each partner, there shall be attached to the Contract a duly authenticated power of attorney evidencing the signer's ("signers") authority to sign such a Contract for and in behalf of the partnership.

If the Contractor is an individual, the trade name (if the Contractor is operating under a trade name) shall be indicated in the Contract and the Contract shall be signed by such individual. If signed by one other than the Contractor there shall be attached to the Contract a duly authenticated power of attorney evidencing the signer's authority to execute such Contract for and in behalf of the Contractor.

The full name and business address of the Contractor shall be inserted and the Contract shall be signed with his official signature. The name of the signing party or parties shall be typewritten or printed under all signatures to the Contract.

The Contract shall be deemed as having been awarded when formal Notice of Award shall have been duly served upon the intended awardee (i.e., the bidder with whom the Owner contemplates entering into a Contract) by some officer or agent of the Owner duly authorized to give such notice.

EFFECTIVE DATE: Month Day, Year	TERMINATION DATE: Month Day, Year	CONTRACT NUMBER:

CITY	CONTRACTOR
City of Blue Springs **903 West Main Street** **Blue Springs, MO 64015**	Name & Address
Department:	Attention:
Phone:	Phone:

PUBLIC WORKS CONTRACT

THIS CONTRACT, made and entered into this _____ day of _____ 202__, by the parties identified above.

WITNESSETH:

WHEREAS, the City of Blue Springs desires to engage the Contractor to perform certain professional and technical services, construction and labor, and/or provide materials and equipment as hereafter described in connection with a project more particularly described in ***Exhibit 1***; and

WHEREAS, the Contractor made certain representations and statements to the City with respect to the provision of such services and the City has accepted said proposal.

NOW, THEREFORE, for the considerations herein expressed, it is agreed by and between the City and the Contractor as follows:

1. **Services**. The City agrees to engage the services of the Contractor, and the Contractor agrees to perform the services hereinafter set forth in connection with projects described in ***Exhibit 1*** in accordance with the standard of care, skill, expertise, materials, and requirements set forth in the drawings and specifications. The terms of the City's Request for Proposals are incorporated by reference as if fully set forth herein. To the extent any conflict exists between the terms of this Contract and any Contractor terms attached hereto or otherwise incorporated, the terms of this Contract control and supersede.

2. **Addition to Services**. The City may add to the Contractor services or delete therefrom activities based on unit cost as set forth in ***Exhibit 1*** or the bid document(s) associated with this contract, or by written Change Orders that may be agreed to by both the City and Contractor, provided that the total cost of such work will be added to, or deleted from, the total cost as specified in Paragraph 6 hereof. The Contractor shall undertake such changed activities only upon the direction of the City. All such directives and changes shall be in written form and prepared and approved by the Department Head for the City as related to this contract, or his designee, with approval of the City Council if required, and shall be accepted and countersigned by the Contractor.

3. **Exchange of Data**. All information, data, plans, and reports in the City's possession and necessary for the carrying out of the work, shall be furnished to the Contractor without charge,

and the parties shall cooperate with each other in every way possible in carrying out the scope of services.

4. **Personnel**. The Contractor represents that Contractor will secure, at Contractor's own expense, all personnel required to perform the services called for under this Contract by Contractor. Such personnel shall not be employees of or have any contractual relationship with the City except as employees of the Contractor. All services required hereunder will be performed by the Contractor or under Contractor's direct supervision and all personnel engaged in the work shall be fully qualified and shall be authorized under state and local law to perform such services. None of the work or services covered by this Contract shall be subcontracted without the written approval of the City.

5. **Term**. The services of the Contractor shall commence as soon as practicable after the execution of this Contract, unless otherwise directed in writing, and shall be undertaken and completed in such sequence as to assure their expeditious completion in the light of the purposes of the contract, but in any event, all of the services required hereunder shall be completed as set forth in the schedule for the project which is attached hereto as ***Exhibit 1***.

6. **Costs not to Exceed**. The City of Blue Springs is limited by law and its bidding and procurement process with respect to the amount of money it can pay. Therefore, the City has established a fixed sum amount, based on the bid proposal after a competitive bidding process, if required by City policy, as described in the Maximum Payment section of ***Exhibit 1*** for this Contract and Paragraph 7.b which cannot be exceeded unless this Contract is amended. The Contractor shall notify the City if Contractor anticipates that the Contract amount may be exceeded to determine whether or not the City is prepared to increase the total compensation.

7. **Payment**.

a. **Conditioned upon acceptable performance**. Provided Contractor performs the services in the manner set forth in Paragraph 1 hereof, the City agrees to pay the Contractor in accordance with the terms set forth in ***Exhibit 1***, which shall constitute complete compensation for all services to be rendered under this Contract; provided, that where payments are to be made periodically to Contractor for services rendered under this Contract, the City expressly reserves the right to disapprove in whole or in part a request for payment where the services rendered during the period for which payment is claimed are not performed in a timely and satisfactory manner in accordance with the schedule and description of services set forth in ***Exhibit 1***.

b. **Total compensation not to exceed**. It is expressly understood that in no event will the total compensation and reimbursement to be paid to the Contractor under the terms of this Contract exceed the sum of **$**Total amount of contract unless agreed to by City and Contractor in writing.

8. **Termination of Contract.**

a. **Termination for breach.** Failure of the Contractor to fulfill Contractor's obligations under this Contract in a timely and satisfactory manner in accordance with the schedule and description of services set forth in ***Exhibit 1*** shall constitute a breach of this Contract, and the City shall thereupon have the right to immediately terminate this Contract. The City shall give written notice of termination to the Contractor by U.S. Postal Service Mail or by hand delivering a copy of the same to the Contractor; or may give notice by any combination of these methods. The date of termination shall be the date upon which notice of termination is hand delivered to

Contractor or the third day following mailing of the notice of termination, whichever first occurs. In the event of termination for breach, all finished or unfinished deconstruction, reconstruction, new construction, repairs, materials, drawings, plans, specifications, and other documents as required of the Contractor under this Contract shall at the option of the City become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such project; provided, that the Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any such breach of this Contract by the Contractor. If this Contract is terminated, Contractor shall assist City in the orderly termination of services, including timely transfer of services to another designated contractor. Anticipatory profits and consequential damages shall not be recoverable by Contractor.

b. **Termination for Convenience.** The City shall have the right at any time by written notice to Contractor to terminate and cancel this Contract, without cause, for the convenience of the City, and Contractor shall immediately stop work. In such event City shall not be liable to Contractor except for payment for actual work performed prior to such notice in an amount proportionate to the completed contract price and for the actual costs of preparations made by Contractor for the performance of the cancelled portions of this Contract, including a reasonable allowance of profit applicable to the actual work performed and such preparations. Further, all finished or unfinished deconstruction, reconstruction, new construction, repairs, materials, drawings, plans, specifications, and other documents as required of the Contractor under this Contract shall at the option of the City become its property. If this Contract is terminated, Contractor shall assist City in the orderly termination of services, including timely transfer of services to another designated contractor. Anticipatory profits and consequential damages shall not be recoverable by Contractor.

9. **Conflicts**. No salaried officer or employee of the City and no member of the City Council shall have a financial interest, direct or indirect, in this contract. A violation of this provision renders the Contract void. Any federal regulations and applicable provisions in Section 105.450 *et seq*. RSMo. shall not be violated. Contractor covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services to be performed under this contract. The Contractor further covenants that in the performance of this Contract no person having such interest shall be employed.

10. **Assignment**. The Contractor shall not assign any interest in this Contract and shall not transfer any interest in the same (whether by assignment or novation), without prior written consent of the City thereto. Provided, however, that claims for money due or to become due to the Contractor from the City under this Contract may be assigned to a bank, trust company, or other financial institution without such approval. Notice of such assignment or transfer shall be furnished in writing promptly to the City. Any such assignment is expressly subject to all rights and remedies of the City under this contract, including the right to change or delete activities from the Contractor to terminate the same as provided herein, and no such assignment shall require the City to give any notice to any such assignee of any actions which the City may take under this contract, though City will attempt to so notify any such assignee.

11. **Discrimination**. The Contractor agrees in the performance of this Contract not to discriminate on the ground or because of race, creed, color, national origin or ancestry, sex, religion, handicap, age, or political opinion or affiliation, against any employee of Contractor or applicant for employment and shall include a similar provision in all subcontracts let or awarded hereunder.

12. **Occupational License**: The Contractor shall obtain and maintain an occupational license with the City of Blue Springs, Missouri, if required by City Code and any required state or federal license. The cost for this occupational license shall be borne by the Contractor. Contractor shall not purchase materials or begin work on this Contract until this occupational license has been obtained.

13. **Compliance with Laws**. Contractor agrees to comply with all applicable federal, state and local laws or rules and regulations applicable to the provision of services and products hereunder. Contractor affirmatively states that payment of all local, state, and federal taxes and assessments owed by Contractor is current.

14. **American Made Products.** Pursuant to section 34.353 RSMo, as amended, if this Contract is for more than $25,000.00, and is for the purchase or lease of manufactured goods or commodities by the City, or is a contract with the City for construction, alteration, repair, or maintenance of any public works, then any manufactured goods or commodities used or supplied in the performance of this Contract or any subcontract thereto shall be manufactured or produced in the United States, unless that requirement is determined to not apply or be exempted based on the provisions in said referenced statute**.**

15. **Nonresident/Foreign Contractors**. The Contractor shall procure and maintain during the life of this contract:

a. If the Contractor is a foreign corporation, a certificate of authority to transact business in the State of Missouri from the Secretary of State, unless exempt pursuant to the provisions of Section 351.572 RSMo. (*See also,* Section 351.574 RSMo. as to consequences of failing to comply.)

b. A certificate from the Missouri Director of Revenue evidencing compliance with the transient employer financial assurance law, unless exempt pursuant to the provisions of Section 285.230 RSMo.

16. **General Independent Contractor Clause**. This Contract does not create an employee/employer relationship between the parties. It is the parties' intention that the Contractor will be an independent contractor and not the City's employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, Missouri Prevailing Wage requirements, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Missouri revenue and taxation laws, Missouri workers' compensation and unemployment insurance laws. The Contractor will retain sole and absolute discretion in the judgment of the manner and means of carrying out the Contractor's activities and responsibilities hereunder. The Contractor agrees that it is a separate and independent enterprise from the public employer, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This Contract shall not be construed as creating any joint employment relationship between the Contractor and the City, and the City will not be liable for any obligation incurred by the Contractor, including but not limited to unpaid minimum wages and/or overtime premiums.

17. **City Benefits**. The Contractor shall not be entitled to any of the benefits established for the employees of the City nor be covered by the Worker's Compensation Program of the City.

18. **Insurance.** Contractor agrees to maintain insurance as set forth below and provide to City certificates of coverage evidencing said coverage at the time of signing of this Contract and on each anniversary of such insurance coverage during the term of this Contract and any renewals, which certificates, if available and possible, contains a provision that the policy will not be cancelled unless and until thirty (30) days' notice of said cancellation has been given to the City, but, in any event, the Contractor, any time after the Contract has been signed, shall notify the City of any impending cancellation, actual cancellation, termination or nonrenewal of the policy by faxing or delivering to the City a copy of the insurer's cancellation, termination or nonrenewal notice to Contractor within two (2) business days of Contractor's receipt of said notice. Contractor shall also advise the City in writing within two (2) business days of any oral or other advisement by the insurer of any impending cancellation, actual cancellation, termination or nonrenewal of the policy. (If the City gives written permission for some of the work under this Contract to be subcontracted or it is subcontracted, Contractor shall assure that the subcontractor has the insurance set forth below and that the City and Contractor are listed as an additional insured on all of subcontractor's policies):

a. **Comprehensive General Liability**. Minimum limit of $1,000,000 combined single limit, $2,000,000 annual aggregate for bodily injury and property damage per occurrence with City named as an additional insured on the policy.

b. **Comprehensive Automobile Liability**. $1,000,000 combined single limit with City named as an additional insured on the policy.

c. **Workers' Compensation**. Statutory requirements.

d. **Professional Liability Insurance**. Contractor agrees to maintain professional liability insurance in the amount of $1,000,000 per claim and in the aggregate during the term of this contract. (If not applicable, delete this subparagraph)

The provision of insurance shall not be construed, nor is intended, to be a waiver of sovereign immunity or any other defense available to City, its officers, agents or employees except to the extent insurance coverage is actually provided.

19. **Liability and Indemnity**. The parties mutually agree to the following:

a. In no event shall the City be liable to the Contractor for special, indirect, or consequential damages. The maximum liability of the City shall be limited to the amount of money to be paid or received by the City under this Contract.

b. The Contractor shall defend, indemnify, and hold the City and its elected or appointed officials, officers, employees, and agents harmless from and against all actual claims and alleged claims and all damages, including but not limited to losses, liabilities, costs, expenses and attorney fees arising out of personal injuries, including illness or death, and damage to, or destruction of, property, which are caused by the Contractor or the Contractor's agents, employees, sub-contractors or by others for whom Contractor is liable arising out of or in any way connected with or resulting from, performance of, or failure to perform, this contract, regardless of whether or not caused in part by any act or omission of City, its elected or appointed officials, officers, employees or agents. Contractor affirms that it has had the opportunity to recover the costs of the liability insurance required in this Contract in its Contract price.

c. The Contractor shall indemnify and hold the City harmless from all wages or overtime compensation due its employees in rendering services pursuant to this contract, including payment of reasonable attorneys' fees and costs in the defense of any claim made under the Fair Labor Standards Act, the Missouri Prevailing Wage Law, or any other federal or state law.

d. The indemnification obligations of Contractor hereunder shall not be limited by any limitations as to the amount or type of damages, compensation, or benefits payable by or for the Contractor, under any federal or state law, to any person asserting the claim against City, its elected or appointed officials, officers, agents and employees, for which indemnification is sought.

e. The indemnification obligations herein shall not negate, abridge, or reduce in any way any additional indemnification rights of the City, its elected or appointed officials, officers, agents and employees, which are otherwise available under statute, or in law or equity.

f. All the provisions in this Agreement are subject to the terms of Missouri Sovereign Immunity as set forth in section 537.610.2 and 537.610.5 of the Missouri Revised Statutes. Further, this Contract is not intended to act as a waiver or limitation of City, or any of its officer's, agent's or employee's rights and/or defenses regarding sovereign or any other immunity or defense under Federal Law, Missouri Law or Municipal Regulation.

20. **Excessive Unemployment Requirements**. Whenever there is a period of excessive unemployment in this State (Missouri), as defined by Section 290.550 RSMo., any contractor constructing or building any public works project or improvement as defined in Section 290.210 RSMo. shall employ only Missouri laborers and laborers from nonrestrictive states on such project or improvement in compliance with Sections 290.550 thru 290.580 RSMo.

21. **Bonds.** Pursuant to Section 107.170 RSMo**.**

a. **Labor and Material Payment Bond.** If this Contract is estimated to exceed $50,000.00, the Contractor shall furnish a Labor and Materials Payment Bond with surety approved by the City and on the forms approved by the City. The bond shall be in the total amount of the Contract conditioned upon the major terms and conditions of this Contract and payment of all labor and material suppliers. It is further mutually agreed between the parties hereto that if, at any time after the execution of this Contract and the surety bond(s) hereto attached for its faithful payment of labor and material suppliers, the City shall deem the surety or sureties upon such bond(s) to be unsatisfactory, or if, for any reason, such bond(s) ceases to be adequate to cover the performance of the work, the Contractor shall, at its expense, within five (5) days after the receipt of notice from the City to do so, furnish an additional bond or bonds, in such form and amount, and with such surety or sureties as shall be satisfactory to the City. In such event no further payment to the Contractor shall be deemed to be due under this Contract until such new or additional security for the payment of labor and material suppliers shall be furnished in a manner and form satisfactory to the City. The corporate surety on any payment bond must be licensed by the State of Missouri and if the required bond exceeds $25,000.00 must be listed in United States Treasury Circular 570.

b. **Performance Bond.** If the City deems a Performance Bond is necessary, the Contractor shall furnish a Performance Bond with surety approved by the City and on the forms approved by the City. The bond shall be in the total amount of the Contract conditioned upon the full and faithful performance of all major terms and conditions of this Contract. It is further mutually agreed between the parties hereto that if, at any time after the execution of this Contract and the

surety bond(s) hereto attached for its faithful performance, the City shall deem the surety or sureties upon such bond(s) to be unsatisfactory, or if, for any reason, such bond(s) ceases to be adequate to cover the performance of the work, the Contractor shall, at its expense, within five (5) days after the receipt of notice from the City to do so, furnish an additional bond or bonds, in such form and amount, and with such surety or sureties as shall be satisfactory to the City. In such event no further payment to the Contractor shall be deemed to be due under this Contract until such new or additional security for the faithful performance of the work shall be furnished in a manner and form satisfactory to the City. The corporate surety on any performance must be licensed by the State of Missouri and if the required bond exceeds $25,000.00 must be listed in United States Treasury Circular 570.

c. **Maintenance Bond.** If the City deems a Maintenance Bond is necessary, prior to acceptance of the Work, Contractor shall provide a maintenance bond in a form acceptable to the City Attorney and in an amount equal to 50% of the cost of the Work as approved by the City, which shall be in effect for a term of two (2) years from the date that the City issues a certificate of substantial completion for such work covered by the bond, conditioned upon the faithful performance of the provisions, terms and conditions of this contract. The maintenance bond shall name the City as an obligee and copies of the certificates such bond shall be delivered to the City.

22. **Liquidated Damages**. Time of completion of the work by the Contractor is of the essence. Should Contractor fail to complete the work within the time specified in this contract, Contractor shall be liable to the City in the amount of $500.00 per day for each and every calendar day that the Contract remains uncompleted after the time allowed for completion, as liquidated damages, and not as a penalty, it being stipulated that actual damages to the City and the public arising from Contractor's failure to timely complete the work would be difficult, if not impossible, to ascertain. The amount assessed as liquidated damages may be withheld from any moneys otherwise due to Contractor from the City.

23. **Site**. Contractor shall at all times, during the performance of the work, keep the project site clean and free from debris resulting from the work. Prior to discontinuing work in an area, Contractor shall clean the area and remove all rubbish and its construction equipment, tools, machinery, waste, and surplus materials.

24. **Prevailing Wage**. If this Contract is estimated to exceed $75,000 for the total project cost, not less than the prevailing hourly rate of wages for work of a similar character in this locality, as established by Prevailing Wage Order No. Current Wage Order Number , Jackson County, and amended at any time by the Department of Labor and Industrial Relations of the State of Missouri, shall be paid to all workers performing work under this contract. The penalties forfeited to the City for violations of the Prevailing Wage Act for each workman employed, for each calendar day, or portion thereof, such workman is paid less than their said stipulated rates for any work done under said Contract shall be one hundred dollars ($100) per worker, per day.

25. **OSHA Requirements** pursuant to Section 292.675 RSMo.

a. Any contractor for any public body for purposes of construction of public works and any subcontractor (any person entering into a subcontract with a contractor for construction of public works which employs "on-site employees" for purposes of completion of the contract) to such contractor shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the department which is

at least as stringent as an approved OSHA program, unless such employees have previously completed the required program. All employees who have not previously completed the program are required to complete the program within sixty days of beginning work on such construction project.

b. Any employee found on a work site subject to this section without documentation of the successful completion of the required course shall be afforded twenty days to produce such documentation before being subject to removal from the project.

c. The contractor to whom the Contract is awarded and any subcontractor under such contractor shall require all on-site employees to complete the above referenced ten-hour training program or such employees must hold documentation of prior completion of the program. Said contractor and subcontractor(s) shall comply with Section 292.675, RSMo., in all respects as required in relation to work done pursuant to this contract.

d. The contractor shall forfeit as a penalty to the public body on whose behalf the contract is made or awarded, two thousand five hundred dollars ($2,500.00) plus one hundred dollars ($100.00) for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training. The penalty shall not begin to accrue until the time period referenced in subparagraphs (a) and (b) above have elapsed.

e. The public body awarding the Contract shall withhold and retain therefrom all sums and amounts due and owing as a result of any violations of this section when making payments to the contractor under the contract. The contractor may withhold from any subcontractor sufficient sums to cover any penalties the public body has withheld from the contractor resulting from the subcontractor's failure to comply with the terms of this section. If the payment has been made to the subcontractor without withholding, the contractor may recover the amount of the penalty resulting from the fault of the subcontractor in an action maintained in the circuit court in the county in which the public works project is located from the subcontractor.

f. “On-site employees” are defined as laborers, workmen, drivers, equipment operators, and craftsmen employed by contractors and subcontractors to be directly engaged in construction at the site of the public works. "Directly engaged in construction" shall mean work performed in the actual erection of the structure or completion of the improvement constituting the public works. In addition, employees working at a nearby or adjacent facility used by the contractor or subcontractor for construction of the public works shall be deemed "on-site employees." Persons engaged solely in the transportation of materials, fuel, or equipment to the site of the public works shall not be deemed to be "directly engaged in construction.”

26. **Enrollment in Work Authorization Program and Affidavit Concerning Employment of Unauthorized Aliens.** If this contract, awarded to a business entity, exceeds five thousand dollars, the business entity, and any subcontractors of the business entity, shall, by affidavit and provision of documentation, affirm its or their enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity, and any subcontractors of the business entity, shall also affirm by the affidavit that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. A subcontractor shall provide similar affidavit and documentation to the Contractor at the time the subcontractor is hired pursuant to Section 15 CSR 60-15.020. A federal work authorization program is any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or an

equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L.99-603. *A business entity is any person or group of persons performing or engaging in any activity, enterprise, profession, or occupation for gain, benefit, advantage, or livelihood. The term business entity shall include but not be limited to self-employed individuals (except it shall not include a self-employed individual with no employees), partnerships, corporations, contractors, and subcontractors*.

The following Affidavit shall be used by the Contractor and any subcontractors that are required to sign:

Work Authorization Affidavit

STATE OF MISSOURI)
) ss.
COUNTY OF _____)

As used in this Affidavit, the following terms shall have the following meanings:

EMPLOYEE: Any person performing work or service of any kind or character for hire within the State of Missouri.

FEDERAL WORK AUTHORIZATION PROGRAM: Any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603.

KNOWINGLY: A person acts knowingly or with knowledge, (a) with respect to the person's conduct or to attendant circumstances when the person is aware of the nature of the person's conduct or that those circumstances exist; or (b) with respect to a result of the person's conduct when the person is aware that the person's conduct is practically certain to cause that result.

UNAUTHORIZED ALIEN: An alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. 1324a(h)(3).

BEFORE ME, the undersigned authority, personally appeared _____, who, being duly sworn, states on his oath or affirmation as follows:

1. My name is _____ and I am currently the _____ of _____ (hereinafter "Company"), whose business address is _____, and I am authorized to make this Affidavit.

2. I am of sound mind and capable of making this Affidavit and am personally acquainted with the facts stated herein.

3. Company is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted Project Services.

4. Company does not knowingly employ any person who is an unauthorized alien in connection with the contracted services set forth above.

_____ _____
Affiant / Contractor Printed Name

Subscribed and sworn to before me this _____ day of _____, 20___.

_____
SEAL Notary Public

27. **Anti-Discrimination Against Israel Act.** If this agreement has a total potential value of $100,000 or more and Contractor has ten or more employees, the following applies: Pursuant to Section 34.600, RSMo, Contractor agrees to comply with Missouri law regarding the Anti-Discrimination Against Israel Act, and execution of this Contract constitutes Contractor's certification of compliance with the Anti-Discrimination Against Israel Act, including that it is not currently engaged in, and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel; companies doing business in, or with, Israel companies authorized by, licensed by, or organized under, the laws of the State of Israel; or persons or entities doing business in the State of Israel.

28. **Notices**. All notices required or permitted under this Contract are required to be in writing and may be given by first class mail addressed to City or Contractor at the addresses shown above or by hand delivering a copy of the same to the City or Contractor or may be given by any combination of these methods. The date of delivery of any notice given by mail shall be the date falling on the third day after the day of its mailing.

29. **Jurisdiction**. This Contract and every question arising hereunder shall be construed or determined according to the laws of the State of Missouri. Should any part of this Contract be litigated, venue shall be proper only in the Circuit Court of Jackson County, Missouri at Independence or the Federal District Court for the Western District of Missouri, as appropriate. Contractor submits to the personal jurisdiction of and waives any personal jurisdiction or inconvenient forum objection to those courts.

30. **Warranty**. Contractor warrants that all workmanship shall be of good quality, in conformance with bid specifications and guarantees all materials, equipment furnished, and work performed for a period of two (2) years from the date of completion and acceptance of the work that the completed work is free from all defects due to faulty materials or workmanship. The date of completion for all scopes of work shall be the last date of acceptance of all work in this Contract. Contractor shall, within ten (10) days' notice from the City, correct any work found to be defective, incorrect, or not in accordance with bid specifications.

31. **Severability**. The invalidity, illegality, or unenforceability of any provision of this Contract or the occurrence of any event rendering any portion or provision of this Contract void shall in no way affect the validity or enforceability of any other portion or provision of this Contract. Any void provision shall be deemed severed from this Contract, and the balance of this Contract shall be construed and enforced as if this Contract did not contain the particular portion or provision held to be void.

32. **Entire Contract**. This Contract contains the entire Contract of the parties. No modification, amendment, or waiver of any of the provisions of this Contract shall be effective unless in writing specifically referring hereto and signed by both parties.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals on the day and year herein stated.

CONTRACTOR NAME

By: _____
Name: _____
Title: _____

CITY OF BLUE SPRINGS, MISSOURI

_____
Christine Cates, City Administrator

APPROVED AS TO FORM

_____
Jennifer Baird, City Attorney

Exhibit 1 to Contract Scope of Work		
Name of Contractor	NAME OF CONTRACTOR	
Scope of Work (Job Description)	Brief description of work All work shall be performed in accordance with Contractor's Click or tap here to enter text. dated Click or tap to enter a date. attached hereto and incorporated herein as Attachment A.	
Start Date	Click or tap to enter a date.	
Interim Deadlines (if applicable)	**Date**	**Phase of Project To Be Completed**
Final Completion Deadline	Click or tap to enter a date.	
Reimbursable Expenses	☐ None ☐ Travel, Lodging, Meals, Phone Calls, Copying, Postage	
Maximum Payment	$	Maximum payment for services rendered
	$	Maximum amount of expenses to be reimbursed
	$	Total maximum amount to be paid to Contractor
Method of Payment	☐ Lump sum of entire amount upon satisfactory completion of project ☐ Monthly payments based on rate of $ per hour ☐ Incremental payments as follows: ☐ % retainage held until completion of project.	

BID BOND

CONTRACTOR (Name and Address):

_____

_____

_____

SURETY (Name and Address of Principal Place of Business):

_____

_____

_____

CITY (Name and Address):

City of Blue Springs, 903 W. Main Street, Blue Springs, Missouri 64015

BID

BID DUE DATE:_____at 3:00 p.m.
Project:

BOND

BOND NUMBER: _____
DATE: (Not Later than Bid Due Date): _____
PENAL SUM: _____

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized agent, officer or representative.

CONTRACTOR	SURETY
_____	_____
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By:_____	By: _____
Signature and Title	Signature and Title (Attach Power of Attorney)
Attest:_____	Attest: _____
Signature and Title	Signature and Title

Note:

1. Above addresses are to be used for giving required notice.
2. Any singular reference to Contractor, Surety, City, or other party shall be considered plural where applicable.
3. Surety companies executing BONDS shall be named in current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department and be authorized to transact business in the State of Missouri.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assign to pay to City upon default of Contractor the penal sum set forth on the face of this Bond.

2. Default of Contractor shall occur upon the failure of Contractor to deliver within the time required by the Bidding Documents the executed Contract required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.

3. This obligation shall be null and void if:

   a. City accepts Contractor's bid and Contractor delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by City) the executed Contract required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

   b. All bids are rejected by City, or

   c. City fails to issue a notice of award to Contractor within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Contractor and, if applicable, consented to by surety when required by Paragraph 5 hereof).

4. Payment under this Bond shall be due and payable upon default of Contractor and within thirty calendar days after receipt by Contractor and surety of written notice of default from City which notice will be given with reasonable promptness, identifying this Bond and the Project, and including a statement of the amount due.

5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by City and Contractor, provided that the time for issuing notice of award including extensions shall not in the aggregate exceed 120 days from bid due date without surety's written consent.

6. No suit or action shall be commenced under this Bond prior to thirty calendar days after the notice of default required in Paragraph 4 above is received by Contractor and surety, and in no case later than one year after bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notice required hereunder shall be in writing and sent to Contractor and surety at their

respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective power of attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of surety to execute, seal and deliver such Bond and bind the surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "bid" as used herein includes a bid, offer, or proposal as applicable.

PERFORMANCE & MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT we, the undersigned, _____of _____, hereinafter referred to as "contractor", and _____, a corporation organized under the laws of the state of_____and authorized to transact business in the state of Missouri, as "surety", are held and firmly bound unto the city of blue springs, Missouri, hereinafter referred to as "city", in the penal sum of_____ dollars ($ _____), lawful money of the united states of America for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally by these presents.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT:

Whereas, the above bonded contractor has, on the_____day of_____, 20____, entered into a written contract with the aforesaid city for furnishing all materials, equipment, tools, superintendence, and other facilities and accessories, for the construction of certain improvements as designated, defined, and described in the said contract and the conditions thereof, and in accordance with the specifications and plans therefore; a copy of said contract being attached hereto and made a part thereof:

Now, therefore if said contractor shall and will, in all particulars will, duly, and faithfully observe, perform and abide by each and every covenant, condition, and part of the said contract, and the conditions, specifications, plans and other contract documents thereto attached or by reference made a part thereof, according to the true intent and meaning in the case, then this obligation shall be and become null and void; otherwise, it shall remain in full force and effect:

Provided further, that the said surety, for value received, hereby stipulates and agrees that no change, extension of time, alternation, or addition to the terms of the contract, or the work to be performed thereover, or the specifications accompanying the same, shall in any way affect its obligations on this bond and it does hereby waive notice of any change, extension of time, alteration, or addition to the terms of the contract, or to the work, or to the specifications.

Provided further, that if the said contractor shall construct or cause to be constructed and completed the improvement in accordance with specifications for like improvements, and to the lines and grades shown on the plans, all to be done subject to the approval and acceptance of the engineer, and shall construct said with such materials in such manner that same shall endure without need of any repairs for the period of two (2) years from and after the completion of said improvement and acceptance thereof; and if said improvement shall endure without the need of repairs for the period of two (2) years from and after completion and acceptance thereof as aforesaid, then this obligation shall be void, otherwise to be in full force and effect.

IN TESTIMONY WHEREOF, the contractor has hereunto set his hand, and said surety has caused these presents to be executed in its name, and its corporate seal to be hereunto affixed, by its attorney-in-fact duly authorized to do so at

_____, on this_____day of_____, 20__.

Contractor

By_____

Title _____

_____

Surety

By _____

Attorney-in-fact

By _____

Missouri resident agent

(Accompany this bond with the attorney-in-fact's authority from the surety company certified to include the date of the bond).

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: _____(Contractor)

_____(Contractor Address)

a _____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____(Surety)

_____(Surety Address)

hereinafter called Surety, are held and firmly bound unto the City of Blue Springs, Missouri (hereinafter called City), in the penal sum of _____dollars ($ _____) in lawful money in the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

The Condition of this Obligation is such that whereas, the Principal entered into a certain Contract with the City, dated the _____day of _____, 20___, a copy of which is hereto attached and made a part hereof in the construction of:

_____

_____

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing material for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal, repairs or machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

IMPORTANT- Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contractor to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contractor to the work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the City and Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____counterparts, each one of which shall be deemed an original, this the _____day of _____, 20_____.

_____
Principal

ATTEST: By: _____

_____ _____
Secretary Address

SEAL

_____
Witness to Principal

_____
Address

Surety

ATTEST: By: _____
Attorney-in-Fact

_____ _____
Secretary Address

SEAL

_____
Witness to Surety

_____
Address

NOTE: Date of bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute bond.

GENERAL CONDITIONS OF OWNER-CONTRACTOR AGREEMENT

ARTICLE 1

CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.1 The Contract Documents. The Contract Documents include the Owner-Contractor Agreement, General Conditions of the Owner-Contractor Agreement, State Wage Determination, Non-Collusion Affidavit, the Performance Payment Bond, the Drawings, the Specifications, the Construction Schedule, all Addenda and all Modifications issued after execution of the Contact. A Modification is (1) a written amendment to the Contract signed by both parties, or (2) a written Change Order.

1.1.2 The Contract. The Contract Documents form the Contract. The Contract represents the entire and integrated Agreement between the parties hereto and supersedes all prior negotiations, representations or agreements, both written and oral, including the Bidding Documents. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.1.

1.1.3 The Work. The term Work means the construction and services required or reasonably inferable from the Contract Documents, and includes all labor necessary to complete the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in such construction.

1.1.4 The Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part.

1.1.5 Notice to Proceed. The written notice from the Owner notifying the Contractor of the date on or before which he is to begin execution of the Work.

1.2 EXECUTION, CORRELATION, INTENT AND INTERPRETATIONS

1.2.1 The Contract Documents shall be signed in not less than triplicate by the Owner and Contractor.

1.2.2 The Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. The intention of the Contract Documents is to include all labor, materials, equipment and other items as provided in Subparagraph 3.3 necessary for execution and completion of the Work. Words which have well-known technical or trade meanings are used herein in accordance with such recognized meanings.

1.2.4 In the event of any conflict or inconsistency in the Contract Documents, the better quality and quantity of Work, as determined by the Engineer, shall be provided without change in the Contract Sum.

1.3 COPIES FURNISHED AND OWNERSHIP

1.3.1 Unless otherwise provided in the Contract Documents, the Contractor will be furnished a maximum of three (3) copies, free of charge, of the Drawings and Specifications for the execution of the Work.

1.3.2 All Drawings, Specifications and copies thereof furnished by the Owner are and shall at all times remain property of the Owner. Such documents shall not be used on any other project.

1.3.3 For informational purposes only, Geotechnical and/or Environmental Reports may have been prepared at the Owners request. If available, these reports can be requested from the Engineer, but are not intended to be or construed as Contract Documents.

ARTICLE 2

OWNER

2.1 DEFINITION

2.1.1 The Owner is the person or organization identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term “Owner” means the Owner or its authorized representative.

2.2 OWNER'S RIGHT TO STOP THE WORK

2.2.1 If the Contractor fails to correct defective work, or fails to supply labor, materials or equipment in accordance with the Contract Documents, the Owner may order the Contractor to stop the work, or any portion thereof, until the cause for such order has been eliminated; however, the Owner’s right to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any third party.

2.3 OWNER'S RIGHT TO CARRY OUT THE WORK

2.3.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, or fails to perform any provision of the Contract, the Owner may, after seven (7) days' written notice to the Contractor and without prejudice to any other remedy he may have, make good such deficiencies. In such case an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner promptly upon request.

2.4 ENGINEER’S STATUS DURING CONSTRUCTION

2.4.1 The Engineer will be Owner’s representative during the construction period.

2.4.2 Engineer will make periodic visits to the site to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. He shall not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work.

2.4.3 Engineer will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents (in the form of Drawings or otherwise) as he may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If Contractor believes that a written clarification and interpretation entitles him to an increase in the Contract Price, he may make a claim in writing therefore.

2.4.4 Engineer will have authority to disapprove or reject Work which is “defective” (which term is hereinafter used to describe Work that is unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents or does not meet the requirements of any inspection or test or has been damaged prior to approval of final payment). He will also have authority to require special inspection or testing of the Work whether or not the Work is fabricated, installed or completed.

2.4.5 If Owner and Engineer agree, Engineer will furnish a Resident Project Representative and assistants to assist Engineer in carrying out his responsibilities at the site.

2.4.6 Neither Engineer’s authority to act in the Contract documents nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of Engineer to Contractor, any Subcontractor, any material man, fabricator, supplier or any of their agents or employees or any other person performing any of the Work.

2.4.7 Engineer will not be responsible for Contractor’s means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and he will not be responsible for Contractor’s failure to perform the Work in accordance with the Contract Documents.

2.4.8 Engineer will not be responsible for the acts or omissions of Contractor, or any Subcontractors, or any of his or their agents or employees, or any other persons at the site or otherwise performing any of the Work.

ARTICLE 3

CONTRACTOR

3.1 DEFINITION

3.1.1 The Contractor is the person or organization identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term "Contractor" means the Contractor or his authorized representative.

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

3.2.1 The Contractor shall perform the Work in accordance with the Contract Documents, and shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work, and shall be solely responsible for job-site safety precautions, procedures and programs.

3.3 LABOR AND MATERIALS

3.3.1 Unless otherwise specifically noted, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work.

3.3.2 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him. If the Owner reasonably objects to any person employed by the Contractor, the employee shall be immediately dismissed.

3.3.3 The Contractor shall comply with, and is bound by, the provisions of Missouri law pertaining to the payment of wages on public works projects contained in MO.Rev.Stat. SS290.210 (2000) through 290.340 (2000), and any amendments thereto, including, but not limited to the following:

1. In accordance with MO.Rev.Stat. S290.250 (2000), the Contractor shall not pay less than the prevailing hourly rate of wages specified by the Missouri Department of Labor and Industrial Relations Division of Labor Standards to all workers performing Work under the Contract.

2. In accordance with MO.Rev.Stat. S290.250 (2000), the Contractor shall forfeit as a penalty to the Owner one hundred dollars ($100.00) for each worker employed for each calendar day, or portion thereof, such worker is paid less than the said stipulated rates for any Work done under the Contract, by him or by any Subcontractor under him and shall include provisions in all bonds guaranteeing the faithful performance of said prevailing hourly wage clause.

3. In accordance with MO.Rev.Stat. S290.265 (2000), the Contractor and each Subcontractor shall post a clearly legible statement of all prevailing hourly wage rates to be paid to all workers employed to complete the Work in a prominent and easily accessible place at the site of the Work and such notice shall remain posted during the full time that any workers shall be employed on the Work.

a. Certified payrolls shall also be submitted prior to final payment for all work completed by the Contractor or Subcontractors.

4. In accordance with MO.Rev.Stat. S290.290 (2000), before final payment is made an affidavit must be filed by the Contractor stating that he has fully complied with the prevailing wage law. Final payment shall not be due unless and until this affidavit is filed in proper form and order.

3.3.4 The contractor and any subcontractor performing the work shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Missouri Department of Labor and Industrial Relations which is at least as stringent as an approved OSHA program. All employees are required to complete the program within sixty (60) days of beginning work on such construction project. Any employee found on the worksite without documentation of the successful completion of such a course shall be afforded twenty (20) days to produce such documentation before being subject to removal from the project. If any employee fails to complete the program within sixty (60) days of the start of the project or within twenty (20) days of being found on the worksite without documentation, the contractor shall forfeit as a penalty to the City two thousand five hundred dollars ($2,500) plus one hundred dollars ($100) for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training.

3.3.5 The Contractor shall execute and complete the Work in such a manner that avoids jurisdictional and other disputes among labor unions.

3.4 WARRANTY

3.4.1 Contractor warrants that it shall use sound construction principles and practices in the performance of the Work and that it shall apply to the Work a high degree of skill, care, judgment and supervision to assure that the Work is performed properly and in accordance with the Contract Documents. Contractor further warrants that the Work shall fulfill the terms of any special warranties established by the Specifications and that the Work shall be free from defects due to faulty materials, equipment or workmanship for one year from the date of Final Completion of the Project. If any defect exists in the Work within such period, Contractor shall promptly, upon notice from Owner, at Contractor's expense, make suitable repairs or replacements. If Contractor fails to make or commence such repairs or replacements as required above, Owner may make such repairs, and Contractor shall also pay for any resulting damage to other property and work occasioned by Contractor's breach of any of the aforementioned warranties or guaranties.

3.4.2 The Contractor agrees to assign to the Owner at the time of final completion of the Work, all manufacturer's warranties relating to materials and labor used in the Work and further agrees to perform the Work so as to preserve all such warranties.

3.4.3 Owner's rights under Section 3.4 are in addition to all other rights or remedies which it may have under the Contract or at law or equity.

3.5 PERMITS, FEES AND NOTICES

3.5.1 The Contractor shall secure and pay for all permits, governmental fees and licenses necessary for the proper execution and completion of the Work.

3.5.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the Work. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Owner in writing and any necessary changes shall be adjusted by appropriate Modification. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations and without such notice to the Owner, the Contractor shall assume full responsibility thereof and shall bear all costs attributable thereto.

3.6 SUPERINTENDENT

3.6.1 The Contractor shall employ a competent superintendent who shall be in attendance at the Project site during performance of the Work. This person shall be a superintendent who will be responsible for the satisfactory progression of the Work and to ensure that all Work is being completed in accordance with the Drawings and Specifications. He is also to relay any conflicts or discrepancies that arise in the Drawings to the Owner's representative for resolution or interpretation. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor.

3.7 RESPONSIBILITY FOR THOSE PERFORMING THE WORK

3.7.1 The Contractor shall be responsible to the Owner for the acts and omissions of all his employees and all Subcontractors, their agents and employees and all other persons performing any of the Work under the Contract with the Contractor.

3.8 DRAWINGS AND SPECIFICATIONS AT THE SITE

3.8.1 The Contractor shall maintain at the site for the Owner, one copy of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders and other Modifications, in good order and marked to record all changes made during construction. The as-built Drawings, marked to record all changes made during construction, shall be delivered to the Owner upon completion of the Work.

3.9 CLEANING UP

3.9.1 The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. The Contractor shall not "stockpile" any material on the jobsite and all excavated material shall be hauled off the site at the time of excavation. However, stockpiling of materials delivered and used on the same day will be allowed if all materials are in place or removed at the end of the day.

3.9.2 The Contractor is responsible for securing his own project storage site which shall not be located on Owner's property without prior written consent of the Owner. After completion of the Work the Contractor shall remove all remaining waste materials and rubbish from and about the Project as well as all tools, construction equipment, machinery and surplus materials, and shall clean all surfaces and leave the Work "broomclean" or its equivalent, except as otherwise specified.

3.10 INDEMNIFICATION

3.10.1 The Contractor shall indemnify and hold harmless the Owner and its agents and employees from and against any and all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, including, but not limited to, any such claim, damage, loss or expense that is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, except to the extent that such claims, damages or losses are caused by the negligent act or omission of the Owner.

3.10.2 In any and all claims against the Owner or any of its agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any one of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Paragraph 3.10 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under Worker's Compensation acts, disability benefit acts or other employee benefit acts.

3.11 CASH ALLOWANCES

3.11.1 The Contractor acknowledges and agrees that the Contract Sum includes all cash allowances specified in the Contract Documents.

ARTICLE 4

SUBCONTRACTORS

4.1 DEFINITION

4.1.1 A Subcontractor is a person or organization who has a direct contract with the Contractor to perform any of the Work. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative.

4.1.2 Second Tier Subcontracting will not be permitted on this project. It is the Contractor's responsibility to ensure that his subcontractors do not, in turn, subcontract any portion of the work.

4.1.3 Nothing contained in the Contract Documents shall create any contractual relation between the Owner and any Subcontractor.

4.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

4.2.1 Unless otherwise specified in the Contract Documents or in the Instructions to Bidders, the Contractor shall submit a completed and signed Subcontractor Approval Form, along with other required Bid Documents, to the Owner. Contractor shall complete and submit a Supplemental Subcontractor Approval Form to the Owner in the

event of any substitution or addition of a Subcontractor by the Contractor. No work shall be performed by a Subcontractor until such Subcontractor has been approved by the Owner.

4.2.2 Prior to the award of the Contract, the Owner will notify the bidder in writing if the Owner, after due investigation, objects to any such person or entity proposed by the bidder pursuant to Subparagraph 4.2.1 above. If the Owner objects to any such proposed person or entity, the bidder may, at his option, (1) withdraw his bid, or (2) submit an acceptable substitute person or entity with no adjustment in his bid price.

4.2.3 Contractor shall not subcontract more than sixty-five percent (65%) of the total Contract cost.

4.2.4 The Owner reserves the right to reject a Subcontractor, if in the Owner's sole discretion, delays may result in the performance of work as a result of Subcontractor's other obligation. The Contractor shall be held responsible, in addition to the submission of the "Subcontractor Approval Form," to apprise the Owner of any additional work which a Subcontractor accrues throughout the duration of the project. This shall include work for the Owner under a different contract, or any other person or entity. If such said additional work shall detrimentally impact the progression of the Work under this Contract, the Owner retains the right to require the Contractor to submit a substitute Subcontractor for this work at no additional cost to the Owner.

4.2.5 The Contractor shall not contract with any Subcontractor or any person or organization (including those who are to furnish materials or equipment fabricated to a special design), for proposed proportions of the Work designated in the Contract Documents or in the Instruction to Bidders or, if none is so designated, with any Subcontractor proposed for the principal portions of the Work, who has been rejected by the Owner.

4.2.6 If the Owner requires a change of any proposed Subcontractor or person or organization during the execution of the Work approved under the present Contract, the Contract Sum shall be increased or decreased by the difference in cost resulting from such change and an appropriate Change Order shall be issued.

4.2.7 The Contractor shall not make any substitution for any proposed Subcontractor or person or organization that has not been accepted by the Owner prior to the Contract Award, unless the substitution is accepted by the Owner in writing prior to such substitution.

4.3 **SUBCONTRACTUAL RELATIONS**

4.3.1 All work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate written agreement between the Contractor and Subcontractor which shall contain provisions that:

1. require the Work to be performed in accordance with the requirements of the Contract Documents;

2. require submission to the Contractor of applications for payment under each Subcontract to which the Contractor is a party, in reasonable time to enable the Contractor to apply for payment in accordance with Article VIII hereof;

3. require that all claims for additional costs, extensions of time, damages for delays or otherwise with respect to Subcontracted portions of the Work shall be submitted to the Contractor (via any Subcontractor) in sufficient time so that the Contractor may comply in the manner provided in the Contract Documents for like claims by the Contractor upon the Owner;

4. waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance described in Paragraph 10.2, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee under Paragraph 10.2;

5. obligate each Subcontractor specifically to consent to the provisions of this Paragraph 4.3; and

6. require the Subcontractor to indemnify and hold harmless the Owner against all claims, damages, losses, expenses and attorneys' fees arising out of or resulting from the performance of the Work by Subcontractor, and its agents and employees, except to the extent such claims, damages or losses are caused by the negligent act or omission of the Owner.

4.4 PAYMENTS TO SUBCONTRACTORS

4.4.1 The Contractor shall pay each Subcontractor upon receipt of payment from the Owner, an amount equal to the percentage of completion allowed to the Contractor on account of such Subcontractor's work, less the percentage retained from payments to the Contractor.

4.4.2 If the Owner withholds payment to the Contractor for any cause which is the fault of the Contractor and not the fault of a particular Subcontractor, the Contractor shall pay that Subcontractor on demand for its Work to the extent completed.

4.4.3 The Owner shall not have any obligation to pay or to see to the payment of any sum to any Subcontractor.

ARTICLE 5

SEPARATE CONTRACTS

5.1 OWNER'S RIGHT TO AWARD SEPARATE CONTRACTS

5.1.1 The Owner reserves the right to award other contracts on other terms and conditions in connection with other portions of the Project.

5.2 MUTUAL RESPONSIBILITY OF CONTRACTORS

5.2.1 The Contractor shall afford other contractors reasonable opportunity for the delivery and storage of their materials and equipment and the execution of their work, and shall properly connect and coordinate the Work with theirs.

5.2.2 If any part of the Work depends for proper execution or results upon the work of any other separate contractor, the Contractor shall inspect and promptly report to the Owner any apparent discrepancies or defects in such work that render it unsuitable for proper execution of the Work. Failure of the Contractor to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper to receive the Work, except as to defects which may develop in the other contractor's work after the execution of the Contractor's Work that could not have been discovered by the Contractor upon reasonable inspection.

5.2.3 If the Contractor causes damage to the Work or property of any other contractor on the project, and such separate contractor sues the Owner or initiates a legal proceeding on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall defend such proceedings at his own expense, and if any judgment or award against the Owner arises therefrom the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court costs which the Owner has incurred.

5.3 OWNER'S RIGHT TO CLEAN UP

5.3.1 If a dispute arises between the separate contractors as to their responsibility for cleaning up as required by Paragraph 3.9, the Owner may clean up and charge the cost thereof to the separate contractors.

ARTICLE 6

MISCELLANEOUS PROVISIONS

6.1 GOVERNING LAW

6.1.1 The Contract shall be governed by the laws of the State of Missouri.

6.2 SUCCESSORS AND ASSIGNS

6.2.1 The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract without the prior written consent of the other, nor shall the Contractor assign any sums due or to become due to him hereunder, without the prior written consent of the Owner.

6.3 NOTICES

6.3.1 Any notice to any party pursuant to or in relation to the Contract shall be in writing and shall be deemed to have been duly given when delivered in person to the individual or member of the firm or to an officer of the corporation for whom it was intended, or when deposited in the United States mail, registered or certified with postage prepaid addressed to the last business address known to the party giving the notice.

6.4 RIGHTS AND REMEDIES

6.4.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

6.5 ROYALTIES AND PATENTS

6.5.1 The Contractor shall pay all royalties and license fees payable on all designs, processes or products used in connection with the Work or incorporated therein, unless otherwise agreed upon by the Owner. The Contractor shall defend all suits or claims for infringement of any patent rights and shall indemnify and hold the Owner harmless from and against any loss on account thereof.

6.6 TESTS

6.6.1 The Contractor shall bear all costs of any inspections, tests, or approvals required under APWA Specifications regardless of designated responsibility listed in the specification.

6.6.2 The Owner will provide special inspection and testing services to verify the Work is performed in accordance with the Contract. The Owner will provide the Contractor with a listing of tests to be performed and approximate locations or frequency. The Contractor will be required to notify the Owner forty-eight (48) hours prior to the time the Contractor will be ready for specific tests required by the Owner. If such special inspection or testing reveals failure of the Work to comply (1) with the requirements of the Contract Documents, or (2) with respect to the performance of the Work, with laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, the Contractor shall bear the cost of the Owner's inspection and retesting and such cost shall be deducted then or thereafter due Contractor. In all other cases, the Owner shall bear such costs.

6.7 PERFORMANCE AND PAYMENT BONDS

6.7.1 The Contractor shall furnish the Performance Bond and the Payment Bond required in the Instructions to Bidders.

6.8 SHOP DRAWINGS AND SUBMITTALS

6.8.1 The Contractor shall submit to the Engineer, with such promptness as to cause no delay in the performance of the work, copies of design drawings, specifications, shop drawings, equipment details, installation, operating, and maintenance instructions, wiring diagrams, parts lists, etc. No purchasing, fabrication, erection, processing or shipping of the aforementioned material or equipment may begin until the drawings or details have been reviewed by the Engineer. Regardless of corrections made in or approval given to such shop drawings or equipment submittals by the Engineer, the Contractor will be responsible for the accuracy of such drawings and for their conformity to the Drawings and Specifications.

ARTICLE 7

TIME

7.1 DEFINITIONS

7.1.1 The Contract Time is the period of time allotted in the Contract Documents for completion of the Work. Said Work shall include all punchlist items deemed necessary by the Owner. The date of completion of the Contract shall be the date when all work including Owner punchlist items have been approved in writing by the Owner.

7.1.2 The date of commencement of the Work is the date established in the written Notice to Proceed from the Owner to the Contractor.

7.1.3 The term "day" as used in the Contract Documents shall mean calendar day.

7.2 PROGRESS AND COMPLETION

7.2.1 All time limits stated in the Contract Documents are of the essence of the Contract.

7.2.2 The Contractor shall begin the Work on the date of commencement provided in the Owner-Contractor Agreement. The Contractor shall carry the Work forward expeditiously with adequate forces and shall complete it within the Contract Time and in accordance with the Construction Schedule.

ARTICLE 8

PAYMENTS AND COMPLETION

8.1 CONTRACT SUM

8.1.1 The Contract Sum is stated in the Owner-Contractor Agreement and is the total amount payable by the Owner to the Contractor for the performance of the Work.

8.2 APPLICATION FOR PAYMENT

8.2.1 On or about the first day of the month, upon substantial completion of various stages of the Work, and upon final completion of the Work, the Contractor shall submit to the Owner an itemized Application for Payment pursuant to the Owner-Contractor Agreement on such forms and supported by such data substantiating the Contractor's right to payment as the Owner may require.

8.2.2 If payments are to be made on account of materials or equipment to be incorporated into the Work and delivered and suitably stored at the site, such payments shall be conditioned upon submission by the Contractor of bills of sale or such other documents satisfactory to the Owner to establish the Owner's title to such materials or equipment or to otherwise protect the Owner's interest.

8.2.3 The Contractor warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, whether incorporated into the Work or not, will pass to the Owner upon the receipt of such payment by the Contractor, free and clear of all liens, claims, security interests or encumbrances (hereinafter referred to as "liens").

8.3. PAYMENT

8.3.1 If the Contractor has made Application for Payment as above, the Owner will, in accordance with the Owner-Contractor Agreement, make payment to the Contractor for such amount as it determines to be properly due pursuant to the Contractor's Application for Payment, or state in writing the Owner's reasons for withholding all or any portion of such payment.

8.3.2 No progress payment, nor any partial or entire use or occupancy of the Work by the Owner, shall constitute an acceptance of any Work not completed in accordance with the Contract Documents.

8.4 COMPLETION AND FINAL PAYMENT

8.4.1 Upon receipt of written notice from the Contractor that the Work is fully completed and ready for final inspection and acceptance, and upon receipt of a final Application for Payment, the Owner will promptly make such inspection and, when the Owner finds the Work acceptable under the Contract Documents and the Contract fully performed, the Owner will make final payment to the Contractor in accordance with the Owner-Contractor Agreement.

8.4.2 The final payment shall not become due until the Contractor submits to the Owner (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness incurred in connection with the execution and completion of the Work for which the Owner or its property might in any way be responsible, have been paid or otherwise satisfied, (2) consent of the Surety, if any, to final payment, (3) an affidavit stating the Contractor has fully complied with the provisions and requirements of the Prevailing Wage Law, Section 290.210 through 290.340 as amended by MO.Rev.Stat. 1969, and (4) if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by the Owner. If any Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner indemnifying the Owner against any such

lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

8.4.3 The acceptance of final payment shall constitute a waiver of all claims by the Contractor, except those previously made in writing and still unsettled.

ARTICLE 9

PROTECTION OF PERSONS AND PROPERTY

9.1 SAFETY PRECAUTIONS AND PROGRAMS

9.1.1 The Contractor shall initiate, maintain and supervise safety precautions and programs in connection with the performance of the Work.

9.2 SAFETY OF PERSONS AND PROPERTY

9.2.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

1. all employees on the Work and all other persons who may be affected thereby;

2. all the Work, all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and

3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

9.2.2 The Contractor shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority having jurisdiction over the safety of persons or property to protect them from damage, injury or loss. The Contractor shall erect and maintain all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying Owner and users of adjacent utilities. The Contractor shall provide signs, barrels, or any other safety devices which the Owner deems necessary for public safety. No additional payment will be made and this work shall be considered incidental to the Contract. The Owner will place safety devices as it deems necessary if the Contractor fails to provide the required items within 24 hours of notification. The Contract Sum shall be reduced by the cost of these devices.

9.2.3 When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

9.2.4 All damage or loss to any property caused in whole or in part by the Contractor, any Subcontractor, or any Sub-subcontractor, or anyone directly or indirectly employed by anyone for whose acts they may be liable, shall be remedied by the Contractor. The Owner shall document any complaint by any person regarding damage or loss to property caused by Contractor by requesting such complainant to complete a Damage Claim Form. A copy of the Damage Claim Form shall be submitted by the Owner to the Contractor and the Contractor shall correct the problem, repair such damage or otherwise compensate the complainant or file a claim for such damage with Contractor's insurance company within ten (10) days of the receipt of the Damage Claim Form from the Owner. If the Owner shall have a legitimate basis for believing that such claim is valid, the Owner shall have the option to withhold payment of funds until (i) such damages are repaired; or (ii) the Owner has been provided with evidence that the Contractor has made restitution to the complainant.

9.2.5 The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner.

ARTICLE 10

INSURANCE

10.1 CONTRACTOR'S LIABILITY INSURANCE

10.1.1 The Contractor shall purchase and maintain such insurance required in the Owner-Contractor Agreement to protect him from claims which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

10.1.2 The insurance shall be written for not less than any limits of liability specified in the Owner-Contractor Agreement, or required by law, whichever is greater, and shall include contractual liability insurance as applicable to the Contractor's obligations under Paragraph 3.10.

10.1.3 Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. Certificate of Insurance must state**: "City of Blue Springs, the Engineer and their Officers and Employees, are included as an additional insured as required by written contract under the General Liability Policy with respect to work performed by the named insured on the above listed project."** These Certificates shall contain a provision that coverage afforded under the policies will not be cancelled until at least fifteen days prior written notice has been given to the Owner.

10.2 PROPERTY INSURANCE

10.2.1 Unless otherwise provided, the Contractor shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. This insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work and shall insure against the perils of fire, extended coverage, vandalism and malicious mischief.

10.2.2 The Contractor shall purchase and maintain such machinery insurance as may be required by the Contract Documents or by law. This insurance shall include the interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

10.2.3 Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the work. Certificates of Insurance must state on the certificate: **"City of Blue Springs, the Engineer and their Officers and Employees, are included as an additional insured as required by written contract under the General Liability Policy with respect to work performed by the named insured on the above listed project."** These Certificates shall contain a provision that coverage afforded under the policies will not be cancelled until at least fifteen days' prior written notice has been given to the Owner.

10.2.4 Any loss insured by property insurance maintained by the Owner shall be adjusted with the Owner and made payable to the Owner as trustee for the insured, as their interests may appear, subject to the requirements of any applicable mortgagee clause.

10.2.5 The Owner and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided under this Paragraph 10.2 and the Contract Documents, Owner-Contractor Agreement, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee. The Contractor shall require similar waivers by Sub-contractors and Sub-subcontractors in accordance with Subparagraph 4.3.1.

ARTICLE 11

REQUEST FOR INFORMATION

11.1 GENERAL

11.1.1 Request for Information Submittal

1. The Contractor shall submit requests for information for conditions requiring clarification of the Contract Documents utilizing the RFI form provided by the Engineer included in the bid documents. The Engineer will not respond to requests for information unless this format is utilized and all appropriate information is provided. Faxed or emailed RFIs are acceptable.

2. Do not use Request for Information process during bidding phase. For questions during bidding phase, refer to Invitation to Bid issued by the Engineer or Owner.

   A. Subcontractors, manufacturers, and suppliers shall submit request for additional information and clarification to the prime Contractor. The Contractor shall then submit to the Engineer as provided in this section.

   B. Contractor shall contact the Engineer, as applicable, with requests for additional information or clarification. The Engineer will not accept requests for information or clarification submitted directly from subcontractors, manufacturers, or suppliers.

   C. The Engineer will provide a response to Contractor within three (3) working days of receipt of the RFI submitted per this section.

   D. The Engineer response shall not be considered as a Change Order or Change Directive, nor does it authorize changes in the Contract Sum or Contract Time.

ARTICLE 12

CHANGES IN THE WORK

12.1 CHANGE ORDERS

12.1.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, with the Contract Sum and the Construction Schedule being adjusted in accordance with the Owner-Contractor Agreement. All such changes in the Work shall be authorized by Change Order, and shall be executed and performed under the applicable conditions of the Contract Documents.

12.1.2 A Change Order is a written order to the Contractor signed by the Owner, issued after the execution of the Contract, authorizing a change in the Work or an adjustment in the Contract Sum or the Construction Schedule. The Contract Sum and the Contract Time may be changed only by Change Order. The Contractor shall receive no compensation or extension of time for performing any additional or extra work unless Contractor receives a written Change Order or other written direction signed by the Owner before performing such work.

12.1.3 The cost or credit to the Owner resulting from a change in the Work shall be determined in accordance with the Owner-Contractor Agreement.

12.2 MINOR CHANGES IN THE WORK

12.2.1 The Owner shall have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or the Construction Schedule and not inconsistent with the intent of the Contract Documents. Such changes may be affected by written Field Order or by other written order. Such changes shall be binding on the Owner and the Contractor.

12.3 CLAIMS AND DISPUTES

12.3.1 If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the Owner written notice thereof within seven (7) days after the occurrence of the event-giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work. No such claim shall be valid unless so made. If the Owner and the Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined in accordance with Paragraph 12.3.5. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

12.3.2 The Contractor shall carry on the Work and adhere to the Construction Schedule pending all disputes or disagreements with the Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements. The Owner agrees to pay the Contractor, in accordance with the Contract Documents, for Work performed that is not subject to dispute or disagreement.

12.3.3 If conditions are encountered at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, then the Contractor shall give written notice

thereof to the Owner before the conditions are disturbed and in no event later than seven (7) days after first observance of the conditions. The Owner will promptly investigate such conditions and, if they differ materially from those indicated in the Contract Documents and cause an increase or decrease in the Contractor's cost of or time required for performance of the Work, will adjust the Contract Sum or the Contract Time, or both. If the Owner and the Contractor cannot agree on the amount of the adjustment to the Contract Sum or the Contract Time, it shall be determined in accordance with Paragraph 12.3.5.

12.3.4 If the Contractor wishes to make a claim for an increase in the Contract Time, he shall give the Owner written notice thereof within seven (7) days after the occurrence of the event-giving rise to such claim. Adjustment to the Contract Time shall be in accordance with Article VI of the Owner-Contractor Agreement.

12.3.5

1. All claims, counterclaims, disputes and other matters in question between the parties hereto arising out of or relating to this Agreement or the breach thereof will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This Agreement to arbitrate and any other agreement or consent to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction. The location of the arbitration will be Jefferson County, Missouri.

2. Notice of demand for arbitration must be filed in writing with the other party to this Agreement and with the American Arbitration Association. The demand must be made within a reasonable time after the claim, dispute or other matter in questions has arisen. In no event may the demand for arbitration be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

3. No arbitration arising out or related to this Agreement shall include, by joinder, consolidation or other manner, any person not a party to this Agreement.

4. The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and will not be subject to modification or appeal except to the extent permitted by Sections 10 and 11 of the Federal Arbitration Act (9 U. S. C. Sections 10 and 11).

5. Unless otherwise agreed in writing, Contractor shall carry on the Work and maintain its progress during any arbitration proceedings, and the Owner shall continue to make payments to Contractor in accordance with this Agreement. This Paragraph 12.3.5 shall survive completion or termination of this Agreement.

6. Prior to the exercise of any rights or remedies described in this Paragraph, Owner and Contractor agree that if any claim or dispute arising out of this Agreement or the breach cannot be settled through direct discussions, they agree to first endeavor to settle the claim or dispute by mediation under the Construction Industry Mediation Rules of the American Arbitration Association then in effect.

ARTICLE 13

UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If any Work should be covered contrary to the request of the Owner, it must, if required by the Owner, be uncovered for his observation and replaced, at the Contractor's expense.

13.1.2 If any Work has been covered which the Owner has not specifically requested to observe prior to being covered, the Owner may request to see such Work and it shall be uncovered by the Contractor. If such Work is found to be in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay such costs.

13.2 CORRECTION OF WORK

13.2.1 The Contractor shall promptly correct all Work rejected by the Owner as defective or as failing to conform to the Contract Documents, whether observed before or after substantial completion of the Work, and whether or not fabricated, installed or completed. The Contractor shall bear all cost of correcting such rejected Work.

13.2.2 All such defective or non-conforming Work under Subparagraphs 13.2.1 shall be removed from the site if necessary, and the Work shall be corrected to comply with the Contract Documents without additional cost to the Owner.

13.2.3 The Contractor shall bear the cost of making good all work of separate contractors destroyed or damaged by such removal or correction.

13.2.4 If the Contractor fails to correct such defective or non-conforming Work, the Owner may correct it in accordance with Paragraph 13.3.

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the Owner prefers to accept defective or non-conforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect an appropriate reduction in the Contract Sum or, if the amount is determined after final payment, it shall be paid by the Contractor.

ARTICLE 14

SPECIAL PROVISIONS

14.1 SCHEDULING OF WORK AND INTERFERENCE WITH TRAFFIC

14.1.1 The Contractor's Work must be scheduled and accomplished in stages such that local traffic is maintained during construction. It shall be the Contractor's responsibility to provide a traffic way that is usable in all weather conditions. The Contractor shall construct and maintain, in a safe condition, temporary pavements and connections for local traffic.

14.1.2 Temporary guardrail, or other suitable temporary barriers shall be provided to protect traffic from the Work at all times until final acceptance of the Work. The Contractor shall provide and maintain such signs, lights, watchmen and barriers, in addition to the temporary guardrail, as may be necessary to properly protect the Work and provide for safe and convenient public travel.

14.1.3 No additional payment shall be made for temporary guardrail, barriers, signs, lights, or other work as may be necessary to maintain traffic and to protect the Work and the public and all labor, equipment and material necessary to accomplish this task shall be considered incidental.

14.2 ACCESS

14.2.1 Areas of intersections and roadways within the construction limits shall be constructed in phases so that at no time will access be denied.

14.2.2 Access to private driveways will be limited by the nature of the Work. The Contractor shall schedule his work such that at no time during the life of this Contract will any driveway be denied access for any reason other than the curing of the pavement

All temporary materials used for access will be the responsibility of the Contractor and shall be included in his unit bid price for each related item. No separate payment will be made for the placement, maintenance or removal of said access.

If said access is not supplied as set out above, the Owner will supply said access with its own forces, without notification to the Contractor, and will deduct such costs from the sums due the Contractor, notwithstanding any other provisions given this Contract. Wherever excavation affects pedestrian access to houses or public buildings, plank or other suitable bridges shall be placed at convenient intervals.

14.3 PRECONSTRUCTION CONFERENCE

14.3.1 A preconstruction conference may be held prior to the issuance of a Notice to Proceed with the Work. This meeting will be attended by the Contractor, the Owner, and representatives of the various utility companies that have facilities in the project area. The meeting date will be established after the taking of bids and at a time convenient to all parties.

14.4 SEQUENCE OF WORK

14.4.1 A schedule of the Contractor's Work shall be submitted to the Owner for approval as required under Article V of the Owner-Contractor Agreement. It shall contain a listing of the order in which the Contract items will be constructed and the approximate dates for starting and finishing each Contract item.

14.4.2 The Contractor shall furnish the Owner his proposed sequence and schedule for the completion of all Work for their review and approval prior to the time of the preconstruction conference. The Owner shall have the right to specify the order of construction as deemed necessary.

14.5 CONSTRUCTION LIMITS

14.11.1 The construction limits consist of the public rights-of-way and acquired easement areas. The Contractor shall limit his operations accordingly. The Contractor shall acquire the property owners' permission for any activity outside the public right-of-way or easement areas.

14.6 ALTERED QUANTITIES

14.6.1 The Owner reserves the right to make changes in plan details which may vary the accepted quantities from those shown on the Itemized Bid Form.

14.6.2 The Contractor shall accept, as payment in full, payment at the original Contract unit bid prices for the accepted quantities of work done. No allowance will be made for any increase expense or loss of expected profit suffered by the Contractor resulting directly from such altered quantities or indirectly from expenses derived by handling small quantities of materials or performing operations within restricted areas. No allowance shall be made for any increased expense or loss of expected profit suffered because of the anticipated use of specific equipment which was not used.

14.7 ADDITIONS TO CONTRACT

14.7.1 Unit prices in this Contract may be used to negotiate a Change Order for additional work involving similar projects.

14.8 PURCHASE OF MATERIALS AND EQUIPMENT

14.8.1 Sales to contractors who purchase construction materials and supplies to fulfill their contracts for exempt organizations are not subject to sales tax provided the exempt organizations furnish a copy of their current Exemption Letter and a project Exemption Certificate to the contractor authorizing the purchases for the project. The exempt organization may monitor all supplies purchased, used, and consumed in fulfilling the project.

14.8.2 A project Exemption Certificate shall include, but may not be limited to, the following:

1. The exempt entity's name, address, Missouri Tax Identification Number and signature of authorized representative of the exempt entity;

2. The project location, description and unique identification number;

3. Date the Contract is entered into;

4. The estimated project completion date; and

5. The certificate expiration date.

14.8.3 Contractors must provide a copy of the exempt organization's Exemption Letter and the project Exemption Certificate to suppliers when purchasing materials and supplies to be consumed in the project.

14.8.4 Contractors are not exempt from sales tax on the purchase of machinery, equipment or tools used in fulfilling these contracts.

14.8.5 Suppliers shall render to the Contractor invoices bearing the name of the exempt organization and the project identification number. These invoices must be retained by the purchasing Contractor for a period of five (5) years.

14.8.6 Contractors must file a sales tax return for all excess resalable materials and supplies which are not returned to the supplier. This return must be filed and paid not later than the due date of the Contractor's sales tax return following the month in which the contractor determines that the materials were not used in the project.

14.8.7 An exempt organization that fails to revise the project Exemption Certificate expiration date as necessary to complete any Work required by the Contract will be liable for any sales tax due as determined by an audit of the Contractor.

14.9 TESTING

14.9.1 Materials Testing and Inspection Service: Owner may employ and pay for a qualified independent materials and geotechnical testing laboratory to perform testing and inspection service during construction operations. Contractor shall coordinate all Work and cooperate to allow for testing procedures as required by the Owner.

14.10 TECHNICAL SPECIFICATIONS

14.10.1 Technical Specifications are included in the Project Manual. Where the term "Standard Specifications" is used, such reference shall mean the 2011 edition of the Missouri Standard Specifications for Highway Construction, except as otherwise provided in the contract documents. Where reference is made to a specific part of the Standard Specifications, such applicable part shall be considered as part of this Section of the Specifications. In case of conflict in the requirements of the Standard Specifications and the requirements stated herein, the requirements here shall prevail.

14.11 INSPECTION BY OWNER

14.11.1 Representatives of the City of Blue Springs may make inspection of the work and the Contractor shall grant them access to all parts of the work.

14.12 CONSTRUCTION STAKING

14.12.1 The Contractor shall be responsible for construction staking on this project.

14.13 SITE RESTORATION

14.13.1 All Work shall comply with Section of 2920 of the Specifications. Under no circumstances will final payment be approved if rocks brought to the surface during excavation are visible in yard areas, if the construction area is left in a manner in which the property owner cannot mow their lawn, or the finish grading of the construction area does not match the general contours of the surrounding areas. Any ruts in the construction area shall be filled to eliminate standing water and create a pleasing appearance.

PREVAILING WAGE

Missouri
Division of Labor Standards
WAGE AND HOUR SECTION

MIKE KEHOE, Governor

Annual Wage Order No. 32

Section 048
JACKSON COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by
Logan Hobbs, Director
Division of Labor Standards

Filed With Secretary of State: **March 10, 2025**

Last Date Objections May Be Filed: **April 9, 2025**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	$72.10
Boilermaker	$40.77*
Bricklayer-Stone Mason	$64.45
Carpenter	$67.13
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	$56.83
Plasterer	
Communication Technician	$63.26
Electrician (Inside Wireman)	$74.98
Electrician Outside Lineman	$71.73
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	$96.07
Glazier	$59.60
Ironworker	$72.22
Laborer	$52.24
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	$54.18
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	$66.32
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	$40.77*
Plumber	$82.92
Pipe Fitter	
Roofer	$61.71
Sheet Metal Worker	$78.84
Sprinkler Fitter	$71.59
Truck Driver	$55.76
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.
**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in RSMo Section 290.210.

Heavy Construction Rates for
JACKSON County

Section 048

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	$67.20
Millwright	
Pile Driver	
Electrician (Outside Lineman)	$84.00
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	$53.06
General Laborer	
Skilled Laborer	
Operating Engineer	$61.77
Group I	
Group II	
Group III	
Group IV	
Truck Driver	$52.79
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

OVERTIME
and
HOLIDAYS

OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, **"overtime work"** shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January first;
The last Monday in May;
July fourth;
The first Monday in September;
November eleventh;
The fourth Thursday in November; and
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.

JOB SPECIAL PROVISIONS

JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)

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CITY OF BLUE SPRINGS, MO
903 WEST MAIN STREET
BLUE SPRINGS, MO 64015
Phone 1-816-228-0110

Wilson & Company, Inc., Engineers & Architects
800 East 101ST Terrace, Suite 200
Kansas City, MO 64131
Certificate of Authority: 2003007599
Consultant Phone: (816)701-3100

If a seal is present on this sheet, JSP's have been electronically sealed and dated.

ADDENDUM DATE:

Only the following items of the Job Special Provisions (Roadway) are authenticated by this seal: A, B, C, D, E, G, H, I, K



CITY OF BLUE SPRINGS, MO
903 WEST MAIN STREET
BLUE SPRINGS, MO 64015
Phone 1-816-228-0110

Wilson & Company, Inc., Engineers & Architects
800 East 101ST Terrace, Suite 200
Kansas City, MO 64131
Certificate of Authority: 2003007599
Consultant Phone: (816)701-3100

If a seal is present on this sheet, JSP's have been electronically sealed and dated.

ADDENDUM DATE:

Only the following items of the Job Special Provisions (Headwall) are authenticated by this seal: F



CITY OF BLUE SPRINGS, MO
903 WEST MAIN STREET
BLUE SPRINGS, MO 64015
Phone 1-816-228-0110

Wilson & Company, Inc., Engineers & Architects
800 East 101ST Terrace, Suite 200
Kansas City, MO 64131
Certificate of Authority: 2003007599
Consultant Phone: (816)701-3100

If a seal is present on this sheet, JSP's have been electronically sealed and dated.

ADDENDUM DATE:

Only the following items of the Job Special Provisions (Electrical) are authenticated by this seal: J

JOB
SPECIAL PROVISION

A. General

1.0 Specifications Which Apply. The performance of the work, the materials required, the basis of measurement and the basis for payment (unless otherwise stated herein) for the various portions of the work shall be in accordance with the appropriate sections of the construction standard specifications, design criteria, and standard details provided in:

- The Kansas City Metropolitan Chapter Of The American Public Works association "Standard Specifications And Design Criteria" current edition, except as modified or added to by these special provisions,

- Missouri Standard Plans And Specifications For Highway Construction and revisions effective October 1, 2025, and the current contract document entitled Standard Contract Documents

- City of Blue Springs Design and Construction Manual.

If a conflict exists between the specifications, the more stringent shall prevail.

2.0 Project Award. Award of this project will be based upon the sum of the bid schedules, with or without consideration of any alternates. The Contractor, however, shall take special consideration of the "Information for Bidders" section of the project contract documents; in particular, Evaluation of Bids in submitting their unit prices.

The City of Blue Springs reserves the right to increase, reduce or delete any bid items after award of the contract. No adjustments will be made to the unit prices bid on the contract for any items because of increase, reduction, or deletion.

3.0 Project Completion and Schedule. It is expected that the Notice to Proceed shall be issued by March 20, 2026. After the agreement is executed, the Contractor shall notify the Engineer and Owner in writing when ready for the Notice to Proceed to be issued for the work on the project, starting the commencement of the contract time. The Notice to Proceed shall be issued, and Contract Times under the Contract will commence to run no later than March 20, 2026.

The Work on the Project will be substantially completed within 270 Calendar Days after the Notice to Proceed and completed and ready for final payment within 75 Calendar Days after Substantial Completion.

4.0 Tree Clearing Restriction. The project is within known breeding range of the federally endangered Indiana bat, Gray Bat, and Northern Long-eared Bat. To avoid impacts of roosting bats, ANY required tree clearing (3" Caliper Diameter and Larger) shall be completed between October 16 and April 1.

B. Measurement and Payment

1.0 General. This section covers methods of measurement and payment for items of Work under this Contract. This section supersedes all other measurement and payment sections in the referenced specifications.

1.1 The Contract Price shall cover all Work required by the Contract Documents. All Costs in connection with proper and successful completion of the Work, including furnishing all materials, equipment, supplies and appurtenances; providing all construction plant, equipment, and tools; and performing all necessary labor and supervision to full complete the Work, shall be included in the unit and lump sum prices bid. All Work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices bid.

2.0 Estimated Quantities. All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the Work and (b) for the purpose of comparing the Bids submitted for the Work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Contractor agrees that it will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts therefore.

BID ITEM & SPECIFICATION REFERENCE TABLE

ITEM NO.	SPECIFICATION	DESCRIPTION	MEASUREMENT	PAYMENT	UNIT
1	MoDOT Sec 618	Mobilization	NONE	PLAN	LS
2	APWA Spec 2101 & City Supplement	Removal of Existing Structures	NONE	PLAN	EA
3	APWA Spec 2101 & City Supplement	Clearing and Grubbing	NONE	PLAN	LS
4	MoDOT Spec 627	Contractor Furnished Staking	NONE	PLAN	LS
5	APWA Spec 2102 & City Supplement	Unclassified Excavation	NONE	PLAN	CY
6	APWA Spec 2102 & City Supplement	Embankment	NONE	PLAN	CY
7	JSP E	12’ x 5’ Single Radius Aluminum Arch (w/ Reinforced Conc. Strip Foundations)	NONE	PLAN	LF
8	JSP F	Reinforced Concrete Headwall (w/ Form Liner)	NONE	PLAN	EA
9	JSP G	Modular Block Retaining Wall (w/ Stain)	NONE	PLAN	EA
10	JSP I	Connection to Existing Water Main (STA: 10+00)	NONE	PLAN	EA
11	JSP I	12” PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	NONE	PLAN	LF

12	JSP I	2" PVC Water Service Line	NONE	PLAN	LF
13	JSP I	6" PVC Water Service Line	NONE	PLAN	LF
14	JSP I	Gate Valve	NONE	PLAN	EA
15	JSP I	Fire Hydrant Assembly & Manhole	FIELD	PLAN	EA
16	JSP H	Backflow Preventor Assembly & Manhole	FIELD	PLAN	EA
17	APWA Spec 2600 & City Supplement	Remove & Reset Ex. 15" Flared End Section	FIELD	PLAN	EA
18	APWA Spec 2600 & City Supplement	15" Storm Pipe	NONE	PLAN	LF
19	APWA Spec 2600 & City Supplement	18" Storm Pipe	NONE	PLAN	LF
20	APWA Spec 2600 & City Supplement	24" Storm Pipe	NONE	PLAN	LF
21	APWA Spec 2600 & City Supplement	36" Storm Pipe	NONE	PLAN	LF
22	APWA Spec 2600 & City Supplement	4' x 4' Junction Box	NONE	PLAN	EA
23	APWA Spec 2600 & City Supplement	4.5' x 4' Junction Box	NONE	PLAN	EA
24	APWA Spec 2600 & City Supplement	5.5' x 4' Junction Box	NONE	PLAN	EA
25	APWA Spec 2600 & City Supplement	4' x 4' Curb Inlet	NONE	PLAN	EA
26	APWA Spec 2600 & City Supplement	5' x 3' Curb Inlet	NONE	PLAN	EA
27	APWA Spec 2600 & City Supplement	4.5' x 4' Curb Inlet	NONE	PLAN	EA
28	APWA Spec 2600 & City Supplement	6' x 4' Curb Inlet	NONE	PLAN	EA
29	APWA Spec 2600 & City Supplement	7' x 4' Curb Inlet	NONE	PLAN	EA
30	APWA Spec 2600 & City Supplement	5' x 5' Detention Pond Outlet Structure	NONE	PLAN	EA
31	APWA Spec 2600 & City Supplement	15" RC Flared End Section (W/ Toe Wall)	NONE	PLAN	EA
32	APWA Spec 2600 & City Supplement	24" RC Flared End Section (W/ Toe Wall)	NONE	PLAN	EA
33	APWA Spec 2600 & City Supplement	36" RC Flared End Section (W/ Toe Wall)	NONE	PLAN	EA
34	APWA Spec 2600 & City Supplement	Concrete Arch	NONE	PLAN	EA
35	APWA Spec 2600 & City Supplement	Riprap (D50=9")(TH=18")	FIELD	FIELD	SY
36	APWA Spec 2600 & City Supplement	Riprap (D50=18")(TH=27")	FIELD	FIELD	SY
37	APWA Spec 2600 & City Supplement	Riprap (D50=24")(TH=36")	FIELD	FIELD	SY
38	MoDOT Spec 210	Compaction of Subgrade	NONE	PLAN	STA
39	MoDOT Spec 304	MoDOT Type 5 Aggregate Base (6")	NONE	PLAN	SY

40	MoDOT Spec 304	MoDOT Type 5 Aggregate Base (4")	NONE	PLAN	SY
41	APWA Spec 2200 & City Supplement	Concrete Curb & Gutter (Combined)	FIELD	FIELD	LF
42	APWA Spec 2300 & City Supplement	ADA Curb Ramp (W/ Landing)	NONE	PLAN	EA
43	APWA Spec 2600 & City Supplement	Concrete Flume	NONE	PLAN	EA
44	APWA Spec 2200 & City Supplement	Asphaltic Concrete Surface (Type 5-01)(2")(Roadway)	NONE	PLAN	SY
45	APWA Spec 2200 & City Supplement	Asphaltic Concrete Surface (Type 3-01)(8")(Roadway)	NONE	PLAN	SY
46	APWA Spec 2200 and 2300 & City Supplement	Asphaltic Concrete Surface (Type 5-01)(4")(Shared-Use Path)	NONE	PLAN	SY
47	APWA Spec 2200 and 2300 & City Supplement	Concrete Driveway (8" Uniform)(AE)	NONE	PLAN	SY
48	APWA Spec 2300 & City Supplement	Sidewalk Construction (4")(AE)	NONE	PLAN	SY
49	JSP J	Electrical Service Connection (Includes Electrical Rack)	NONE	PLAN	EA
50	APWA Spec 2800 & City Supplement	Street Light (Includes Foundation, Pole, & Fixture)	NONE	PLAN	EA
51	APWA Spec 2800 & City Supplement	Underground Conduit (1-12" SCH80 PVC)	NONE	PLAN	LF
52	APWA Spec 2800 & City Supplement	Electrical Pull Box	NONE	PLAN	EA
53	APWA Spec 2800 & City Supplement	Electrical Wire	NONE	PLAN	LF
54	APWA Spec 2400 & City Supplement	Permanent Restoration	NONE	PLAN	AC
55	APWA Spec 2150 & City Supplement	Erosion Control	NONE	PLAN	LS
56	APWA Spec 2306	Permanent Pavement Markings	NONE	PLAN	LS
57	APWA Spec 2306	Permanent Signage	NONE	PLAN	LS
58	JSP K	Wall Mounted Pedestrian Fence	NONE	PLAN	LF
59	APWA Spec 2200 & City Supplement	Concrete Pavement (8" Uniform)(AE)(Roadway)	NONE	PLAN	SY
60	APWA Spec 2200 & City Supplement	Concrete Pavement (5" Uniform)(AE)(Shared-Use Path)	NONE	PLAN	SY

3.0 PLAN QUANTITY, CONTRACT UNIT PRICE, LUMP SUM (L.S.)

3.1 Description. This section covers items listed as Plan Quantity, Lump Sum (L.S.) in the Measurement and Payment Column.

3.2 Method of Measurement. The work provided herein will not be measured for payment, but will be considered a plan quantity. Exceptions will be made on a measured quantity basis as defined in the applicable specification for the described item.

3.3 Basis of Payment. Item will be paid for at the contract unit price based on plan quantity. Additional measured quantity of the described Item will be determined and adjusted as defined in 4.2 and in the applicable specification for the described Item.

4.0 PLAN QUANTITY, CONTRACT UNIT PRICE, CUBIC YARDS (C.Y.)

4.1 Description. This section covers items listed as Plan Quantity, Cubic Yards (C.Y.) in the Measurement and Payment Column.

4.2 Method of Measurement. The work provided herein will not be measured for payment, but will be considered a plan quantity. Exceptions will be made on a measured quantity basis as defined in the applicable specification for the described item.

4.3 Earthwork Items. No adjustment has been made to earthwork quantities for swell and shrinkage resulting from excavating cut and compacting fill. The quantities for which payment will be made will be those shown in the plans, provided the project is constructed essentially to the lines and grades shown on the Plans. A partial check of existing ground elevations made at the time slope stakes are set, and of the finished work for deviations in the grade, width, or slope from the authorized grade or typical section. Final measurement will not be made except when cases as defined in the applicable specification for the described Item are determined to be present. If present, measurement will be as defined in the applicable specification for the described Item.

4.4 Non-Earthwork Items. The quantities for which payment will be made will be those shown in the Plans. Final measurement will not be made except when cases as defined in the Applicable Specification for the described items are determined to be present. If present, measurement will be as defined in the Applicable Specification for the described Item.

4.5 Basis of Payment. Item will be paid for at the contract unit price and will be considered full compensation for all items as listed in the Applicable Specification for the described item.

5.0 PLAN QUANTITY, CONTRACT UNIT PRICE, SQUARE YARDS (S.Y.), SQUARE FEET (S.F.) OR ACRES

5.1 Description. This section covers items listed as Plan Quantity, Square Yards (S.Y.), Square Feet (S.F.) or Acres in the Measurement Payment Column.

5.2 Method of Measurement. Final measurement of the completed item will not be made except where authorized changes during construction of the described Item are determined to be present. Determination of changes will be made as set forth in the Applicable Specification for the described item. If present, measurement will be as defined in the Applicable Specification for the described item.

5.3 Basis of Payment. Basis of payment will be as defined in the Applicable Specification for the described item. Payment for the accepted quantity of the described item will be paid for at the contract unit price with proper allowance made for any deduction for deficiency in thickness, compressive strength, smoothness or marred surface.

6.0 PLAN QUANTITY, CONTRACT UNIT PRICE, LINEAR FEET (L.F.)

6.1 Description. This section covers items listed as Plan Quantity, Linear Feet (L.F.) in the Measurement and Payment Column.

6.2 Method of Measurement. Final measurement of the completed item will not be made except where authorized changes during construction of the described Item are determined to be present. Determination of changes will be made as set forth in the Applicable Specification for the described Item. If present, measurement will be as defined in the Applicable Specification for the described Item.

6.3 Basis of Payment. Item will be paid for at the contract unit price and will be considered full compensation for all items as listed in the Applicable Specification for the described item.

7.0 PLAN QUANTITY, CONTRACT UNIT PRICE, EACH (EA.)

7.1 Description. This section covers items listed as Plan Quantity, Each (EA.) in the Measurement and Payment Column.

7.2 Method of Measurement. Final measurement of the completed item will not be made except where authorized changes during construction of the described Item are determined to be present. Determination of changes will be made as set forth in the Applicable Specification for the described item. If present, measurement will be as defined in the Applicable Specification for the described item.

7.3 Basis of Payment. Item will be paid for at the contract unit price and will be considered full compensation for all items as listed in the Applicable Specification for the described item.

8.0 PLAN QUANTITY, CONTRACT UNIT PRICE, STATION (STA.)

8.1 Description. This section covers items listed as Plan Quantity, Station (STA.) in the Measurement and Payment Column.

8.2 Method of Measurement. Final measurement of the completed item will not be made except where authorized changes during construction of the described Item are determined to be present. Determination of changes will be made as set forth in the Applicable Specification for the described item. If present, measurement will be as defined in the Applicable Specification for the described item.

8.3 Basis of Payment. Item will be paid for at the contract unit price and will be considered full compensation for all items as listed in the Applicable Specification for the described item.

C. Mobilization

1.0 Description. This item shall consist of the preparatory work and operations necessary for the project prior to beginning work on the various items on the project site. This item shall follow Section 618 in the 2023 Missouri Standard Specifications for Highway Construction.

2.0 Basis of Payment. Payment for Mobilization will be made incrementally as stated within 2023 Missouri Standard Specifications for Highway Construction Section 618.2.

D. Contractor Furnished Staking

1.0 Description. This work shall consist of providing the necessary surveying and staking for the successful prosecution of the work. This work shall abide by Section 627 in the 2023 Missouri Standard Specifications for Highway Construction.

2.0 Basis of Payment. Payment for Contractor Furnished Staking will be paid for at the contract lump sum price and be made in accordance with Section 627.4 in the 2023 Missouri Standard Specifications for Highway Construction.

E. 12' x 5' Single Radius Aluminum Arch (w/ Reinforced Conc. Strip Foundations)

1.0 Description. This specification covers the design, manufacturing, and installation of the 12' x 5' Single Radius Aluminum Arch (w/ Reinforced Conc. Strip Foundations) detailed in the plans.

1.1 Qualified Suppliers. Each bidder is required to identify their intended bridge supplier as part of the bid submittal. Qualified suppliers must have at least fifteen (15) years' experience fabricating equal or larger type structures.

Pre-Approved Manufacturer is as follows:

Contech Engineered Solutions LLC
700 Tech Drive
Winchester, KY 40391

Suppliers other than those listed above may be used provided the owner's agent evaluates the proposed supplier and approves the supplier 10 business days prior to bid.

The contractor must provide the following documentation, for any proposed Supplier who is not pre-approved, at least 10 business days prior to bid:

- Product Literature
- All documentation to ensure substitution will follow these specifications.
- Project specific representative drawings for bridge projects listed above with material, completed design calculations and design specification reference.

Proposed suppliers must have at least fifteen (15) years' experience designing these types of structures and a minimum of fifteen (15) successful projects, of similar shape and construction as specifically written in these specifications and drawings, each of which have been in service for at least three (3) years. List the location, shape, size, owner, and a contract for reference for each project.

The owner's agent will evaluate and verify the accuracy of the submittal prior to bid. If the owner's agent determines that the qualifying criteria have not been met, the contractor's proposed supplier shall be rejected. This ruling shall be final.

1.2 The required structure will be designated by standard applicable catalog structure number, span, rise and plate N.

1.3 N shall equal 9.625 inches.

1.4 Cover over the structure shall be determined from the crown of the structure to the bottom of the flexible pavement or top of rigid pavement.

2.0 Dimensions.

2.1 Span. Maximum span shall be 12 ft – 0 in. Bottom span shall be 12 ft – 0 in. Spans shall be determined at the inside corrugations.

2.2 Rise. Top rise shall be 5 ft – 0 in (from spring line to crown). Rise shall be determined at the inside corrugations.

2.3 Thickness. Plate thickness shall be as required as calculated by the manufacturer.

2.4 Ribs. Reinforcing ribs shall be as required as calculated by the manufacturer.

2.5 Corrugation. The Aluminum Structural Plate shall have 9-inch x 2-1/2-inch annular corrugations. The corrugation profile shall have AASHTO recognition for a minimum of 15 years.

3.0 Design. Design criteria shall be based upon the 2012 Section 12 Load Resistance Factor Design of AASHTO LRFD Bridge Design Specifications.

3.1 Design Loads. Design loads shall be specified by the engineer. Construction load and any temporary loads exceeding the service live load are not allowed on the structure without approval from the Engineer.

a. The Engineer shall specify the materials and extents of the foundations or bedding and backfill material within the critical backfill zone with consideration of structure shape and in situ conditions.
b. The Engineer shall consider the structural capacity of trench walls or adjacent embankments to provide balanced soil loads on the structure.
c. The Engineer shall consider hydraulic forces at the ends of the structure. End treatment such as headwalls, slope collars, slope paving or cut-off walls shall be considered to protect the backfill and provide stability and protection to the ends of the structure as well as to prevent erosion and washout.
d. The Engineer shall consider scour effects on the structure foundation. The use of scour counter-measures shall be considered for strip footings. The Engineer shall consider potential washout/undermining effects on the invert. The use of a toe wall at the end of a structure or paved insert shall be considered.

3.2 Shop Drawings. Shop drawings and design calculations shall be prepared and submitted to the Owner for approvals. The Contractor shall be responsible for the verification of all field dimensions prior to fabrication.

3.4 Aluminum Box Culvert. Shall conform to ASTM B864.

4.0 Materials.

4.1 Structural Plate. Aluminum Structural Plate shall consist of plate, ribs and appurtenant items as shown on the plans and shall conform to the requirements of AASHTO M219 or ASTM B746 and Table 1

Table 1 – ALUMINUM STRUCTURAL PLATE - 9x2-1/2 Corrugated Plate Section Properties

Nominal Thickness (in)	Moment of Inertia (in^4/ft)	Section Modulus (in^3/ft)	Radius of Gyration (in)	Area of Section (in^2/ft)
*0.100	0.997	0.767	0.844	1.404
0.125	1.248	0.951	0.844	1.750
0.150	1.499	1.131	0.845	2.100
0.175	1.751	1.309	0.845	2.449
0.200	2.004	1.484	0.846	2.799
0.225	2.258	1.657	0.847	3.149
0.250	2.513	1.828	0.847	3.501

*0.100 inch thick plate shall be used for un-curved elements only.

Table 2 – ALUMINUM STRUCTURAL PLATE/RIB Composite Section Properties

	Metal Thickness (inches)					
Rib Type @ Spacing	0.125	0.150	0.175	0.200	0.225	0.250
Plastic Moment Capacity, Mp (kip-ft/ft)						
No Rib	2.65	3.18	3.71	4.24	4.77	5.30
Type II @ 54	4.62	5.46	6.04	6.61	7.17	7.74
@ 27	6.18	7.25	7.94	8.60	9.25	9.87
@ 18	7.41	8.66	9.48	10.26	11.00	11.71
@ 9	10.63	12.13	13.08	14.05	15.03	16.02
Type IV @ 54	5.87	6.82	7.43	8.04	8.63	9.21
@ 27	8.32	9.59	10.39	11.14	11.85	12.55
@ 18	10.42	11.90	12.84	13.72	14.57	15.39
@ 9	16.45	18.46	19.41	20.38	21.37	22.37
Type VI @ 54	8.74	9.51	10.24	10.95	11.64	12.32
@ 27	13.76	14.33	15.16	16.19	17.36	17.48
@ 18	20.09	20.56	20.79	21.30	21.74	22.58
@ 9	32.24	34.35	36.46	38.54	39.88	40.63

4.2 Aluminum Alloy - Plate: Plates shall be fabricated from 5052-H141 aluminum alloy conforming to AASHTO M219 or ASTM B209.

4.3 Aluminum Alloy – Ribs: Ribs shall be fabricated from 6061-T6 aluminum alloy conforming to ASTM B221.

4.4 Fasteners.

4.4.1 Steel Nuts and bolts shall conform to AASHTO M232 and M291 or ASTM A307, Grade A (bolts) and A563, Grade A (nuts).

4.4.2 Aluminum nuts and bolts (if required) shall conform to ASTM B746. The structural design shall conform to the provisions of AASHTO Standard Specifications for Highway Bridges Section 12.6.2.

4.5 Field Applied Bituminous (Asphalt) Coating: If specified, field applied bituminous coating shall conform to AASHTO M190.

5.0 Fabrication and Quality Control

5.1 Final manufacturing processes including corrugating, punching, curving, special fabrication and optional zinc priming shall be performed in the United States of America at a common location.

5.2 All raw materials shall be traceable and certified by the mill for material composition and physical properties.

6.0 Installation

6.1 Assembly. The structure shall be assembled in accordance with the shop drawings and plate layout provided by the manufacturer. Bolts shall be tightened to an applied torque between 100 and 150 ft-lbs.

6.2 Installation. The structure shall be installed in accordance with AASHTO Standard Specifications for Highway Bridges Section 26 or ASTM A807, the plans and specifications, and the manufacturer's recommendations.

(a) The Contractor shall provide footings as required per the plans and specifications.

(b) The Contractor shall provide proper bedding and backfill to avoid distortion that may create undesirable stresses in the structure and/or settlement of the roadway. The bedding shall be free of rock formations, protrusions, frozen material or organic material.

6.3 Backfill. The structure shall be backfilled using clean, well graded granular materials that meets the requirements of AASHTO M145 soil classifications A-1, A-2 or A-3. Aluminum box culverts shall be backfilled with A-1, A-2-4, A-2-5 or A-3 material.

(a) Backfill materials shall be placed in symmetrical lifts on each side of the structure. The differential between the lifts on either side shall not exceed 24 inches. Each layer of soil shall be placed in 6 to 8 inch loose lifts and compacted to a minimum of 90% density per AASHTO T99 or ASTM D698 (Standard Proctor). Aluminum box culverts shall be compacted to 90% density per AASHTO T180 or ASTM D1557 (Modified Proctor).

(b) Backfill soils shall be free of rocks exceeding 3 inches, frozen lumps, ice, organic matter and foreign materials that could cause hard spots or decompose to create voids.

(c) The presence of a high percentage of silt or fine sand in the native soils suggests the need for well graded granular material in the critical backfill zone or the use of

non-woven geotextile to prevent soil migration.

(d) During backfilling operations, only small tracked construction equipment (such as a D-4 dozer or smaller) shall be near the structure as fill progresses above the crown and to the minimum height of cover. After adequate cover and compaction is achieved, live loads may increase at the direction of the Engineer.

6.4 Critical Backfill Zone. The Engineer shall determine the extents of the critical backfill zone and provide a detail on the plans.

7.0 Reinforced Concrete Strip Foundation.

7.1 General. This section covers the installation and work required to construct the footing required to receive and stabilize the Aluminum Structural Arch. The Reinforce Concrete Strip Foundation shall be constructed as shown in the Plans.

8.0 Method of Measurement. Measurement for the 12' x 5' Single Radius Aluminum Arch (w/ Reinforced Concrete Strip Foundations) will be made per each to the lengths and measurements as shown on the Plans.

9.0 Basis of Payment. Payment for all work necessary to fulfill the requirements as noted above and shall be considered completely covered in the contract unit price per each. No direct payment will be made for any subsidiary items required to complete and fulfill the requirements above.

F. Reinforced Concrete Headwall (w/ Form Liner)

1.0 Description. Reinforced Concrete Headwall (w/ Form Liner) shall be formed and installed at locations indicated in the plans.

2.0 Requirements. The cast in place concrete headwall shall be placed with a form liner that has a sunrise pattern grooving that is approximately 1-in deep by 1-in wide. The form liner shall be field approved by the Owner's Landscape Architect.

3.0 Method of Measurement. Measurement of installation of the Reinforced Concrete Headwall (w/ Form Liner) will be per headwall. No measurement will be made for individual items that make up the headwall.

4.0 Basis of Payment. All labor, equipment, and materials necessary to form and install the Reinforced Concrete Headwall as specified in the Plans per each.

G. Modular Block Retaining Wall (w/ Stain)

1.0 Description. Modular Block Retaining Wall (w/ Stain) shall be installed at locations and to the approximate limits as shown on the Plans. This Section includes furnishing all materials and labor required for the design and construction of the Modular Block Retaining Wall (w/ Stain). Precast modular wall blocks under this section shall be cast utilizing a wet-cast concrete mixture and stained, with mock-ups to be approved by the Owner's Landscape Architect, exhibit a final handling weight in excess of 1,000 pounds per unit, and may utilize concrete reinforcing steel.

2.0 Requirements.

2.1 References. Where the specification and reference documents conflict, the Owner's designated representative will make the final determination of the applicable document.

2.1.1. Definitions:

1. Precast Modular Block (PMB) Unit – machine placed, "wet cast" concrete modular block retaining wall facing unit.

2. Geotextile – a geosynthetic fabric manufactured for use as a separation and filtration medium between dissimilar soil materials.

3. Drainage Aggregate – clean, crushed stone placed within and immediately behind the precast modular block units to facilitate drainage and reduce compaction requirements immediately adjacent to and behind the precast modular block units.

4. Unit Core Fill – clean, crushed stone placed within the hollow vertical core of a precast modular block unit. Typically, the same material used for drainage aggregate as defined above.

5. Foundation Zone – soil zone immediately beneath the leveling pad.

6. Retained Zone – soil zone immediately behind the drainage aggregate and wall infill for wall sections designed as modular gravity structures.

7. Leveling Pad – hard, flat surface upon which the bottom course of precast modular blocks is placed. The leveling pad may be constructed with crushed stone or cast-in-place concrete. A leveling pad is not a structural footing.

8. Wall Infill – the fill material placed and compacted between the drainage aggregate and the excavated soil face in retaining wall sections designed as modular gravity structures.

2.1.2. Reference Standards:

2.1.2.1 Where the specification and reference documents conflict, the Owner's designated representative will make the final determination of the applicable document.

2.1.2.2 Design

AASHTO LRFD Bridge Design Specifications, 8th and 9th Edition.

Minimum Design Loads for Buildings and Other Structures – ASCE/SEI 7-16.

International Building Code, 2018 Edition.

Design Manual for Segmental Retaining Walls, National Concrete Masonry Association, 3rd Edition, 2010.

2.1.2.3 Precast Modular Block Units
ACI 201 – Guide to Durable Concrete

ACI 318 – Building Code Requirements for Structural Concrete

ASTM C33 – Standard Specification for Concrete Aggregates

ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

ASTM C94 – Standard Specification for Ready-Mixed Concrete.

ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

ASTM C143 – Standard Test Method for Slump of Hydraulic-Cement Concrete.

ASTM C150 – Standard Specification for Portland Cement

ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete.

ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.

ASTM C595 - Standard Specification for Blended Hydraulic Cements.

ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.

ASTM C666 – Standard Test Method for Concrete Resistance to Rapid Freezing and Thawing.

ASTM C845 - Standard Specification for Expansive Hydraulic Cement.

ASTM C920 – Standard Specification for Elastomeric Joint Sealants.

ASTM C989 - Standard Specification for Slag Cement for Use in Concrete and Mortars.

ASTM C1116 – Standard Specification for Fiber-Reinforced Concrete.

ASTM C1157 - Standard Performance Specification for Hydraulic Cement.

ASTM C1218 - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.

ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.

ASTM C1611 – Standard Test Method for Slump Flow of Self-Consolidating Concrete.

ASTM C1776 – Standard Specification for Wet-Cast Precast Modular Retaining Wall Units.

ASTM D6638 – Standard Test Method for Determining Connection Strength Between Geosynthetic Reinforcement and Segmental Concrete Units (Modular Concrete Blocks).

ASTM D6916 – Standard Test Method for Determining Shear Strength Between Segmental Concrete Units (Modular Concrete Blocks).

2.1.2.4. Geosynthetics

AASHTO M 288 – Geotextile Specification for Highway Applications.

ASTM D3786 – Standard Test Method for Bursting Strength of Textile Fabrics Diaphragm Bursting Strength Tester Method.

ASTM D4354 – Standard Practice for Sampling of Geosynthetics for Testing.

ASTM D4355 – Standard Test Method for Deterioration of Geotextiles

ASTM D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

ASTM D4533 – Standard Test Method for Trapezoid Tearing Strength of Geotextiles.

ASTM D4595 – Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.

ASTM D4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

ASTM D4751 – Standard Test Method for Determining Apparent Opening Size of a Geotextile.

ASTM D4759 – Standard Practice for Determining Specification Conformance of Geosynthetics.

ASTM D4833 – Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.

ASTM D4873 – Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples.

ASTM D6241 – Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe.

2.1.2.5 Soils

AASHTO M 145 – AASHTO Soil Classification System.

AASHTO T 104 – Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.

AASHTO T 267 – Standard Method of Test for Determination of Organic Content in Soils by Loss of Ignition.

ASTM C33 – Standard Specification for Concrete Aggregates.

ASTM D448 – Standard Classification for Sizes of Aggregates for Road and Bridge Construction.

ASTM D698 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. (12,400 ft-lbf/ft (2,700 kN-m/m)).

ASTM D1241 – Standard Specification for Materials for Soil-Aggregate Subbase, Base and Surface Courses.

ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method.

ASTM D1557 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort. (56,000 ft-lbf/ft (2,700 kN-m/m)).

ASTM D2487 – Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

ASTM D2488 – Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).

ASTM D3080 – Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions.

ASTM D4254 – Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

ASTM D4318 – Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

ASTM D4767- Test Method for Consolidated-Undrained Triaxial Compression Test for Cohesive Soils.

ASTM D4972 – Standard Test Method for pH of Soils.

ASTM D6913 – Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.

ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Aggregate by Nuclear Methods (Shallow Depth).

ASTM G51 – Standard Test Method for Measuring pH of Soil for Use in Corrosion Testing.

ASTM G57 – Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method.

2.1.2.6 Drainage Pipe

ASTM D3034 – Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

ASTM F2648 – Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications.

2.1.3 Administrative Requirements

2.1.3.1 The General Contractor may choose to self-perform any or all of the work, and the Earthwork and Grading Contractor may or may not also be the RWIC. Also, the project Civil Engineer or the project Geotechnical Engineer may or may not also be the RWDE.

2.1.3.2 Preconstruction Meeting. As directed by the Owner, the General Contractor shall schedule a preconstruction meeting at the project site prior to commencement of retaining wall construction. Participation in the preconstruction meeting shall be required of the General Contractor, the Retaining Wall Design Engineer (RWDE), the Retaining Wall Installation Contractor (RWIC), the Earthwork/Grading Contractor, and the Qualified Inspection Engineer. The General Contractor shall provide notification to all parties at least 10 calendar days prior to the meeting.

2.1.3.3 Preconstruction Meeting Agenda:

The RWDE shall be provided with the opportunity to explain all aspects of the retaining wall construction drawings.

The RWDE shall communicate the required bearing capacity of the soil below the retaining wall structure and the shear strength of in-situ soils assumed in the retaining wall design to the Inspection Engineer.

The RWDE shall explain the required shear strength of fill soil in the retained and foundation zones of the retaining wall to the Inspection Engineer.

The RWDE shall explain any measures required for coordination of the installation of utilities or other obstructions in the retained fill zones of the retaining wall.

The RWIC shall explain all excavation needs, site access and material staging area requirements to the General Contractor and Earthwork/Grading Contractor.

2.1.4 Submittals

2.1.4.1 Product Data. At least 14 days prior to construction, the General Contractor shall submit the retaining wall product submittal package to the Owner's Representative for review and approval. The submittal package shall include technical specifications and product data from the manufacturer for the following:

- Precast Modular Block System brochure
- Precast Modular Block concrete test results specified in Part 2.01, Paragraph B of this section as follows:
  a. 28-day compressive strength
  b. Air content
  c. Slump or Slump Flow (as applicable)
- Drainage Pipe
- Geotextile

2.1.4.2 Installer Qualification Data. At least 14 days prior to construction, the General Contractor shall submit the qualifications of the business entity responsible for installation of the retaining wall, the RWIC, per the Quality Assurance section of this specification.

2.1.4.3 Retaining Wall Design Calculations and Construction Shop Drawings. Prior to construction, the General Contractor shall furnish construction shop drawings, and the supporting structural calculations report to the Owner for review and approval. Unless specifically requested by the Owner, the submittal may be in electronic format. This submittal shall include the following:

1. Signed, sealed and dated drawings and engineering calculations prepared in accordance with these specifications.
2. Qualifications Statement of Experience of the RWDE as specified in Part 1.07, subparagraph B of this section.
3. Certificate of Insurance of the RWDE as specified in Part 1.06, Paragraph B of this section.

2.1.5 Construction Shop Drawing Preparation

2.1.5.1 The RWDE shall coordinate the retaining wall construction shop drawing preparation with the project Civil Engineer, project Geotechnical Engineer and Owner's Representatives. The General Contractor shall furnish the RWDE the following project information required to prepare the construction shop drawings. This information shall include, but is not limited to, the following:

1. Current versions of the site, grading, drainage, utility, erosion control, landscape, and irrigation plans;

2. electronic CAD file of the civil site plans listed in (1);

3. report of geotechnical investigation and all addenda and supplemental reports;

4. recommendations of the project Geotechnical Engineer regarding effective stress shear strength and total stress shear strength (when applicable) parameters for in-situ soils in the vicinity of the proposed retaining wall(s) and for any fill soil that may potentially be used as backfill in retained and/or foundation zones of the retaining wall.

5. Information pertaining to the magnitude, location, and nature of surcharge loadings acting on or near the proposed wall.

2.1.5.2 The RWDE shall provide the Owner with a certificate of professional liability insurance verifying the minimum coverage limits of $1 million per claim and $1 million aggregate.

2.1.5.3 Design of the precast modular block retaining wall shall satisfy the requirements of this section. Where local design or building code requirements exceed these specifications, the local requirements shall also be satisfied.

2.1.5.4 The RWDE shall note any exceptions to the requirements of this section by listing them at the bottom right corner of the first page of the construction shop drawings.

2.1.5.5 Approval or rejection of the exceptions taken by the Retaining Wall Engineer will be made in writing as directed by the Owner.

2.1.5.6 The RWDE shall determine the appropriate standard(s) to be utilized, and to which the precast modular block design shall be based upon, except as noted herein. Some project Owners may also specify which standard shall be used.

2.1.5.7 In the event that a conflict is discovered between these specifications and a reasonable interpretation of the design specifications and methods referenced in Paragraph F above, these specifications shall prevail. If a reasonable interpretation is not possible, the conflict shall be resolved per the requirements in 2.1.2.1.

2.1.5.8 Soil Shear Parameters. The RWDE shall prepare the construction shop drawings based upon soil shear strength parameters from the available project data and the recommendations of the project Geotechnical Engineer. If insufficient data exists to develop the retaining wall design, the RWDE shall communicate the specific deficiency of the project information or data to the Owner in writing.

2.1.5.9 Allowable bearing pressure requirements for each retaining wall shall be clearly shown on the construction drawings.

2.1.5.10 Global Stability. Overall (global) stability shall be evaluated in accordance with the principals of limit equilibrium analysis as set forth in the approved standards, as determined by the RWDE, as referenced in 2.1.5.6. The minimum recommended factors of safety shall be as follows, or as otherwise selected as appropriate by the RWDE:

Normal Service (static)	1.3 to 1.5*
Seismic	1.1
Rapid Drawdown (if applicable)	1.2

*High uncertainty/variability, wall supporting critical or sensitive facilities: 1.5, low uncertainty/variability, wall not supporting critical or sensitive facilities: 1.3

2.1.5.11 Seismic Stability. Seismic loading shall be evaluated in accordance with AASHTO Load and Resistance Factor Design (LRFD) methodology, or NCMA Allowable Stress Design (ASD) methodology as determined by the RWDE as referenced in 2.1.5.6.

2.1.6 Quality Assurance

2.1.6.1 RWIC Qualifications. In order to demonstrate basic competence in the construction of precast modular block walls, the RWIC shall document compliance with the following:

1. Experience.
    a. Construction experience with a minimum of 3,000 square feet (280 square meters) of the proposed precast modular block retaining wall system.
    b. Construction of at least three (3) precast modular block (large block) retaining wall structures within the past three (3) years.
    c. Construction of at least 5,000 square feet (465 square meters) of precast modular block (large block) retaining walls within the past five (5) years.
2. RWIC experience documentation for each qualifying project shall include:
    a. Project name and location
    b. Date (month and year) of construction completion
    c. Contact information of Owner or General Contractor
    d. Type (trade name) of precast modular block system used
    e. Maximum height of the wall constructed
    f. Face area of the wall constructed

3. In lieu of the requirements set forth in items 1 and 2 above, the RWIC must submit documentation demonstrating competency in precast modular block retaining wall construction through a training program that is deemed acceptable by the Owner.

2.1.6.2 RWDE Qualifications and Statement of Experience. The RWDE shall submit a written statement affirming that he or she has the following minimum qualifications and experience.

a. The RWDE shall be licensed to practice in the jurisdiction of the project location.

b. The RWDE shall be independently capable of performing all internal and external stability analyses, including those for seismic loading, compound stability, rapid draw-down and deep-seated, global modes of failure. The project geotechnical engineer may provide global stability analysis.

c. The RWDE shall affirm in writing that he or she has personally supervised the design of the retaining walls for the project, that the design considers all the requirements listed in paragraph 2.1.6.1 and that he or she accepts responsibility as the design engineer of record for the retaining walls constructed on the project.

d. The RWDE shall affirm in writing that he or she has designed a minimum of approximately 3,000 face square feet (280 face square meters) of modular block earth retaining walls within the previous five (5) years.

e. In lieu of these specific requirements, the engineer may submit alternate documentation demonstrating competency in Precast Modular Block retaining wall design.

2.1.6.3 The Owner reserves the right to reject the design services of any engineer or engineering firm who, in the sole opinion of the Owner, does not possess the requisite experience or qualifications.

2.1.7 Quality Control

A. The Owner's Representative shall review all submittals for materials, design, RWDE qualifications and the RWIC qualifications.

B. The Owner's Representative shall retain the services of an Inspection Engineer who is experienced with the construction of precast modular block retaining wall structures to perform inspection and testing. The cost of inspection shall be the responsibility of the Owner. Inspection shall be continuous throughout the construction of the retaining walls.

C. The Inspection Engineer shall perform the following duties:
   1. Inspect the construction of the precast modular block structure for conformance with construction shop drawings and the requirements of this specification.
   2. Verify that soil or aggregate fill placed and compacted in the retained and foundation zones of the retaining wall conforms with paragraphs 3.4 and 3.5 of this section and exhibits the shear strength and bearing capacity parameters specified by the RWDE.
   3. Verify that the shear strength of the in-situ soil assumed by the RWDE is appropriate.
   4. Inspect and document soil compaction in accordance with these specifications:
      a. Required dry unit weight
      b. Actual dry unit weight
      c. Allowable moisture content
      d. Actual moisture content
      e. Pass/fail assessment
      f. Test location – wall station number
      g. Test elevation
      h. Distance of test location behind the wall face
   5. Verify that all excavated slopes in the vicinity of the retaining wall are bench-cut as directed by the project Geotechnical Engineer.
   6. Notify the RWIC of any deficiencies in the retaining wall construction and provide the RWIC a reasonable opportunity to correct the deficiency.
   7. Notify the General Contractor, Owner and RWDE of any construction deficiencies that have not been corrected timely.
   8. Document all inspection results.
   9. Test compacted density and moisture content of the retained backfill with the following frequency:
      a. At least once every 500 square feet (45 square meters) (in plan) per vertical lift, and
      b. At least once per every 18 inches (460 mm) of vertical wall construction.

D. The Owner's engagement of the Inspection Engineer does not relieve the RWIC of responsibility to construct the proposed retaining wall in accordance with the approved construction shop drawings and these specifications.

E. The RWIC shall inspect the on-site grades and excavations prior to construction and notify the RWDE and General Contractor if on-site conditions differ from the elevations, assumptions, grading, and soil and groundwater conditions depicted in the retaining wall construction shop drawings.

2.1.8 Delivery, Storage, and Handling

A. The RWIC shall inspect the materials upon delivery to ensure that the proper type, grade and color of materials have been delivered.

B. The RWIC shall store and handle all materials in accordance with the manufacturer's recommendations as specified herein and in a manner that prevents deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping, UV exposure or other causes. Damaged materials shall not be incorporated into the work.

C. Geosynthetics

1. All geosynthetic materials shall be handled in accordance with ASTM D4873. The materials should be stored off the ground and protected from precipitation, sunlight, dirt and physical damage.

D. Precast Modular Blocks

1. Precast modular blocks shall be stored in an area with positive drainage away from the blocks. Be careful to protect the block from mud and excessive chipping and breakage. Precast modular blocks shall not be stacked more than three (3) units high in the storage area.

E. Drainage Aggregate and Backfill Stockpiles

1. Drainage aggregate or backfill material shall not be piled over unstable slopes or areas of the project site with buried utilities.

2. Drainage aggregate material shall not be staged where it may become mixed with or contaminated by poor draining fine-grained soils such as clay or silt.

3.0 MATERIALS.

3.1 Precast Modular Block Retaining Wall Units.

3.1.1 All units shall be wet-cast precast modular retaining wall units conforming to ASTM C1776.

3.1.2 All units for the project shall be obtained from the same manufacturer. The manufacturer shall be licensed and authorized to produce the retaining wall units by the precast modular block system patent holder/licensor and shall document compliance with the published quality control standards of the proprietary precast modular block system licensor for the previous three (3) years, or the total time the manufacturer has been licensed, whichever is less.

3.1.3 Concrete used in the production of the precast modular block units shall be first-purpose, fresh concrete. It shall not consist of returned, reconstituted, surplus or waste concrete. It shall be an original production mix meeting the requirements of ASTM C94 and exhibit the properties as shown in the following table:

Concrete Mix Properties

Freeze Thaw Exposure Class[1]	Minimum 28-Day Compressive Strength[2]	Maximum Water Cement Ratio	Nominal Maximum Aggregate Size	Aggregate Class Designation[3]	Air Content[4]
Moderate	4,000 psi (27.6 MPa)	0.45	1 inch (25 mm)	3M	4.5% +/- 1.5%
Severe	4,000 psi (27.6 MPa)	0.45	1 inch (25 mm)	3S	6.0% +/- 1.5%
Very Severe	4,500 psi (30.0 MPa)	0.40	1 inch (25 mm)	4S	6.0% +/- 1.5%
Maximum Water-Soluble Chloride Ion (Cl^-) Content in Concrete, Percent by Weight of Cement[5,6]					0.15
Maximum Chloride as Cl^- Concentration in Mixing Water, Parts Per Million					1000
Maximum Percentage of Total Cementitious Materials By Weight [7,9] (Very Severe Exposure Class Only):					
Fly Ash or Other Pozzolans Conforming to ASTM C618					25
Slag Conforming to ASTM C989					50
Silica Fume Conforming to ASTM C1240					10
Total of Fly Ash or Other Pozzolans, Slag, and Silica Fume[8]					50
Total of Fly Ash or Other Pozzolans and Silica Fume[8]					35
Alkali-Aggregate Reactivity Mitigation per ACI 201					
Slump (Conventional Concrete) per ASTM C143[10]				5 inches +/- 1½ inches (125 mm +/- 40 mm)	
Slump Flow (Self-Consolidating Concrete) per ASTM C1611				18 inches – 32 inches (450 mm – 800 mm)	

[1]Exposure class is as described in ACI 318. "Moderate" describes concrete that is exposed to freezing and thawing cycles and occasional exposure to moisture. "Severe" describes concrete that is exposed to freezing and thawing cycles and in continuous contact with moisture. "Very Severe" describes concrete that is exposed to freezing and thawing cycles and in continuous contact with moisture and exposed to deicing chemicals. Exposure class should be specified by owner/purchaser prior to order placement.

[2]Test method ASTM C39.

[3]Defined in ASTM C33 Table 3 *Limits for Deleterious Substances and Physical Property Requirements of Coarse Aggregates for Concrete*.

[4]Test method ASTM C231.

[5]Test method ASTM C1218 at age between 28 and 42 days.

[6]Where used in high sulfate environments or where alkali-silica reactivity is an issue, water soluble chloride shall be limited to no more than trace amounts (from impurities in concrete-making components, not intended constituents.)

[7]The total cementitious material also includes ASTM C150, C595, C845, C1157 cement. The maximum percentages shall include:

(a) Fly ash or other pozzolans in type IP, blended cement, ASTM C595, or ASTM C1157.
(b) Slag used in the manufacture of an IS blended cement, ASTM C595, or ASTM C1157.
(c) Silica fume, ASTM C1240, present in a blended cement.

[8]Fly ash or other pozzolans and silica fume shall constitute no more than 25 and 10 percent, respectively, of the total weight of the cementitious materials.

[9]Prescriptive limits shown may be waived for concrete mixes that demonstrate excellent freeze/thaw durability in a detailed and current testing program.

[10]Slump may be increased by a high-range water-reducing admixture.

3.1.4 Each concrete block shall be cast in a single continuous pour without cold joints. With the exception of half-block units, corner units and other special application units, the precast modular block units shall conform to the nominal dimensions listed in the table below and be produced to the dimensional tolerances shown.

Block Type	Dimension	Nominal Value	Tolerance
28” (710 mm) Block	Height	18” (457 mm)	+/- 3/16” (5 mm)
	Length	46-1/8” (1172 mm)	+/- 1/2” (13 mm)
	Width*	28” (710 mm)	+/- 1/2” (13 mm)
41” (1030 mm) Block	Height	18” (457 mm)	+/- 3/16” (5 mm)
	Length	46-1/8” (1172 mm)	+/- 1/2” (13 mm)
	Width*	40-1/2” (1030 mm)	+/- 1/2” (13 mm)
60” (1520 mm) Block	Height	18” (457 mm)	+/- 3/16” (5 mm)
	Length	46-1/8” (1172 mm)	+/- 1/2” (13 mm)
	Width*	60” (1520 mm)	+/- 1/2” (13 mm)
52” (1320 mm) XL Block	Height	36” (914 mm)	+/- 3/16” (5 mm)
	Length	46-1/8” (1172 mm)	+/- 1/2” (13 mm)
	Width*	52” (1320 mm)	+/- 1/2” (13 mm)
72” (1830 mm) XL Block	Height	36” (914 mm)	+/- 3/16” (5 mm)
	Length	46-1/8” (1172 mm)	+/- 1/2” (13 mm)
	Width*	72” (1830 mm)	+/- 1/2” (13 mm)
96” (2440 mm) XL Block	Height	36” (914 mm)	+/- 3/16” (5 mm)
	Length	46-1/8” (1172 mm)	+/- 1/2” (13 mm)
	Width*	96” (2440 mm)	+/- 1/2” (13 mm)

* Block tolerance measurements shall exclude variable face texture

3.1.5 Individual block units shall have a nominal height of 18 inches (457 mm), or 36 inches (914 mm) for XL blocks.

3.1.6 With the exception of half-block units, corner units and other special application units, the precast modular block units shall have two (2), circular dome shear knobs that are 10 inches (254 mm), 7.5 inches (190 mm), or 6.75 inches (171 mm) in diameter and 4 inches (102 mm) or 2 inches (51 mm) in height. The shear knobs shall fully index into a continuous semi-cylindrical shear channel in the bottom of the block course above. The peak interface shear between any two (2) vertically stacked precast modular block units, with 10 inch (254 mm) diameter shear knobs, measured in accordance with ASTM D6916 shall exceed 6,500 lb/ft (95 kN/m) at a minimum normal load of 500 lb/ft (7kN/m). as well as an ultimate peak interface shear capacity in excess of 11,000 lb/ft (160 kN/m). The peak interlock shear between any two (2) vertically stacked precast modular block units, with 7.5 inch (190 mm) or 6.75 inch (171 mm) diameter shear knobs, measured in accordance with ASTM D6916 shall exceed 1,850 lb/ft (27 kN/m) at a minimum normal load of 500 lb/ft (7kN/m) as well as an ultimate peak interface shear capacity in excess of 10,000 lb/ft (146 kN/m).Test specimen blocks tested under ASTM D6916 shall be actual, full-scale production blocks of known compressive strength. The interface shear capacity reported shall be corrected for a 4,000 psi (27.6 MPa) concrete compressive strength. Regardless of precast modular block configuration, interface shear testing shall be completed without the inclusion of unit core infill aggregate.

3.1.7 In certain configurations and/or combinations of blocks, some minor on-site trimming/partial removal of some of the shear knobs may be necessary to allow for proper alignment.

3.1.8 The 28” (710 mm) and 41” (1030 mm) precast modular block units may be cast with a 13” (330 mm) wide, continuous vertical core slot completely through the block, or solid concrete.

3.1.9 Without field cutting or special modification, the precast modular block units shall be capable of achieving a minimum radius of 14 ft 6 in (4.42 m).

3.1.10 The precast modular block units shall be manufactured with integrally cast shear knobs that establish a standard horizontal set-back for subsequent block courses. The precast modular block system shall be available in the four (4) standard horizontal set-back facing batter options listed below:

18-inch High Blocks:		36-inch High Blocks:	
Horizontal Set-Back/Blk. Course	Max. Facing Batter	Horizontal Set-Back/Blk. Course	Max. Facing Batter
3/8” (10 mm)	1.2˚	3-1/4” (83 mm)	5.2˚
1-5/8” (41 mm)	5.2˚		
9-3/8” (238 mm)	27.5˚		
16-5/8” (422 mm)	42.7˚		

The precast modular block units shall be furnished with the required shear knobs that provide the facing batter required in the construction shop drawings.

3.1.11 The precast modular block unit face texture shall be selected by the Owner from the available range of textures available from the precast modular block manufacturer. Each textured block facing unit shall be a minimum of 5.76 square feet (0.54 square meters) with a unique texture pattern that repeats with a maximum frequency of once in any 15 square feet (1.4 square meters) of wall face.

3.1.12 The block color shall be selected by the Owner from the available range of colors available from the precast modular block manufacturer. Concrete blocks can also be stained after installation based upon Owner’s selection of concrete stain colors. The Contractor shall be required to do mock-ups of selected concrete stain colors to be approved by the Owner’s Landscape Architect prior to staining the blocks.

3.1.13 All precast modular block units shall be sound and free of cracks or other defects that would interfere with the proper installation of the unit, impair the strength or performance of the constructed wall. PMB units to be used in exposed wall construction shall not exhibit chips or cracks in the exposed face or faces of the unit that are not otherwise permitted. Chips smaller than 1.5” (38 mm) in its largest dimension and cracks not wider than 0.012” (0.3 mm) and not longer than 25% of the nominal height of the PMB unit shall be permitted. PMB units with bug holes in the exposed architectural face smaller than 0.75” (19 mm) in its largest dimension shall be permitted. Bug holes, water marks, and color variation on non-architectural faces are acceptable. PMB units that exhibit cracks that are continuous through any solid element of the PMB unit shall not be incorporated in the work regardless of the width or length of the crack.

3.1.14 Preapproved Manufacturers.
Manufacturers of Redi-Rock Retaining Wall Systems as licensed by Redi-Rock International, LLC, 2940 Parkview Drive, Petoskey, MI 49770 USA; telephone (866) 222-8400; website: www.redi-rock.com.

3.1.15 Substitutions. Technical information demonstrating conformance with the requirements of this specification for an alternative precast modular block retaining wall system must be submitted for preapproval at least 14 calendar days prior to the bid date. Acceptable alternative PMB retaining wall systems, otherwise found to be in conformance with this specification, shall be approved in writing by the Owner 7 days prior to the bid date. The Owner's Representative reserves the right to provide no response to submissions made outside of the time requirements of this section or to submissions of block retaining wall systems that are determined to be unacceptable to the Owner.

3.1.16 Value Engineering Alternatives. The Owner may evaluate and accept systems that meet the requirements of this specification after the bid date that provide a minimum cost savings of 20% to the Owner. Construction expediency will not be considered as a contributing portion of the cost savings total.

3.2 Geotextile

3.2.1 Nonwoven geotextile fabric shall be placed as indicated on the retaining wall construction shop drawings. Additionally, the nonwoven geotextile fabric shall be placed in the v-shaped joint between adjacent block units on the same course. The nonwoven geotextile fabric shall meet the requirements Class 3 construction survivability in accordance with AASHTO M 288.

Preapproved Nonwoven Geotextile Products:

1. Mirafi 140N
2. Propex Geotex 451
3. Skaps GT-142
4. Thrace-Linq 140EX
5. Carthage Mills FX-40HS
6. Stratatex ST 142

3.3 Drainage Aggregate and Wall Infill

3.3.1 Drainage aggregate (and wall infill for retaining walls designed as modular gravity structures) shall be a durable crushed stone conforming to No. 57 size per ASTM C33 with the following particle-size distribution requirements per ASTM D6913:

U.S. Standard Sieve Size	% Passing
1-½" (38 mm)	100
1" (25 mm)	95-100
½" (13 mm)	25-60
No. 4 (4.76 mm)	0-10
No. 8 (2.38 mm)	0-5

3.4 Leveling Pad

3.4.1 The precast modular block units shall be placed on a leveling pad constructed from crushed stone or unreinforced concrete. The leveling pad shall be constructed to the dimensions and limits shown on the retaining wall design drawings prepared by the RWDE.

3.4.2 Crushed stone used for construction of a granular leveling pad shall meet the requirements of the drainage aggregate and wall infill in section 3.3 or a preapproved alternate material.

3.4.3 Concrete used for construction of an unreinforced concrete leveling pad shall satisfy the criteria for AASHTO Class B. The concrete should be cured a minimum of 12 hours prior to placement of the precast modular block wall retaining units and exhibit a minimum 28-day compressive strength of 2,500 psi (17.2 MPa).

3.5 Drainage.

3.5.1 Drainage Pipe

1. Drainage collection pipe shall be a 4" (100 mm) diameter, 3-hole perforated, HDPE pipe with a minimum pipe stiffness of 22 psi (152 kPa) per ASTM D2412.
2. The drainage pipe shall be manufactured in accordance with ASTM D1248 for HDPE pipe and fittings.

3.5.2 Preapproved Drainage Pipe Products

1. ADS 3000 Triple Wall pipe as manufactured by Advanced Drainage Systems.

4.0 Execution

4.1 General.

4.1.1 All work shall be performed in accordance with OSHA, State, and local safety standards, state and local building codes and manufacturer's requirements.

4.1.2 The General Contractor is responsible for the location and protection of all existing underground utilities. Any new utilities proposed for installation in the vicinity of the retaining wall, shall be installed concurrent with retaining wall construction. The General Contractor shall coordinate the work of subcontractors affected by this requirement.

4.1.3 New utilities installed below the retaining wall shall be backfilled and compacted to a minimum of 98% maximum dry density per ASTM D698 standard proctor.

4.1.4 The General Contractor is responsible to ensure that safe excavations and embankments are maintained throughout the course of the project.

4.1.5 All work shall be inspected by the Inspection Engineer as directed by the Owner.

4.2 Examination

4.2.1 Prior to construction, the General Contractor, Grading Contractor, RWIC and Inspection Engineer shall examine the areas in which the retaining wall will be constructed to evaluate compliance with the requirements for installation tolerances, worker safety and any site conditions affecting performance of the completed structure. Installation shall proceed only after unsatisfactory conditions have been corrected.

4.3 Preparation

4.3.1 Fill Soil.

4.3.1.1 The Inspection Engineer shall verify that retained backfill material placed within a horizontal distance of one (1.0) times the wall height behind the wall blocks satisfies the criteria of this section.

4.3.1.2 The Inspection Engineer shall verify that any fill soil installed in the foundation and retained soil zones of the retaining wall satisfies the specification of the RWDE as shown on the construction drawings.

4.3.2 Excavation.

4.3.2.1 The Grading Contractor shall excavate to the lines and grades required for construction of the precast modular block retaining wall as shown on the construction drawings. The Grading Contractor shall minimize over-excavation. Excavation support, if required, shall be the responsibility of the Grading Contractor.

4.3.2.2 Over-excavated soil shall be replaced with compacted fill in conformance with the specifications of the RWDE and APWA 2100.

4.3.2.3 Embankment excavations shall be bench cut as directed by the project Geotechnical Engineer and inspected by the Inspection Engineer for compliance.

4.3.3 Foundation Preparation.

4.3.3.1 Prior to construction of the precast modular block retaining wall, the leveling pad area and undercut zone (if applicable) shall be cleared and grubbed. All topsoil, brush, frozen soil and organic material shall be removed. Additional foundation soils found to be unsatisfactory beyond the specified undercut limits shall be undercut and replaced with approved fill as directed by the project Geotechnical Engineer. The Inspection Engineer shall ensure that the undercut limits are consistent with the requirements of the project Geotechnical Engineer and that all soil fill material is properly compacted in accordance with project specifications. The Inspection Engineer shall document the volume of undercut and replacement, if required.

4.3.3.2 Following excavation for the leveling pad and undercut zone (if applicable), the Inspection Engineer shall evaluate the in-situ soil in the foundation and retained soil zones.

The Inspection Engineer shall verify that the shear strength of the in-situ soil assumed by the RWDE is appropriate. The Inspection Engineer shall immediately stop work and notify the Owner if the in-situ shear strength is found to be inconsistent with the retaining wall design assumptions.

The Inspection Engineer shall verify that the foundation soil exhibits sufficient ultimate bearing capacity to satisfy the requirements indicated on the retaining wall construction shop drawings per paragraph 1.06 I of this section.

4.3.4 Leveling Pad.

4.3.4.1 The leveling pad shall be constructed to provide a level, hard surface on which to place the first course of precast modular block units. The leveling pad shall be placed in the dimensions shown on the retaining wall construction drawings and extend to the limits indicated.

4.3.4.2 Crushed Stone Leveling Pad. Crushed stone shall be placed in uniform maximum lifts of 6" (150 mm). The crushed stone shall be compacted by a minimum of 3 passes of a vibratory compactor capable of exerting 2,000 lb (8.9 kN) of centrifugal force and to the satisfaction of the Inspection Engineer.

4.3.4.3 Unreinforced Concrete Leveling Pad. The concrete shall be placed in the same dimensions as those required for the crushed stone leveling pad. The RWIC shall erect proper forms as required to ensure the accurate placement of the concrete leveling pad according to the retaining wall construction drawings.

4.4 Precast Modular Block Wall System Installation

4.4.1 The precast modular block structure shall be constructed in accordance with the construction drawings, these specifications and the recommendations of the retaining wall system component manufacturers. Where conflicts exist between the manufacturer's recommendations and these specifications, these specifications shall prevail.

4.4.2 Drainage components. Pipe, geotextile and drainage aggregate shall be installed as shown on the construction shop drawings.

4.4.3 Precast Modular Block Installation

4.4.3.1 The first course of block units shall be placed with the front face edges tightly abutted together on adjacent blocks, on the prepared leveling pad at the locations and elevations shown on the construction drawings. The RWIC shall take special care to ensure that the bottom course of block units are in full contact with the leveling pad, are set level and true and are properly aligned according to the locations shown on the construction drawings.

4.4.3.2 Backfill shall be placed in front of the bottom course of blocks prior to placement of subsequent block courses. Nonwoven geotextile fabric shall be placed in the V-shaped joints between adjacent blocks. Drainage aggregate shall be placed in the V-shaped joints between adjacent blocks, and extend to a minimum distance of 12" (300 mm) behind the block unit.

4.4.3.3 Drainage aggregate shall be placed in 9 inch to 12 inch maximum lifts (as specified by the Engineer) and compacted by a minimum of three (3) passes of a vibratory plate compactor capable exerting a minimum of 2,000 lb (8.9 kN) of centrifugal force, or by other suitable compaction methods.

4.4.3.4 Unit core fill shall be placed in the precast modular block unit vertical core slot. The core fill shall completely fill the slot to the level of the top of the block unit. The top of the block unit shall be broom-cleaned prior to placement of subsequent block courses. No additional courses of precast modular blocks may be stacked before the unit core fill is installed in the blocks on the course below.

4.4.3.5 Base course blocks for gravity wall designs (without geosynthetic soil reinforcement) may be furnished without vertical core slots. If so, disregard item 4 above, for the base course blocks in this application.

4.4.3.6 Nonwoven geotextile fabric shall be placed between the drainage aggregate and the retained soil (gravity wall design) if required on the retaining wall construction drawings.

4.4.3.7 Subsequent courses of block units shall be installed with a running bond (approximate half block horizontal course-to-course offset). With the exception of 90 degree corner units, the shear channel of the upper block shall be fully engaged with the shear knobs of the block course below. The upper block course shall be pushed forward to fully engage the interface shear key between the blocks and to ensure consistent face batter and wall alignment. Drainage aggregate, unit core fill, geotextile and properly compacted backfill shall be complete and in-place for each course of block units before the next course of blocks is stacked.

4.4.3.8 The elevation of retained soil fill shall not be less than 1 block course (18" (457 mm)) below the elevation of the retained backfill throughout the construction of the retaining wall.

4.4.3.9 If included as part of the precast modular block wall design, cap units shall be secured with an appropriate construction adhesive in accordance with the Manufacturer's recommendation.

4.4.4 Construction Tolerance. Allowable construction tolerance of the retaining wall shall be as follows:

4.4.4.1 Deviation from the design batter and horizontal alignment, when measured along a 10' (3 m) straight wall section, shall not exceed 3/4" (19 mm).

4.4.4.2 Deviation from the overall design batter shall not exceed 1/2" (13 mm) per 10' (3 m) of wall height.

4.4.4.3 The maximum allowable offset (horizontal bulge) of the face in any precast modular block joint shall be 1/2" (13 mm).

4.4.4.4 The base of the precast modular block wall excavation shall be within 2" (50 mm) of the staked elevations, unless otherwise approved by the Inspection Engineer.

4.4.4.5 Differential vertical settlement of the face shall not exceed 1' (300 mm) along any 200' (61 m) of wall length.

4.4.4.6 The maximum allowable vertical displacement of the face in any precast modular block joint shall be 1/2" (13 mm).

4.4.4.7 The wall face shall be placed within 2" (50 mm) of the horizontal location staked.

4.5 Wall Infill and Backfill Placement

4.5.1 Backfill material placed immediately behind the drainage aggregate shall be compacted as follows:

4.5.1.1 98% of maximum dry density at ± 2% optimum moisture content per ASTM D698 standard proctor or 85% relative density per ASTM D4254.

4.5.2 Compactive effort within 3' (0.9 m) of the back of the precast modular blocks should be accomplished with walk-behind compactors. Compaction in this zone shall be within 95% of maximum dry density as measured in accordance with ASTM D1557 modified proctor or 80% relative density per ASTM D 4254. Heavy equipment should not be operated within 3' (0.9 m) of the back of the precast modular blocks.

4.5.3 Backfill material shall be installed in lifts that do not exceed a thickness of 9 to 12 inches (230 to 330 mm), as specified by Engineer.

4.5.4 At the end of each work day, the RWIC shall grade the surface of the last lift of the granular wall infill to a 3% ± 1% slope away from the precast modular block wall face and compact it.

4.5.4 The General Contractor shall direct the Grading Contractor to protect the precast modular block wall structure against surface water runoff at all times through the use of berms, diversion ditches, silt fence, temporary drains and/or any other necessary measures to prevent soil staining of the wall face, scour of the retaining wall foundation or erosion of the reinforced backfill or wall infill.

4.6 Obstruction in the Infill Zone

4.6.1 The RWIC shall make all required allowances for obstructions behind and through the wall face in accordance with the approved construction shop drawings.

4.6.2 Should unplanned obstructions become apparent for which the approved construction shop drawings do not account, the affected portion of the wall shall not be constructed until the RWDE can appropriately address the required procedures for construction of the wall section in question.

4.7 Completion

4.7.1 For walls supporting unpaved areas, a minimum of 12" (300 mm) of compacted, low-permeability fill shall be placed over the granular wall infill zone of the precast modular block retaining wall structure. The adjacent retained soil shall be graded to prevent ponding of water behind the completed retaining wall.

4.7.2 For retaining walls with crest slopes of 5H:1V or steeper, appropriate soil erosion/sedimentation control measures shall be installed along the wall crest immediately following construction and grading of the crest slope. The crest slope above the wall shall be immediately seeded and protected to establish vegetation. The General Contractor shall ensure that the seeded slope receives adequate irrigation and erosion protection to support germination and growth.

4.7.3 The General Contractor shall confirm that the as-built precast modular block wall geometries conform to the requirements of this section. The General Contractor shall notify the Owner of any deviations.

5.0 Method of Measurement. Measurement for installation for the Modular Block Retaining Wall (w/ Stain) will be made per exposed Face Square Feet. No additional payment will be made due to variations from field construction and layout from the Plans.

6.0 Basis of Payment. Payment for all work necessary to fulfill the requirements noted above shall be considered completed covered in the contract unit price face square feet. No direct payment will be made for any necessary material, work, and labor required to complete the work.

H. Backflow Preventor Assembly & Manhole

1.0 General. This section covers all material, work, labor and appurtenances required to complete the work related to installing a Backflow Preventor Assembly & Manhole as shown on the Plans.

2.0 Requirements. The following requirements set are as follows:

2.1 A Reduced Pressure Zone Assembly shall be installed at each potential health hazard location to prevent backflow due to back siphonage and/or back pressure.
2.2 Internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs.
2.3 Seat and seat discs shall be replaceable in both check modules and the relief valve.
2.4 No threads or screws in the waterway.
2.5 Service of all internal components shall be through a single access bronze cover secured with stainless steel bolts.
2.6 Assembly shall include two resilient seated isolation valves, four resilient seated test cocks and an air gap drain fitting.
2.7 Meet the following requirements: ASSE 1013 and AWWA C511.
2.8 Materials:
  2.8.1 Epoxy coated cast iron unibody with bronze seats.
  2.8.2 Relief valve with stainless steel seat and trim.
  2.8.3 Bronze body ball valve test cocks.
2.9 Suitable for water temperatures up to 100°F (43°C) at a working pressure of 175 psi.

3.0 Approved Manufactures:

- Watts Regulator, No. Andover, MA.
- Flowmatic Corporation, Glens Falls, NY.
- Substitutions: Approved equal.

I. Public Water Supply District No 13 of Jackson County Standard Specifications

1.0 General. This section covers all material, work, labor and appurtenances required to complete the work related to items referenced in the Measurement and Payment Specification Reference Table. All items referenced shall follow the Public Water Supply District No 13 of Jackson County Standard Technical Specifications.

2.0 Requirements. The Public Water Supply District No 13 of Jackson County Standard Technical Specifications are attached for reference.

3.0 Method of Measurement. Measurements for applicable bid items shall be measured as stated in the Measurement and Payment Specification Reference Table.

4.0 Basis of Payment. Payment for all work necessary to fulfill the requirements noted above shall be considered completed covered in the contract unit price specified in the Measurement and Payment Specification Reference Table.

J. Electrical Service Connection (Include Electrical Rack)

1.0 General. This section covers all work, labor, and appurtenances for installing Electrical Service Connect including Electrical Rack as indicated on the Plans.

2.0 Requirements. The Electrical Service Connection shall follow the Supplementary Electrical Technical Specifications. These Technical Specifications are attached herein.

3.0 Method of Measurement. Measurements for Electrical Service Connection shall be measured as each, as stated in the Measurement and Payment Specification Reference Table.

4.0 Basis of Payment. Payment for all work, labor, and appurtenances to provide a complete electrical service connection to power all needs as shown in the Plans shall be per each, as stated in the Measurement and Payment Specification Reference Table.

K. Wall Mounted Pedestrian Fence

1.0 General. This section covers all work, labor, material, and appurtenances for installing a wall mounted pedestrian fence on top of the Modular Block Retaining Wall, as shown on the plans.

2.0 Requirements. All requirements for the Wall Mounted Pedestrian Fence are as stated on the Plans.

3.0 Method of Measurement. Measurements for the Wall Mounted Pedestrian Fence shall be per linear foot measured horizontally with no added length due to vertical and step-down difference in fence panels.

4.0 Basis of Payment. Payment for all work, labor, materials, and appurtenances to provide a complete Wall Mounted Pedestrian Fence, as shown in the plans, shall be covered by per linear foot.

TECHNICAL SPECIFICATIONS

DIVISION II
CONSTRUCTION AND MATERIAL SPECIFICATIONS
SECTION 2100 GRADING AND SITE PREPARATION

APPROVED AND ADOPTED THIS 15th DAY OF FEBRUARY, 2017

KANSAS CITY METROPOLITAN CHAPTER
OF THE AMERICAN PUBLIC WORKS ASSOCIATION

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(Scrivener's errors corrected on pages 14 and 22 – underlined – May 31, 2017)

SECTION 2101 CLEARING, GRUBBING, AND SITE PREPARATION

2101.1 Scope

This section governs the furnishing of all labor, materials, and equipment for the performance of all clearing, grubbing, and demolition within the limits of work as shown on the Plans and in accordance with the Standard Drawings, the Specifications, and the Special Provisions.

2101.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

APWA

2150	Erosion and Sediment Control
2201	Subgrade Preparation
2203	Aggregate Base
2307	Fencing
2700	Structures

ASTM

ASTM C 150	Standard Specification for Portland Cement
ASTM C 260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C 33	Standard Specification for Concrete Aggregates
ASTM C 494	Standard Specification for Chemical Admixtures for Concrete
ASTM C 618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM D 698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
ASTM C 1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D 4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 4832	Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

Kansas Department of Transportation
Standard Specifications for State Road and Bridge Construction, 2015 Edition
KDOT AB-3 Aggregate Base

Missouri Highways and Transportation Commission
Missouri Standard Specifications for Highway Construction, 2011 Edition
MoDOT Types 1 or 5 Aggregate Base

2101.3 Definitions

The following terms have the meanings indicated:

A. Clearing: Clearing shall consist of removing all vegetative matter such as trees, brush, down timber and other objectionable materials found on or above the surface of the site. It shall include removing buildings, fences, lumber, waste dumps and trash and the salvaging of such materials as may be specified and disposing of the debris.

The Contractor shall not occupy any portion of the Project Site prior to the date established in the Notice to Proceed without prior approval of the Owner.

B. Grubbing: Grubbing shall consist of removing and disposing of all vegetative matter such as stumps, roots, buried trees and brush encountered below the surface of the ground or subgrade, whichever is lower, which have not been included in Section 2101.2.A entitled “Clearing”.

Trees to be removed shall be completely removed, including stump and large roots, unless such removal may result in damage to existing utilities. In that event, trees shall be sawn off not more than four (4) inches above the ground and the stump shall be removed to twelve (12) inches below finish grade.

In all cases of grubbing, the vegetative matter shall be removed to a minimum depth of 12 inches below ground line or subgrade, whichever is lower, except as provided in Section 2101.3.C.

When deleterious materials are encountered below ground line which may be detrimental to the proposed improvement, these materials shall be removed to a depth necessary to provide adequate support for the proposed improvement.

C. Site Preparation: Site Preparation shall consist of all initial preparation work for the project site and includes, but is not limited to: steps to minimize site disturbance of existing vegetative, structures and private property; phasing and sequence construction activities into logical work zones; installation of erosion control measures; topsoil stripping, stockpiling and spreading; identifying haul roads, construction entrances and/or exits, construction parking areas; mailbox and fencing adjustments; etc. All site preparation shall be considered incidental unless such site preparation is listed separately in the Contract Documents.

D. Demolition and Removal: This work shall consist of demolishing, removing, and disposing of all structures and improvements within the construction limits unless included in other items of work as shown on the Plans or in the Special Provisions. This work shall apply to all structures and improvements, whether on, above or below the surface of the ground or subgrade.

Demolition and removal shall include but not be limited to items such as buildings, drainage structures, pipes, pavements, fences, retaining walls, guard rails, and signs.

Items such as fences, drainage structures, streetlighting, signing and guard rails shall be salvaged and relinquished to the appropriate owner or relocated, where indicated on the Plans.

Relocation of signs, fences, guardrails, etc. shall be considered incidental to removal work except where such relocation is listed separately in the Contract Documents.

All pipes which are to be abandoned shall be removed unless otherwise shown on the Plans or approved by the Engineer.

E. Trees: Vegetative growth 6 inches in diameter and larger, measured 3 feet above ground shall be classified as a tree.

F. Brush: Vegetative growth less than 6 inches in diameter, measured 3 feet above ground shall be classified as brush.

2101.4 Construction

A. Erosion and Sediment Control: Comply with Section 2150 Erosion and Sediment Control.

B. Limits of Work: The limits for clearing, grubbing, and demolition shall extend to the construction limits unless otherwise shown on the Plans. Contractor shall do all clearing necessary for performance of their work and shall confine their operations to that area provided through easements, licenses, agreements and rights-of-way. The Contractor's entrance upon any lands outside of that area provided by easements, licenses, agreements or public rights-of-way, shall be at the Contractor's sole liability.

In the event construction limits have not been indicated on the Plans, the limits for clearing, grubbing, and demolition shall not extend beyond the limits of the Owner's property, right-of-way, or easements.

C. Protection of Greenery, Existing Structures and Private Facilities: The Plans will designate trees, shrubs or other plants that are to be saved and the Contractor will take necessary steps to protect this greenery. All reasonable effort shall be made to save as many trees as possible. If trees can be saved by trimming, this shall be done in accordance with acceptable pruning practices. Trees may be pruned, upon prior approval of the Engineer, but only in accordance with the best practices of arboriculture in respect to the individual species with due regard to their natural form and growth characteristics.

Small Plants and Flowers: At least two weeks prior to the start of construction, property owners shall be notified by the Contactor of the proposed starting date. The purpose of this notification is so that the property owners can remove any small plants or flowers that they, the property owners, desire to save.

Existing structures within or adjacent to the construction limits that are not to be removed or demolished, shall be protected by the Contractor during their construction. Any private facilities such as house sewer laterals which are disturbed or damaged by the Contractor's work, shall be repaired by the Contractor prior to the close of the work day. This repair shall be made in a manner sufficient to restore utility service to that property. Restoration of utilities damaged by the Contractor shall be restored as directed by the utility company at no additional cost to the Owner. Unless otherwise provided in Basis of Payment no separate or additional payment will be made for any work in connection with removal, relocation or restoration of obstructions and existing facilities.

D. Surface Obstructions: Natural obstructions, existing facilities and improvements encountered during site preparation shall be removed, relocated, reconstructed or worked around as herein specified. Care shall be used while performing site preparation work adjacent to any facilities intended to remain in place. Except as otherwise specified, the Contractor shall be responsible for any damage to existing facilities and improvements and any repairs required shall be promptly made at the Contractor's expense. Waste materials shall be disposed of in a satisfactory manner off the work site.

E. Surface Obstructions for Pipeline Trenches: Sidewalks, curb and gutter, drainage structures and similar obstructions shall be tunneled under if tunneling is best suited, otherwise the obstruction shall be cut in straight lines or removed to the nearest construction joint if located within five feet of the center-line of the trench. In no case shall the joint or line of cut be less than one foot outside the edge of the trench. Surface obstructions removed to permit construction shall be reconstructed as specified and to the dimensions, lines and grades of original construction.

F. Embankment Areas: When undisturbed stumps and roots are encountered where the fill depth will exceed 3 feet, the stumps and roots may be left in place provided they do not extend more than 3 inches above the original ground line.

G. Borrow Areas: All stumps, roots and other objectionable matter shall be removed from the borrow material used for embankment or fill. The borrow area shall be left in a well-drained and smooth condition.

H. Backfilling the Site: All trenches, holes, pits, and basement areas resulting from the operations of clearing, grubbing, demolition and removal on the site, shall be backfilled with suitable material placed and compacted in conformance with applicable sections of these specifications.

I. Disposal of Materials: All materials with the exception of those which are designated for salvage or which are used in the embankment in conformance with this specification, shall become the Contractor's property and shall be disposed of by Contractor, outside the project limits at a site as approved by the Owner, unless otherwise indicated on the Plans. The disposal of waste and excess excavated materials, including hauling, handling, grading, and surfacing shall be a subsidiary obligation of the Contractor.

J. Hazardous Materials

1. In the event hazardous waste as defined by the Resource Conservation and Recovery Act of 1976 (PL94-580) are encountered, work shall be halted and the Owner shall be notified. Work shall be resumed only after the Owner notifies the Contractor. Regulation of removal, handling and disposal of hazardous wastes is the responsibility of Federal and State agencies.

2. All other items classified as "hazardous" shall be disposed of in accordance with the applicable codes. The Contractor shall refer to Section 2150 entitled "Erosion and Sediment Control".

K. **I**tems to be Left in Place: In removing items such as concrete pavements, curbs, curb and gutter, sidewalks and similar objects where portions of these objects are to be left in place they shall be removed to an existing joint or a new joint, sawed to a minimum depth of 2 inches or ¼ the slab thickness, whichever is greater. This joint shall be to true line and vertical face. Sufficient portions of such items shall be removed to provide the proper grade and connection to the new work.

L. Mailboxes: Mailboxes shall be maintained in the manner that the Postal Service requires to prevent interruption of mail delivery.

M. Fences: Refer to Section 2307 for fencing.

N. Property Pins: The Contractor shall preserve all property corners, pins or markers. In the event any property corners, pins, or markers are removed by the Contractor, such property points shall be replaced at the Contractor's expense and shall be reset by competent surveyors properly licensed to do such work. In the event such points are section corners or Federal land corners, they shall be referenced and filed with the appropriate authority.

O. Subsurface Obstruction of Pipeline Trenches: Where existing utilities and service lines are to be encountered, the Owner thereof shall be notified by the Contractor at least 48 hours (not including weekends and/or holidays) in advance of performing any work in the vicinity. All excavation, pipeline installation and backfilling work in the vicinity of such utilities shall be accomplished in the manner required by the respective Owner and, if requested, under their direct supervision. The Contractor shall be responsible for any and all damages to a public or private utility that may occur as the result of the construction.

The Contractor shall make a reasonable effort to ascertain the existence of obstructions and shall locate obstructions by digging in advance of machine excavation where definite information is not available as to their exact location. Where such facilities are unexpectedly encountered and damaged, responsible officials and

other affected utilities shall be notified and arrangements made for the prompt repair and restoration of service.

SECTION 2102 GRADING

2102.1 Scope

This section governs the furnishing of all labor, materials, and equipment required to excavate, place, remove, dispose or compact materials encountered within the limits of the project as shown on the Plans and in accordance with the Standard Drawings, the specifications, and the Special Provisions.

2102.2 Definitions

The following terms have the meanings indicated:

A. Grading: Grading as used herein shall mean the performance of all excavation, embankment, and backfill in connection with the construction of all improvements.

B. Excavation: Excavation is defined as the removal of materials from the construction area to the lines and grades shown on the Plans and includes trenching for pipelines, utilities, and structures.

1. Unclassified Excavation: Unclassified excavation is defined as the removal of all material encountered regardless of its nature. All material excavated will be considered as Unclassified Excavation unless otherwise specified in the Contract Documents.

2. Rock Excavation: Rock excavation is defined as the removal of all rock ledges 6 inches or more in thickness, and detached rock or boulders having a volume of more than 1 ½ cubic yards and shale occurring in its natural state, hard and un-weathered.

    a. A rock ledge is defined as a continuous body of rock which may include thin interbedded seams of shale or other soft materials less than 12 inches thick. The vertical limit of each ledge shall be defined by interbedded seams of soft materials 12 inches or more in thickness. The beds of soft interbedded material 12 inches or more in thickness shall not be included in the measurement for “Rock Excavation” but shall be included in the measurement for “Earth Excavation”.
    b. The following items shall not be considered as rock excavation: soft or disintegrated rock or flowable backfill (CLSM) which can be removed with a pick or digging machine; loose, shaken or previously blasted rock; broken stones and rock which may fall into the trench from outside the limits of excavation.
    c. When solid rock (including non-diggable flowable backfill (CLSM)) is unexpectedly discovered, the Contractor shall notify the Owner.

3. Earth Excavation: Earth excavation is defined as the removal of all material not defined as rock.

4. Trench Excavation: Trench excavation is defined as excavation to the width and depth as necessary to lay the pipe to the grade line as indicated on the Plans and in the specifications.

5. Tunneling, Boring and Jacking: Includes all underground horizontal excavations necessary to install the pipeline to the grade line as indicated on the Plans and in the specifications.

C. Trench Foundation: The area at the bottom of the excavation shall be composed of a stable material capable of supporting the placement of bedding material, pipe, or structures.

D. Unstable Foundation: Materials encountered in the bottom of the trench deemed as unsuitable by the Engineer to afford a sufficiently stable pipe foundation.

E. Flowable Backfill / Controlled Low Str**ength Material (CLSM)**: A mixture of portland cement, fly ash (optional), fine aggregate, water, and admixtures (as approved by the Engineer) proportioned to a consistency to fill voids without vibration. Flowable Backfill (CLSM) shall consist of:

1. Cement: The portland cement shall conform to ASTM C 150, Type 1 or Type II.

2. Fly ash: Fly ash, when used, shall conform to the requirements of ASTM C 618 Class C or F.

3. Fine Aggregate: Fine aggregate shall conform to ASTM C 33.

4. Mixing Water: Mixing water shall conform to ASTM C 1602.

5. Admixtures: Air entrainment, when used, shall conform to ASTM C 260. Water reducing admixtures, when used, shall conform to ASTM C 494. All other admixtures shall only be used when approved by the Engineer.

6. Other materials: Proposed replacement or supplementary materials shall be approved by the Engineer and in conformance with current NRMCA or ACI guidelines for CLSM.

Flowable Backfill (CLSM) compressive strength testing results are required for approval of mix design prior to placement of flowable backfill. Compressive tests are to be conducted at 7 and 28 days in accordance with ASTM D 4832. CLSM shall have a minimum and maximum 28-day design compressive strength of 50 psi and 125 psi, respectively. The unit weight of the CLSM shall be a maximum of 125 lbs. per cubic foot (pcf). All tests necessary for determining conformance with the requirements specified herein will be at the Contractor's expense.

F. Bedding: The placing and compacting of the aggregate material above the stable foundation and below the pipes or structures.

G. Embedment: The placing and compacting of approved material surrounding the pipe up to a maximum of 12-inches above the top of pipe.

H. Embankment or Backfill: The placing and compacting of approved material in the construction areas to the lines and grades shown on the Plans.

1. Unsuitable Material: Muck, frozen material, organic material, top soil, or rubbish. Rock with a maximum dimension greater than 24 inches is also defined as unsuitable. Top soil is unsuitable for embankment and backfill, but may be used as the surfacing for graded areas to be seeded or sodded (see Section 2400).

2. Suitable Material: Suitable material is defined as entirely imperishable with that portion passing the No. 40 Sieve having a liquid limit not exceeding 40 and a plastic index not exceeding 25, when tested in accordance with ASTM D 4318.

a. Rock Embankment: Material for rock embankment shall be free of unsuitable material and shall contain, by volume, greater than 10 percent rock or gravel having a maximum dimension greater than 3 inches but not greater than 24 inches.
b. Earth Embankment: Material for earth embankment shall be free of unsuitable material and shall, contain by volume, less than 10 percent rock or gravel having a maximum dimension greater than 3 inches.

3. Pipe Backfill: Pipe backfill materials shall be furnished and installed to complete the work shown on the Plans or as called for in the Contract Documents.

a. Select Earth Backfill Material: Select earth backfill shall be finely divided job excavated material free from debris, organic matter, rocks larger than one (1) inch and/or frozen materials.
b. Other Earth Backfill: Other backfill may be job excavated material free from debris and organic matter. No rock greater than three-inches in diameter shall be placed in any trench excavation as backfill unless approved by the Engineer.
c. Aggregate Backfill Material: Approved material meeting ASTM C33 requirements and the specified gradations.
d. Flowable Backfill (CLSM): See Section 2102.2.E.

I. Borrow: Approved material excavated from an area outside of the project limits and required for the construction of the embankment.

J. Waste: Waste is defined as excavation material not used in the embankment and disposed of outside of the embankment areas.

K. Structures: Used herein refers to culverts, storm sewer and/or sanitary appurtenances, and similar construction. See Section 2700 for other structures.

2102.3 Construction

A. The Contractor shall adhere to any and all statutes regarding the notification of utilities prior to beginning any work within public right-of-way. The relocation and/or protection of any utility that is shown on the Plans, that lies within a utility easement and is endangered by this construction shall be the responsibility of the Contractor.

B. The Contractor shall make every reasonable effort to protect private facilities. These facilities may not be shown on the Plans. When these facilities are disturbed or damaged by the work, the Contractor shall make necessary arrangements for repairs to the facilities for continuous service prior to the close of that work day.

C. It shall be the responsibility of the Contractor to protect all property lot corners and control monumentation. Should it be necessary to disturb any such monument, whether stake, pin, bar, disk, box, or other, it remains the responsibility of the Contractor to reference such markers prior to removal, reset them, and file such relocations or monumentation documents as the law may require. Any such references, removal, replacement and certification of monuments shall be performed by a registered licensed surveyor. A copy of all such certification documents shall be provided to the Owner prior to final payment. Any monument destroyed or improperly reset by the Contractor may be replaced by the Owner to the standards required by law at the expense of the Contractor.

D. Grading, excavation, and backfilling for all improvements, shall be made to the lines, grades, and cross sections indicated by the Plans.

E. In addition, to any erosion control measures shown on the Plans, the Contractor shall schedule and conduct their operation in such a manner and shall provide any necessary control facilities to protect downstream and adjacent properties from pollution, sedimentation, or erosion caused by the grading operations. Any pollution or damage occurring shall be the responsibility of the Contractor. See Section 2150 Erosion and Sediment Control.

F. During construction, the graded area shall be maintained by the Contractor in such condition that it will be well drained at all times. Roadway ditches, channel changes, inlet and outlet ditches and other ditches in connection with the roadway shall be cut and maintained to the required cross section. All drainage work shall be performed in proper sequence with other operations. All ditches and channels shall be kept free of debris or obstructions not identified in the erosion control plan.

G. All suitable material removed by excavation shall be used as far as practicable in the formation of embankment as required to complete the work. The Contractor shall sort all excavated material and stockpile when necessary, so as to provide suitable materials for embankments.

H. After removal of the roadway excavation material to the required section, all material between lines 1 foot outside of the curbs and within the top 6 inches of the subgrade shall be compacted to 95 percent of maximum density for the material as defined in Section 2102.6.F.

I. Rock encountered within the full width of the roadway, toe of slope to toe of slope, shall be undergraded to an elevation of 6 inches below the finished subgrade elevation. Care shall be taken to avoid overshooting when blasting. Rock shall be removed in such a manner as to leave no excessive water pockets in the surface.

J. Blasting: When blasting is permitted by the Engineer, the Contractor shall use the utmost care to protect life and property. The Contractor shall obtain any required permits from the agency having site jurisdiction and shall comply with all laws, ordinances, and the applicable safety code requirements and regulations relative to the handling, storage and use of explosives and protection of life and property, and he shall be responsible for all damage caused by his or his subcontractor's operations.

1. The Contractor shall provide insurance as required by the Contract Documents before performing any blasting. The governing agency shall be notified at least 24 hours before blasting operations begin.

K. No Blasting Areas: No blasting of any kind for rock excavations or any other purpose will be allowed unless noted otherwise on the Plans or permitted by the Engineer.

L. Areas of undergrading or overbreakage in rock between lines 1 foot outside of the curbs shall be backfilled with spalls, rock fragments or a granular type material. Backfill materials shall have a plasticity index not to exceed 10 and a gradation such that at least 50 percent of the material will be retained on the No. 4 Sieve.

M. Cribbing and Sheeting: The Contractor shall furnish, install, and maintain such sheeting, bracing, and other components, as may be required to support any excavation and to prevent any movement which could in any way injure or delay the work or endanger adjacent pavement, building, or other structures. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed they shall be immediately filled and consolidated.

For the purpose of preventing injury or property damage, Contractor may leave in place all sheeting or bracing, and other items to be embedded in the backfill of the trench. No sheeting or bracing, however, shall be left in

place within 5 feet of the surface without the written permission of the Engineer.

2102.4 Excavation, Trenching, And Backfilling For Pipe And Structures

A. Dewatering of Excavation

1. The Contractor shall maintain a dry and stable excavation, obtain necessary permits, and provide for the proper method of discharging water from the work site at all times until installation is completed.

2. The Contractor shall not allow hydrostatic pressure flotation or other adverse effects to cause damage to the structure or pipeline.

3. Proper dewatering techniques are the Contractor's responsibility. All work performed by the Contractor that is adversely affected by his/her failure to adequately dewater trenches will be subject to rejection by the Engineer. The Contractor shall repair and/or replace affected structures or pipelines.

4. The Contractor shall remove any water that may accumulate or be found in the trenches and other excavations made as part of the work.

5. Grading shall be done to prevent surface water from flowing into trenches or other excavations, and to maintain the flow of water in natural watercourses on or adjacent to the site. Any water accumulating in trenches or other excavations shall be removed by pumping or by other approved methods.

B. Trench Excavation: Trenches shall be excavated to the width and depth as necessary to lay the pipe to the grade line as indicated on the Plans with proper pipe embedment. The Contractor shall perform excavation of materials encountered in accordance with Section 2102.3, regardless of material type, to the depths indicated on the drawings or as otherwise specified herein. Excavated materials are to be deposited beside trenches and excavations to avoid overloading, and to prevent slides or cave-ins, transported to the spoil banks, or used for backfilling. All excavated materials not required or not suitable for backfill shall be removed and disposed of off the site by the Contractor as part of the Work. The trench excavation opened at one time shall be limited by the nature of the soil and other safety considerations.

1. All pipeline excavation work shall be accomplished under the supervision of a person employed by the Contractor or his subcontractor and experienced with the materials and procedures which will provide protection to existing improvements, including utilities and the proposed pipeline.

2. The alignment, depth, and pipe subgrades of all trenches shall be determined by a laser beam parallel to the pipe invert.

3. Deviation from the indicated alignment will not be permitted except under special circumstances, subject to approval of the Engineer.

4. Trenches that are parallel to structures, pavements or walls shall be no closer than 18 inches from the closest edge of footings or pavement. Also, no parallel trench shall extend in depth below a plane having a downward slope of 1 horizontal to 2 vertical starting from a line 9 inches above the bottom edge of footings or pavement. The bottom of pavement shall be the lowest improved section of pavement to include chemically stabilized subgrade or aggregate base layers.

5. When pipe is to be installed in embankment or fill, the embankment shall be constructed in accordance

with APWA section 2102.6 and shall be built up to a plane at least 18 inches above the top of the pipe prior to the excavation of the pipe trench.

6. The Contractor shall not open more trench in advance of pipe laying than is necessary. Four hundred (400) feet will be the maximum length of open trench allowed on any line under construction. All open trenches shall be adequately protected.

7. Undercutting of trench walls is not permitted.

8. Option to Trenching: Contractor may perform excavation by tunneling methods as set forth herein at no additional cost to the Owner provided prior written approval for each such location is obtained from the Engineer. The Contractor shall submit to the Engineer, prior to actual work, a written description of his proposed operation. It shall include the types and locations of shafts, methods to provide safe support strength for the pipeline when the shafts or bore pits exceed maximum allowable trench widths and other features that would affect the pipeline. Tunneling shall be done with a minimum inconvenience and disturbance to the general public and abutting property owners.

C. Trench Widths: Trenches shall be excavated to a width that will provide adequate working space and pipe clearances for proper pipe installation, jointing, and embedment. Over-excavation shall be replaced with granular bedding material or flowable backfill (CLSM). See applicable Plans, Standard Drawings, and manufacturers' recommendations for trench widths for pipe installations.

D. Preparation of Pipe Subgrade: Pipe subgrade shall be prepared to provide uniform and continuous support of pipe. The trench bottom shall be evenly graded. Areas that are too high shall be shaved as required. Any portions of the trench that are found to be too low shall be filled with suitable materials, thoroughly compacted, and brought to true grade, allowing for placement of bedding material as shown in the Standard Drawings.

E. Trench Bottom in Rock Excavation: Where rock is encountered in excavation, the rock shall be removed to provide a minimum clearance of 6 inches below and 6 inches along each side of the pipe.

F. Replacement of Unsuitable Pipe Foundation Material

1. If unstable subgrade conditions are encountered and it is determined by the Engineer that the excavation bottom will not provide suitable support, the Contractor shall remove all unstable or unsuitable material over the entire width of the trench to the depth required by the Engineer to provide a stable foundation. Removal shall not be less than 6 inches.

2. Materials so removed shall be replaced with bedding aggregate material as specified herein. Bedding material shall be mechanically compacted over the entire width of the trench and shall be brought to proper grade, shape, and elevation for the installation of the pipe as shown on the Plans or Standard Drawings.

G. Granular Bedding Materials: Granular bedding material shall meet ASTM C33 with one of the following gradation requirements:

Sanitary Sewer Bedding Material Gradation Limits (% Passing)	
Sieve Size	3/4”
1”	100
3/4"	90 – 100
3/8”	20 – 55
No. 4	0 – 5
No. 8	0 – 2

Storm Sewer Bedding Material Gradation Limits (% Passing)			
Sieve Size	3/4”	1/2”	3/8”
1”	100		
3/4"	90 – 100	100	
1/2”		80 – 100	
3/8”	20 – 55	40 – 77	100
No. 4	0 – 10	0 – 15	30 – 40
No. 8	0 – 5	0 – 5	0 – 4

Waterline Bedding Material Gradation (% Passing)				
Sieve Size	Type 1 (1/2”)	Type 2 (Buckshot)	Type 3 (Man. Sand)	Type 4 (River Sand)
3/4"	95 – 100			
3/8”	40 – 60	100	100	
1/4"			90 – 100	
No. 4		60 – 80	85 – 90	100
No. 8	0 – 5	0 – 15	35 – 75	
No. 50			10 – 25	
No. 200		0	0 – 10	0 – 10

H. Pipe Embedment: All water, sanitary sewer, and storm sewer pipe shall be bedded in bedding aggregate as specified herein.

1. Bedding shall cover the entire width of trench.

2. The first layer of bedding placed on the bottom of excavation shall be in accordance with Figures 1 through 3.

3. Bedding at bottom of trench, in the middle 1/3 of trench under the pipe shall be loose.

4. After pipe is placed, bedding material shall be placed in layers in accordance with manufacturer’s recommendations.

5. Second layer of bedding material shall be placed under the lower haunches of the pipe up to the springline (center of pipe). Material shall be spaded to be place under haunches and compacted at the springline elevation prior to placing additional bedding material.

6. The third layer of bedding material shall be placed to 12 inches over the top of pipe.

7. Contractor shall take measures to prevent pipe from floating during placement of bedding material so that pipe maintains proper line and grade as shown on the Plans.

I. Trench Backfill

1. Backfill shall not be placed when material contains frost, is frozen, or a blanket of snow prevents proper compaction.

2. The Contractor shall remove from the project site waste material, trees, organic material, rubbish, or other deleterious materials.

3. All trash and debris shall be removed from the pipeline excavation prior to backfilling.

4. Backfill material shall be carefully placed to avoid damage to or displacement of the pipe, other utilities or structures.

5. Unless otherwise specified, all trenches and excavations around structures shall be backfilled to the original ground surface.

6. Outside of paved areas, the backfill material shall be placed in layers not exceeding 8-inches in loose thickness and be compacted to at least 90% of maximum density. Compaction testing shall be at the discretion of the Engineer.

7. The method of compaction and the equipment used shall be appropriate for the material to be compacted and shall not transmit damaging shocks to the pipe.

8. The combination of the thickness of the layer, the method of compaction and the type of compaction equipment used shall be at the discretion of the Contractor subject to obtaining the required densities.

J. Trench Backfilling in Street or Alley Right of Way and under Pavement

1. Narrow Trench: Suitable backfill material for trenches 24 inches or less in width and shall be flowable backfill (CLSM).

2. Standard Trench: Suitable backfill material for trenches between 24 to 48 inches wide shall be either flowable backfill (CLSM) or dense, well-graded aggregate base material. Aggregate base material shall meet the requirements for KDOT AB-3 or MoDOT Types 1 or 5.

3. Wide Trench: Suitable Backfill Material for trenches greater than 48 inches wide shall be either materials specified for standard trench or suitable material as specified for “Earth Embankment” in APWA Standard Specifications, Section 2102.2.H.

4. Suitable Backfill Material outside of paved areas within Right of Way, and all areas outside Right of Way, may be suitable material as specified for “Earth Embankment” in APWA Standard Specifications, Section 2102.2.H. Suitable Backfill Material may also be other trench backfill material (flowable backfill or aggregate base) depending on site conditions, trench widths or at the direction of the Engineer.

5. Aggregate backfill material placed between lines one foot behind curbs, or edge of uncurbed pavement, shall be meet density and testing requirements as outlined in APWA 2203 Aggregate Base Course.

6. The method of compaction and the equipment used shall be appropriate for the material to be compacted and shall not transmit damaging shocks to the pipe.

7. The combination of the thickness of the layer, the method of compaction and the type of compaction equipment used shall be at the discretion of the Contractor subject to obtaining the required densities.

8. A minimum of one compaction test shall be taken for each lift of earth embankment backfill or dense, well-graded aggregate base material for each road crossing or each 50 feet of trench length under pavement.

9. Testing shall be performed by a qualified testing lab hired by the Contractor and approved by the Owner.

10. Laboratory compaction test and index property test results for each material used on site shall be submitted to the Engineer prior to construction. Any work by Contractor prior to test submittals and subsequent Owner review and approval shall be work done at the Contractor's risk.

11. Test reports shall be submitted to the Engineer daily. The reports shall clearly indicate the location of all tests by street name, station and/or lot number, type of backfill material, utility type, and depth of test. The reports shall include the results of all tests (pass or fail) and all re-tests.

12. All test reports shall be submitted prior to receiving approval of subgrade for curb and pavement installation. Pavement, curb or other surface features placed prior to receiving subgrade approval shall be placed at the Contractor's risk.

K. Flowable Backfill (CLSM) Installation

1. Flowable Backfill (CLSM) shall be constructed to the configuration and the lines and grades shown on the Plans, or as directed by the Engineer. No additional payment will be allowed for placement beyond these limits.

2. The producer may cut back on the quantity of water incorporated during batching with the approval of the Engineer. Additional water may be added on-site to achieve the intended consistency. The final mix unit weight and compressive strength shall fall within the specified ranges as described in Section 2102.2.E.

3. No Flowable Backfill (CLSM) shall be placed on frozen ground or in standing water.

4. When the ambient temperature is either falling or forecasted to fall below 35^0 F within 24 hours of its proposed placement time, the Contractor may submit the use of cold weather methods for approval by the Engineer.

5. Care shall be taken to prevent the movement of any conduit, pipe or structure from the designated location or intrusion of flowable backfill into undesirable locations. If such movement or intrusion occurs, the Engineer may require the affected structure to be excavated and replaced to the proper grade at the Contractor's expense.

6. If flowable backfill is placed in more than one layer, loose and foreign material shall be removed prior to placing the next layer.

7. No flowable backfill shall be covered or accepted until a minimum compressive strength has been attained, as demonstrated by failure to deform or crush underfoot. If the flowable backfill does not harden to required strength, the flowable backfill shall be removed and replaced with an acceptable material at the Contractor's expense. Acceptance of the flowable backfill shall be based on visual inspection.

8. Random compressive strength testing may be conducted at the Owner's expense to verify compliance with strength requirements. Compressive tests shall be in accordance with ASTM D 4832.

L. Trench Checks

1. Install where shown on the Plans.

2. The backfill above the trench check shall meet the specifications for backfill material.

M. Excavation by Tunneling or Boring: Where depth of trench and soil conditions will allow it, tunneling may be required under pavement, railroad tracks, or other surface structures. Tunnel sections shall provide adequate clearance for pipe and workers for proper lining, grading, and jointing the pipe installed therein.

All tunnel excavation shall provide an excavation conforming to the outside diameter of the casing and/or carrier conduit. The excavation shall be to an alignment and grade which will allow the carrier conduit to be installed to proper line and grade as shown on the Plans and as established in Section 2505.2.H. Conduct excavation in a manner to prevent disturbing overlying and adjacent material. Perform dewatering and chemical soil stabilization or grouting if necessary, due to existing field conditions.

N. Settlement: The Owner may perform periodic inspections to insure that no settlement has occurred. The Contractor shall be responsible for all settlement of backfill, fills and embankments which may occur within two (2) years of time after final acceptance of the contract under which the work was performed.

The Contractor shall make, or cause to be made, all repairs or replacements made necessary by settlement within thirty (30) days after notice from the Owner. Should the Contractor fail to make such repairs the Owner may cause repairs to be made and the cost of these repairs shall be the responsibility of the Contractor.

O. Excavation and Backfilling for Piping and Structures

1. All structure foundations shall be founded on stable, undisturbed subgrade. Excavation shall be sufficient to provide at least 12 inches clear between the outer surfaces of the structure (including formwork) and the embankment or timber that may be used to hold and protect the excavation.

2. Unsuitable or unstable foundation soil that will not properly support the structure, as determined by the Engineer, shall be removed to the depth required and the excavation backfilled to the proper grade with compacted bedding material or other material approved by the Engineer.

3. All excavations for structure shall be kept dry; no reinforcing steel shall be installed in water; and no water shall be permitted to inundate the reinforcing steel before concrete has been placed.

4. Street Right-of-Way Areas: All structures located under or within paved or graveled areas shall be backfilled with flowable backfill (CLSM) to a level flush with the top of pavement subgrade. Structures located under or within vegetated areas shall be backfilled with flowable backfill (CLSM) to a level

twelve inches below finish grade and consolidated topsoil. The external opening surfaces of weep holes shall be covered with hardware cloth and surrounded with a minimum of three cubic feet of consolidated granular bedding material.

5. Areas other than Street Right of Way: All structures located under or within paved or graveled areas shall be backfilled with flowable backfill (CLSM) to a level flush with the top of pavement subgrade. Structures located under or within vegetated areas shall be backfilled with CLSM, untreated compacted aggregate, consolidated granular bedding material, or compacted soil to a level twelve inches below finish grade. The external opening surfaces of weep holes shall be covered with hardware cloth and surrounded with a minimum of three cubic feet of consolidated granular bedding material. The top twelve inches shall be backfilled with topsoil.

6. Backfilling

   a. No backfill shall be placed over or around any structure until the concrete or mortar therein has attained a minimum strength of 2000 psi and can sufficiently support the loads imposed by the backfill without damage.
   b. The Contractor shall use utmost care to avoid any wedging action between the side of the excavation and the structure that would cause any movement or floating of the structure. Any damage caused by premature backfill or by the use of equipment on or near a structure will be the responsibility of the Contractor.
   c. Backfill shall be placed and compacted on all sides of the structure simultaneously, and operations shall be so conducted that the backfill is always at approximately the same elevation on all sides of the structure.
   d. No excavated rock larger than 3 inches maximum dimension shall be placed within 1 foot of the exterior surface of any structure except as allowed with flowable backfill (CLSM) placement.
   e. No backfill material containing rock, or detritus from rock excavation, shall be placed in the upper 24 inches of the excavation.
   f. Large rock may be placed in the remainder of the backfill upon approval of the Engineer. Approved rock material shall be placed so that it is well separated, allowing proper compaction of soil backfill around the rock material.
   g. All excavation shall be backfilled to the lines and grades shown on the Plans.
   h. After the required curing time, backfill shall be placed and compacted in layers. Contactor shall monitor impact of placement, vibration and related work so not to damage or disturb structures.
   i. Backfill shall be place in compacted in layers not exceeding 8-inches in loose thickness and be compacted to at least 95% of maximum density at optimum moisture ± 3% as determined by ASTM D 698. Each lift shall be compacted and tested to the required density prior to the next lift being placed. Testing shall be performed by a qualified testing lab hired by the Contractor and approved by the Owner.
   j. In no instance shall backfill be dumped, bulldozed, or otherwise deposited in bulk upon the newly constructed structure.

P. Backfill of Drainage Course Crossings

1. Excavation in rock to a distance of 10 feet beyond each bank (measured perpendicularly to the stream flow) shall be backfilled with concrete to the existing rock elevation. The excavation above the rock elevation shall be backfilled with soil above that concrete encasement or as indicated on the Plans.

The soil placed above the encasement shall be compacted to at least 95% of maximum density at optimum moisture ± 3% as determined by ASTM D 698.

2. Pipe placed in an excavation in soil shall be encased in concrete to a minimum of 1 foot above and below the pipe and backfilled with soil above that concrete encasement or as indicated on the Plans. The soil placed above the encasement shall be compacted to at least 95% of maximum density at optimum moisture ± 3% as determined by ASTM D 698.

2102.5 Undergrading

A. Where materials are encountered which are deemed as unsuitable by the Engineer for use in the work, they shall be removed to the depth and limit as ordered by the Engineer. Areas undergraded shall be backfilled with one of the following materials:

1. Replacement with suitable materials from excavation on the work site or from an off-site borrow area, compacted to the required moisture and density requirements where practicable.

2. Mixing of stone base or rock materials, hydrated lime, portland cement or fly ash into the sub-grade.

3. Placement of compacted aggregate.

4. Rock fragments or spalls. A granular type material having a plasticity index not to exceed 10 and a gradation such that at least 50 percent of the material will be retained on the No. 4 Sieve and not more than 40 percent will pass the No. 10 Sieve.

5. A material meeting the requirements of Section 2102.2.H.2.

2102.6 Embankment

A. This section governs embankment for all improvements. The embankments shall be constructed using suitable materials, as herein defined, procured from excavations made on the project site or from borrow areas as required to complete the grading work.

B. Starting the Embankment: Where embankments, regardless of height, are placed against hillsides or existing embankments, either of which have a slope steeper than 1 vertical to 4 horizontal, the existing slope shall be benched or stepped in approximately 24 inch rises as the new fill is brought up in 8 inch maximum layers or lifts. The material bladed out, the bottom of the area cut into, and the embankment material being placed, shall be compacted to the required density. Material cut out, bladed into place and compacted shall not be measured and paid for directly but will be considered as incidental work.

The existing surface upon which embankment material is to be placed shall have all unstable and unsuitable material removed before starting the embankment work. Where embankments 2 feet or less in depth are to be placed on areas covered by existing pavement, the existing pavement shall be removed and the cleared ground surface shall be compacted to the specified density. Where embankments greater than 2 feet in depth are to be placed on areas covered by existing pavement, the existing pavement shall be broken into pieces no larger than 18 inches maximum dimension, left in place and the embankment started thereon.

C. Placing Earth Embankment: Earth shall be placed in successive horizontal layers distributed uniformly over the full width of the embankment area. Each layer of material shall not exceed 8 inches maximum in thickness

(loose state) and shall be compacted to not less than the required density before the next layer is placed thereon. As the compaction of each layer progresses, continuous blading, or dozing will be required to level the surface and to ensure uniform compaction. Embankment construction shall not be performed when material contains frost, is frozen or is snow covered.

D. Placing Earth and Rock Embankment: When earth and stone or rock fragments are mixed in the embankment, all stones or rock fragments exceeding the thickness of the compacted lift shall be disposed of by being incorporated into the embankment outside the limit of the proposed paved areas. The thickness of the layer in these areas may be increased if necessary to accommodate the rocks, but shall not exceed 12 inches in thickness (loose state). The stones or rock fragments are to be placed so there will be no nesting.

E. Consolidated Rock Embankment: When the excavated material consists predominantly of stone or rock fragments of such size that the material cannot be placed in layers of the thickness prescribed, such material shall be placed in the embankment in layers having a thickness of the approximate average size of the larger rocks but not to exceed 24 inches. Rocks or boulders too large to permit placing in a 24 inch layer shall be reduced in size as necessary to permit placement. Rock shall not be dumped in place but shall be distributed by blading or dozing in a manner to insure proper placement in final position in the embankment. Voids shall be filled with smaller stones, earth, sand, or gravel. Each layer shall be thoroughly consolidated before the next layer is placed.

Rock embankment shall be capped with 3 feet of soil material on all sides. The soil cap material shall not contain material having a maximum dimension greater than 3 inches.

F. Compacting the Embankment: Before placing any embankment, the surface of the existing ground shall be prepared as specified herein, moistened as required, and the top 6 inches compacted to a density of 90 percent as prescribed by the following paragraph:

All embankment shall be compacted to a density of at least 90 percent of the maximum density for the material used as determined by ASTM D 698 with a moisture range sufficient to allow for proper compaction. In addition to the above required compaction, the subgrade between lines 1 foot outside of the curbs and within the top 6 inches of the subgrade in cut sections and the top 18 inches in fill sections shall be compacted to a density of at least 95 percent of the maximum density for material used as determined by ASTM D 698 and with a tolerance of ± 3% of the optimum moisture at maximum density.

All work involved in either adding moisture to or removing moisture from embankment materials to within these moisture limits shall be considered incidental to the completion of the grading operation.

G. Moisture – Density Determination: In-place density and moisture content of the embankment will be determined by an acceptable method as approved by the Engineer.

H. Testing

1. Laboratory compaction test and index property test results for each material used on site shall be submitted to the Engineer prior to placement. Any work by Contractor prior to test submittals and subsequent Engineer review and approval shall be work done at the Contractor's risk.

2. In-Place Density/Moisture tests shall be taken at the frequency of 4 per day per spread, with a minimum of one test per lift.

3. Test reports shall be submitted to the Engineer daily. The reports shall clearly indicate the location of

all tests by street name, station and/or lot number, type of material, and elevation of test. The reports shall include the results of all tests (pass or fail) and all re-tests.

4. All test reports shall be submitted prior to receiving approval of subgrade for subsequent work. Pavement, curb, other surface features or utilities placed prior to receiving embankment approval shall be placed at the Contractor's risk.

I. Backfilling Curb and Gutter: Backfilling behind curb or curb and gutter shall be done within seven (7) days after being laid unless otherwise approved by the Engineer. The material used to fill the void behind curb or curb and gutter shall be free of rock and debris and shall be of a type that will leave no voids to pocket water. Unless otherwise shown on the contract drawings, the finish grading from the back of the curb to the right-of-way line and/or utility easement line or construction easement line shall be performed to provide a smooth transition between existing yard grades at the right-of-way line and/or easement line to the curb so that positive drainage will exist.

The top portion of the backfill within right-of-way areas shall be finished with at least 6 inches of topsoil corresponding to, or better than, that underlying adjoining sodded areas. Topsoil shall be approved by the Engineer prior to placement, and unless otherwise directed, shall be material previously excavated and stockpiled for the purpose during excavating and grading operations. Immediately prior to dumping and spreading topsoil, the surface shall be loosened by discing or scarifying to a minimum depth of two (2) inches to permit bonding of the topsoil to the underlying surface.

2102.7 Finishing

A. In areas where sodding or seeding is proposed, the upper 12 inches of the surface area shall be earth material free of rocks greater than 1 inch in diameter. The top 6 inches shall be topsoil suitable for sustaining grass or sod.

B. Except where other permit or utility work is in progress, the graded surface shall be made free of rock, concrete, and brick, or fragments thereof, or rubbish and shall be finished to the lines, grades, and cross-section indicated on the Plans, including shoulder, berm and sidewalk spaces.

C. The Contractor shall repair any damaged surface, and shall not use any finishing equipment that will leave a marred surface. When the subgrade preparation is included as a part of the finishing, the work shall be accomplished according to the requirements of Section 2201 entitled "Subgrade Preparation", and shall be considered incidental to finishing the grading work.

2102.8 Cleanup

Cleanup shall follow the work progressively and final clean-up shall follow immediately behind the finishing. The Contractor shall remove from the site of the work all equipment, tools and discarded materials, and other construction items. The entire right-of-way or easement shall be left in a finished and neat condition. Cleanup shall be considered as incidental to the completion of grading work.

SECTION 2103 MEASUREMENT AND PAYMENT

2103.1 General

There will be no measurement or separate payment for any items of work not specifically identified and listed in the Contract Documents and all costs will be included in the contract unit prices for other items listed in the Contract Documents.

2103.2 Method of Measurement

The quantities of accepted work will be measured and determined as follows:

A. Clearing, Grubbing, and Demolition

1. Clearing may be listed in the Contract Documents and measured per acre or hundredth part thereof.

2. Grubbing may be listed in the Contract Documents and measured per acre or hundredth part thereof.

3. Demolition may be included as Clearing or may be listed in the Contract Documents as a separate item and measured per each and as such shall include all work as defined in Section 2101.2.D.

4. Tree removal may be included in Clearing or may be listed as a separate item in the Contract Documents and measured per each.

5. Brush removal shall not be measured and will be subsidiary to other items in the Contract Documents.

B. Grading

1. Unclassified Excavation may be listed in the Contract Documents and measured to determine the quantity in cubic yards or tenth part thereof.

2. Rock Excavation may be included as Unclassified Excavation or may be listed in the Contract Documents as a separate item and measured to determine the quantity in cubic yards or tenth part thereof. No measurement will be made for rock overbreak in excess of 12 inches below the subgrade elevation.

3. Earth Excavation may be included as Unclassified Excavation or may be listed in the Contract Documents as a separate item and measured to determine the quantity in cubic yards or tenth part thereof. No measurement will be made for embankment performed in rock overbreak areas, where the overbreak is in excess of 12 inches below the subgrade elevation.

4. Embankment may be listed in the Contract Documents and measured to determine the quantity in cubic yards or tenth part thereof.

5. Undergrading may be listed in the Contract Documents and measured to determine the quantity in cubic yards or tenth part thereof.

C. Excavation for pipelines, utilities and all other underground facilities is subsidiary to the pay item for the pipeline, utility or specific underground facility.

D. Testing required by the Contractor shall be subsidiary to other items of the Contract Documents. No separate payment will be made.

2103.3 Basis of Payment

Payment for the quantities of accepted work will be made as follows:

A. Clearing, Grubbing, and Demolition

1. Clearing, grubbing, or clearing and grubbing may be included in the Contract Documents as separate items or as one item and will be paid for by one of the following:

    a. Payment will be made at the contract unit bid price.
    b. Payment will be made at the contract lump sum bid price.

2. Demolition, if listed as a separate item in the Contract Documents and not included as a part of Clearing, or Clearing and Grubbing will be paid for by one of the following:

    a. Payment will be made at the contract unit bid price.
    b. Payment will be made at the contract lump sum bid price.

3. Site Preparation, if listed in the Contract Documents as a separate item and not included as a part of Clearing, or Clearing and Grubbing will be paid for by one of the following:

    a. Payment will be made at the contract unit bid price.
    b. Payment will be made at the contract lump sum bid price.

B. Grading

1. Unclassified Excavation, Rock Excavation, or Earth Excavation may be included in the Contract Documents as separate items or as one item and will be paid for by of the following:

    a. Payment will be made at the contract unit bid price.
    b. Payment will be made at the contract lump sum bid price.

2. Embankment may be included in the Contract Documents and will be paid for by one of the following:

    a. Payment will be made at the contract unit bid price.
    b. Payment will be made at the contract lump sum bid price.

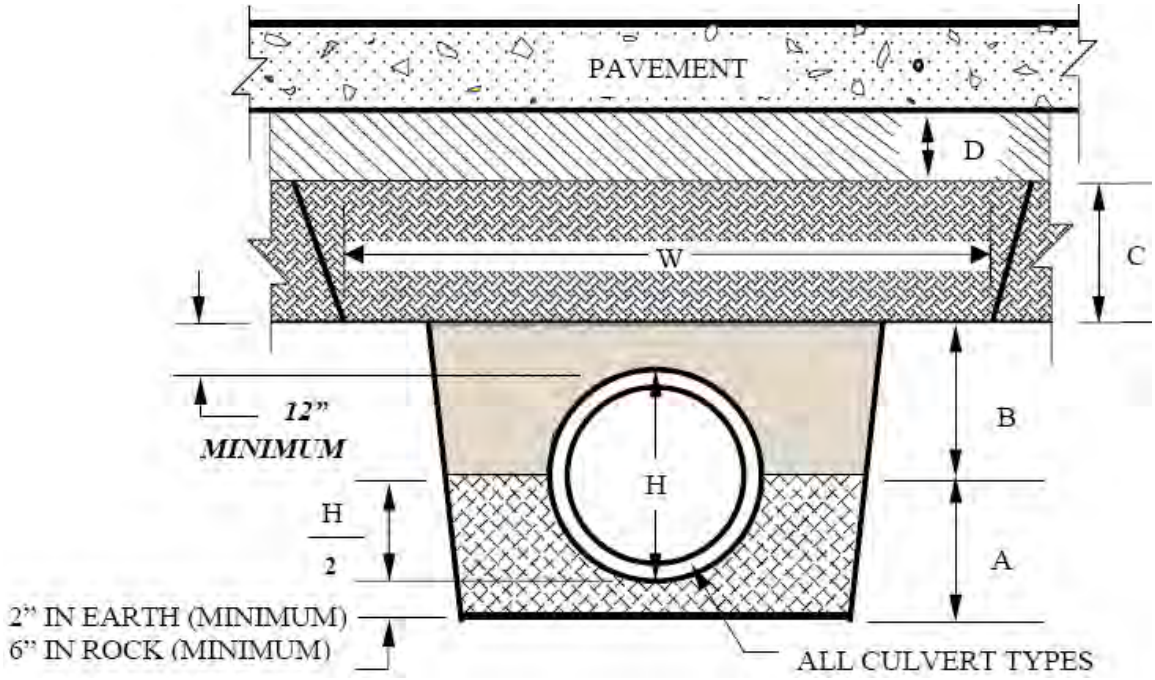
3. Undergrading may be listed in the Contract Documents and will be paid for at the Contract unit bid price.

C. Excavation for pipelines, pipeline structures, utilities and all other underground facilities is subsidiary to the pay item for the pipeline, utility or specific underground facility.

D. Testing required by the Contractor shall be subsidiary to other items of the Contract Documents. No separate payment will be made.

SECTION 2104 BACKFILL DETAILS

Figure 1



A- Consolidated granular bedding material.

B- Granular bedding material or Flowable Backfill (CLSM).

C – Compacted Embankment - 2102.6. Lift thickness shall not exceed the capability of the equipment being utilized to achieve the proper density and consolidation, and in no case shall a lift exceed twelve inches for soil. The minimum width, W, shall be two feet wider than the width of the required compaction device, or five feet, whichever is greater.

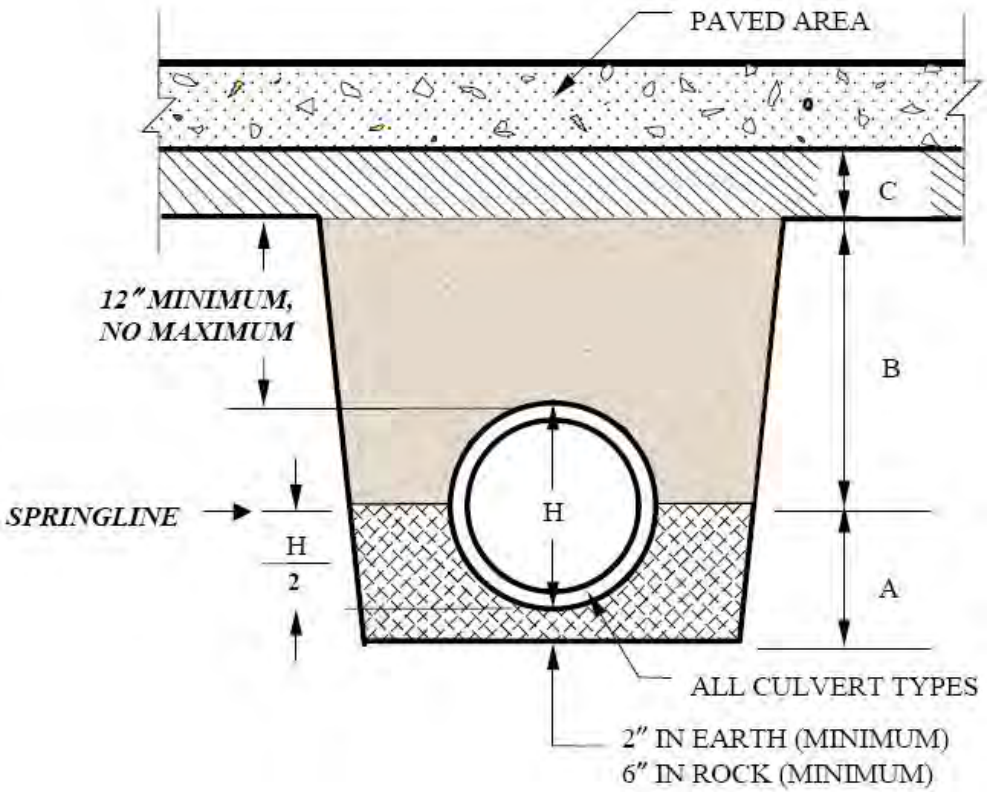
D – Compacted Subgrade - Subgrade thickness shall be as specified in Table 1 of Section 5206 and as directed by the Engineer. Subgrade preparation shall be done in accordance with Section 2201 and shall consist of aggregate for base course, stabilized subgrade, or compacted soil – in accordance with the associated Sections 2201, 2202, and 2203.

Figure 1
(Deep Sewer Lines Using Earth Compaction Equipment, or in Depths Exceeding 30" of Cover)

Figure 2

The following cross-sectional view of typical storm sewer trench construction under street, alley pavements, and entrances Figure 2, shall apply to all storm sewer backfill areas where deep trenches are not widened to allow heavy roadway compaction equipment. Figure 2 shall also apply to shallow (30" to 18" from top of pipe to bottom of pavement) roadway trenches:

Backfilling shall be placed as shown in Figure 2.



A- Consolidated granular bedding material.

B- Granular bedding material, hand compacted soil - 95% of max. density using ASTM D 698, or Flowable Backfill (CLSM). Maximum lift thickness 6”. Granular bedding material shall be used in Zone B for all pipe except reinforced concrete pipe.

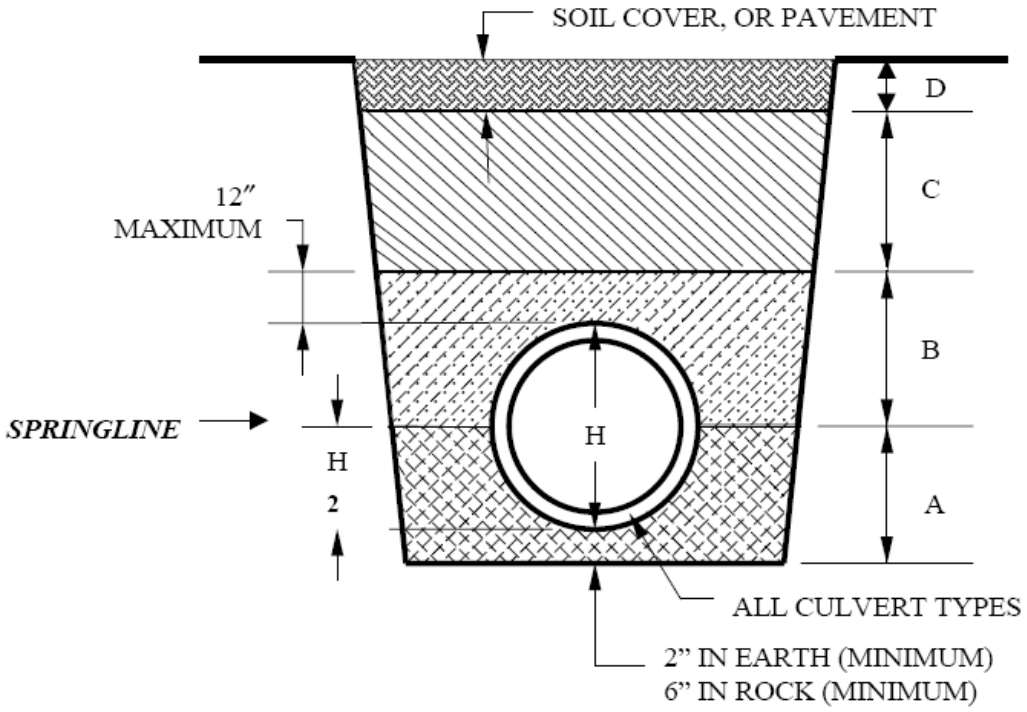
C – Compacted Subgrade - Subgrade thickness shall be as specified in Table 1 of Section 5206 and as directed by the Engineer. Subgrade preparation shall be done in accordance with Section 2201 and shall consist of aggregate for base course, stabilized subgrade, or compacted soil – in accordance with the associated Sections 2201, 2202, and 2203.

Figure 2
(For Deep Trenches Without Roadway Compaction Equipment, or Shallow Trenches Having Less than 30" of Cover)

Figure 3

Trench backfilling in areas other than street and alley pavements where the near edge of trench is behind the back of curb:

Backfilling shall be placed as shown in Figure 3.



A – Consolidated granular bedding material.

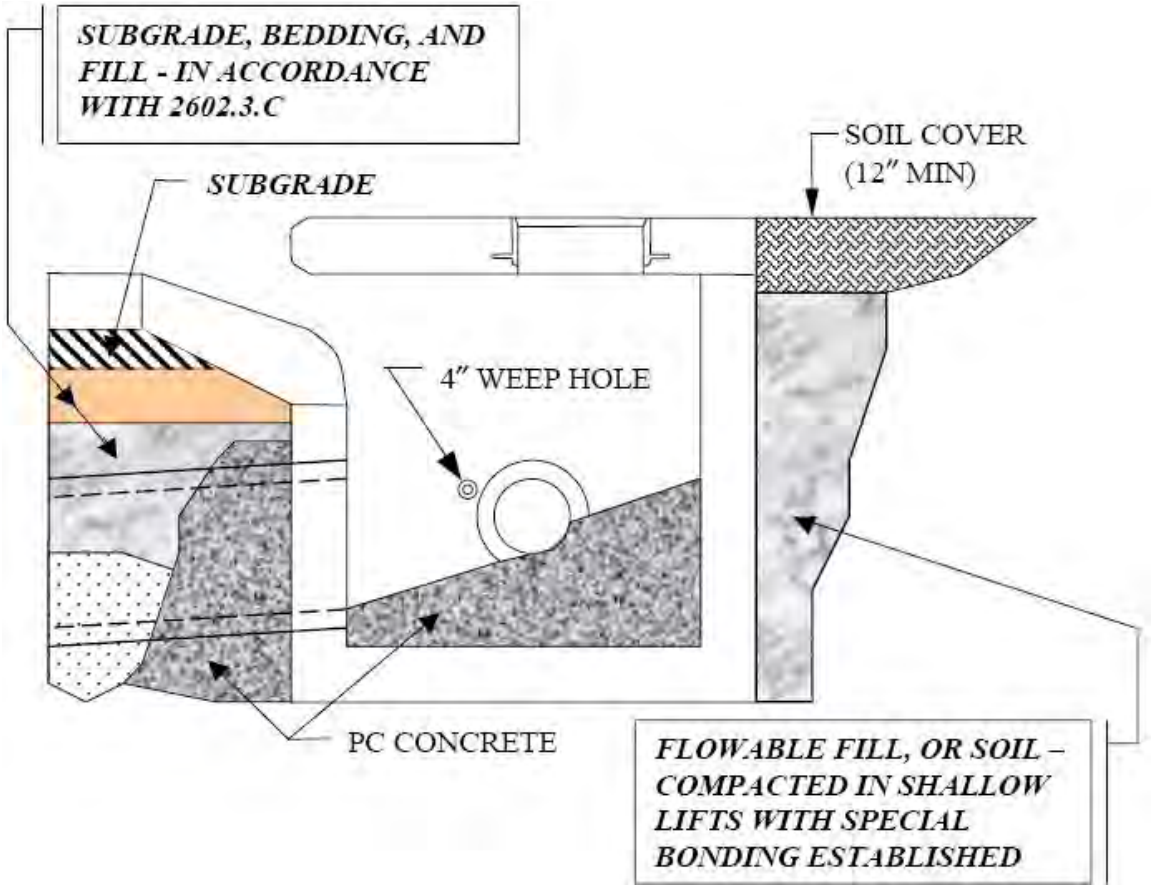
B – Consolidated granular bedding material, flowable backfill (CLSM), or compacted soil – compacted to 90% of maximum density using ASTM D 698. Maximum lift thickness for the granular or soil materials shall be six inches.

C – Consolidated granular bedding material, flowable backfill (CLSM), or compacted soil – compact to approximate density of adjacent soil but not less than 90% of maximum density using ASTM D 698. Lift thickness shall not exceed the capability of the equipment being utilized to achieve the proper density and consolidation; however, in no case shall it exceed six inches for soil.

D – Soil Cover – Soil cover shall be as specified in Section 2102.7. The top twelve inches shall be consolidated soil; the top six inches shall be topsoil suitable for sustaining grass.

Figure 3
(Trenches Outside of Street Pavements)

Figure 4



Note: Weep hole shall be backed by filter fabric or hardware cloth, and 3 cubic feet of granular material.

FIGURE 4
(Structures Adjacent to Street Pavements)

DIVISION II
CONSTRUCTION AND MATERIAL SPECIFICATIONS

SECTION 2150 EROSION AND SEDIMENT CONTROL

Approved and Adopted this 15th day of February, 2017

Kansas City Metropolitan Chapter
American Public Works Association

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SECTION 2151 GENERAL REQUIREMENTS

2151.1 Summary: This section describes general requirements to prevent or minimize the pollution of rivers, streams, lakes, and wetlands caused by runoff from the construction zone. Such pollution includes sediment that may migrate offsite through the action of wind, water, or traffic, as well as chemical spills or other refuse from the site.

2151.2 Contractor's Responsibility: The Contractor shall take measures to prevent or minimize the transport of sediment or pollutants from the project limits or into bodies of water that are intended for protection, in accordance with the plans, the requirements of applicable permits and regulations, and best available management practices.

2151.3 Compliance with NPDES Permits: The Owner will obtain a National Pollutant Discharge Elimination System (NPDES) permit and other similar local water pollution control permits as required. Where such permits are required, the Owner will provide the Contractor with a Stormwater Pollution Prevention Plan (SWPPP) which has been prepared by the Engineer or other qualified professional. The Contractor shall comply with all requirements of such permits and the SWPPP, and shall enforce compliance with such requirements by all Subcontractors. The Contractor shall complete the required certification forms for coverage under the relevant permit and shall notify all Subcontractors in writing of the requirements of the SWPPP, obligate them under contract to comply, and enforce compliance during the work.

2151.4 Projects Not Requiring a Permit: If neither NPDES permit nor other local water pollution control permits are required for a project, the Engineer may waive certain documentation and record-keeping provisions of this specification. The Contractor is required to comply with all other provisions in this specification and is required to install such measures for erosion and pollution control as may be called for in the plan or ordered by the Engineer.

2151.5 Stormwater Pollution Prevention Plan (SWPPP): The Stormwater Pollution Prevention Plan (SWPPP) outlines methods and controls to be used to prevent stormwater pollution from the construction activities.

The SWPPP will generally consist of the following elements: (a) a site description; (b) a site map or plan sheets showing areas of soil disturbance, an outline of areas which will not be disturbed, and a drainage area map; (c) plan sheets, tables, or other schedules detailing the location of major structural and non-structural controls and areas where stabilization practices are expected to occur; (d) a description of erosion and sediment controls to be used; (e) a description of any permanent stormwater management features which are incorporated into the project; (f) a description of other controls related to waste disposal practices; (g) a description of the timing, during the construction, of when the measures will be implemented and removed; and (h) a description of maintenance procedures for control measures identified in the plan.

Where multiple agencies have jurisdiction over erosion and sediment control, the SWPPP will be prepared to satisfy the requirements of each. The use of the term “Stormwater Pollution Prevention Plan” or “SWPPP” is not intended to limit its content to the provisions of any single permit program or jurisdiction, and this specification shall have the same meaning regardless of whether the applicable plans are referred to as a “SWPPP,” “erosion control plan,” “erosion and sediment control plan,” “temporary water pollution control plan,” or other equivalent term.

All elements of the project bid documents relating to erosion and pollution control are considered part of the SWPPP, either by direct inclusion or by reference, including plan sheets,

specifications, special provisions, quantity tabulations, bid sheets, and contract documents. A copy of all NPDES and other water pollution related permits and permit applications are also part of the SWPPP. This APWA specification is an integral part of the SWPPP.

2151.6 Contractor Amendments to the SWPPP: Prior to beginning work, the Contractor shall review the SWPPP in detail and provide the Engineer with written recommendations for amendments to improve the effectiveness of the SWPPP or to bring it into better alignment with the Contractor's intended method of operations. The Contractor shall also advise the Engineer of any omissions or deficiencies they find in the SWPPP. During the progress of the job, the Contractor shall continue to monitor the effectiveness and performance of the control measures used and propose additional amendments as needed. No amendment shall be incorporated unless approved by the Engineer, and a log of such amendments shall be made by the Contractor. When required by the permit or state law, such amendments shall be developed and prepared under the supervision of a qualified professional as defined in said permit or law. A copy of the SWPPP and all amendments shall be retained by the Contractor onsite and ready for inspection without notice.

2151.7 Contractor Schedule: In addition, the Contractor shall also provide the Engineer with a detailed schedule of their work prior to beginning, which shall include information on the expected timing, duration, and sequencing of erosion and sediment control measures and overall job completion and phasing. Once approved, such schedule shall become a part of the SWPPP, and changes to the schedule shall require amendment to the SWPPP.

2151.8 Alternate Methods or Materials: The Contractor may propose alternative methods or materials for any of the specific erosion and sediment controls given in the SWPPP, provided that such methods provide equal or improved measures of control, as determined by the Engineer. The Contractor shall submit any documentation required by the Engineer to evaluate the alternative. If agreed to by the Engineer (and subject to state or other permitting agency approval if applicable), payment for such alternate method shall be handled in accordance with the applicable provisions of the Contract for changes in work.

2151.9 Superintendent Training Required: The Contractor’s resident superintendent shall have no less than 8 hours of formal training on erosion and sediment control within the last 24 months. Such training shall include the principles of erosion and sediment control, technical information on typical and/or innovative controls, and the contents of these specifications and related Standard Drawings and Design Criteria. The training shall be taught primarily by a registered professional engineer or other professional who is considered by the applicable regulatory agencies to be qualified to prepare a SWPPP. Documentation of training shall be submitted to the Engineer upon request, prior to beginning work.

2151.10 Duration of Contractor's Responsibility: The Contractor is responsible for water pollution control and permit compliance from the issuance of Notice to Proceed until final completion of the work and during any subsequent maintenance bond period. The notice of termination will not be submitted by the Owner until all permit requirements are met, which includes the requirement that final stabilization be achieved on 100% of the site. Vegetation shall achieve a density of at least 70% of full turf to be considered acceptable as final stabilization.

2151.11 Installation of Controls: The Contractor shall obey all requirements for chemical and waste controls specified in Section 2152. Contractor shall provide all specific erosion and sediment controls required by the SWPPP in accordance with the requirements of Section 2153

and 2154. If the SWPPP calls out items or controls not included in this specification, refer to the project special provisions and plans for requirements. Controls shall be installed prior to disturbance in an area, unless otherwise indicated in the plans.

2151.12 Maintenance: The Contractor shall maintain the integrity of the temporary erosion and sediment control devices as long as they are in place and necessary. Devices not functioning properly shall be corrected or replaced. Accumulated sediments shall be removed promptly as detailed in Section 2154.

2151.13 Removal: Control measures shall be completely removed from the site when they are no longer needed, unless they are approved by the Engineer to remain in place for permanent stabilization or biodegradation (i.e. erosion control blankets).

2151.14 Inspections: The Contractor shall inspect the construction site within twenty-four hours of the end of a storm which results in precipitation of 0.5 inches or greater, during both active and inactive phases. In addition, regular inspections shall be made weekly during active phases of construction. During inactive phases (such as winter when construction activity has temporarily ceased), an inspection of the site condition shall be made no less than once every 14 days. All installed practices shall be checked for proper installation, operation, and maintenance. Locations where stormwater runoff leaves the site shall be inspected for evidence of erosion or sediment deposition. Deficiencies shall be noted in a report of the inspection and corrected within seven calendar days of the inspection.

A report of each inspection is to be made within 24 hours of the inspection and shall contain the following minimum information: inspector's name, date of inspection, observations relative to the effectiveness of the practices, actions taken or necessary to correct deficiencies, a listing of areas where construction operations have permanently or temporarily stopped, observations at stormwater discharge locations, and any other item required of an inspection by the applicable permits The inspection report shall be signed by the person performing the inspection. Site inspection reports shall be maintained onsite with the SWPPP or the SWPPP shall contain written documentation of the off-site records storage location.

2151.15 Records: The Contractor shall maintain all permit required records during the job and shall transmit all necessary records to the Engineer at the completion of the work, including all Contractor and Subcontractor certifications and site inspection records, as well as other records requested by the Engineer.

2151.16 Site Access for Inspections: The Contractor shall allow authorized representatives of federal, state, or local agencies having jurisdiction of this permit, upon presentation of proper credentials, to enter the site where construction activities are located, to obtain samples of any discharge water, to have access to and copy at reasonable times, any records which shall be kept, and to inspect any facilities or equipment.

2151.17 Maximum Areas of Disturbance at One Time: The surface area of erodible earth material exposed by site operations shall be limited by the Engineer according to the Contractor's capability and progress in keeping with the approved schedule. Existing vegetation shall be preserved or retained as long as practical and the time period for soil areas to be without permanent surface or vegetative cover shall be minimized. The maximum surface area of erodible earth exposed at one time shall not exceed ten (10) acres unless approved in writing by the Engineer or otherwise provided for in the plans. The Contractor shall pay close attention to the grading and disturbance limits indicated on the plan or authorized by the Engineer.

2151.18 Measures Where Construction has Ceased: Soil stabilizing erosion control measures as detailed in Sections 2153 shall be implemented within 14 calendar days after construction activities have temporarily or permanently ceased on any portion of the site. Exceptions to this requirement are as follows: (a) if implementation of erosion controls is precluded by snow cover, such measures shall be taken as soon as practical after snowmelt, or (b) a waiver to this requirement is justified and approved by the Engineer in writing, in which case a specific deadline for installing erosion controls shall be established.

2151.19 Duration Limits for Select Activities: For certain items of work, the plans or standard sequences may contain specific time limits for the maximum duration of exposure, typically stated as "Item A construction shall have a maximum exposure time of X days." Where such limits are specified, the time shall be measured from the date in which stabilized ground cover is first disturbed in the work area until the specified construction is complete and permanent or temporary stabilization shown on the Plans is applied. Contractor shall be responsible for documenting the elapsed time on all such work, typically by noting the time in their inspection logs, taking time-stamped photographs, and/or by marking the area with a wooden stake documenting beginning and ending dates. The Engineer may grant extensions of time requested by the Contractor when justified and suitable interim stabilization measures are provided.

2151.20 Construction near Rivers, Streams, and Waterbodies: Construction operations in or near rivers, streams, and other water impoundments shall be restricted to those areas essential for construction. Unless otherwise provided for in the plans, a minimum 50 feet buffer of undisturbed vegetation shall be maintained between construction operations and defined drainage courses. Where such buffers are not provided, work shall not be initiated until all materials and equipment necessary to complete the work are on site and such operations shall be completed as quickly as possible once the work has begun. When no longer required, all falsework, pilings, temporary crossings, and other obstructions shall be promptly removed. Stream crossings shall be limited to those detailed in the plans or as approved by the Engineer.

2151.21 Culverts, Ditches and Storm Sewers: Construction of major elements of the proposed storm sewer or other drainage systems shall be coordinated to minimize the duration of time over which stormwater would run through temporary, erodible channels. Unless otherwise indicated on the plans, construction of the major elements of this system shall be among the first activities on the project. Once begun, construction shall proceed expeditiously to completion, including placement of all final headwalls, end structures, rip-rap and other end treatments. Temporary or permanent ditches which are graded on the project shall either be stabilized or have temporary sediment controls installed within seven (7) days of their grading.

2151.22 Methods of Measurement: No separate measurements will be made for the general requirements covered by this Section.

2151.23 Basis of Payment: Compliance with the general requirements of this section will not be paid separately, but shall be subsidiary to other items listed in the contract. (Note: Some Owner's may elect to pay for Administration of erosion control requirements as a separate line item. Consult the contract and job special provisions if that is the case.

SECTION 2152 CHEMICAL AND WASTE CONTROLS

2152.1 Summary: This section describes specific requirements to control non-sediment related pollutant discharges from chemicals and wastes from the site, including requirements for chemical handling, spill prevention, spill response, and waste disposal.

2152.2 Solid, Liquid, and Hazardous Wastes: All trash shall be placed in dumpsters or trash barrels provided by the Contractor and accumulated trash shall be hauled offsite and properly disposed. Floating debris found in any waterbody on or immediately adjacent to construction shall be removed immediately, regardless of source. Hazardous wastes shall be stored, transported offsite, and disposed of properly.

2152.3 Sanitary Wastes: Sanitary facilities shall be made available and their use enforced by the Contractor.

2152.4 Leak Prevention: All equipment used onsite shall be free of leaks, receive regular preventative maintenance, and be inspected daily to reduce chance of leakage. No fueling, servicing, maintenance, or repair of equipment shall be done within 50 feet of a stream, drainage way, lake, storm sewer manhole or other water body. Onsite fuel tanks shall be in good condition, free of leaks or drips, painted brightly for visibility, and monitored daily. All fuel tanks, including mobile trailers, shall be protected by a secondary containment system or earthen berm sized to contain 110% of the full tank volume.

2152.5 Concrete Washout: Concrete wash or rinse water from concrete mixing equipment, tools and/or ready-mix trucks, tools, etc., shall not be discharged into or be allowed to run directly into any existing water body or storm inlet. One or more locations for concrete wash out shall be designated on site and installed in accordance with the Standard Drawings.

2152.6 Chemical Handling and Storage: Chemicals or materials capable of causing pollution shall only be stored onsite in their original container. Materials stored outside shall be in closed and sealed water-proof containers and located outside of drainage ways or areas subject to flooding. Manufacturer's data regarding proper use and storage, potential impacts to the environment if released, spill response, and federally-defined reportable quantities for spill reporting shall be maintained by the field superintendent onsite at all times. Locks and other means to prevent or reduce vandalism shall be used.

2152.7 Herbicides, Pesticides and Fertilizers: Herbicides, pesticides and fertilizers used as part of the work shall be applied only in accordance with manufacturer recommendations. Direct spray into water bodies is prohibited. Such chemicals shall not be used if rain is forecast within 24 hours, unless they are approved for wet weather application.

2152.8 Spill Clean-up and Management: If it is safe to do so, Contractor shall stop the source of any spills or leaks and shall contain spills immediately with an appropriate device, earthen berm, sawdust, sand, kitty litter, rags or other absorbents. Manufacturer recommendations shall be followed. Leaks from broken hoses shall be immediately contained with hose clamps, plugs, or drained into leak-proof containers. Contractor shall have the tools, equipment, and supplies necessary for spill response onsite at all times and ready for immediate use. Contractor personnel shall be trained to properly respond immediately to a leak or spill. All spills shall be cleaned up and disposed of in accordance with applicable federal, state, and local regulations. Local hazardous materials response units shall be called if assistance is needed in stopping or containing the spill.

2152.9 Spill Reporting: All spills in excess of reportable quantities shall be reported to the appropriate federal, state, and local agencies within 24 hours of their occurrence. The Contractor shall maintain a listing of all such agencies onsite within the SWPPP and in easy reference for onsite personnel. Spills that pose an immediate threat to public safety or contamination of a water body shall be reported immediately to designated first response authorities. A current listing of applicable phone numbers for the jurisdiction shall be placed at the front of the SWPPP and posted conspicuously on the jobsite.

2152.10 Methods of Measurement: No separate measurements will be made for the requirements covered by this Section.

2152.11 Basis of Payment: Compliance with the requirements of this section will not be paid separately, but shall be subsidiary to other items listed in the contract.

SECTION 2153 EROSION CONTROLS

2151.1 Referenced Standards:

The following standards are referenced directly in this section. The latest version of these standards shall be used.

APWA, Kansas City Metropolitan Chapter (KC-APWA):
Standard Drawings, Division III of Standard Specifications and Design Criteria

Erosion Control Technology Council (ECTC):
Standard Specification for Rolled Erosion Control Products (RECPs).

Kansas Department of Transportation (KDOT):
Standard Specifications for State Road & Bridge Construction, 2015 Edition or later including all latest errata and adopted Special Provisions, as well as associated Standard Drawings.

Missouri Department of Transportation (MoDOT):
Missouri Standard Specifications for Highway Construction, 2011 edition or later including all supplemental specifications, as well as associated Standard Plans.

Texas Department of Transportation (TxDOT):
Approved Products List (APL) for Erosion Control. Based on testing and standards cited in the report "TXDOT / TTI Hydraulics, Sedimentation and Erosion Control Laboratory: Field Performance Testing of Selected Erosion Control Products".

US Composting Council (USCC):
STA – Seal of Testing Assurance Program; and TMECC - Test Methods for the Examination of Composting and Compost. Information available online at www.compostingcouncil.org.

2153.2 Summary: This section describes specific requirements for installation and maintenance of temporary measures to stabilize onsite soils and prevent erosion during construction.

2153.3 Materials: Materials used for erosion controls shall meet the requirements of the following subsections. Unless otherwise specified herein, the Contractor shall submit, for each material used, a certification prepared by the manufacturer which states that the materials meet all the requirements of this specification. The manufacturer shall also provide supporting documentation and testing results to validate this certification, if requested by the Engineer. Manufacturer's instructions for installation of materials (when applicable) shall be available onsite whenever work is occurring and a copy shall be submitted to the Engineer upon request.

2153.4 Permanent Seeding and Sodding: Final stabilization with vegetation by either permanent seeding or sodding is the most effective form of erosion control and shall be achieved as early in the construction process as possible.

A. Materials, Construction Requirements and Maintenance: Permanent seeding or sodding shall be provided as specified in Section 2400 of these Standard Specifications.

Contractor shall schedule work so that permanent seeding is conducted as early as practical in the construction process. Multiple mobilizations of seeding or sodding operations shall be expected.

B. Out-of-Season Special Provision: The Engineer may request that permanent seeding be conducted anytime between April 16 and August 14 and/or that sodding be conducted anytime between June 1 and September 1, even though such dates are outside the standard seasons established in Section 2400. If agreed to by the Contractor, then the Contractor shall conduct such seeding or sodding and shall be responsible for the establishment of a vigorous and healthy seed or sod cover. The Contractor will be paid, however, for all watering necessary during the period that falls outside the standard season.

C. Measurement and Payment: Shall be as specified in Section 2400. If out-of-season seeding or sodding has been authorized, then "Out of Season Watering" will be measured by the 1,000-gallon unit applied and paid for at the contract unit price.

2153.5 Temporary Seeding: Interim stabilization with annual vegetation to provide temporary cover to minimize erosion. This item only covers seeding installed by conventional drilling.

A. Materials: Seed and equipment used for temporary seeding shall meet all the criteria given for permanent seeding in Section 2400 of these Standard Specifications. Fertilizer is not required.

Mulch used for temporary seeding shall meet the same requirements as “mulch cover” in subsection 2153.6. Mulch is required unless erosion control blankets are being used instead.

The following seed mixtures and planting rates shall be used:

1. Type "TR" Seed: This mixture will normally be used when temporary seeding is conducted between February 15 and May 31, or between September 1 and October 31. The seed mixture will be as follows:

Kind of Seed	Minimum Pure Live Seed (%)	Rate of Pure Live Seed (lbs per Acre)
Annual Rye Grass	83	90

2. Type "TM" Seed: This mixture will normally be used when temporary seeding requires heat tolerance, typically for planting anytime between May 1 and August 15. (Volunteer millet is aesthetically objectionable in turf grass lawns; therefore, some jurisdictions may restrict use of this mix. Confirm local requirements before use.) The seed mixture will be as follows:

Kind of Seed	Minimum Pure Live Seed (%)	Rate of Pure Live Seed (Lbs per Acre)
Millet	77	65

3. Type "TW" Seed: This mixture will normally be used when temporary seeding requires cold tolerance, typically for planting anytime between September 15 and November 30. The seed mixture will be as follows:

Kind of Seed	Minimum Pure Live Seed (%)	Rate of Pure Live Seed (Lbs per Acre)
Winter Wheat	83	120

B. Construction Requirements: Preparation, planting and all other construction requirements for temporary seeding shall be as specified for permanent seeding in Section 2400, except as modified herein. Temporary seeding shall be drilled (see 2153.8 for hydraulic application of temporary seed). Prior to application, the soil shall be tilled to a depth of at least 2 inches and gullies, depressions, and large clods eliminated. Roller compaction of the seedbed is not required. Within 24 hours of seeding, mulch or erosion control blankets shall be applied. When mulch is used, it shall be applied in accordance with the same requirements given for “Mulch Cover” in subsection 2153.6. When erosion control blankets are used, they shall be installed in accordance with the requirements in subsection 2153.9. The Contractor shall initially water all areas of temporary seeding at least one-quarter inch as soon as the mulch is laid. Additional watering may be necessary for plant germination and adequate growth to provide cover. Contractor shall schedule work so as to provide temporary seeding as early as practical in the construction process. Contractor shall maintain a readiness to perform temporary seeding frequently during the progress of the project. No more than 7 calendar days shall elapse between the Engineer’s request for temporary seeding and its application. Multiple mobilizations to seed areas as construction progresses shall be expected.

C. Maintenance: Mulch shall be replaced or repaired as needed during germination and early growth. Bare spots shall be patched, by hand seeding if necessary. Vehicle and personnel traffic shall be minimized in areas seeded.

D. Measurement and Payment: "Temporary Seeding" will be measured per acre or hundredth part thereof and paid for at the contract unit price. No differentiation shall be made for type of temporary seed used. Mulch and watering shall not be measured or paid for separately on any temporary seeding, but all such costs shall be subsidiary to the item. Erosion control blankets, when used, will be measured and paid separately as “Erosion Control Blanket.”

2153.6 Mulch Cover: Mulch applied without seeding to protect the soil surface from raindrop impact and reduce wind erosion and dust. Mulch Cover (without seed) is generally used when ground cover is required and temporary or permanent seeding is not feasible.

A. Materials: Mulch shall be vegetative type only, consisting of cereal straw from stalks of oats, rye, wheat or barley and shall be free of prohibited and noxious weed seeds.

B. Construction: Prior to applying mulch, the soil shall be tilled to a depth of 2 inches to eliminate hard crust and allow rainwater intercepted by mulch to infiltrate the soil. Gullies, depressions, and large clods shall be eliminated.

Mulch shall be applied at the rate of 1.5 tons/acre (3,000 lbs/acre) and be anchored into the soil a minimum depth of 3 inches by use of a heavy disc harrow, set nearly straight, or a similar approved tool. Discs of the anchoring tool shall be set approximately 9

inches apart. Anchoring shall be accomplished by not more than two passes of the tool. If approved by the Engineer, a tackifier may be applied to the mulch to anchor it instead of using the disc harrow.

C. Maintenance: Mulch cover shall be replaced or repaired as needed. Bare spots shall be filled in, by hand if necessary. Vehicle and personnel traffic shall be minimized in areas mulched.

D. Measurement and Payment: "Mulch Cover" will be measured per acre or hundredth part thereof and paid for at the contract unit price. Mulch is not measured and paid separately when laid down in conjunction with seeding operations.

2153.7 Hydrocover (Standard): Hydraulic application of a standardized mixture of fiber mulch, tackifier, and temporary seed to provide temporary cover.

A. Materials:

1. **Fiber Mulch:** Fiber mulch shall be a manufactured, pre-packaged, biodegradable material. The material supplied shall be meet the requirements of ECTC's Standard Specification for Hydraulic Erosion Control Products (HECPs) (version 2.4 dated April 2, 2014) for Type 3 products, having a functional longevity of 3 months, a maximum uninterrupted slope length of 50 feet, and applied to a slope that is flatter than 3:1. In addition, the material shall also be listed on the TxDOT Approved Products List for Erosion Control under the category "Mulches 4:1 or Flatter Slopes" and specified for use on "Clay or Tighter Soils".

2. **Tackifier:** Shall be food-grade hydrolyzed guar gum powder or alternate material as specified by the manufacturer. It shall be mixed with the cellulose fibers based on the manufacturer's recommendations.

3. **Water:** Shall be clean, potable water mixed at a rate suitable for the equipment being used and as recommended by the manufacturer.

4. **Seed:** Shall be Type TR, TM or TW seed as specified in Section 2153.5 and appropriate for the season. Seed shall be mixed to provide no less than the seeding rate per acre given in that section.

5. **Fertilizer**: Not required unless specified by the Engineer

B. Construction Requirements: The fiber mulch shall be added to the hydraulic seeder along with proportionate amounts of seed, tackifier, and water in accordance with the manufacturer's recommendation. It shall be applied to make a uniform coverage of the soil surface. Prior to application, the soil shall be tilled to a depth of at least 2 inches and smoothed to eliminate gullies, depressions, or large clods. The Standard Mix Hydrocover mix shall not be used on any slope steeper than 4:1. Contact the engineer for alternate specifications to be used on steeper slopes if there is a discrepancy.

Hydrocover shall be applied at a minimum rate of 2,000 pounds dry weight of fiber per acre (0.41 pounds per square yard), unless otherwise specified by the manufacturer. Once applied, the area shall be allowed to dry and vehicle and personnel traffic shall be

kept off the stabilized area. Water shall be applied as needed for seed germination and plant growth. The hydrocover operation shall be accomplished with hydraulic sprayers suitable for spreading and projecting the mixture and fitted with the appropriate nozzle tips. Sprayers shall be mechanically mixed or jet agitated.

Contractor shall maintain a readiness to provide hydrocover frequently during the progress of the project. No more than 7 calendar days may elapse between the Engineer's request for hydrocover and its application. Multiple mobilizations of hydrocover operations shall be expected.

C. Maintenance: Areas which are disturbed by construction shall be patched with additional application of slurry at the next available mobilization of equipment at no additional cost. Small areas of poor coverage may be stabilized through erosion control blankets, mulch for cover, straw wattle protection or other measures, at no additional cost.

D. Measurement and Payment: "Hydrocover (Standard)" will be measured per acre or hundredth part thereof and paid for at the contract unit price. No payment will be made for applications made outside the area intended for coverage.

2153.8 Hydrocover (Specialty Mix): Hydraulic application of specialized mixtures of fiber mulch, tackifiers, seed and other additives to provide temporary cover. Such specialized mixtures may provide for steeper slopes, more robust protection, longer durability, or enhanced vegetative growth, as compared to the Standard Mix.

A. Materials: When specialty mixtures are used, the particular mix design and ingredient requirements shall be given in the plans or special provisions. Such specialty mixtures may include additives for improved seed germination, mixtures of special polymer tackifiers and heavier rates of cellulose fiber or other cross-linking organic fibers to produce a more continuous cover (i.e. "Bonded Fiber Matrix"), or mixtures that contain polyacrylamides that chemically stabilize the underlying soils (i.e. "Stabilized Fiber Matrix"). Seed and additives shall conform to the requirements of standard hydrocover, except as modified in the plans, special provisions or by the manufacturer's recommendations for the specialty mix.

B. Construction and Maintenance Requirements: All construction and maintenance requirements shall be the same as for standard hydrocover, except as modified by the plans or the manufacturer's recommendation for the specialty mix. Equipment for specialty mixes shall conform to manufacturer's recommendations.

C. Measurement and Payment: "Hydrocover (Named Specialty Mix)" will be measured per acre or hundredth part thereof and paid for at the contract unit price. No payment will be made for applications made outside the area intended for coverage.

2153.9 Erosion Control Blankets (including Turf Reinforcing Mats): Blankets or mats of natural, synthetic, or composite materials that can be rolled onto bare earth and anchored in place to provide temporary or permanent cover and/or to stabilize bare earth or channels subject to overland or concentrated surface flow. This item of work includes the use of Turf Reinforcing Mats.

A. **Materials:** Erosion control blankets of the class and type specified in the contract shall be a "Rolled Erosion Control Product" as defined by the ECTC Standard Specification. Further, the material shall be listed in the current TxDOT Approved Products List for Erosion Control. Blankets are categorized by expected use and application, as follows:

Class 1: For use as Cover and Slope Protection from overland flow:
Type A: On slopes 1:3 or flatter with clay soils.
Type B: On slopes 1:3 or flatter with sandy soils.
Type C: On slopes steeper than 1:3 with clay soils.
Type D: On slopes steeper than 1:3 with sandy soils.

Class 2: For use as Flexible Channel Liner under concentrated flow:
Type E. For shear stresses below 2 lb/sq. ft.
Type F. For shear stresses below 4 lb/sq. ft.
Type G. For shear stresses below 6 lbs/sq. ft.
Type H. For shear stresses below 8 lb/ sq. ft.

Materials supplied for Type A, B, C, D, E and F blankets shall have a minimum expected longevity of 12 months, unless otherwise stated on the plans or approved by the Engineer. Materials supplied for Type G and H shall have a longevity of greater than 5 years. Materials for Type H shall be 100% synthetic. Expected longevity shall be evaluated based on the manufacturer's data.

B. **Construction Requirements:** The Contractor shall install erosion control blankets in the locations shown in the plans and in accordance with the Standard Drawings and manufacturer's recommendations.

C. **Maintenance**: Maintain blankets in accordance with the Standard Drawings and manufacturer's recommendations.

D. **Measurement and Payment:** "Erosion Control Blanket (Named Type)" will be measured per square yard of sloped surface area covered by the completed mat and paid for at the contract unit price for the given type. Excess blanket used for overlap at seams, anchoring, waste, repairs, etc. will not be included in the measurement. When blankets are used in conjunction with permanent or temporary seeding, erosion control blanket will be paid for at the contract unit price and the seeding operation shall be paid separately.

2153.10 Compost Cover: Organic compost applied with or without seeding to protect the soil surface from raindrop impact, absorb stormwater, facilitate vegetation growth and reduce wind erosion and dust.

A. **Materials:** *(Note: The material requirements in this subsection do not apply for compost filter berms and compost filter socks, and are described more fully in Sections 2154.10 and 2154.11.)*

All compost shall be mature, sanitized, well-composted organic matter free of identifiable feedstock constituents and offensive odors. Compost shall have been produced by the aerobic decomposition of organic material. Organic material sources may include leaves and yard trimmings, paper fiber, wood, bark, biosolids, food scraps, composted manures, or combinations of these products. Biosolids compost shall comply with the

Standards for Class A biosolids outlined in 40 Code of Federal Regulations (CFR) Part 503. The compost shall be free of any refuse, contaminants, and any material toxic to plant growth. Compost must not be derived from mixed municipal solid waste. Compost shall comply with all applicable state and federal regulations regarding production and distribution.

All compost material supplied shall be certified through one of the following programs:

A. The USCC STA Program through a certified supplier, and wherein all testing procedures follow the USCC TMECC manual.

B. The KDOT Specification found at Section 2105 for Soil Compost Materials, wherein all testing procedures are in accordance with the requirement listed there. Under this specification, however, compost sources from the State of Missouri are not excluded, provided that such sources are in compliance with Missouri regulations, satisfy the material and testing requirements found in the KDOT specification, and are otherwise found to be suitable by the Engineer.

Before delivering of the compost, the suppler shall provide a copy of the lab analysis and certifications as outlined for the applicable program. The supplier shall also document the feedstocks and sources used in the compost to be supplied.

B. Construction: Prior to applying compost, the soil shall be tilled to a depth of 2 inches to eliminate hard crust and allow rainwater intercepted by the compost cover to infiltrate into the soil. Gullies, depressions, and large clods shall be eliminated.

Compost shall be applied to a depth of 1.5 to 2 inches when alone or 1 to 1.5 inches when used in conjunction with seeding operations. Compost shall be uniformly applied using an approved spreader unit, which may include mechanical or pneumatic (blower) devices. Compost shall extend at least 3 feet beyond the shoulder of any slope to ensure that runoff does not flow under the cover. Once applied, the compost shall be thoroughly watered to improve settling.

C. Maintenance: Compost shall be replaced or repaired as needed. Bare spots shall be filled in, by hand if necessary. Vehicle and personnel traffic shall be minimized in areas covered.

D. Measurement and Payment: "Compost Cover" will be measured per cubic yard of compost in the vehicle at the point of delivery to the project. When compost cover is used in conjunction with permanent or temporary seeding, compost cover will be paid at the contract unit price and the seeding operation shall be paid separately. The unit price for compost cover will include any deductions for standard mulching that is no longer required.

2153.11 Surface Roughening: Any rough graded slope that is not yet ready for seeding or other treatment and which will not be disturbed by ongoing construction for a period of 7 days or more shall be roughened by grooving, tracking, disking, or ripping it with a disc, tiller, spring harrow or other suitable implement. Such grooves shall be located traverse to the slope face and shall not be less than 3 inches deep nor spaced more than 15 inches apart. The requirement to roughen slopes by tracking or grooving shall apply to all slopes steeper than 6:1

horizontal to vertical. No measurement or payment shall be made for this item, but it shall be subsidiary to the earthwork.

2153.12 Dust Control: Contractor shall take effective measures to prevent blowing dust. Adequate moisture content shall be maintained in all exposed soils by application of water or other approved dust suppressant. Areas to be subsequently paved may be treated with asphalt emulsion. When dust produced by operations such as sand blasting, concrete grinding, and sawing of concrete or masonry would create a public nuisance, they shall be performed under a water spray or an alternate construction method shall be used. No measurement or payment shall be made for this item, but it shall be subsidiary to other work.

2153.13 Method of Measurement: Erosion controls will be measured in the manner specified in each applicable subsection.

2153.14 Basis of Payment: Erosion controls will be paid for at the contract unit price specified in each applicable subsection.

SECTION 2154 SEDIMENT CONTROLS AND DIVERSIONS

2154.1 Referenced Standards:

The following standards are referenced directly in this section. The latest version of these standards shall be used.

AASHTO:
M 288 - Geotextile Specification for Highway Applications

APWA, Kansas City Metropolitan Chapter (KC-APWA):
Standard Drawings, Division III of Standard Specifications and Design Criteria

ASTM:
D 3786 - Test Method for Hydraulic Bursting Strength of Textile Fabrics – Diaphragm Bursting Strength Tester Method
D 4355 - Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus

Kansas Department of Transportation (KDOT):
Standard Specifications for State Road & Bridge Construction, 2015 Edition or later including all latest errata and adopted Special Provisions, as well as associated Standard Drawings.

Missouri Department of Transportation (MoDOT):
Missouri Standard Specifications for Highway Construction, 2011 edition or later including all supplemental specifications, as well as associated Standard Plans.

2154.2 Summary: This section describes specific requirements for installation and maintenance of temporary measures to detain, filter, or cause settlement of sediment from runoff, as well as measures used to temporarily direct or divert runoff onsite or at the site perimeter.

2154.3 Materials: Materials used for sediment controls and diversions shall meet the requirements of the following subsections. Unless otherwise specified herein, the Contractor shall submit a certification prepared by the manufacturer for each material used which states that the materials meet all the requirements of this specification. The manufacturer shall also provide supporting documentation and testing results to validate this certification, if requested by the Engineer. Manufacturer's instructions for installation of materials (when applicable) will be available onsite whenever work is occurring and a copy shall be submitted to the Engineer upon request.

2154.4 Sediment Removal and Disposal: Removal of accumulated, settled sediment from behind barriers, traps, or within basins.

A. Materials: Not applicable.

B. Construction Requirements: Accumulated sediment shall be removed when it exceeds the volumes specified for any particular measure or would otherwise impede the proper operation of control measures. Sediments removed shall be mixed with other onsite materials and incorporated into project fills, spread loosely across the site, or

hauled offsite as necessary. Sediments shall not form an identifiable layer or seam in any fill. Sediments hauled offsite shall be dewatered first or hauled in a water tight truck. Sediments shall be located and compacted in a way which minimizes the likelihood of being resuspended in future rainfalls. Removal shall be by machine or hand work, whichever is most feasible.

C. Maintenance: Not applicable.

D. Measurement and Payment: Sediment removal is not measured or paid separately, but shall be subsidiary the other items in the contract. The proper and timely use of erosion controls will help reduce the quantity of sediment that must otherwise be cleaned out of downstream controls.

2154.5 Silt Fence: A temporary barrier of synthetic fabric embedded in the ground and supported by posts used to divert water or to maintain a trap for settlement.

A. Materials, Construction Requirements and Maintenance: Refer to the Standard Drawings.

B. Measurement and Payment: Silt fence will be measured by the linear foot and will be paid for at the contract unit price for "Silt Fence" Initial excavation of depressions on the upstream side of silt fence to create added storage shall be subsidiary.

2154.6 Straw Bales: Straw bales shall not be used.

2154.7 Rock Ditch Checks: Small temporary stone ditch checks used to form protect ditches with larger flows.

A. Materials: Rock shall be a clean aggregate free of deleterious substances, including earth, chert, cracks, seams, soapstone, shale or other easily disintegrated materials. Rock shall come from a primary run and be screened to remove the easily separated fines. It shall meet the gradation requirements below for the nominal size specified:

2-inch Rock: Fifty percent (50%) by weight of the particles shall be larger than 1.5 inches in diameter and none shall be larger than 4 inches. Total aggregate and fines smaller than ½ inch shall not exceed 2 % by weight.

4-inch Rock: Fifty percent (50%) by weight of the particles shall be larger than 4 inches in diameter and none shall be larger than 9 inches. Total aggregate and fines smaller than 1" shall not exceed 2 % by weight.

6-inch Rock: Fifty percent (50%) by weight of the particles shall be larger than 6 inches in diameter and none shall be larger than 12 inches. Total aggregate and fines smaller than 1" shall not exceed 2 % by weight.

The Engineer may approve modifications to these gradations to accommodate readily available stockpiles from local quarries.

B. Construction Requirements: See Standard Drawings.

C. Maintenance: See Standard Drawings.

D. Measurement and Payment: "Rock Ditch Checks (Named Rock Size)" will be measured per ton or tenth part thereof, as placed, and paid for at the contract unit price for the nominal size of rock indicated. Initial excavation of depressions on the upstream side of rock barriers to create added storage shall be subsidiary.

2154.8 Synthetic Sediment Barriers (Type): Any one of various proprietary ditch checks, primarily composed of synthetic materials, that can be used instead of the other measures specified herein to control velocities and erosion in ditches or swales.

A. Materials: Materials for any given Type of Synthetic Sediment Barrier shall be as called out in the plans or Standard Drawings. In addition, this category may also include those measures called out as “Synthetic Sediment Barrier” in KDOT Specification Sections 902 and 2114 or those called out as “Alternate Ditch Checks” in MoDOT Specification 806.

B. Construction Requirements: Install Synthetic Sediment Barrier’s in accordance with manufacturer instructions. Pay particular attention to anchoring, protection of channel underneath, and to conditions at the ends to avoid bypassing.

C. Maintenance: Remove silt when it accumulates to 20% of the height of the barrier or when the accumulation prevents the proper operation of the ditch check, whichever is less. If units are damaged or dislodged during the sediment removal process, repair and re-establish continuity.

D. Measurement and Payment: "Synthetic Sediment Barriers (Type) " will be measured per linear foot and paid for at the contract unit price. Underlying erosion control blanket or geotextiles shall be subsidiary. If no specific type is given, then all such measures allowed for the job will be paid for at a uniform price.

2154.9 Biodegradable Logs (or Wattles): Circular tubes of netting filled with straw or other biodegradable fibers and used as a small height barrier for diversion of water or settlement.

A. Materials: Biodegradable logs are manufactured using a variety of filler materials. For this specification, the following two classes of filler are specified:

Class A: Rice or wheat straw fibers Fiber material shall be certified as weed free in accordance with state standards. Fibers shall have an average length greater than 3 inches. Type A wattles shall have a durability in the field of no less than 3 months. Type A wattles shall be specified with dimensions and minimum weights of 9-inch diameter (1.7 lbs./lin ft.); 12-inch diameter (2.5 lbs/lin. ft.) or 20-inch diameter (3.5 lbs/lin. Ft.)

Class B: Excelsior wood fibers, coconut fiber (i.e. coir), jute, or other longer-lasting biodegradable materials. Such materials shall be free of deleterious substances, compacted tightly, and shown to have an in-field durability of 6-months or greater. Class B wattles shall be specified with dimensions 9-inch diameter, 12-inch diameter, or 20-inch diameter.

Containment netting shall be jute or light-weight plastic. The entire wattle unit shall be sufficiently durable to withstand weather, construction, and installation conditions for no less than the life of the filler material (see above), including multiple movements and

reinstallations. Wood posts of sufficient strength withstand installation and weather shall be used for anchoring.

B. Construction Requirements: Biodegradable logs shall be located as shown on the plans or directed by the Engineer. Individual units shall be installed in accordance with manufacturer's recommendations and the Standard Drawings.

C. Maintenance: Maintain as called out in the Standard Drawings.

D. Measurement and Payment: "Biodegradable Logs (Size and Class)" will be measured per linear foot and paid for at the contract unit price. When used without other qualifier, the phrase "Straw Wattle" shall be considered equivalent to a 9-inch Class A Biodegradable Log.

2154.10 Compost Filter Berm: A berm or dike of compost placed to trap pollutants and filter runoff from small areas of overland flow.

A. Materials: Compost to be used in filter berms shall meet the following requirements:

Parameter	Range
pH	5.0-8.5
Moisture Content	<60%
Organic Matter Content	>25% of dry weight
Particle Size	99% < 2", 30%-50% < 3/8"

B. Construction Requirements: Compost filter berms shall be constructed using specially designed pneumatic equipment (blowers) and a berm shaping device, or other equipment as approved by the Engineer. If a blower is used, compost shall be blown directly at the soil surface to help settle, compact and shape the berm. The berm shall be formed in a trapezoidal shape, having a typical dimension of 3 feet wide at the base and 1.5 feet high. Position the berm around designated soil areas and parallel to the contour. The ends of the berm shall be pointed up slope such that the bottom elevation at each end is higher than the top elevation throughout most of the slope, so as to prevent water from flowing around the end of the berms.

C. Maintenance: Berms shall be reshaped and compost added as necessary to maintain their function and dimensions. Breaches in the berm shall be repaired promptly. Compost may be added by hand and tamped in place. Unless otherwise directed by the final landscape plans or by the Engineer, removal of the compost berm shall be made by spreading the compost in a thin layer over adjacent planted areas.

D. Measurement and Payment: "Compost Filter Berm" will be measured per linear foot and paid for at the contract unit price.

2154.11 Compost Filter Sock: A compost filter encased in a geotextile tube that serves a similar purpose to compost filter berms, particularly in areas with more concentrated overland runoff.

A. **Materials:** Compost to be used in filter socks shall meet the respective requirements for compost specified in Section 2154.10 for Filter Berms.

Tubes used for compost filter socks shall be produced from a 5 mil thick continuous HDPE or polypropylene filament, woven into a tubular mesh netting material, with openings in the knitted mesh 1/8 in (3 mm) to 3/8 in (10 mm). Tubes shall have a diameter of either 8, 12, or 18 inches, as specified. The 12-inch tubes are for general use, the 8-inch tubes are typically for flat slopes, and the 18 inch tubes are typically for steep slope protection and minor check dams.

Stakes for securing filter socks shall be hardwood with a 2" by 2" nominal dimension. Steel or other non-biodegradable stakes shall not be used.

B. **Construction Requirements:** Compost filter socks shall be constructed on site or delivered to the jobsite. When assembled on site, the sock shall be filled using a pneumatic blower. The sock shall be formed continuously for the length needed, up to 200 feet long. When multiple socks are needed, the end of one sock shall be pulled over the second to create a "sleeved" overlap. Once overlapped, the second section is filled with compost to create a seamless unit. Once placed, the filter sock will settle into an oval shape. Trenching is not required. Existing soil in the vicinity of the filter sock shall remain undisturbed to the extent practical. The sock shall be anchored by driving stakes through the center of the filter sock at 10 foot intervals, at all sleeved overlaps, and at each end. Where an adjustable section of filter sock is necessary (such as to permit dry weather vehicle access), the stakes may be placed on the downhill side of the sock rather than through it. Filter socks may be seeded.

C. **Maintenance:** Compost filter socks shall be inspected to ensure the sock material is intact and to determine if runoff is bypassing or undermining the units. Additional filter socks may be stacked as needed. Breaches in the line shall be repaired promptly. Unless otherwise directed by the final landscape plans or by the Engineer, removal of the compost sock shall be made by spreading the compost in a thin layer over adjacent planted areas. The HDPE or polypropylene sock shall be sliced open longitudinally to release the compost and the sock disposed of.

D. **Measurement and Payment:** "Compost Filter Sock (Named Diameter)" will be measured per linear foot and paid for at the contract unit price for the nominal diameter indicated.

2154.12 Diversion Berms: Earthen berms temporarily graded and compacted to provide a diversion of overland flow. Can be used in conjunction with slope drains at the top of slopes to prevent sheet flow down the slope face.

A. **Materials, Construction and Maintenance:** Refer to the Standard Drawings.

B. **Measurement and Payment:** "Diversion Berms" will be measured per linear foot and paid for at the contract unit price. Such payment shall be full compensation for berm installation, maintenance, removal and any other work noted on the plans.

2154.13 Slope Drain: A flexible tubing or conduit used to convey concentrated water from the top of a slope down to the toe and thereby preventing erosion over the slope face.

A. Materials, Construction and Maintenance: Refer to the Standard Drawings.

B. Measurement and Payment: "Temporary Slope Drain" will be measured per linear foot and paid for at the contract unit price. Such payment shall include installation of outlet protection.

2154.14 Inlet Protection: Any one of a variety of devices or procedures used to allow water to enter an stormwater inlet while filtering or temporarily impeding the flow sufficiently to reduce the quantity of sediment carried.

A. Materials: When used, biodegradable logs, compost filter socks, synthetic sediment barriers, silt fence, or rock ditch checks shall meet the material requirements given by other items of this specification. All other material specifications are as shown in the Standard Details or on the plans. Straw wattles are not allowed for curb inlet protection. Unless otherwise restricted in the plans, the Contractor may also use any applicable inlet protection system allowed by KDOT Specification 902 and 2114 and the Standard Drawings or pre-approved materials list under the category “Temporary Inlet Sediment Barriers (if in Kansas); or any applicable inlet protection system allowed by MoDOT Specification 806 and Standard Plans under the category “Inlet Checks” (if in Missouri).

B. Construction Requirements: Use the inlet protection systems shown on the plan, as appropriate. Provide the given system in accordance with the Standard Drawings. Alternate inlet protection methods may be approved or specified by the Engineer. The appropriate details for a given inlet will change during the progress of the job and adjustments shall be made as inlet construction progresses. Each inlet shall be protected continuously from initial construction until final stabilization. The ultimate test of acceptability is performance in preventing the migration of sediments through the inlet.

When surrounding conditions are such that protection of the inlet would lead to an increased risk of flooding of adjacent structures or produce a hazard to motorists, the barriers shall be adjusted or eliminated to avoid such impacts. In those cases, extra attention shall be paid to minimize the degree of sediment carried in the flow that reaches the inlet.

The general cases of inlet protection and the performance expected from each are as follows:

1. All Inlets at Sump Conditions: Inlets at sump conditions shall remain accessible for flow at all times. Small barriers, depressions and/or filters are used to screen larger sediments and initiate settlement of the water prior to it entering the inlet by creating a ponding zone. Generally, stormwater will enter the inlet via weir flow over the top of the barrier. Such water is generally the least-sediment laden as it is decanted from the top of the ponded area.

2. Street Inlets on Grade: On-grade inlet shall be converted into a localized sump condition by installing a barrier downstream and around the inlet of sufficient height to produce ponding and prevent bypass, while a barrier, depression, and/or filter in front of the inlet induces settlement of solids. Bypassing of water

at the on-grade inlet shall not be allowed and the inlet shall remain open to accept flow without causing excessive flooding.

3. Selected Inlets Closed to Flow: In select locations, the plans may designate certain inlets as “closed to flow.” In those situations, the objective is to provide sufficient blockage of permanent and temporary openings to prevent entry of stormwater into the inlet. Such locations will be clearly indicated on the plans, and the closed condition for flow may be designated for only a portion of the construction period. The Contractor shall notify the Engineer if they believe that the closure of such inlets would result in an increased risk of flooding or downstream erosion, and such concerns shall be resolved before closing an inlet to flow.

C. Maintenance: Sediment shall be removed from each inlet after every rainfall event that exceeds 1/2" or which results in a visible accumulation of sediment. Particular attention shall be paid to prevent blockage of inlets or cases where resuspension of captured sediment is likely. Specific maintenance issues unique to each inlet protection type shall be addressed as outlined in the Standard Drawings.

D. Measurement and Payment: “Inlet Protection” will be measured per each inlet protected and paid for at the contract unit price. Each inlet will be measured only one time for the duration of the project regardless of the number of phases or protection methods used to protect a single inlet. Unless otherwise specified in the plans or contract documents, inlet protection at all locations will be paid at the same unit price.

2154.15 Construction Entrance: A stabilized layer of large aggregate and other features, located in areas of high traffic and at the construction entrance and exit, intended to remove mud and silt embedded in tires, to prevent tracking sediments off the site.

A. Materials, Construction and Maintenance: See Standard Drawings.

D. Measurement and Payment: "Construction Entrance" will be measured by the square yard and paid for at the contract unit price. All other features required for the entrance shall be subsidiary.

2154.16 Sediment Trap: A temporary reservoir and embankment with a stone outlet that is constructed across a drainage way to intercept sediment-laden runoff and provide retention time sufficient to settle out a majority of solids. Used for smaller watersheds where the engineered outlet works of a sediment basin are not required.

A. Materials: See Standard Drawings.

B. Construction Requirements: See Standard Drawings. The construction of the sediment trap shall be carried out in a manner such that it does not result in sediment problems downstream. The embankment of the sediment trap shall be stabilized with temporary or permanent vegetation immediately after installation.

C. Maintenance: See Standard Drawings.

D. Measurement and Payment: "Sediment Traps" shall be measured per each trap constructed and paid for at the contract unit price. Unless otherwise specified in the plans or contract documents, each trap shall be paid for at the same unit price.

2154.17 Sediment Basin: A temporary reservoir and embankment with engineered outlet works that is constructed across a drainageway to intercept sediment-laden runoff from large areas and provide retention time sufficient to settle out a majority of solids.

A. Materials: See Standard Drawings.

B. Construction Requirements: See Standard Drawings. Where the plans indicate that a temporary sediment basin is to be converted into a permanent basin, pond, or other stormwater facility, the construction, use, and removal or alterations shall be coordinated to result in a final facility that is operational in the time frame specified in the plans and which causes a minimum amount of disruption to the sitework, downstream channel, or future facility and minimizes the amount of rework needed. The construction of the sediment basin shall be carried out in a manner such that it does not result in sediment problems downstream. The embankment and emergency spillway of the sediment basin shall be stabilized with temporary or permanent vegetation immediately after installation of the basin.

C. Maintenance: See Standard Drawings.

D. Measurement and Payment: "Sediment Basin" shall be lump sum, and no measurement for payment of any item will be made. If multiple basins are used on a project, then this item shall be lump sum for all basins collectively, unless the bidding list designates individual locations.

Eighty percent (80%) of the lump sum payment shall be made once the basin is complete, in-place and operational. The final twenty percent (20%) shall be made when the basin is removed. Such payment shall be full compensation for clearing, grubbing, grading, spillway installation, stabilization, maintenance, removal, and any other work noted on the plans, including installation of outlet protection. Routine removal of sediment shall be subsidiary

If the basin indicated on the plans is to be converted at the end of construction into a permanent pond, basin, or other stormwater facility, then this item shall include payment only for the incremental costs associated with its use as a temporary basin. Permanent embankments, excavations, spillways, or other appurtenances that are constructed will be handled by the other appropriate items of the Contract for the permanent facility.

2154.18 Temporary Stream Crossings: A temporary culvert constructed in a creek, river, or stream to allow construction access and crossing.

A. Materials: See Standard Drawings.

B. Construction Requirements: See Standard Drawings. Culvert sizing, number, and orientation shall be as dictated in the plans. Care shall be taken to ensure that the stream crossing does not cause inadvertent flooding of adjacent homes, buildings, or other structures. Concerns about adequacy of culvert sizing shall be brought to the

immediate attention of the Engineer and no installation made until such concerns are resolved.

C. Maintenance: See Standard Drawings.

D. Measurement and Payment: "Temporary Stream Crossing" shall be lump sum and such payment shall be full compensation for installation, maintenance, removal and any other work noted on the plans. If multiple crossings are used on a project, then this item shall be lump sum for all crossings collectively, unless the bidding list designates locations individually.

Eighty percent (80%) of the lump sum payment shall be made once the crossing is complete, in-place and operational. The final twenty percent (20%) shall be made when the crossing is removed.

2154.19 Diversion Channels: A temporary channel excavated and stabilized to divert flow from a stream around a culvert or other in-stream structure being constructed, so as to avoid excessive erosion in the construction zone.

A. Materials: See Standard Drawings.

B. Construction Requirements: See Standard Drawings. Diversions of streams shall only be allowed if covered by the plans and approved permits for the project. Such construction, stabilization, and restoration will conform the plans and Standard Drawings. Concerns about adequacy of culvert sizing shall be brought to the immediate attention of the Engineer and no installation made until such concerns are resolved.

C. Maintenance: See Standard Drawings.

D. Measurement and Payment: "Diversion Channels" shall be lump sum and such payment shall be full compensation for installation, maintenance, removal and any other work noted on the plans. If multiple crossings are used on a project, then this item shall be lump sum for all diversions collectively, unless the bidding list designates locations individually.

Eighty percent (80%) of the lump sum payment shall be made once the diversion is complete, in-place and operational. The final twenty percent (20%) shall be made when the crossing is removed.

2154.20 Turbidity Curtains: Floating barriers of synthetic fabric curtain suspended in the water and held in a vertical position, used in lakes and perennial rivers to slow, contain or direct the flow from disturbed areas allowing solids to settle out before spreading into the surrounding water.

A. Materials: All components shall conform to the requirements given for the specific turbidity curtain system specified in the plans.

B. Construction Requirements: Shall conform to the manufacturer's recommendations for the curtain system specified in the plans, plus such additional requirements as may be listed in the plans. A manufacturer's representative shall be onsite during installation of the system.

C. **Maintenance:** Anchor lines shall be kept secure and properly positioned. Fabric, cable, and other appurtenances shall be repaired immediately as needed and in accordance with manufacturer's instructions.

D. **Measurement and Payment:** "Turbidity Curtain" will be measured by the linear foot and paid for at the contract unit price.

2154.21 Dewatering Filter: A device for filtering sediments from water that is discharged during pumping or dewatering activities.

A. **Materials:** Dewatering filters shall be constructed of materials as shown on the Standard Plans. Proprietary devices that provide equal or better performance than filters in the Standard Plans may be approved by the Engineer.

B. **Construction Requirements**: Dewatering filters shall be used whenever sediment-laden effluent is discharged from pumps used during construction for dewatering or other activities. For proprietary devices, the manufacturer's recommendations shall be followed.

C. **Maintenance:** Filters shall be cleaned or replaced as necessary to maintain filtration capacity.

D. **Measurement and Payment:** No measurement or payment will be made for "Dewatering Filters," but the use of such devices shall be subsidiary to the dewatering activity or other items of the contract. Removal of sediments from dewatering devices shall also be subsidiary.

2154.22 Method of Measurement: Sediment controls and diversions will be measured in the manner specified in each applicable subsection.

2154.23 Basis of Payment: Sediment controls and diversions will be paid for as specified in each applicable subsection.

SECTION 2155 SCHEDULING AND STANDARD SEQUENCES

It is intended that future editions of this specification will contain guidelines and requirements for scheduling and standard sequences of work in order to minimize the duration of exposure and potential for sediment discharge. This section has been reserved for that purpose.

SECTION 2156 MEASUREMENTS AND PAYMENTS

2156.1 Summary: This section includes the method of measurement and the basis of payment, for furnishing all labor, equipment, tools and materials and for the performance of all related work necessary to complete any work covered in Section 2150. Unless otherwise indicated, the maintenance, repair, removal and disposal of all temporary measures shall be subsidiary to the initial installation.

2156.2 General: Unless specifically altered by the Contract Special Provisions, the methods of measurement and payment shall be as specified in each section herein, and as listed in the Proposal.

2156.3 Measurement: The Engineer or his representative will measure the work for payment. The method of measurement and computations used in determination of quantities of work performed will be those methods generally recognized as conforming to good engineering practice.

2156.4 Items not listed in the Proposal: There shall be no measurement or separate payment for any item of work not specifically identified and listed in the Proposal and all costs pertaining thereto shall be included in the contract unit prices for other items which are listed in the Proposal.

2156.5 Measurement and Payment Summary Table

Item Description	Ref. Section	Method of Measurement	Basis of Payment
General Requirements	2151	No measurement	Subsidiary to other items
Chemical and Waste Controls	2152	No measurement	Subsidiary to other items
Permanent Seeding or Sodding	2153.4	See Section 2400	See Section 2400
Out of Season Watering	2153.4	1,000 gallon unit	Unit Bid Price
Temporary Seeding	2153.5	0.01 acre	Unit Bid Price
Mulch Cover	2153.6	0.01 acre	Unit Bid Price
Hydrocover (Standard)	2153.7	1.0 lbs dry-weight of fiber	Unit Bid Price
Hydrocover (Named Specialty Mix)	2153.8	1.0 lbs dry-weight of fiber	Unit Bid Price
Erosion Control Blanket (Named Type)	2153.9	1.0 sq. yd.	Unit Bid Price
Compost Cover	2153.10	1.0 cu. yd.	Unit Bid Price
Surface Roughening	2153.11	No measurement	Subsidiary to earthwork items
Dust Control	2153.12	No measurement	Subsidiary to other items
Sediment Removal	2154.4	No measurement	Subsidiary to other items
Silt Fence	2154.5	1.0 lin. ft.	Unit Bid Price
Rock Barrier (Named Size)	2154.7	0.1 ton	Unit Bid Price
Open-Flow Ditch Check (Type)	2154.8	1.0 lin. ft.	Unit Bid Price
Biodegradable Logs (Size and Class)	2154.9	1.0 lin. ft.	Unit Bid Price
Compost Filter Berm	2154.10	1.0 lin. ft.	Unit Bid Price
Compost Filter Sock (Named Diameter)	2154.11	1.0 lin. ft.	Unit Bid Price
Diversion Berm	2154.12	1.0 lin. ft.	Unit Bid Price
Slope Drain	2154.13	1.0 lin. ft.	Unit Bid Price

Measurement and Payment Summary Table (continued)

Item Description	Ref. Section	Method of Measurement	Basis of Payment
Inlet Protection	2154.14	Each inlet	Unit Bid Price
Construction Entrance	2154.15	1.0 sq. yd.	Unit Bid Price
Sediment Trap	2154.16	Each trap	Unit Bid Price
Sediment Basin	2154.17	No measurement	Lump Sum
Temporary Stream Crossing	2154.18	No measurement	Lump Sum
Diversion Channels	2154.19	No measurement	Lump Sum
Turbidity Curtain	2154.20	1.0 lin. ft.	Unit Bid Price
Dewatering Filter	2154.21	No measurement	Subsidiary to other items

DIVISION II
CONSTRUCTION AND MATERIAL SPECIFICATIONS
SECTION 2200 PAVING

APPROVED AND ADOPTED THIS 15th DAY OF FEBRUARY, 2017

KANSAS CITY METROPOLITAN CHAPTER
OF THE AMERICAN PUBLIC WORKS ASSOCIATION

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SECTION 2201 SUBGRADE PREPARATION

2201.1 Scope

This section governs the furnishing of all labor, materials and equipment for the preparation of subgrade as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions. This section includes subgrade preparation at locations which have been previously graded in accordance with the requirements of Section 2100 "Grading and Site Preparation".

2201.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

ASTM

D 698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))

2201.3 Definitions

A. Subgrade: Subgrade is defined as a well graded and compacted layer on which base and subsequent courses are placed.

B. Subgrade Preparation: Subgrade preparation is the repeated operation of fine-grading and compacting the subgrade until the specified lines, grades, and cross-section, as indicated on the Plans are obtained and the materials are compacted to the specified depth and density.

2201.4 Construction

A. General: The subgrade surface shall be brought to the specified lines, grades and cross-section by adding or removing material and compacting to the specified density. Tolerance allowed on all lines, grades and cross-sections shall be no more than 1/4 inch.

B. Compacting the Subgrade: Unless otherwise specified, the top 6 inches of subgrade for pavements shall be compacted to 95% of the standard proctor maximum density for the material used as determined by ASTM D 698 and within a tolerance of plus 3% and minus 3% of the optimum moisture content. The tolerance applies only to the top 6 inches.

C. Protection and Maintenance of Subgrade: The subgrade shall be protected from action of the elements or others. Any action (e.g. settlement or erosion) that damages the subgrade or any subgrade that has become unacceptable prior to placing the pavement thereon, shall be repaired and the specific lines, grades, cross-section, tolerance, density, and moisture content range reestablished.

D. Cleanup: Subgrade cleanup shall follow the work progressively. The Contractor shall remove from the project site all rubbish, surplus or discarded material, unsuitable material, and any equipment, tools and temporary construction items used for the preparation of the subgrade.

E. Roll Testing: Once the subgrade has been brought to the final plan elevation, but prior to approval of the

subgrade for paving, all lanes shall be roll tested in their entire length. The subgrade will not be acceptable if rutting, pumping, or deformation of the subgrade results from the roll test. This testing will be done by the contractor, and will be in addition to the applicable moisture and density testing.

Equipment for roll testing shall be a tandem dump truck (one front and two rear axles) carrying a minimum load of twenty (20) tons.

The truck shall proceed slowly along each traffic lane, allowing the Engineer to walk alongside and observe the results. Areas failing the roll test will be reworked and retested prior to approval of the subgrade for paving.

2201.5 Method of Measurement

Subgrade Preparation will generally not be listed in the Contract Documents as a separate item.

2201.6 Basis of Payment

Subgrade Preparation will generally be included in payment for other items in the Contract Documents.

SECTION 2202 SUBGRADE STABILIZATION

2202.1 Scope

This section governs the furnishing of all labor, materials and equipment for the stabilization of subgrade as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions. This work shall consist of the addition of self-cementing fly ash or lime to soil, mixing and compacting the material to the required density to develop a stabilized subgrade section. This applies to natural ground or fills and shall be constructed as specified herein and in conformity with the typical sections, lines and grades as shown on the Plans or as established by the Engineer.

2202.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

ASTM
C 25 Standard Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime
C 618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
D 698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))
D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
D 5239 Standard Practice for Characterizing Fly Ash for Use in Soil Stabilization
D 6938 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

AASHTO
T 99 Standard Method of Test for Moisture-Density Relations of Soils Using a 5.5 lb. Rammer and a 12 inch Drop
M 216 Standard Specification for Lime for Soil Stabilization

2202.3 Materials

A. Fly Ash: Fly Ash shall comply with the physical requirements of ASTM D 5239, paragraph 6.4 maintaining a minimum compressive strength of 500 psi at 7 days and the chemical requirements of ASTM C 618, Table 1 for Class C fly ash, unless otherwise shown on the Plans. The source of the ash shall be selected by the Contractor and approved by the Engineer in advance of stabilization operations in order that the required laboratory tests can be completed prior to construction without delaying the work. Certification shall be provided by the supplier that the fly ash used on the project meets the above criteria. Fly ash shall be stored and handled in closed weatherproof containers until distribution. Fly ash exposed to moisture prior to mixing with soils shall be discarded.

B. Lime: Lime shall be hydrated or quicklime conforming to the requirements of AASHTO M 216. Contractor shall provide certification that the product complies. Hydrated lime shall contain not less than ninety (90) percent calcium hydroxide Ca(OH)2, and quicklime shall have a minimum available lime percentage (CaO) of 90%, as determined by ASTM C 25. Lime shall be introduced to the subgrade in a slurry form. When quicklime is used, slake it at the jobsite to manufacture hydrated lime slurry. The Contractor shall submit calculations to the Engineer that determines the amount of water needed to make a slurry with a percent solids between 20 and 40 percent. The Contractor will then determine the concentration strength of the lime slurry and the rate of application to obtain the lime percentage specified in the Contract Documents.

C. Water: Water used for mixing shall be clean and potable. For lime stabilization, it shall be added during mixing, remixing and compaction operations, and during the curing period to keep the cured material moist until covered. If water is not included in the Contract Documents as a pay item, it is subsidiary to other Contract items.

D. Soil: The subgrade soil to be stabilized shall be uniform in quality and gradation and free from rubble, rubbish, vegetation, and stones larger than 1” diameter.

2202.4 Composition

Fly ash shall be applied at a rate determined by laboratory testing using the materials from the site and the specific fly ash to be supplied unless otherwise designated by the Contract Documents. Testing shall be the responsibility of the Contractor and is subsidiary to other items. The minimum application rate shall be 15% unless testing indicates otherwise.

Lime shall be applied at a rate determined by laboratory testing using the materials from the site and the specific lime to be supplied unless otherwise designated by the Contract Documents. Testing shall be the responsibility of the Contractor and is subsidiary to other items. The minimum application rate shall be 5% (by weight) unless testing indicates otherwise.

2202.5 Thickness

The thickness of the completed, compacted soil mixture shall be 6 inches or as called out in the Plans or Special Provisions. The thickness shall not be less than the specified minimum. Check thickness and when found to be ½ inch or more out of tolerance, the contractor shall correct the area represented by the checked location at no additional cost.

2202.6 Equipment

The machinery, tools, and equipment necessary for proper execution of the work shall be on the project and approved by the Engineer prior to beginning construction operations. Utilize spreading equipment capable of producing a consistent

application rate. Blending of the soil mixture shall be accomplished by equipment with a recycling or mixing drum, positive depth control, and automatic water proportioning system that provides consistent results. Compaction shall be achieved using pneumatic or vibratory sheepsfoot or padfoot rollers capable of meeting the compaction requirements. Final surface compaction may be completed with a steel wheel or rubber-tired roller.

All machinery, tools and equipment use shall be maintained in a satisfactory and workmanlike manner.

2202.7 Construction

A. General: It is the primary purpose of this specification to secure a completed section of treated material which contains a uniform mixture with no loose or segregated areas, has a uniform density and moisture content and is well bound for its full depth. It shall be the responsibility of the Contractor to regulate the sequence of his/her work, to process a sufficient quantity of material to provide a completed section as shown on plans, to use the proper amounts of fly ash or lime, to achieve final compaction within the specified time, to maintain the work, and to rework the lifts as necessary to meet the above requirements.

B. Weather Limitations**:** The soil mixture shall not be mixed while the soil is frozen, the temperature is below 40°F or when conditions indicate that the atmospheric temperatures may fall below 40°F within 24 hours.

C. Preparation of Subgrade: Before other construction operations are begun, the area to be stabilized shall be cut and shaped in conformance with the lines and grades shown on the plans. All areas shall be firm and able to support, without displacement, the construction equipment and the compaction hereinafter specified. Soft or yielding subgrade shall be corrected by the Contractor using a method approved by the Engineer.

D. Moisture Control: Moisture control shall be achieved through use of a controllable water additive system capable of being regulated to the degree necessary to maintain moisture contents within the recommended range.

1. For fly ash, the required moisture content will be established by laboratory tests with the site soils and specific fly ash to be used, determined in accordance with ASTM D 698 or AASHTO T 99. Laboratory testing shall be the responsibility of the Contractor and is subsidiary to other items. Final moisture content of the mix, immediately prior to compaction shall be +/- 3 percentage points of the optimum moisture content as determined by laboratory testing unless otherwise specified in the Contract Documents. If moisture contents exceed the specified limits, additional fly ash may be incorporated to lower moisture contents to the required limits. Lowering moisture contents by aeration following addition of fly ash will not be allowed.

2. For lime, the required final moisture content of the lime-soil mix will be established by laboratory tests with the site soils and specific lime to be used, determined in accordance with ASTM D 698 or AASHTO T 99. Laboratory testing shall be the responsibility of the Contractor and is subsidiary to other items. During mixing and compaction operations, the moisture content of the mix shall be a minimum of 3 percentage points above the optimum moisture content as determined by laboratory testing, unless otherwise specified in the Contract Documents. After completion of the preliminary mixing operation and during the aging period, the surface shall be kept moist by spraying with water. Following the final mixing operation and compaction, the surface shall be kept moist by spraying with water until covered by a subsequent layer of material or sealed with a bituminous prime coat applied at a minimum rate of 0.15 gallons per square yard. Other curing methods may be submitted by the Contractor for consideration by the Engineer.

E. Application of Material

1. Fly Ash: Immediately prior to application of fly ash, the areas shall be scarified to allow for uniform distribution. The use of scarification equipment with positive depth control is required and should be performed to a depth between four inches (4") and one inch (1") less than the specified depth of treatment. The fly ash shall be spread only on that area where the placement, mixing and compaction operations can be completed within 2 hours.

   The fly ash shall be spread uniformly over the top of the subgrade – the use of a controlled application system approved by the Engineer is preferred but the Contractor may submit an alternate method of spreading for approval that provides uniform distribution at the specified rate of application. The amount of fly ash spread shall be the amount required for mixing to the specified depth which will result in the percentage determined by laboratory testing as described in section 2202.4 Composition.

   The fly ash shall be distributed in a manner that reduces the scattering of fly ash by wind to a minimum. Fly ash shall not be applied when wind conditions, in the opinion of the Engineer, are detrimental to a proper application or becomes objectionable to adjacent property owners.

   The mixing operation shall be completed within 30 minutes of the addition of water to the subgrade.

2. Lime: Immediately prior to the application of the lime, the areas shall be scarified to allow for uniform distribution. The use of scarification equipment with positive depth control is required and should be performed to a depth between four inches (4") and one inch (1") less than the specified depth of treatment.

   Lime slurry is to be applied with equipment that can regulate the amount passing through the nozzles and the speed of travel to place the specified amount on the soil with a uniform lime distribution. The concentration of the lime slurry should allow for the application of the correct quantity of lime without adding an undue amount of excess moisture. The Contractor is responsible for testing the concentration of the lime suspension a minimum of once per day or once per batch, whichever is greater.

   Application of the lime slurry should occur on the same day the slurry is produced. Continuously agitate the lime slurry once it is produced.

F. Mixing

1. Fly Ash: The full depth of the treated subgrade shall be mixed with a rotary pulvamixer which utilizes a direct hydraulic drive. Fly ash shall not be left exposed for more than 30 minutes after distribution. Water shall be added through a spray bar in the mixing drum capable of uniformly applying sufficient quantities of water to achieve the required moisture content of the soil-fly ash mixture. The system shall be capable of being regulated to maintain moisture contents within the recommended range.

   Mixing shall continue until a homogeneous, friable mixture with zero clods greater than 1-1/2" in size remain and no more than 50% of the mixture is retained on a ½" sieve.

2. Lime: The mixing process for lime includes preliminary mixing, aging, and final mixing. The preliminary mixing should occur immediately following the introduction of the lime slurry to the subgrade. The equipment used for mixing shall have positive depth control with a visual depth indicator and be capable of mixing the full specified depth of treatment to within ½" tolerance. The mixing equipment should also have a travel speed indicator and controllable water additive system. Preliminary mixing shall continue until the material is uniformly mixed, at a minimum moisture content of 3% above

optimum and with zero clods greater than 2" in size remaining. Perform a minimum of two passes over all treated areas with the mixer. Upon completion of the preliminary mixing, seal the mixture to prevent moisture loss by lightly rolling with a pneumatic or steel drum flat roller.

Aging should occur for a minimum of 24 hours and a maximum of 72 hours unless approved otherwise by the Engineer.

Following the aging period, the final mixing is performed by re-mixing the entire treated area until the mixture contains zero clods greater than 1.5" and has 95% of the mixture passing the 1" sieve and 60% of the mixture passing the No. 4 sieve. The mixture should be brought to a moisture content of a minimum of 3% above optimum for compaction.

G. Compaction

1. Fly ash: Compaction of the soil-fly ash mixture shall begin immediately after mixing of the fly ash and be completed within two hours following incorporation of fly ash. Compaction of the mixture shall continue until the entire depth of mixture is uniformly compacted to the specified density using vibratory sheepsfoot or pad foot rollers. A pneumatic rubber tire or smooth wheel steel drum roller may be used to complete the compaction of the surface. A test for both density and moisture content of the soil-fly ash mixture shall be taken for each 750 square yards of material placed with a minimum of one test per day of production. The field density of the compacted mixture shall be at least 95 percent of the maximum density established by laboratory tests using the site soils and specific fly ash to be used, determined in accordance with ASTM D 698. Laboratory testing shall be the responsibility of the Contractor and is subsidiary to other items.

   The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 6938. When ASTM D 6938 is utilized for testing purposes, the nuclear gauge shall be calibrated within the last year. Calibration and operation of the gauge shall be in accordance with the requirements of the manufacturer. The operator of the nuclear gauge must show evidence of training and experience in the use of the instrument. The gauge shall be standardized daily in accordance with ASTM D 6938, paragraph 8.

   Final acceptance of the compaction is dependent upon passing visual roll testing. This will be observed and approved by the Engineer. All irregularities, depressions, or weak spots which develop shall be corrected immediately by scarifying the areas affected, adding or removing material as required and remixing and re-compacting with additional fly ash if beyond the 2 hour limit. The surface of the course shall be maintained in a smooth condition, free from undulations and ruts, until other work is placed thereon or the work is accepted.

   Should the material, due to any reason or cause, lose the required stability, density and finish before the work is accepted, it shall be reprocessed, recompacted and refinished at the sole expense of the Contractor. Reprocessing shall follow the same pattern as the initial stabilization including the addition of fly ash.

2. Lime: Compaction of the soil-lime mixture shall begin immediately after final mixing. Compaction of the mixture shall continue until the entire depth of mixture is uniformly compacted to the specified density using vibratory sheepsfoot or pad foot rollers. A pneumatic rubber tire or smooth wheel steel drum roller may be used to complete the compaction of the surface. A test for both density and moisture content of the soil-lime mixture shall be taken for each 750 square yards of material placed with a minimum of one test per day of production. The field density of the compacted mixture shall be at least 95 percent of the maximum density established by laboratory tests using the site soils and

specific lime to be used, determined in accordance with ASTM D 698. Laboratory testing shall be the responsibility of the Contractor and is subsidiary to other items.

The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 6938. When ASTM D 6938 is utilized for testing purposes, the nuclear gauge shall be calibrated within the last year. Calibration and operation of the gauge shall be in accordance with the requirements of the manufacturer. The operator of the nuclear gauge must show evidence of training and experience in the use of the instrument. The gauge shall be standardized daily in accordance with ASTM D 6938, paragraph 8.

Final acceptance of the compaction is dependent upon passing visual roll testing. This will be observed and approved by the Engineer. All irregularities, depressions, or weak spots which develop shall be corrected immediately by scarifying the areas affected, adding or removing material as required and remixing and re-compacting.

The surface of the course shall be maintained in a smooth condition, free from undulations and ruts, until other work is placed thereon or the work is accepted.

Should the material, due to any reason or cause, lose the required stability, density and finish before the work is accepted, it shall be reprocessed, recompacted and refinished at the sole expense of the Contractor.

H. Finishing (Trimming) & Curing

1. Fly ash: After each layer or course of the fly ash treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. The finished surface of the final layer shall not vary more than 3/8 inch when tested with a 10-foot straightedge applied parallel with and at right angles to the pavement centerline. Any variations in excess of this tolerance shall be corrected by the Contractor, at his/her own expense, in a manner satisfactory to the Engineer.

   After the fly ash treated course has been finished as specified herein, the surface shall be protected against rapid drying by one of the following methods for a period of not less than three days or until the pavement section is placed.

   a. Maintain in a thorough and continuously moist condition by sprinkling with water.
   b. Apply an asphalt prime coat emulsion curing seal approved by the Engineer at a rate of 0.15 gallons per square yard.
   c. Other options for maintaining moisture may be submitted in writing for approval by the Engineer.

   Restrict construction traffic from operating on the treated subgrade until it can withstand the loads without damage or deformation.

   Protect the treated subgrade from freezing throughout the protection period.

2. Lime: After each layer or course of the lime treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. The finished surface of the final layer shall not vary more than 3/8 inch when tested with a 10-foot straightedge applied parallel with and at right angles to the pavement centerline. Any variations in excess of this tolerance shall be corrected by the Contractor, at his/her own expense, in a manner satisfactory to the Engineer. After the lime treated course has been finished as specified herein, the surface shall be cured by one of the

following methods for a period of not less than three days and maintained until placement of the subsequent course (base or pavement) or up to seven days, whichever occurs first:

a. Maintain in a thorough and continuously moist condition by sprinkling with water.
b. Apply an asphalt prime coat emulsion curing seal approved by the Engineer at a rate of 0.15 gallons per square yard.
c. Other options for a curing seal may be submitted in writing for approval by the Engineer.

Restrict all construction traffic (except watering equipment) from operating on the treated subgrade during the curing period. Restriction may be lifted after three days if treated subgrade has gained sufficient strength to withstand the loads without damage or deformation.

Protect the subgrade from freezing throughout the curing period.

I. Maintenance: The contractor shall maintain, at his/her own expense, the entire treated subgrade in good condition from the start of work until all the work has been completed, cured, and the pavement is placed.

2202.8 Method of Measurement

The amount of completed and accepted work will be measured or determined as follows:

A. Lime: Per ton or tenth part thereof for the specified depth.

1. For bag lime, use the net weight on the bag.

2. For certified truck or rail car quantity, use the net weight of lime.

3. For hydrated lime slaked at the jobsite, use the quantity calculated in Section 2202.4, correcting for purity and inert material.

B. Fly Ash: Per ton or tenth part thereof for the specified depth.

C. Manipulation (Lime Treated Subgrade or Fly Ash Treated Subgrade): Per square yard or tenth part thereof.

D. Water: Per M Gallon (1,000 Gallons) using calibrated tanks or water meters.

1. For lime treated subgrade, measure water used for mixing, moisture control and curing but do not measure water used for slaking the lime, dust control, or excess water used due to Contractor negligence.

2. For Fly Ash treated subgrade, measure water used for mixing, moisture control and protection but do not measure water used for dust control or excess water used due to Contractor negligence.

E. Alternate curing (lime) and protection (fly ash) of subgrade: No measurement will be made if the Contractor elects to use asphalt prime coat emulsion or other alternative method for curing or protection of subgrade. These are subsidiary to other Contract Documents.

2202.9 Basis of Payment

Payment for the completed and accepted work will be made as follows when included in the Contract Documents:

A. Lime will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

B. Fly Ash will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

C. Manipulation (Lime Treated Subgrade or Fly Ash Treated Subgrade) will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

D. Water will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

SECTION 2203 AGGREGATE BASE COURSE

2203.1 Scope

This section governs the furnishing of all labor, materials and equipment for the placement of aggregate base course and underdrains, including pipe, geotextiles and granular filter material as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions.

2203.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

ASTM

C 31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
C 33	Standard Specification for Concrete Aggregates
C 39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
C 88	Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C 117	Test Method for Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing
C 131	Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C 136	Test Method for Sieve Analysis of Fine and Coarse Aggregates
C 142	Test Method for Clay Lumps and Friable Particles in Aggregates
C 150	Standard Specification for Portland Cement
D 75	Practice for Sampling Aggregates

D 695 Test Method for Compressive Properties of Rigid Plastics
D 1621 Test Method for Compressive Properties Of Rigid Cellular Plastics
D 2419 Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
D 3034 Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings
D 3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials
D 4318 Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
D 4716 Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
D 4791 Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
D 5821 Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
F 758 Standard Specification for Smooth-Wall Polyvinyl Chloride (PVC) Plastic Underdrain Systems for Highway, Airport, and Similar Drainage

AASHTO
M 252 Corrugated Polyethylene Drainage Tubing
T 99 The Moisture-Density Relations of Soils Using a 5.5-lb. (2.5 kg) Rammer and a 12-in. (305 mm) Drop

2203.3 Materials

A. Untreated Compacted Aggregate: This base course material shall consist of crushed stone aggregate with not more than 1.0% clay lumps and friable particles in accordance with ASTM C 142, and free from vegetable or other deleterious substances. The abrasion loss shall be no more than 35% when tested in accordance with ASTM C 131. That fraction passing the 1 inch sieve and retained on the No. 4 sieve shall have a loss not greater than 18% by weighted average for magnesium sulfate method (12% maximum loss if tested using sodium sulfate method) of ASTM C 88 Soundness Test at 5 cycles. That fraction of the material passing the 1-inch sieve and retained on the No. 4 sieve shall contain less than 20% by weight of flat and elongated particles when tested in accordance with ASTM D 4791 (flat being a ratio of 1 to 3 between thickness and least width and a ratio of 1 to 3 between the least width and length). The material shall consist of angular particles with no less than 90% of particle count having two or more fractured surfaces. The gradation in percentages by weight passing square mesh sieves shall be in accordance with ASTM C 136 and as follows:

Sieve Designation (Square Opening)	Percentage by Weight Passing Sieve
1-1/4 in (31.5 mm)	100
1 in (25.0 mm)	72 – 100
3/4 in (19.0 mm)	60 – 90
3/8 in (9.5 mm)	43 – 74
No. 4 (4.75 mm)	28 – 60
No. 10 (2.00 mm)	16 – 40
No. 40 (425 um)	3 – 22
No. 200 (75 um)	0 – 15

In addition to the above limits, the difference between the "Percent Passing Square Mesh Sieve" of successive sieve sizes shall not exceed 25 percent.

That fraction of the material passing the No. 40 sieve shall have a plasticity index not to exceed 8 when tested in accordance with ASTM D 4318.

B. Drainable Base: All drainable base materials shall have a minimum coefficient of permeability of 1000 ft/day as

determined by the test method described in 2203.4.E Permeability Test Procedure.

1. Portland Cement Concrete Drainable Base: This item shall consist of an open-graded drainable base composed of mineral aggregate, Portland cement and water mixed in a central mixing plant and placed on a prepared course in accordance with these specifications and shall conform to the lines, grades, thicknesses and typical cross sections shown on the Plans.

    a. Coarse Aggregate
        i. General: Coarse aggregate shall be 3/4 inch maximum size consisting of crushed gravel or crushed stone and shall meet the requirements of ASTM C 33 and quality requirements of 2203.3.A.
        ii. Gradation shall be ASTM C 33, Size 67.
    b. Fine Aggregate: Fine aggregate shall consist of natural sand or manufactured sand meeting the requirements of ASTM C 33.
    c. Cement: Portland cement shall conform to the requirements of ASTM C 150, Type I or Type II. Substitution of fly ash or other pozzolan for Portland cement shall be in conformance with Section 2208.
    d. Water: Water used in mixing or curing shall be clean and free of oil, salt, acid, alkali, sugar, vegetable or other substances injurious to the finished product as possible. Water known to be of potable quality may be used without testing.
    e. Admixtures: The use of any material to be added to the mixture shall be approved by the Engineer.
    f. The Contractor shall furnish vendor's certified test reports for the materials used in the project. The report shall be delivered to the Engineer as part of the mix design before permission to use the materials is granted.
    g. Proportions: The Contractor shall submit a mix design containing the quantity of each material to the Engineer including certifications of materials used. The Contractor will be responsible for preparing the drainable base mix design at no cost to the Owner. The testing laboratory preparing the mix design shall comply with Section 2203.3.B.2.e. The mix design shall include the following:

        Cement Content
        Water-Cement Ratio - Approximately 0.36
        Coarse Aggregate
        Fine Aggregate
        All Admixtures
        Coefficient of Permeability - Tested per Section 2203.4.E

    h. Compressive Strength: Proportions will be such to produce a compressive strength of 800 psi in 28 days as determined by test cylinders made in accordance with ASTM C 31 and tested in accordance with ASTM C 39. A strength of 500 psi will be required prior to any traffic being allowed on the surface.

2. Plant Mix Bituminous Drainable Base: This item shall consist of an asphalt stabilized drainable base course composed of mineral aggregate and bituminous material mixed in a central mixing plant and placed on a prepared course in accordance with the specifications and shall conform to the lines, grades, thicknesses, and typical cross sections shown on the Plans. Each course shall be constructed to the depth, typical section, or elevation required by the Plans and shall be rolled, finished, and approved before the placement of the next course. A prime coat will be used on the subbase prior to placement of the first course, and no tack coat will be used between courses.

a. Aggregate: Aggregate shall consist of crushed stone or crushed gravel and be free of organic materials.
   i. Coarse Aggregate: Coarse aggregate shall comply with Section 2303.3.A except wear may not exceed 50 % in accordance with ASTM C 131.
   ii. Aggregate shall contain at least 70% by weight of individual pieces having two fractured faces and 85% by weight having at least one fractured face as determined by ASTM D 5821.
   iii. The aggregate shall not contain more than 8%, by weight, of flat and elongated pieces, when tested in accordance with ASTM D 4791 (ratio = 5:1).
   iv. Sampling: ASTM D 75 shall be used in sampling the coarse aggregate.

b. Bituminous Material: The asphalt cement shall be in conformance with Section 2205.3.A. The type and grade of asphalt used shall be specified in the mix design but shall not be lower than a PG 64-22.

c. Preliminary Material Acceptance: Prior to delivery of materials to the job site, the Contractor shall submit certified test reports to the Engineer for the following materials:

   Coarse Aggregate - Percent of wear, soundness.

   Bituminous Material - The certification(s) shall show the appropriate ASTM test(s) for each material, the test results, and a statement that the material meets the specification requirements.

d. Job Mix Formula. (JMF): No bituminous mixture for payment shall be produced until the Engineer has approved a JMF in writing. The method of determining the proper asphalt content is to store the mix trial batches in the laboratory overnight (15-18 hrs) at 140°F. The proper asphalt content will then be selected visually.

   The asphalt content mix is selected from the batch from which a small amount of asphalt drains to the bottom of the pan and the mix still appears glossy. A heat resistant, clear glass dish may be used for better visibility of the drained asphalt. The asphalt content may be varied as necessary during construction to meet this requirement.

   The aggregate shall be of such size that the percentage composition by weight will conform to the gradation of gradations specified in Table 2, when tested in accordance with ASTM C 117 and C 136. The gradation shall be on the coarse side of the Master Band.

TABLE 2. PLANT MIX BITUMINOUS DRAINABLE BASE MASTER GRADATION

Sieve Designation (Square Opening)	Percent by Weight Passing Sieve
1-1/2 in (37.5 mm)	100
1 in (25.4 mm)	90 – 100
3/4 in (19.0 mm)	75 – 100
1/2 in (12.5 mm)	70 – 90
3/8 in (9.5 mm)	50 – 70
No. 4 (4.75 mm)	20 – 40
No. 8 (2.36 mm)	15 – 25
No. 30 (637 um)	5 – 15
No. 200 (75 um)	0 – 3

Recommended Asphalt Cement Content 2.0% – 3.5%

The gradations in Table 2 represent the limits that shall determine the suitability of aggregate for use from the supply source.

The job mix tolerance shown in Table 3 shall be applied to the JMF to establish a job control-grading band. The resulting job control grading band must comply with the Master Gradation criteria.

TABLE 3. JOB MIX FORMULA TOLERANCES (Based on Single Test)

Material	Tolerance Plus or Minus
Aggregate passing No. 4 (4.75 mm) sieve or larger	5.00%
Bitumen*	0.40%
Temperature*	20 degrees F

*Unless otherwise approved by the Engineer.

The aggregate gradation may be adjusted within the limits of Table 2 as directed, without adjustments in the Contract unit prices.

Should a change in sources of materials be made, a new JMF shall be established before the new material is used.

Dry aggregate gradations will be made at least twice daily. The aggregate gradation shall be tested by the Contractor in accordance with ASTM C 117 and C 136 and the results submitted to the Engineer within 24 hours.

The JMF shall be submitted in writing by the Contractor and approved by the Engineer prior to the start of paving operations. The job mix shall have been prepared no more than 12 months prior to submittal and shall include as a minimum:

Percent passing each sieve
Percent of asphalt cement
Asphalt designation and certifications
Mixing temperature
Compaction temperature
Temperature of mix when discharged from the mixer
Percent fractured faces
Percent elongated particles

The Contractor shall submit samples to the Engineer, upon request, for job mix formula verification testing.

e. Testing Laboratory: The laboratory used to develop the JMF formula shall meet the requirements of ASTM D 3666.

C. Underdrains: Underdrains shall consist of the following materials unless otherwise specified in the Plans, Standard Drawings, or Contract Documents.

1. Aggregate: Blanket underdrain aggregate and pipe underdrain aggregate shall be clean or washed

aggregate and conform to requirements of Section 2203.3.A with the following gradations:

TABLE 4. BLANKET UNDERDRAIN AGGREGATE	
Sieve Designation (Square Opening)	Percent by Weight Passing Sieve
1-1/2 in (37.5 mm)	100
1 in (25.4 mm)	90 – 100
3/4 in (19.0 mm)	60 – 90
3/8 in (9.5 mm)	-----
No. 4 (4.75 mm)	20 – 40
No. 8 (2.36 mm)	-----
No. 16 (1.2 mm)	0 – 10
No. 30 (0.6 mm)	-----
No. 50 (0.3 mm)	0 – 7
No. 100 (150 um)	0 – 2

TABLE 5. PIPE UNDERDRAIN AGGREGATE	
Sieve Designation (Square Opening)	Percent by Weight Passing Sieve
1-1/2 in (37.5 mm)	-----
1 in (25.4 mm)	-----
3/4 in (19.0 mm)	100
3/8 in (9.5 mm)	85 – 100
No. 4 (4.75 mm)	-----
No. 8 (2.36 mm)	40 – 60
No. 16 (1.2 mm)	-----
No. 30 (0.6 mm)	5 – 30
No. 50 (0.3 mm)	-----
No. 100 (150 um)	1 – 2

2. Underdrain Pipe

   a. Polyvinyl chloride pipe shall meet the requirements of ASTM F 758/D 3034.
   b. Corrugated Polyethylene Tubing may be used only outside of traffic areas and driving surfaces. The tubing shall be the heavy duty type and shall meet the requirements of AASHTO M 252. In addition, the tubing shall have a minimum pipe stiffness of 30 psi at 10% deflection.
   c. All underdrain pipes shall have a nominal minimum inside diameter of six inches unless shown otherwise on the Plans.
   d. Perforations shall be approximately circular and cleanly cut; shall have nominal diameters not less than 3/16-inch nor more than 3/8-inch; and shall be arranged in at least two rows parallel to the axis of the pipe.
   e. Fittings shall be of the same composition and have the same physical properties as the pipe and shall not restrict flow.

3. Geocomposite Edge Drain

   a. Edge drain shall consist of a plastic core completely surrounded by geotextile. The core shall provide a minimum of 10 percent open area to facilitate water entry or cross flow and shall be composed of plastic which is physically and chemically stable under a normal range of

conditions.

b. The edge drain shall have nominal dimensions of 1 to 1-1/2 inches in thickness and 12 inches in height.

c. The edge drain shall have a minimum flow capacity of 15 gallons per minute per foot of width as determined by ASTM D 4716 when tested under a confining stress of 10 psi or more at a gradient of 0.1 or less.

d. The edge drain shall have a minimum compressive strength of either 7,000 psf at a maximum deformation of 10 percent of the original thickness when tested in accordance with ASTM D 1621, or 8,000 psf at a maximum deformation of 20 percent when tested in accordance with ASTM D 695.

e. Geotextile shall have an apparent opening size (AOS) corresponding to a U.S. sieve number greater than 50 but not exceeding 100.

4. Geotextile: Geotextile for use with pipe and edge underdrains shall be a nonwoven geotextile and shall meet the requirements of Section 2605.2.C.

2203.4 Construction

A. Untreated Compacted Aggregate

1. Subgrade: Prior to placement of base course material the previously prepared subgrade surface shall be cleared of all foreign substances and restored in shape, tolerance and density as specified in Section 2201 entitled "Subgrade Preparation".

2. Material Placement: The material shall be uniformly spread in successive layers to such depth that when compacted, the base will meet the minimum thickness specified. The Contractor may construct the base in any number of layers that he chooses except that in no case shall any individual layer have a compacted thickness of more than 6 inches. Each layer shall be compacted as hereinafter specified before any succeeding layer is placed.

3. After spreading a layer of material, water in an amount sufficient to insure the desired compaction shall be added and uniformly mixed with the aggregate in a manner to prevent segregation. Excess moisture resulting in runoff shall be avoided. If for any reason, the material and subgrade become too wet to permit satisfactory work, they shall be allowed to dry to a moisture content that will permit satisfactory work.

4. The material shall meet the required specifications immediately before compaction operations are commenced. If, for any reason, segregation occurs in excess of 10% variation from the gradation required by this specification or the materials become contaminated, such segregated or contaminated materials shall be removed and replaced with suitable materials at the expense of the Contractor. The limited segregation of 10% variation will be ascertained by a sieve analysis of a minimum 100 pound sample taken from the in-place base course.

5. However, for untreated compacted aggregate base, segregated surface areas may be corrected by adding limestone screenings of such gradation and quantity as required to fill the surface voids and firmly bind the loose material in place. Screenings so used in correcting segregated surface areas will be subsidiary.

6. Shaping and compacting shall be carried on continuously until a true, even and uniform surface of proper grade and cross-section is obtained, and until the density of the complete base is at least 95%

of maximum density as determined by AASHTO T 99. The proper moisture content shall be maintained by wetting the surface as required during shaping and compacting operations. Final rolling shall be accomplished by use of a self-propelled smooth-wheeled roller.

B. Portland Cement Concrete Drainable Base

1. Spreading: The base material shall be spread to the lines and grades shown on the Plans. Any material which becomes mixed with soil or other contaminants shall be removed and replaced with fresh mixture.

2. Compaction: After spreading and/or trimming, the base material shall be uniformly compacted by making a minimum of 2 coverages with a steel wheeled roller meeting the requirements of Section 2205.8.B. The compaction process may be adjusted on the project by the Contractor with approval of the Engineer to assure uniform compaction of the drainable base material. In areas not accessible by the roller, the base material shall be compacted by mechanical hand methods. Compaction must be completed within 2 hours of the time water is introduced to the mixture.

3. If after spreading and compacting the base is not to the required lines and grade, the Contractor shall trim the base by means of an electronically controlled machine utilizing string line controls for grade. The Engineer reserves the right to direct the Contractor to suspend all operations if the Contractor produces excessive fines in the trimming process which are viewed by the Engineer to be detrimental to the permeability of the base. Appropriate corrections to the trimming process shall be made by the Contractor prior to beginning again.

4. After compaction of the drainable base, the Contractor shall protect the surface from damage and/or contamination. If the integrity of the drainable base is disturbed at any time prior to placement of the succeeding pavement course the area shall be removed and replaced with new material and compacted to conform to the original lines and grades at the Contractor's expense. Any removed material shall not be reincorporated into the drainable base or other drainage features.

5. Curing Of The Drainable Base Material: The Contractor will be required to provide a curing plan to the Engineer.

6. Temperature Limitations: The air temperature must be between 50°F and 90°F for drainable base construction. The Engineer may order operations to cease in hot windy conditions if it appears the mixture is drying out prior to achieving initial set.

7. Construction Joints: The formation of all joints shall be made in such a manner as to ensure a continuous bond between old and new sections of the course. All joints shall present the same texture and smoothness as other sections of the course.

8. All contact surfaces of previously constructed courses shall be cleaned of all dirt or other objectionable materials, and thoroughly moistened with water prior to placing the new material.

9. Thickness: The thickness of the base course may be measured by cores taken at intervals determined by the Engineer.

C. Plant Mix Bituminous Drainable Base

1. Test Section: Prior to full production, the Contractor shall prepare and place a section of drainable base according to the JMF. The amount of mixture should be 80 tons and may be placed as part of the

project. The underlying grade or pavement structure upon which the test section is to be constructed shall be the same as the remainder of the course represented by the test section. The equipment used in construction of the test section shall be the same type and weight to be used on the remainder of the course represented by the test section.

2. Two random samples of mixture may be taken at the plant and tested for aggregate gradation and asphalt content. The test section shall be considered acceptable if the gradation and asphalt content are within the limits specified in Tables 2 and 3.

3. If the initial test section should prove to be unsatisfactory to the Engineer, the necessary adjustments to the JMF, plant operation, placing procedures, and/or rolling procedures shall be made. A second test section shall then be placed. If the second test section also does not meet specification requirements, both sections shall be removed at the Contractor's expense. Additional test sections, as required, shall be constructed and evaluated for conformance to the specifications. Any additional sections that do not conform to specification requirements shall be removed at the Contractor's expense. Full production shall not begin until a satisfactory section has been constructed and accepted by the Engineer. The test sections that meet the specification requirements shall be paid for in accordance with project quantities.

4. The Contractor shall perform job mix control testing at the start of plant production and in conjunction with the calibration of the plant for the JMF. It should be recognized that the aggregates produced by the plant may not satisfy the gradation requirements or produce a mix that exactly meets the JMF. In those instances, it will be necessary to reevaluate and redesign the mix using plant-produced aggregates. Specimens should be prepared and the optimum bitumen content determined in the same manner as for the original design tests.

5. Weather Limitations: The bituminous mixture shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than 40 degrees F or the wind chill factor is less than 35 degrees F. The temperature requirements may be waived by the Engineer; however, all other requirements including compaction shall be met.

6. These materials will be placed, handled, hauled and accepted based on requirements of Section 2205.

D. Underdrains

1. General: Underdrains shall be constructed as shown on the Plans or Standard Drawings. The exact location and layout of underdrains and/or edge drains as shown on the Plans shall be subject to revision by the Engineer during construction.

2. Excavation

   a. Trenches for all lateral and longitudinal underdrains shall be excavated to the dimensions, depths and elevations shown on the Plans or Standard Drawings or as ordered by the Engineer. In case of a conflict, where the actual elevation of the strata or stratum to be intercepted is found to vary from Plan elevation, the stratigraphy shall govern in the installation of underdrains.
   b. Trench bottoms for perforated pipe underdrain and edge drain shall be in firm material (no mucky or soupy condition existing) and constructed to permit the placing of three inches (3") of aggregate underneath the pipe. If unstable material is encountered in the bottom of the trench, the trench shall be over excavated to firm material.
   c. Minimum width of trench shall be as shown in the Plans or in the specifications or the

Standard Drawings.

3. Laying Pipe

   a. All underdrain pipe shall be laid carefully to Plan line and grade.
   b. All pipe shall be laid on a minimum grade of one percent unless otherwise shown on the Plans.
   c. All dead ends of pipe underdrains shall be completely closed with a cap of the same material as the pipe.
   d. All junctions and turns shall be made with wyes, tees, and bends as supplied by the manufacturer of the pipe.
   e. Perforations shall be laid down unless otherwise indicated on the Plans.

4. Installing Edge Drain

   a. Installation shall be in accordance with manufacturer's instructions.
   b. Each length of drain shall be joined to the adjacent length prior to installation. Splices shall keep adjoining lengths in proper alignment, shall not separate during installation, shall have the same or greater compressive strength than the geocomposite drain, and shall be sealed against infiltration of backfill material.
   c. Drain shall be placed in the center of the trench and held in place with a temporary support while blanket underdrain aggregate backfill is placed.
   d. The placement of the edge drain and the first lift of backfill shall be accomplished in a single continuous operation.

5. Backfilling

   a. Backfilling the trenches of lateral and longitudinal underdrains shall not be started until approved by the Engineer.
   b. The trenches shall be backfilled to the specified elevations and in accordance with the Plans, specifications or Standard Drawings.
   c. The backfill material shall be placed in such a manner as to prevent formation of large cavities in the backfill and walls of the trench.
   d. Overbreakage due to blasting of rock in trench excavation and widening due to caving of trench walls or overbreakage at construction outcrops shall be backfilled with aggregate approved by the Engineer.

E. Permeability Test Procedure for Drainable Base

This test method is used to determine the permeability of unbound and bound aggregate base material. Bound base material will use Portland cement or asphaltic cement as a cementing agent.

1. Unbound Base and Base Bound with Portland Cement

   a. Apparatus
      i. Mold: A cylindrical metal mold with an approximate inside diameter of 6" and a minimum height of 6". The mold shall be equipped with a removable collar at least 2" in height and a removable base plate. The base plate may be used as part of the permeability test equipment. If so, the base plate must exceed the permeability of the material being tested. A #40 screen shall be placed on top of the base plate to prevent test material from being lost through the base plate during compaction and

permeability testing.

ii. Standpipe: A standpipe with the same diameter as the removable collar for the mold with a minimum height of 8.5". The standpipe shall be equipped with an overflow outlet.

iii. Rammer: A mechanically operated metal rammer equipped to control the height of drop to 12" plus or minus 1/16" above the elevation of the sample. The rammer shall be equipped to distribute the blow uniformly over the sample surface. The rammer shall have a rigid flat faced "pie shaped" foot and a nominal weight of 5.50 lbs. The "pie shaped" foot shall be a sector of 6" diameter circle and shall have an area equal to that of a 2" circular foot.

iv. Straight edge: A rigid steel straight edge with one edge beveled, at least 8" in length.

b. Sample preparation

i. Obtain a 50 lb. to 60 lb. sample, dry if necessary.

ii. Mix a sufficient amount of aggregate and cementing agent, if required, to fill the mold 1 and 1/2 times.

iii. Add the appropriate amount of water and thoroughly mix.

iv. Place the assembled mold on the rigid base and fill approximately 1/2 full of the loose moist material. Compact the layer with 25 blows of the rammer with the blows being distributed uniformly over the surface of the layer. Place three additional approximately equal layers of material in the mold and compact each layer in a similar manner (four layers total).

v. After the fourth layer has been compacted, remove the collar and trim excess material level with top of the mold.

vi. Cure Portland cement treated specimens by covering with plastic, to prevent drying for 3 days at room temperature.

vii. Unbound specimens do not need to be cured before testing.

2. Asphalt Bound Aggregates

a. Apparatus

i. Mold: A cylindrical mold with an inside diameter of approximately 6" and a minimum length of 4.5". The mold is open at each end and is equipped with a removable collar and a base plate about 0.5" thick.

ii. Specimen Mold Holder: The specimen mold holder has a semi-circular base and a flanged top to hold the specimen mold in place during the compaction process. Any equivalent hold down device that performs the same function is satisfactory.

iii. Compaction Hammer: The compaction hammer consists of a hammer having a flat circular tamping face 5.88" in diameter and appropriate extension rod with handle which acts as guide for a free falling weight. The weight shall weigh 22.5 lbs. and have a free fall of 18" plus or minus 0.1". The hammer may be operated manually or be driven with a motor.

iv. Compaction Pedestal: The compaction pedestal is a wood block approximately 12" x 12" x 18". A 12" x 12" x 1" steel plate is securely fastened to the top of the block. The pedestal is set on and securely fastened to a solid concrete slab with the vertical axis plumb and the top level.

v. Heating Equipment: Ovens or hot plates for heating aggregates, bituminous material, specimen molds, compaction hammers and other associated items required for mixing and molding. It is recommended that, when possible all heating units be thermostatically controlled to maintain the required temperature within ±5°F. Suitable shields, thick steel plates or pans of sand shall be used on the surfaces of hot plates to minimize locally overheating.

vi. Mixing Apparatus: Mechanical mixing is recommended. Any type of mechanical mixer may be used provided it will produce a well coated, homogeneous mixture of the required amount in the allowable time and further that the mixing paddle or whip does not fracture or pulverize aggregate fractions during the mixing process. The bowl employed with the mixer shall be such a nature that essentially all of the batch can be removed. More than one mixing bowl is recommended unless the mixer is equipped with a heating jacket to keep the bowl heated during the mixing process.

b. Determination of Mixing and Compacting Temperature
   i. The temperature to which the asphalt cement must be heated to produce a viscosity of 85 ± 10 SFS shall be the mixing temperature.
   ii. The temperature to which the asphalt cement must be heated to produce a viscosity of 130 ± 15 SFS shall be the compacting temperature.

c. Sample Preparation for Laboratory Prepared Mix
   i. Combine the dry individual aggregates to produce desired combined aggregate with a batch weight of approximately 8.9 lbs. This should be sufficient to produce a compacted specimen 3.75 ± 0.125 inches thick. Adjust the weight of the batch as needed to produce a compacted specimen of 3.75 ± 0.125 inches thick.
   ii. Prepare a minimum of two aggregate and asphalt specimens. The first specimen shall be mixed and thrown away. This sample is to "butter" the mixing bowl and paddle and thus reduce material loss when mixing the test specimen.
   iii. Heat the aggregate and asphalt within the limits of mixing temperature determined in Section 2203.4.E.2.b. Charge the mixing bowl with the heated aggregate and form a crater in the top. Add the required amount asphalt and mix the aggregate and asphalt until coated at least 2 minutes. Care should be taken to keep all of the sample in the mixing bowl during this process.

d. Compaction of Specimen
   i. Prior to the addition of the asphalt to the batches, thoroughly clean the specimen mold assembly and the face of the compaction hammer and heat the mold assembly and hammer to a temperature between 200°F and 350°F. Assemble the mold, base plate and collar and place a paper disc cut to size in the bottom of the mold.
   ii. Place the hot batch of aggregate-asphalt mixture in the mold, spade vigorously with a heated spatula or trowel 15 times around the perimeter and 10 times over the interior of the mold. Smooth the surface of the mix to a slightly rounded shape. The temperature of the mix prior to compaction shall be within the limits in Section 2203.4.E.2.b. Place a paper disc on top of the mix.
   iii. Place the mold assembly, including the collar, on the pedestal, fasten securely with the mold holder and apply 20 blows with the compaction hammer. Each blow must have the prescribed free fall of 18" with the axis of the compaction hammer held perpendicular to the base of the mold assembly during the compaction process. Remove the base plate and collar, and reverse and reassemble the mold. Apply the specified number of blows to the reversed specimen. After compaction remove the mold assembly from the pedestal, remove the collar and base plate and cool the specimen in the mold until the mold can be handled comfortably with bare hands. Asphalt treated samples do not need to be cured before testing, only cool to the touch.

3. Test Procedure

   a. Assemble test equipment, base plate, mold with specimen, and standpipe.
   b. Prior to conducting the test, allow a sufficient amount of water to pass through the specimen to cause all air to be expelled from the specimen. (Establish reservoir around the base with

water open to atmospheric pressure.)

c. Conduct Constant-Head Permeability test and report coefficient of permeability "k". Repeat a minimum of two additional times until two runs agree reasonably well.

d. Constant-Head Permeability:

$$k = \frac{QL}{Aht}$$

Q = quantity of water discharged (volume)
L = length of specimen
A = cross-sectional area of specimen
h = hydraulic head (height column of water above discharge)
t = elapsed time of test
k = coefficient of permeability (length/time)

Note: For very permeable material, maintain elevation of water above the sample for 3 minutes then measure Q (flow).

2203.5 Method of Measurement

A. Untreated Compacted Aggregate Base will be measured by one of the following:

1. Per square yard or tenth part thereof for the specified depth.

2. Per ton or tenth part thereof.

B. Portland Cement Concrete Drainable Base may be included in the Contract Documents as a single item or as separate items (Portland Cement and Base Aggregate) and measured by one of the following:

1. Per square yard or tenth part thereof for the specified depth.

2. Per ton or tenth part thereof.

C. Plant Mix Bituminous Drainable Base may be included in the Contract Documents as a single item or as separate items (Asphaltic Cement and Base Aggregate) and measured by one of the following:

1. Per square yard or tenth part thereof for the specified depth.

2. Per ton or tenth part thereof.

D. Pipe and Edge Underdrains will be measured per lineal foot or tenth part thereof. Pipe Underdrain and Edge Underdrain aggregate shall be subsidiary.

E. Blanket Underdrains will be measured by the actual quantities used as follows:

1. Per square yard or tenth part thereof for the specified depth.

2. Per ton or tenth part thereof.

2203.6 Basis of Payment

A. Untreated Compacted Aggregate Base will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

B. Portland Cement Concrete Drainable Base will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

C. Plant Mix Bituminous Drainable Base will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

D. Pipe and Edge Underdrains will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

E. Blanket Underdrains will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

SECTION 2204 PRIME AND TACK COAT

2204.1 Scope

This section governs the furnishing of all labor, materials and equipment for the application of liquid asphalt to a prepared pavement (concrete, asphaltic concrete), or granular base as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions.

2204.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

ASTM
D 140 Practice for Sampling Bituminous Materials

2204.3 Materials

A. The type and grade of asphalt material to be used as prime or tack coat shall be designated by the Engineer in the Plans or in the Special Provisions. If not specified in the Plans or Special Provisions, the Contractor shall

submit proposed type and grade of asphalt material to the Engineer for approval. The liquid asphalt material to be used for surface preparation shall be as listed in the following table:

Material to be Treated	Application Usage	Type of Emulsion of Grade of Cutback	Application Rate (Gal/SY) (L/SM)	Application Temperature ^{0}F (^{0}C)	Cure Time at 70^{0}F (21^{0}C)
Existing Asphalt or Concrete Surface	Tack	RC-70	0.05-0.10 Gal/SY (0.23-0.46 L/SM)	150 – 225 (65 – 107)	1 – 6 hrs
	Tack	SS-1 SS-1h CSS-1 CSS-1h	0.05-0.15 Gal/SY (0.23-0.69 L/SM)	70 – 160 (22.5 – 42)	1 – 3 hrs
Treated Base (lime, flyash, cement)	Prime	MC-30 MC-70	0.1-0.3 Gal/SY (0.46-1.38 L/SM)	85 – 120 (29 – 49)	12 – 24 hrs
	Prime	SS-1 SS-1h CSS-1 CSS-1h	0.1-0.3 Gal/SY/in (0.46-1.38 L/SM/mm)	70 – 160 (20 – 70)	24 – 48 hrs
Untreated Aggregate Base w/ Fines	Prime	MC-30 MC-70	0.1-0.3 Gal/SY (0.46-1.38 L/SM)	85 – 120 (29 – 49)	12 – 24 hrs
Untreated Aggregate Base w/o Fines	Prime	MC-250	0.2-0.5 Gal/SY (0.92-2.30 L/SM)	85 – 120 (29 – 49)	12 – 24 hrs
Untreated Aggregate Base	Prime	SS-1 SS-1h CSS-1 CSS-1h	0.1-0.3 Gal/SY/in (0.46-1.38 L/SM/mm)	70 – 160 (20 – 70)	24 – 48 hrs
	Prime	EAP PAE, or PEP	0.1-0.3 Gal/SY (0.46-1.38 L/SM)	70 – 160 (20 – 70)	12 – 24 hrs

The asphalt material shall conform to the latest ASTM specifications for "Asphalt Cements and Liquid Asphalts." Sampling shall be in accordance with ASTM D 140.

B. Sand Cover, if used, shall be any clean granular mineral meeting the following grading requirements. When tested with laboratory sieves 100% shall pass the No. 4 (4.75 mm) sieve and not more than 2% shall pass the No. 200 (75 um) sieve. The moisture content of the sand shall not exceed 3% by weight.

C. Asphalt materials shall be approved by the Engineer prior to use in the work. The Engineer may accept a certified analysis by the material supplier laboratory when a copy of the certified analysis accompanies each shipment of asphalt to the project. The Engineer reserves the right to perform tests of the asphalt received on the job.

2204.4 Construction

A. Pressure Distributor: The distributor shall be so designed, equipped, maintained and operated that liquid

asphalt at even heat may be applied uniformly on variable widths of surface up to 15 feet at readily determined and controlled rates from 0.02 to 1.00 gallon per square yard, with uniform pressure, and with an allowable variation from any specified rate not to exceed 0.02 gallons per square yard. Distributor equipment shall include a tachometer, pressure gauges, a calibrated tank and a thermometer for measuring temperatures of tank contents. Distributors shall be equipped with a power unit for the pump, and full circulation spray bars adjustable laterally and vertically. The calibration of all distributors must be approved by the engineer, and the contractor shall furnish all equipment, material and assistance necessary if calibration is required.

B. Preparation of Existing Surface

1. For tack coats: The existing surface shall be free of dust, loose material, grease or other foreign material at the time the tack is applied. Preparation of the surface is to be performed by the contractor before the tack is applied and is subsidiary to other items in the Contract.

2. For prime coats: the surface to be primed shall be shaped to the required grade and cross section, shall be free from ruts, corrugations, segregated material or other irregularities, and shall be uniformly compacted by rolling. The surface shall be firm and slightly damp when primer is applied. Delays in priming may necessitate reprocessing or reshaping to provide a smooth compacted surface.

C. Application of Asphalt Material

1. For Tack Coats: Asphalt emulsion shall be applied uniformly with a pressure distributor at the rate specified in the Contract, or as revised by the Engineer to be within a minimum of 0.05 and a maximum of 0.15 gallons per square yard. Water may be added to the asphalt emulsion and mixed therewith in such proportion that the resulting mixture will contain no more than 50% of added water, the quantity of added water to be approved by the Engineer. The application of the resulting mixture shall be such that the original emulsion will be spread at the specified rate. The asphalt emulsion shall be heated at the time of application to a temperature in accordance with the limits provided in Sec 2204.3, or as specified in the Contract Documents. The tack shall be properly cured and the tacked surface shall be cleaned of dirt and other foreign material before the next course is placed.

   The tack coat shall be applied in such manner as to cause the least inconvenience to traffic and to permit one-way traffic without pickup or tracking of the asphalt emulsion.

2. For Prime Coats: Bituminous material shall be applied to the width of the section to be primed by means of a pressure distributor in a uniform, continuous spread. The subgrade shall be moistened before the prime is applied. The application rate shall be as specified in the Contract Documents or as approved by the Engineer between 0.1 and 0.5 gallons per square yard. The primer shall be heated at the time of application to a temperature in accordance with the limits provided in Sec 2204.3, or as specified in the Contract Documents.

   Care shall be taken that the application of bituminous material at overlap locations is not in excess of the specified quantity, per square yard. Building paper shall be placed over the end of the previous applications and the joining application shall start on the building paper. Building paper used shall be removed and satisfactorily disposed of. Pools of primer material remaining on the surface after the application shall be removed.

   When traffic is maintained, not more than one half of the width of the section shall be treated in one application and one-way traffic will be permitted on the untreated portion of the roadbed. As soon as the bituminous material has been absorbed by the surface and will not pick up, traffic shall be routed to the treated portion and the remaining width of the section will be primed.

The primer shall be properly cured, and the primed surface shall be cleaned of dirt and surplus sand before the next course is placed.

D. Application of Sand Cover: If the asphalt material is not completely cured within the maximum specified curing time, sufficient sand shall be spread over the surface with a mechanical spreader to blot up the excess asphalt. The rate of application shall be specified or approved by the Engineer. Prior to placing an asphalt paving course, all loose sand shall be swept from the primed surface.

2204.5 Method of Measurement

Asphalt Prime and Tack Coat will be measured per gallon.

2204.6 Basis of Payment

Asphalt Prime and Tack Coat will be paid for at the Contract unit bid price.

SECTION 2205 ASPHALTIC CONCRETE SURFACE AND BASE

2205.1 Scope

This section governs the furnishing of all labor, materials and equipment for the construction of asphalt concrete base and/or asphalt concrete surface as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions.

2205.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

ASTM

C 88 Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C 117 Test Method for Materials Finer than 75- um (No. 200) Sieve in Mineral Aggregates by Washing
C 127 Test Method for Specific Gravity and Absorption of Coarse Aggregate
C 128 Test Method for Specific Gravity and Absorption of Fine Aggregate
C 131 Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates
C 142 Test Method for Clay Lumps and Friable Particles in Aggregates
D 75 Practice for Sampling Aggregates
D 140 Practice for Sampling Bituminous Materials
D 979 Practice for Sampling Bituminous Paving Mixtures
D 1188 Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Paraffin-Coated Specimens
D 2041 Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures (comparable to AASHTO T209)
D 2172 Test Methods for Quantitative Extraction of Bitumen From Bituminous Paving Mixtures
D 2726 Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
D 2950 Test Method for Density of Bituminous Concrete in Place by Nuclear Methods

D 3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials
D 4552 Practice for Classifying Hot-Mix Recycling Agents
D 4791 Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
D 5444 Test Method for Mechanical Size Analysis of Extracted Aggregate
D 6307 Test Method for Asphalt Content of Hot-Mix Asphalt by Ignition Method
D 6373 Specification for Performance Graded Asphalt Binder

AASHTO
T 166 Standard Method of Test for Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface-Dry Specimens
T 245 Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
T 269 Standard Method of Test for Percent Air Voids in Compacted Dense and Open Asphalt Mixtures (ASTM Designation: D 3203/D 3203M-11)
T 283 Resistance of Compacted Bituminous Mixture to Moisture Induced Damage
T 312 Standard Method of Test for Preparing and Determining the Density of Asphalt Mixture Specimens by Means of the Superpave Gyratory Compactor

Asphalt Institute
"Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types", MS-2, latest edition

Kansas Department of Transportation
Standard Specifications for State Road and Bridge Construction, 2015 Edition

Missouri Highways and Transportation Commission
Missouri Standard Specifications for Highway Construction, 2011 Edition

National Institute of Standards and Technology
Handbook #44, "Specifications, Tolerance and other Technical Requirements for Commercial Weighing and Measuring Devices"

2205.3 Materials

No material shall be used until it has been approved by the Engineer. All costs associated with material testing, certification and the preparation of trial mixes to determine the job mix formula shall be the responsibility of the Contractor. Representative samples of all materials proposed for use under these specifications shall be submitted by the Contractor to a properly certified testing laboratory approved by the Owner, at the Contractor's expense, for testing and the preparation of trial mixes to determine the job-mix formula. Tests required by this specification for field verification of the mix shall be the responsibility of the Contractor at the Contractor's expense, unless specified otherwise. The Engineer reserves the right to perform additional testing to verify conformance with the requirements specified herein. These tests will be performed under the supervision of the Engineer without cost to the Contractor, unless specified otherwise in the Contract Documents.

A. Asphalt: Asphalt cement used in the manufacture of asphalt paving mixtures shall conform to the Performance Graded system. The PG graded material used shall conform to the provincial grade used by the local DOT or as designated by the Engineer. In the Kansas City Metropolitan area, the provincial grade is a PG64-28 but PG 64-22 is commonly used so either is deemed acceptable.

B. These general usage guidelines may not address all project conditions. APWA strongly recommends that the Engineer apply sound pavement design principles when designating mix type and selecting asphalt cement

grade based upon individual project conditions. The Federal Highway Administration makes available LTPPBIND software that will assist with asphalt grade selection for specific projects.

The asphalt cement shall conform to ASTM D 6373. Sampling shall be in accordance with ASTM D 140.

The Contractor or asphalt supplier shall submit a temperature-viscosity chart showing the recommended mix and compaction temperatures for non-modified asphalts, and shall provide the specific gravity of the asphalt.

C. Aggregate: The quality of aggregates used in Asphaltic Concrete shall conform to the following:

Coarse Aggregate (Retained on the No. 4 Sieve)
LA Abrasion (ASTM C 131) ..... 40% loss (maximum)
Soundness using Mag. Sulfate (ASTM C 88, 5 cycles) ..... 18% loss (maximum)
Soundness using Sodium Sulfate (ASTM C 88, 5 cycles)…… ..... 12% loss (maximum)
Total shale, clay, coal and lignite content (ASTM C 142) ..... 1.0% by weight (max)

Fine Aggregate (Passing the No. 4 Sieve)
Organic content ..... 1% maximum
The parent material of manufactured sand must also meet the requirements for coarse aggregate shown above.

Sampling shall be in accordance with ASTM D 75. Gradation analysis shall be in accordance with Standard Method of Test for Material Finer than No. 200 (75 um) Sieve in Mineral Aggregates by Washing, ASTM C 117 and Standard Method Test for Sieve Analysis of Fine and Coarse Aggregate, ASTM C 136. All aggregate quality tests must have been run within 12 months of the submission date of a mix design.

D. Commercial Mix: Providing a commercial mix will only be permitted when specified in the Contract Documents or approved in writing by the Engineer. Contractor shall adhere to the most current State Department of Transportation standard specifications governing commercial mix asphalt for the state the work is being performed in. Example: for Kansas, Standard Specifications for State Road and Bridge Construction, 2015 Edition, Section 611, or for Missouri, Missouri Standard Specifications For Highway Construction, 2011 Edition, Division 400.

2205.4 Mixing and Proportioning

A. Composition of the Mix: Asphaltic concrete mixtures shall consist of Mineral Aggregates and Asphalt Cement within the following limits for the type specified.

	ASPHALTIC CONCRETE-TYPE					
	1-01	**2-01**	**3-01**	**4-01**	**5-01**	**6-01**
Percent by Weight of Total Mixture						
Asphalt Cement	4-6	4-7	4-7	5-7.5		
Aggregate - U.S. Standard						
Square Sieve Size Total Percent Passing by Weight						
1 ½" (37.5 mm)	100	--	--	--	--	--
1" (25.0 mm)	75-100	100	--	--	100	--
¾" (19.0 mm)	60-85	80-100	100	--	95-100	100
½" (12.5 mm)	--	--	85-100	100	--	86-100
3/8" (9.0 mm)	40-65	60-80	70-90	85-100	--	75-100
No. 4 (4.75 mm)	30-50	48-65	50-70	55-75	--	--
No. 8 (2.4 mm)	19-36	35-47	37-47	39-50	28 min	28 min
No. 16 (1.2 mm)	13-26	25-36	26-36	27-38	--	--
No. 30 (0.6 mm)	--	18-30	18-30	19-30	--	--
No. 50 (0.3 mm)	--	12-22	12-22	11-23	--	--
No. 100 (150 µm	4-12	6-14	6-15	6-16	--	--
No. 200 (75 µm)	2-10	3-10	4-10	4-10	2-6	2-6

In addition to the above limits, the difference between the "Percent Passing Square Mesh Sieve" of successive sieve sizes shall not exceed 25 for types 1-01, 2-01, 3-01, and 4-01.

That fraction of material retained on the No. 4 (4.75-mm) Sieve-shall be composed of particles with not less than 75% having two or more fractured faces for asphalt types 1-01, 2-01, 3-01, and 4-01, and not more than 20% by weight of that fraction shall be composed of flat or elongated particles based on a ratio of 5:1 when tested in accordance with ASTM D 4791. For Asphalt Types 5-01 and 6-01 only, the total aggregate (coarse aggregate, fine aggregate, and the material passing the No. 200 sieve (75um) shall contain not less than 85% crushed material for intermediate course and surface course.

It shall be noted that when the gradation varies appreciably from the single point gradation used in the mix design, the test properties of the mix will be out of specification. This condition can occur even though the gradation meets the tolerances below.

The job-mix formula shall be within the limits specified above. The maximum permissible variation from the job-mix formula, within the specification limits, shall be as follows:

Permissible Gradation Variation from Mix Design Percent by Wt. of Total Mix:

U.S. Standard Sieve Size	Type 1-01, 5-01, 6-01	Type 2-01, 3-01, 4-01
No. 4 and larger	5.0	4.0
No. 8, 16, 30, 50	4.0	3.0
No. 200	2.0	1.0

Permissible Oil Content Variation from Mix Design:

Type 1-01, 5-01, 6-01 – 0.5%
Type 2-01, 3-01, 4-01 – 0.3%

B. Asphalt Mix General Usage:

	Surface	Base
Arterial	5-01, 6-01	5-01
Collector	5-01, 6-01	5-01
Local/Access	5-01	5-01
Paved Trail	2-01, 3-01, 4-01, 5-01	1-01.2-01.5-01
Recreational Surface	4-01	1-01, 2-01, 5-01
Parking Lot	2-01, 3-01, 5-01	1-01, 2-01, 5-01

Generally, mix types 1-01, 2-01, 3-01 and 4-01 are composed of local materials and are appropriate for general use other than roadways. **Unless specified otherwise in the Contract, Plans or Special Provisions, only mixes 5-01 and 6-01 should be used for roadways.** The Contractor may submit a written request to use mix 1-01 for pavement base or mix 3-01 for pavement surface.

Mix type 2-01 is acceptable for surfacing, but is generally more open-graded than the other surface mixes, and may not provide a tightly sealed surface.

Mix type 4-01 is very susceptible to rutting and is only recommended for non-vehicular use.

C. Asphalt Hot-Mix Recycling

1. General: Except as modified herein, Recycled Asphaltic Concrete (RAC) shall be equal to that produced as new material. Reclaimed Asphalt Pavement (RAP), Fractionated Reclaimed Asphalt Pavement (FRAP) and/or Reclaimed Aggregate Materials (RAM) shall represent no more than 30% of the composition for all surface mixtures and no more than 40% of the composition for all base mixtures. However, for base mixtures using FRAP, the composition may be no more than 50%.

   Recycled Asphaltic Concrete may contain combinations of FRAP, RAP, RAM, coarse aggregate, fine aggregate, mineral filler, asphalt cement, recycling agent, anti-stripping agent and approved additives to produce an acceptable mixture. Recycled Asphalt Shingles (RAS) are not allowed. Recycled Asphaltic Concretes shall be designated by prefacing the type with “RC,” such as “RC Type 1-01”.

2. FRAP is defined as having two or more stockpiles, where RAP is processed into coarse and fine fractions. The fine FRAP stockpile will contain only material passing the ¼ inch screen. The coarse FRAP stockpile will contain milled material retained on the ¼ inch screen and passing the ¾ inch screen. FRAP may be comprised of coarse or fine FRAP or a combination thereof. Utilize a separate cold feed bin for each stockpile of FRAP used. Do not blend coarse and fine FRAP either in the stockpile or in a cold feed bin. Add FRAP to the mix through the RAP collar. Sources and types FRAP must be recorded and submitted to the Engineer upon request. The FRAP used in production shall be similar in composition (extracted gradation and asphalt content) to the source used for design.

3. Materials Evaluation: All recycled materials shall have the following tests performed in addition to those required in Section 2205.4.D:

   a. A sieve analysis shall be performed on FRAP, RAP and/or RAM in accordance with ASTM C 117, "Standard Test Method for Material Finer than No. 200 Sieve (75 um) in Mineral Aggregates by Washing" and ASTM C 136, "Standard Method for Sieve Analysis of Fine and Coarse Aggregates" after extraction of asphalt.
   b. Asphalt content analysis shall be performed for FRAP or RAP in accordance with Method "A" of ASTM D 2172, "Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures" where the FRAP or RAP content exceeds 30%. For mixtures

with FRAP or RAP contents less than 30%, asphalt content may be determined using ASTM D 6307.

c. The asphalt cement used shall be determined as follows:
   i. For FRAP or RAP contents of up to 20%, the asphalt grade shall be as specified in the mix design.
   ii. For FRAP or RAP contents from 20% up to 30%, the asphalt grade shall be decreased one temperature range. For example, a design PG 64-22 would be decreased to a PG 58-28.
   iii. For FRAP or RAP contents from 30% to 50%, the asphalt grade of the new asphalt shall be determined using the procedures outlined in MS-2, latest edition, Appendix A. This would likely result in a PG 52-34.

d. All sources of material for use in RAC must be approved by the Engineer prior to use.

4. Material Requirements

   a. New asphalt cements added to the aged asphalt shall meet the requirements of Section 2205.3.
   b. Recycling Agents, if used, shall meet the requirements of ASTM D 4552, "Standard Practice for Classifying Hot Mix Recycling Agents".
   c. The FRAP, RAP and/or RAM stockpiled at the plant site shall be maintained in stockpiles separated into surface and base. The RAP and/or RAM shall be processed such that 100% will pass the 1-1/2 inch (38 mm) sieve and 90% will pass the 1-inch (25.4 mm) sieve.
   d. The final product shall be free of foreign matter (e.g., old planer teeth, ice, wood, soil, broken sewer castings, loop detector wire, protective membranes, rubberized joint filler materials and foil turn lane markers, trash, debris, etc.).

5. Mix Design Requirements: The necessary steps for a final mix design for recycled mixtures shall be done in accordance with the Asphalt Institute's Manual MS-2 latest edition in the appendix entitled "Mix Design Using RAP". If there is a change in the RAP and/or RAM percentage from the original amount of RAP and/or RAM in the mix design, a new mix design must be submitted.

6. Asphalt Plant Requirements: All delivery tickets shall designate the type of recycled mix, (RC-Type 1-01, RC-Type 2-01, RC-Type 3-01, etc.).

D. Mix Design Criteria: Laboratory Test Specimen(s) of mixes 1-01, 2-01, 3-01 and 4-01, combined in proportions of the job-mix formula, shall be prepared and tested in accordance with AASHTO T 245 and the volumetric properties of the compacted paving mixtures as calculated by ASTM procedures using Chapter 4 of the Mix Design Methods for Asphalt Concrete and other Hot-Mix Types (MS-2), latest edition, Asphalt Institute referred hereafter as “MS-2”. The Marshall procedure shall be as specified in Chapter 5 of the MS-2.

For mixes 5-01 and 6-01, the procedures outlined in Asphalt Institute’s “Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types (MS-2)”, latest edition, must be used to prepare the asphalt samples for design and quality control testing. The gyratory values for the SuperGyratory Compactor (SGC) to be used for this purpose are $N_{initial}$ = 6, N_{design} = 50, and N_{max} = 75. At $N_{initial}$, the specific gravity of the specimen must be 90.5% or less of G_{mm}, at N_{max} the specific gravity of the specimen must be 98.0% or less of G_{mm}. The Voids in the Mineral Aggregate (VMA) shall be as specified in Chapter 5 of the MS-2.

The material for the theoretical specific gravity (G_{mm} per ASTM D 2041) and the material for the Marshall specimens and Super Gyratory Compactor specimens (pucks) shall be cured at 285+/-5ºF for four hours in a closed oven after the mix is produced in the laboratory. Also, the plant produced mixture shall be tested when the mix is four hours old when preparing a mix design but may be tested when at least two hours old for

production testing. The mixture shall be transported to the laboratory in an insulated container and then stored in a laboratory oven at 285 +/-5°F for the remainder of the curing period. This procedure shall be used when the water-absorption as determined by ASTM C 127 and ASTM C 128 of any aggregate in the mixture exceeds 1.25%. The mixture shall be compacted at 285 +/-5°F. If total mix aggregate absorption exceeds 2.0%, the laboratory may use the G_{mm} dryback option within the test method.

Test requirements and criteria for the paving mixes under these specifications shall be as follows:

Marshall Stability: 1500 lbs. (6672 N) minimum (Types 1-01, 2-01, 3-01, and 4-01)

No. of compaction blows: 50 (Types 1-01, 2-01, 3-01, and 4-01)

Flow: 0.08-0.16 inches maximum (Types 1-01, 2-01, 3-01, and 4-01)

Air Voids:	Percent
Base & Surface (Types 5-01 & 6-01)	3-5
Base & Surface (Types 1-01, 2-01, 3-01, and 4-01)	2-5

Voids filled with asphalt (VFA)	Percent
Types 5-01 & 6-01	65-75

Voids in Mineral Aggregate (VMA) for Types 5-01 & 6-01

(Nominal Max Size as defined in MS-2)	Percent (min.)
3/4" (19 mm)	13
1/2" (12.5 mm)	14
3/8" (9.5 mm)	15

The VMA for Mix Types 5-01 & 6-01 shall be the minimum value allowed. For these mixes, the asphalt content should be just to the left side of the low point on the VMA vs. Asphalt Percent curve, not to the "wet" or right (increasing) side of the curve. Nominal maximum sized as defined in MS-2 means the sieve size where the next smaller sieve size (from Table in Section 2205.4.A) retains at least 10% of the sample.

The VMA requirements shown represent values that may be higher than those obtained in the KC Metropolitan area using locally available materials. The minimum values are values recommended by the Asphalt Institute in MS-2, latest edition, for high quality asphaltic concretes, but may require the use of non-local aggregates. VMA values shown are for 4% air voids and should be used for the design of conventional roadway pavements.

During production, the air voids can be expected to vary plus or minus 1% of the design value of 4%. For Mix Types 1-01, 2-01, 3-01, and 4-01, 3% - 4% air voids may be used for design and production may be allowed to vary plus or minus 1% of the design value.

The ratio of minus 200 (75 um) material to % Effective asphalt cement (P_{eff}) based on the weight of the aggregate shall be between 0.6-1.4 for Mix Types 5-01 and 6-01.

The blend of FRAP, RAP and/or RAM and virgin aggregates or non-recycled asphalts shall be checked for resistance to stripping using AASHTO T 283 to determine if an anti-stripping agent is needed. The index of retained strength shall exceed 75% for Mix Types 1-01, 2-01, 3-01, and 4-01, and 80% for Mix Types 5-01 and 6-01.

E. Sampling and Testing of the Mixture: All Mix Types shall be sampled in accordance with ASTM D 979 and tested in accordance with AASHTO T 245, ASTM C 136, ASTM C 117, AASHTO T 312, AASHTO T 269,

AASHTO T 166, AASHTO T 283, ASTM D 2041, ASTM D 2726, ASTM D 1188, ASTM D 2950, ASTM C 127 and ASTM C 128, as specified herein. The mixtures will be tested for binder content in accordance with ASTM D 2172 or D 6307. The recovered aggregate will be sieved in accordance with ASTM D 5444.

F. Mixture Temperature Requirements: The temperature of the completed mix at the plant and at the paver shall be set by the Contractor/Producer who shall consider hauling and placing conditions, asphalt specifications as set forth in Section 2205.3, and weather limitations set forth in Section 2205.9.B. The temperature of Mix Types 5-01 and 6-01 shall not exceed 315° F at the point of discharge from the asphalt plant.

When the mix is produced in a batch-type plant, the aggregate shall be weighed accurately in the designated proportions to provide the specified batch weight. The temperature of the aggregate at the time of introduction into the mixer shall be determined by the Contractor/Producer, with a tolerance of + or - 25º F. In no case, however, shall the temperature of the mixture exceed the maximum temperature recommended by the manufacturer or supplier of the asphaltic cement (generally 350º F).

G. Control of Mixing Time: The Contractor/Producer shall control mixing time to produce asphaltic concrete that is uniformly and thoroughly coated with asphaltic cement.

H. Preparation of Asphalt Cement: The asphalt shall be heated so that it can be distributed uniformly throughout the mix. For mixing applications, the specified temperature generally will be such that the asphalt viscosity is within the range of 150-190 centistokes and shall not exceed 350º F. The material shall be sufficiently fluid to produce a complete coating on every particle of aggregate within the specified mixing time.

The Contractor/Producer shall maintain calibrated temperature monitoring equipment at the point of discharge from the asphalt plant and at the asphalt tank, and shall supply temperature records upon request.

I. Preparation and Handling of Aggregate: Coarse and fine aggregate shall be stored at the plant in such a manner that the separate sizes will not become intermixed. Cold aggregates shall be carefully fed to the plant in such proportions that surpluses and shortages in the bins will not cause breaks in the continuous operation. When loading aggregate into stockpiles, and into cars, barges, and trucks, the material shall be placed in such a manner as to prevent segregation of aggregate sizes. Stockpiles shall be built in uniform layers not exceeding 5 feet in depth.

1. Samples of coarse and fine aggregate shall be submitted to the Engineer for testing upon request. The Contractor/Producer shall be responsible for the preparation and handling of aggregates to insure that the cold-feed gradations fall within the mix design limits. Cold-feed gradation tests shall be taken as requested by the Engineer.

2. Drying: The aggregate shall be thoroughly dried and heated to provide a paving mix temperature within a tolerance of + or – 25º F of that specified by the approved mix design. The moisture content of the heated and dried aggregate shall not exceed 0.5%. The quantity of material fed through the dryer shall in all cases be held to an amount which can be thoroughly dried and heated.

J. Inspection and Control of Asphalt Mixing Plant

1. Tests: During production the plant shall have the specified tests performed by an approved laboratory. These may include: asphalt (binder) content, aggregate gradation after removal of asphalt, density, stability, % voids, VMA, VFA, theoretical specific gravity, bulk specific gravity, maximum theoretical density, maximum theoretical specific gravity, tensile strength ratio, etc. Properties of the plant produced mix shall be determined using uncompacted mix sampled behind the paver. Laboratories shall be approved if they are:

a. Accredited in accordance with ASTM D3666; and/or
b. Approved for Superpave asphalt testing by the State Highway Department in the state where the plant is located.
    i. The individual performing the test must carry a state certification for Superpave testing.
    ii. The laboratory must have an annual certification by an independent testing agency of all testing equipment used for Superpave mix designs, and must also have the Marshall hammer weight and height of drop certified by that same agency.

2. Availability of test reports: The results of the latest current test report shall be furnished to the Engineer upon request. All test reports shall be kept at the plant, and shall be made available upon request. If the mix is found to be outside of tolerance, or outside the specification limits as specified in Section 2205.4, correction shall be made. Test reports shall be furnished on the appropriate attached "Asphalt Concrete Test" form or a similar form containing equivalent information.

3. Frequency of testing for mixes 1-01 through 4-01: the tests listed in paragraph 1 shall be performed a minimum of once for every 3000 tons of asphalt production (minimum of once per day when the plant has produced at least 200 tons and at discretion of Engineer if less than 200 tons produced) except during initial startup, or whenever the production asphalt fails one of the following conditions at which time they will be tested every 1000 tons until 4 consecutive tests show compliance with the specifications:

    a. Production void content measured at the plant discharge is less than 2% or more than 5%.
    b. Extracted gradation of the production asphalt exceeds the permissible gradation variation for the mix type being produced.
    c. Asphalt cement exceeds the content variation for the mix type being produced.

4. Frequency of testing for mixes 5-01 and 6-01: the tests listed in paragraph 1 shall be performed once per day of production, or every 1000 tons, whichever is less frequent except during initial startup (if less than 200 tons produced testing is at discretion of Engineer); or whenever the production fails one of the following conditions at which time they will be tested every 500 tons, or twice per day of production, whichever is less frequent until 4 consecutive tests show compliance with the specifications:

    a. Production void content measured at the plant discharge is less than 3% or more than 5%.
    b. Extracted gradation of the production asphalt exceeds the permissible gradation variation for the mix type being produced.
    c. Production VMA measured at the plant discharge is below the design minimum VMA.
    d. Production VFA measured at the plant discharge is outside the allowable range.
    e. Production dust to binder ratio is outside the allowable range.

5. Redesign of Asphalt mixes: If four consecutive tests performed as described in paragraph 3 or 4 above show noncompliance with the specifications as enumerated in the subparagraphs of paragraph 3 or 4 above, production of that type of asphalt will immediately cease, and may not be resumed until a new mix design is submitted and approved, or the plant can demonstrate to the Engineer an ability to meet specifications. Resumption of asphalt production after a mix redesign or failure of four consecutive tests to meet specifications will be treated as an initial startup for testing purposes.

MARSHALL ASPHALTIC CONCRETE TEST (Verified Mix Design)
(Types 1-01, 2-01, 3-01, 4-01)

Description:				
APWA Type:				
LAB ID:		LOT		
Sample Date:		Belt		Tons
Sample ID:		Hot Mix		Tons
Supplier:				

Sieve Size	Belt Sample	Hot-Mix Sample*	Single Point Job-Mix Formula	Job-Mix Formula Tolerances
1" (25 mm)				
3/4" (19 mm)				
1/2" (12.5 mm)				
3/8" (9.5 mm)				
No. 4 (4.75 mm)				
No. 8 (2.36 mm)				
No. 16 (1.18 mm)				
No. 30 (600 um)				
No. 50 (300 um)				
No. 100 (150 um)				
No. 200 (75 um)				

ASTM C 136, C 117, D 5444

*Uncompacted Behind Paver
**total mix basis
***total aggregate

EXTRACTION DATA - ASTM D6307 or D 2172	FRAP	Sample	Plant Setting	Recycled AC%
%AC**				
%AC**				

Aggregate Type	%***	Aggregate Type	%***

MARSHALL CHARACTERISTICS (ACCEPTANCE CRITERIA)			
Compaction Blows (average of 3 specimens) = 50			
	Sample*	Specifications*	
Stability, lbs (kg)		Min	AASHTO T 245
Flow, 1/100 in (mm)		Max	AASHTO T 245
% Voids		3-5	
% VFA			
Density, pcf (kg/cu.m)		-----	ASTM D 2950, D 2726, or D 1188
Max Theoretical Specific Gravity G_{mm}		-----	ASTM D 2041
Bulk Spec. Gr. of total Agg. Gsb		-----	ASTM C 127 & C 128
COMMENTS:			

LOT DENSITY SHALL BE TIED TO THE LOT AND DATE (Laboratories shall conform to ASTM D 3666)

SUPERPAVE ASPHALTIC CONCRETE TEST (Verified Mix Design)
(Types 5-01, 6-01)

Description:				
APWA Type:				
LAB ID:			TIME	TONS
Sample Date:		Belt		
Sample ID:		Hot Mix		
Supplier:				

Sieve Size	Belt Sample	FRAP/RAP Sample*	Hot-Mix Sample*	Master Grade Limits	Cal. Single Point
1" (25 mm)					
3/4" (19 mm)					
1/2" (12.5 mm)					
3/8" (9.5 mm)					
No. 4 (4.75 mm)					
No. 8 (2.36 mm)					
No. 16 (1.18 mm)					
No. 30 (600 um)					
No. 50 (300 um)					
No. 100 (150 um)					
No. 200 (75 um)					

ASTM C 136, C 117, D 5444

*Uncompacted Behind Paver
**total mix basis
***total aggregate

EXTRACTION DATA - ASTM D6307 or D 2172	FRAP	Sample	Plant Setting	Recycled AC%
%AC**				
%AC**				

Aggregate Type	%***	Aggregate Type	%***

VOLUMETRIC DATA 6" NOMINAL SIZE Gyratory Specimens			
Gyrations (avg. of 2 specimens) @ 280-290 deg F – AASHTO T312 N_{des} = 50 N_{ini} = 6 N_{max} = 75	Sample*	Specifications*	
Mix bulk specific gravity @ N_{des}, G_{mb}		---	
% Voids @ N_{des}		3.0-5.0	AASHTO T 269
% VMA @N_{des}, G_{sb} basis			
% VFA @ Ndes		9.0–11.0	=%VMA-%Voids
% G_{mm} @ Nini		85-91	AASHTO T 166
Ratio (-) 75 um (No. 200) to % Eff. Binder		0.6-1.4	
Tensile Strength Ratio, %		80 minimum	AASHTO T 283
Max Theoretical Specific Gravity G_{mm}		-----	ASTM D 2041
Max Theoretical Density, pcf		-----	
Effective Specific Gravity Agg., G_{se}		-----	
Bulk Specific Gravity of Total Agg., G_{sb}		-----	ASTM C 127 & C 128
Specific Gravity of Asphalt, G_b		-----	
COMMENTS:			

2205.5 Asphalt Mixing Plant

Plants used by the Contractor for preparation of the asphalt paving mix shall conform to the following requirements:

A. Field Testing Laboratory: The Contractor shall provide a laboratory building or room at the plant site, for the exclusive use of the Engineer for performing tests, keeping records, and making reports at such times as the Engineer is performing those actions.

The Contractor shall also furnish necessary laboratory sieves and a powered shaker device for sieve analysis, scales, ignition oven and supplementary equipment to make aggregate sieve analysis, asphaltic concrete paving mixture analysis, and paving mixture density tests. This equipment shall be in good working condition and properly calibrated.

B. The asphalt producer shall establish a quality control plan and shall maintain records. The quality control plan required by the state highway agency is a suggested standard. Upon request by the Engineer, the quality control plan shall be submitted for review and approval.

2205.6 Transportation of Mix

The mix shall be transported to the job site in vehicles with tight metal bottoms, clean of all foreign material which may affect the mix. If a release agent is used, it must comply with State and Federal environmental regulations.

The dispatching of the vehicles shall be so scheduled that all materials delivered may be placed in daylight unless the Engineer approves artificial light. Delivery of the material to the paver shall be at a uniform rate and in an amount within the capacity of the paving and compacting equipment.

Haul trucks shall be provided with covers of sufficient size and weight to completely cover the truck bed to protect the load and to prevent cooling of the upper surface. Failure to have the load completely covered shall be sufficient cause for rejection of the entire load. The load shall remain covered until the truck is next in line to be unloaded. In no case shall a load remain uncovered for more than 10 minutes before starting to use the load. If for any reason there is a delay in completely using a load, the remaining part of the load shall be recovered until it can be used. It shall be the responsibility of the Contractor to inform all truck drivers of these provisions before starting work.

2205.7 Scales and Weighing of Vehicles

The vehicle's tare and gross weight shall be established by weighing the vehicle on a certified scale. The tare weight will be established at least twice each day. The vehicle, when establishing tare, shall be clean, bed empty, fuel tanks filled and shall have all side and back boards in place.

A. Measurement by weight: Measurement will be made by weighing each truck load on scales conforming to the requirements of Section 2205.7.B “Vehicle Scales”.

B. Vehicle Scales: Vehicle scales shall be approved by the Engineer and shall conform to the requirements specified herein. The specifications, tolerances, and other technical requirements for weighing and measuring devices as recommended by the National Conference on Weights and Measures and published in the National Institute of Standards and Technology Handbook 44, Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices, and supplements thereto or revisions thereof, shall apply to all vehicles scales used.

C. Scale acceptance shall be based on one of the following:

1. A valid certification or seal of approval by the Division of Weights and Measures from the state.

2. A certification of calibration from a commercial scale service company showing that the scale meets the requirements of these specifications. The Contractor shall furnish the certification of calibration to the Engineer.

D. Scale Calibration: Scales shall have been calibrated within the nine month period prior to any material being delivered, or at any time the Engineer has cause to question the accuracy of the scale. Scales shall meet the requirements of Accuracy Class III L as defined in Handbook 44 (above).

Verification of a vehicle scale may be required by weighing a hauling unit on another recently calibrated and certified scale.

If equipment to be weighed is of such length that all axles cannot be weighed simultaneously, a level paved surface shall be provided permitting those axles not on the scale platform to be supported by the paved surface. The approach shall be at least as wide as the platform and of sufficient length to insure the level positioning of vehicles during weight determinations. The weighing shall be performed with all brakes released. If equipment to be weighed is equipped with an air bag suspension unit on any axle, the equipment including semi-trailers or pup trailers shall be weighed on vehicle scales of sufficient size to weigh all axles of the combination simultaneously.

All costs incurred in obtaining a certification of calibration or verification shall be borne by the Contractor.

2205.8 Asphalt Paving Equipment

All asphalt paving equipment used by the Contractor shall meet the requirements of this section and shall be maintained in acceptable mechanical condition. Equipment shall be serviced and lubricated away from the paving site. Units that drip fuel, oil, grease or other fluids shall be removed from the project until such leakage is corrected.

A. Pavers and Laydown Machines: Mechanical self-powered pavers shall be capable of spreading the mix within the specified tolerances, true to the line, grade and crown indicated on the Plans.

Pavers shall be in good working condition, equipped with quick and efficient steering devices and shall be capable of traveling both forward and in reverse. They shall be equipped with hoppers and distributing screws that place the mix evenly in front of the adjustable screeds. They shall be equipped with either a vibrating screed or a tamping bar immediately preceding a static screed. There shall be sufficient auxiliary attachments for the paving machine so that it may be operated to lay the necessary width as determined in the field by the Engineer. Vibrating screed or tamp bars shall be provided for the full width of all paving operations.

The screed shall include a strike-off device which is effective on mixes at workable temperatures without tearing, shoving or gouging them, and which produces a finished surface of an even and uniform texture. The screed shall be adjustable as to the height and crown and shall be equipped with a controlled heating device for use when required. However, for irregular width paving, hydraulic extensions without tamping bars or a vibrating screed may be used only along the curb or outer edge of pavement.

1. Automatic Screed Controls: The paver shall be equipped with and use an approved system capable of automatically controlling the elevation and transverse slope of the paver screed unless otherwise directed by the Engineer. An erected stringline, traveling stringline or other approved device operating on the roadbed being paved or the surface of the previously placed lane shall be used to establish the grade reference. The grade reference device shall operate on either or both sides of the paver as

required and shall be capable of maintaining the desired transverse slope regardless of changes in the screed elevation.

2. The traveling stringline shall be constructed in such a manner that it does not vibrate or cause the sensor to make erroneous readings during the laydown operation. The length of the beam to be used shall be approved by the Engineer and shall be between 20 feet and 40 feet.

3. The use of the automatic screed control devices on asphalt pavers will not be required for paving small irregular areas, entrances, approaches, or side street connections.

4. Automatic screed control devices will be required for matching the joint with all previously laid strips, except for those areas noted above.

B. Rollers: Compaction equipment shall consist of vibratory steel wheel, static steel wheel and pneumatic-tired rollers unless otherwise directed by the Engineer. They shall be self-propelled and equipped with such controls that starting, stopping and reversing direction can be accomplished without displacing the hot asphaltic concrete pavement.

Rollers shall be equipped with adjustable scrapers to keep the wheel surfaces clean and with efficient means of keeping them wet to prevent mixes from sticking. The roller surfaces shall have no flat areas, openings or projections that will mar the surface of the pavement.

1. Steel-Wheeled Rollers: Steel-Wheeled Rollers shall be self-propelled, vibratory two-axle tandem rollers. These rollers shall develop contact pressure of 250 to 350 pounds per inch of width (vibratory mode) or 150 to 180 pounds per inch of width (static). Rollers shall be in good working condition.

2. Pneumatic-Tired Rollers: Heavy pneumatic-tired rollers shall be self-propelled and shall consist of two axles on which are mounted an odd number of pneumatic-tired wheels. The roller shall have at least nine pneumatic-tired wheels mounted in such a manner that the rear group of wheels will not follow in the tracks of the forward group, but shall be spaced to give essentially uniform coverage with each pass. Axles shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading. Tires shall be smooth, inflated to 90 psi. Construction of the roller shall be such that each wheel is loaded to a minimum of 2,300 pounds.

3. In lieu of the above requirements, consideration will be given to use other types of equipment that are capable of producing equivalent results consistent with the requirements of the specifications. Any roller not meeting the requirements of paragraphs 1 and 2 above must be approved by the Engineer prior to use.

C. Pressure Distributor: The pressure distributor shall meet the requirements of Section 2204.4.A entitled "Pressure Distributor".

D. Hand Tools: The Contractor shall provide sufficient lutes, rakes, shovels, and other equipment as required to produce results consistent with the specifications.

2205.9 Construction

A. Preparation of the Area to be Paved: The area to be paved shall be true to line and grade, and shall have a properly prepared surface prior to the start of the paving operations. It shall be free from all loose or foreign material.

Where a base is rough or uneven, a leveling course shall be placed and properly compacted before the placing of subsequent courses.

When leveling course is not required, depressions and other irregularities shall be patched or corrected, and the work approved by the Engineer before the paving operation begins.

The area to be paved shall be primed or tacked uniformly in accordance with the provisions of Section 2204 entitled "Prime and Tack Coat".

The surfaces of curbs, gutters, vertical faces of existing pavements and all structures in actual contact with asphalt mixes shall be painted with a thin, complete coating of tack to provide a closely bonded joint.

B. Weather Limitations: When the moisture of the aggregate in the stockpile or from the dryer interferes with the quality of mix production, or with normal plant operations, the mixing and placing of hot-mix asphalt will not be permitted without the permission of the Engineer. No mixture shall be placed on wet or frozen surface.

Hot Mix asphalt paving shall not be mixed or placed when the ambient air or base temperature is below the temperatures shown in the following table, or when there is frost in the subgrade or any other time when weather conditions are unsuitable for the type of material being placed without expressed approval of the Engineer.

Paving Course	Thickness (inches)	Air Temperature (Degrees F)	Road Surface Temperature (Degrees F)
Surface	All	50	55
Base	Less than 3	40	45
Base	3 or more	30	35

All bituminous mixtures shall be delivered to the paver at a temperature sufficient to allow the material to be placed and compacted to the specified density and surface tolerance. Minimum allowable temperature for the asphalt mix to be placed into the paver is 235º F. Regardless of the temperature, final acceptance of the asphalt mat shall be based on density determined in accordance with Section 2205.9.E.

C. Spreading and Finishing: The spreading and finishing of each course shall be to the thickness, cross slope, and width indicated on the Plans or Special Provisions. The thickness of individual layers shall not exceed the following for the respective type of mixture. The suggested minimum lift thickness shall be three times the nominal maximum size of the mix. Nominal maximum is defined as the first sieve size larger than the sieve which retains at least 10% of the aggregate by weight.

Asphalt Type	**Max. Compacted Lift Thickness**
Type 1-01	4"
Type 2-01	4"
Type 3-01	3"
Type 4-01	2"
Type 5-01	4”
Type 6-01	3”

Spreading and finishing shall be conducted in the following manner:

1. Mechanical Pavers: The base and surface courses shall be spread and struck-off with a mechanical paving machine meeting the requirements of Section 2205.8.A entitled "Pavers and Laydown

Machines". The paving machine shall be operated so that the material does not accumulate and remain along the sides of the receiving hopper. The wings of the spreader hopper shall not be emptied (flipped) between truck loads.

a. Equipment which leaves tracks or indented areas which cannot be corrected in normal operation, or which produces other permanent blemishes or fails to produce a satisfactory surface, shall not be used.
b. The screed auger shall be operated approximately 3/4 full and the hopper conveyor shall not be allowed to run out of material during the paving operation. Sufficient trucks shall be used to continuously supply asphalt to the paver. Delays in the paving operation shall be kept to a minimum.
c. When using pavers in echelon, the second paver shall follow the edge of the material placed by the first paver. The length of each laydown pass shall be limited, depending on weather conditions, to assure a hot joint and obtain proper compaction.

2. Longitudinal joints and edges shall be constructed to true lines. Lines for the paver to follow in placing individual lanes will be established parallel to the centerline of the proposed roadway. The paver shall be positioned; and operated to follow closely the established line. Offset the longitudinal joint in successive courses by 6 to 12 inches. Longitudinal joints in the final surface layer shall be at the lane lines of the traveled way, but shall be offset to prevent lane separation pavement markings from falling on the joint. Any irregularities in alignment left by the paver shall be corrected directly behind the paver, prior to compaction. Distortion of the pavement during this operation shall be avoided. Edges against which additional pavement is to be placed shall be placed on a 30º (2:1) bevel, or as specified by the Engineer.

3. Transverse joints in succeeding courses shall be offset at least 2 feet.

4. The Contractor shall make every effort to minimize the number of passes heavy equipment makes over uncompleted roadway sections. The Contractor shall schedule and route his hauling operation to minimize hauling over a final course as much as feasible.

5. As soon as the first load of material has been spread, the texture of the unrolled surface shall be checked to determine its uniformity. Segregation of materials shall not be permitted. If segregation occurs, the spreading operation shall be immediately suspended until the cause is determined and corrected by the Contractor.

6. Any irregularities in the surface of the pavement course shall be corrected directly behind the paver. Excess material forming high spots shall be removed by a shovel or lute. Indented areas shall be filled with hot mix and smoothed. Broadcasting of material shall not be permitted.

7. Hand Spreading: In small areas where the use of mechanical finishing equipment is not practical, the mix may be spread and finished by hand. The material shall be distributed uniformly to avoid segregation of the coarse and fine aggregate. Broadcasting of material shall not be permitted. During the spreading operation, all material shall be thoroughly and uniformly distributed by lutes or rakes. Material that has formed into lumps and does not break down readily shall be removed. Following placing and before rolling, the surface shall be checked with templates and straightedges and all irregularities corrected.

D. Compaction

1. General: The Contractor is responsible for development of a compaction procedure that will obtain the

required density. A minimum of three rollers shall be used for compacting mixes on roadways (2 steel drum and 1 pneumatic tire) unless otherwise approved by the Engineer. For uses other than roadways, a minimum of two rollers shall be used unless otherwise approved by the Engineer. Rollers shall meet the requirements of Section 2205.8.B entitled "Rollers".

Immediately after spreading, each course of the pavement mixture shall be uniformly compacted by rolling. The initial or "breakdown" rolling shall be accomplished with a steel-wheeled vibratory roller and shall take place as closely behind the laydown machine as the temperature and condition of the mat will allow. The pneumatic-tired roller shall be used to knead and compact the pavement mixture following the initial rolling and preceding the final rolling. Care shall be exercised in the use of the pneumatic-tired roller to ensure that the pavement mixture is sufficiently cooled to avoid "picking up" of the mixture on the tires of the roller, and also to ensure that the pneumatic-tired rolling is completed before the mixture becomes too cool to allow satisfactory finish rolling. Final, or finish rolling, shall be done with a steel-wheeled roller in static mode. The sequence of rolling operations may be changed with the approval of the Engineer. Rolling shall be longitudinal, starting near the low or unconfined edge of the pavement, then to the other edge and finally progressing towards the center. Alternate trips of the roller shall be of slightly different lengths.

The motion of the roller shall be slow enough at all times to avoid displacement of the hot mixture (generally 3mph). Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected immediately by the use of rakes and fresh mixture when required. To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened, but excess water will not be permitted.

The surface of the mixture after compaction shall be smooth and true to established section and grade. Any surface which is segregated, or is in any way defective, shall be removed and replaced with fresh hot mixture at the Contractor's expense, and shall be immediately compacted to conform to the surrounding area.

2. Rolling Procedure: The Contractor is responsible for determining an acceptable rolling procedure that will provide a product that is uniformly compacted to the required density and true to line and grade. There are many possible variations that may accomplish this but the general order for rolling is:

   a. Transverse joint
   b. Longitudinal joint (if in echelon)
   c. Unconfined or low side edge
   d. Other edge
   e. Middle
   f. Intermediate rolling; same procedure as breakdown rolling but pneumatic roller should stay the thickness of the lift from the free edge
   g. Finish rolling

   When paving in echelon, 2-3 inches of the first mat shall be left unrolled, and rolled when the joint between the lanes is rolled, after the 2nd mat is placed. Edges shall not be exposed more than fifteen minutes without being rolled. Particular attention shall be given to the construction of transverse and longitudinal joints in all courses.

   In laying a surface mix adjacent to any finished area, it shall be placed sufficiently high so that, when compacted, the finished surface will be true and uniform. Where the grade is slight a level will be used to insure drainage to the desired outlet.

3. Transverse joints: The Contractor shall use a method of making a transverse construction joint that provides a thorough and continuous bond with acceptable surface texture and meeting the density requirements. The surface elevation should not vary more than 3/16" in 10' when tested across the joint. If the joint has been distorted, it shall be trimmed to a line. The joint face shall be tacked before the fresh material is placed against it.

4. Longitudinal joints: When paving against existing asphalt pavement, the edge to be joined shall be tack coated. The paver screed shall be set to overlap the first mat by 1-2 inches. The elevation of the screed above the surface of the first mat should be equal to the amount of roll-down expected during compaction of the new mat. For large aggregate mixes, the coarse aggregate in the material overlapping the cold joint should be carefully removed and wasted, leaving only the finer portion of the mixture. The overlapping material should be pushed with a lute or rake onto the side of the joint where the new pavement is located prior to compaction.

   When paving against existing concrete pavement, curb and gutter or other structure, the edge to be joined shall be tack coated. The elevation of the screed above the surface of the first mat should be equal to the amount of roll-down expected during compaction of the new mat. Where drainage of stormwater will flow from the new mat onto abutting curb and gutter, add an additional ⅛" - ¼" of thickness to the new mat.

5. Breakdown Rolling: Steel wheel rollers as specified in Section 2205.8.B entitled "Rollers" shall be used for breakdown rolling. Breakdown rolling shall be performed as close behind the paver as necessary to obtain adequate density without causing undue displacement. The breakdown roller shall be operated with the drive wheel nearest the laydown machine. Exceptions may be made by the Engineer when working on steep slopes or super-elevated curves. Breakdown rolling sequencing is to be determined by the Contractor and approved by the Engineer.

6. Intermediate Rolling: Pneumatic-tired rollers as specified in Section 2205.8.B entitled "Rollers" shall be used for intermediate rolling unless otherwise approved by the Engineer. The intermediate rolling shall follow the breakdown rolling as closely as possible and while the paving mix is still of a temperature that will result in maximum density from this operation. Pneumatic-tired rolling shall be continuous after the initial rolling until all of the mix placed has been compacted to the required density. Turning of pneumatic-tired rollers on the hot paving mix which causes displacement shall not be permitted.

7. Finish Rolling: The finish rolling shall be accomplished before the material falls below a temperature of 175º F to allow for the removal of roller marks. All roller marks shall be removed by the finish rolling operation. All rolling operations shall be conducted in close sequence.

8. In places inaccessible for the operation of standard rollers as specified, compaction shall be performed by others means meeting the requirements of Section 2205.8.B entitled "Rollers." The Contractor shall ensure that the material is thoroughly compacted to the satisfaction of the Engineer. If approved by the Engineer, hand tamping, manual or mechanical, may be used in such areas, if the required density is met.

E. Density and Surface Requirements: The completed asphalt concrete paving shall have a density equal to or greater than 95% for Types 1-01 and 5-01 Asphalt Concrete Base and 96% for Types 2-01, 3-01, 4-01, 5-01, and 6-01 Asphalt Concrete Surface. Density is based on the density of laboratory specimens from plant produced mix prepared as specified in Section 2205.4.D entitled "Mix Design Criteria" and made from a sample representing the material being tested. Density testing shall conform to ASTM D 2950, ASTM D 2726, or ASTM D 1188.

If cores are used to determine density, one or more tests (one test equals three cores) will be taken for each tonnage lot and averaged to determine acceptance. The cores will be taken from random locations within the lane being paved, a minimum of 1' from any joint or edge. The Engineer will mark the locations of all cores.

All unsatisfactory work shall be repaired, replaced or corrected. The surface of the final course shall be of a uniform texture and conform to line and grade shown on the Plans. Allowable tolerance for the final surface of roadway pavement shall conform to the requirements of Section 2211 entitled "Smoothness". Tests for Plan grade conformance and surface smoothness shall be performed by the Contractor in the presence of the Engineer. Tests shall be performed at intervals as directed by the Engineer.

2205.10 Method of Measurement

Asphaltic concrete base, asphaltic concrete surface, or asphaltic concrete base and surface may be included in the Contract Documents as separate items, or as a single item, and may be measured by one of the following:

A. Per square yard or tenth part thereof for the specified depth.

B. Per ton or tenth part thereof.

C. If pavement smoothness is required in the Contract, payment shall be in accordance with Section 2211.

2205.11 Basis of Payment

Asphaltic Concrete Surface, Asphaltic Concrete Base, or Asphaltic Concrete Base and Surface whether used for paving, patching, or leveling courses will be paid for by one of the following:

A. Contract unit bid price.

B. Contract lump sum bid price.

C. Testing described in Section 2205 is subsidiary to the price bid for asphalt unless otherwise provided for in the Contract.

SECTION 2206 ASPHALT CRACK SEALING, ASPHALT CRACK FILLING, CHIP SEALING, SLURRY SEALING, AND MICRO-SURFACING

2206.1 Scope

This section governs the furnishing of all labor, materials and equipment for the performance of asphalt crack sealing, asphalt crack filling, chip sealing, slurry sealing and micro-surfacing as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions.

2206.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

ASTM

C 88 Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C 117 Test Method for Materials Finer than 75- um (No. 200) Sieve in Mineral Aggregates by Washing
C 131 Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates
C 142 Test Method for Clay Lumps and Friable Particles in AggregatesD 36 Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
D 140 Practice for Sampling Bituminous Materials
D 242 Standard Specification for Mineral Filler For Bituminous Paving Mixtures
D 244 Standard Test Methods for Emulsified Asphalts
D 946 Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction
D 977 Standard Specification for Emulsified Asphalt
D 1073 Standard Specification for Fine Aggregate for Bituminous Paving Mixtures
D 2027 Standard Specification for Cutback Asphalt (Medium-Curing Type)
D 2028 Standard Specification for Cutback Asphalt (Rapid-Curing Type)
D 2397 Standard Specification for Cationic Emulsified Asphalt
D 2419 Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
D 3381 Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction
D 3910 Standard Practices for Design, Testing, and Construction of Slurry Seal
D 5078 Standard Specification for Crack Filler, Hot-Applied, for Asphalt Concrete and Portland Cement Concrete Pavements
D 6372 Standard Practice for Design, Testing, and Construction of Micro-Surfacing
D 6690 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

AASHTO

T 53 Softening Point of Bitumen (Ring-and-Ball Apparatus)
T 59 Testing Emulsified Asphalts
M 208 Standard Specification for Cationic Emulsified Asphalt

ISSA Bulletin #139 “Test Method to Classify Emulsified Asphalt/Aggregate Mixture Systems by Modified Cohesion Tester Measurement of Set and Cure Characteristics”

Manual of Uniform Traffic Control Devices, latest Edition (MUTCD)

2206.3 Crack Sealing/Filling

A. Crack Sealant Application: Material used for crack sealing shall be a modified asphalt product selected to be compatible with the environment of application and found to meet the criteria of ASTM D 6690 with a modified resilience value between 30 and 60 percent, or material meeting the requirements of ASTM D 5078. Crack Sealing shall be understood to be the process of placing an asphaltic material into and/or above working cracks to prevent the intrusion of surface water and/or incompressibles into the crack. A working crack shall be understood to correspond to cracks that sustain more than 0.1 inch of movement during the course of the year.

B. Crack Filling Application: Material used for crack filling shall be a viscosity graded AC-20 asphalt product meeting the criteria of ASTM D 3381 Table 1, a penetration-graded asphalt product having a penetration number in the range of 85-100 measured in accordance with ASTM D 946, or material meeting the criteria of ASTM D 5078. Crack filling material may contain polyester or polypropylene fibers.

C. Material satisfying the criteria of a crack sealant may also be used as a crack filling material. Crack filling shall

be understood to be the process of placing an asphaltic material into non-working cracks to substantially reduce water infiltration and reinforce adjacent cracks. Crack filling materials shall not be used for sealing pavements in preparation for an overlay.

D. Equipment

1. Router: This machine shall be an impact cutter head with a minimum of 6 tungsten-carbide cutters. The router blades shall be driven with a minimum 25-hp gasoline engine.

2. Compressor: The compressor shall be a two-stage compressor rated as a minimum 40 CFM unit capable of delivering compressed air to the nozzle at a minimum pressure of 100 psi. The compressor shall be equipped with a filter trap to eliminate oil and moisture from the air line.

3. Hot-Air Lance (HCA): The hot air lance shall be capable of delivering super-heated air at an exit temperature in excess of 1500 degrees F and at a velocity in excess of 1000 ft/sec against the side walls of the crack. The hose shall be wrapped with reflective tape to keep hoses together and to protect workers in low light situations.

4. Melter/Applicator

   a. The melting pot shall consist of double-boiler type jacket and shall be equipped with a full sweep agitator that promotes proper mixing and maintains uniform heat distribution throughout the melting pot. The melting pot shall have sufficient capacity of the heat transfer oil reservoir that heat transfer oil is able to come in contact with 100 percent of the outside area of the jacket. The melting pot shall be equipped with a drain plug to permit 100% of the heat transfer oil to drain from the boiler. The heat transfer oil shall consist of ISO grade 68.
   b. The heat transfer oil shall be heated with a properly sized vapor fuel LP or diesel fuel burner. The heat shall be applied directly to the bottom of the heat transfer tank. The burner shall be lit by an electric spark igniter controlled by a sensor, which detects a lack of burn or ignition and subsequently shuts down the fuel supply. The unit must be capable of starting at ambient temperature and bringing the sealant up to the required applications temperature within the period of approximately one hour while continuously agitating and recirculating the sealant. The unit shall have the capability of independently monitoring both the transfer oil and melting pot temperatures. The unit shall be capable of heating a variety of application materials within a range of temperatures between 200 º F and 425 º F. The sealant should not be heated to a temperature in excess of that specified by the manufacturer.
   c. The agitator and material pump shall be actuated by hydraulic motors driven by a single, pressure-compensated hydraulic pump. Hydraulic fluid should only be pumped to the agitator or material pump motor on demand.
   d. The sealant shall be applied to the pavement through an application system consisting of a pressure feed hose and wand. The hose shall be specially manufactured to handle liquid asphalt products up to 450 º F at 350 psi working pressure. The hose shall not be less than 15 feet in length. The hand wand shall be constructed of steel of sufficient strength to withstand normal day-to-day operations. Material flow through the wand shall be controlled with a toggle switch. A squeegee shall be used to distribute the asphalt evenly and uniformly in the recommended configuration.
   e. All equipment shall be in good working order, as determined by the Engineer, on a day-to-day basis. The Engineer shall not be responsible for payment of labor or rental charges on days when the equipment is not in good working order.

E. Preparation

1. Crack sealing shall be limited to working, transverse and longitudinal cracks that are more than 1/8-inch in width. Cracks 1/8- to 5/8-inches in width requiring sealing shall be routed to 5/8-inches in width. Cracks 5/8- to 1-inch in width requiring sealing do not require routing but shall be thoroughly cleaned and sealed. Cracks shall be sealed using either the Standard Reservoir and Flush or Standard Recessed Band-Aid configurations. Cracks greater than 1-inch in width shall be filled with either an emulsion slurry and sand, widened and backfilled with Hot-Mix Asphalt (HMA) in compliance with Section 2205, or repaired in a manner approved by the Engineer. Cracks requiring filling do not require any routing but simply thorough cleaning. Cracks shall be filled using either the Simple Band-Aid, Simple Flush Fill, or Capped configurations.

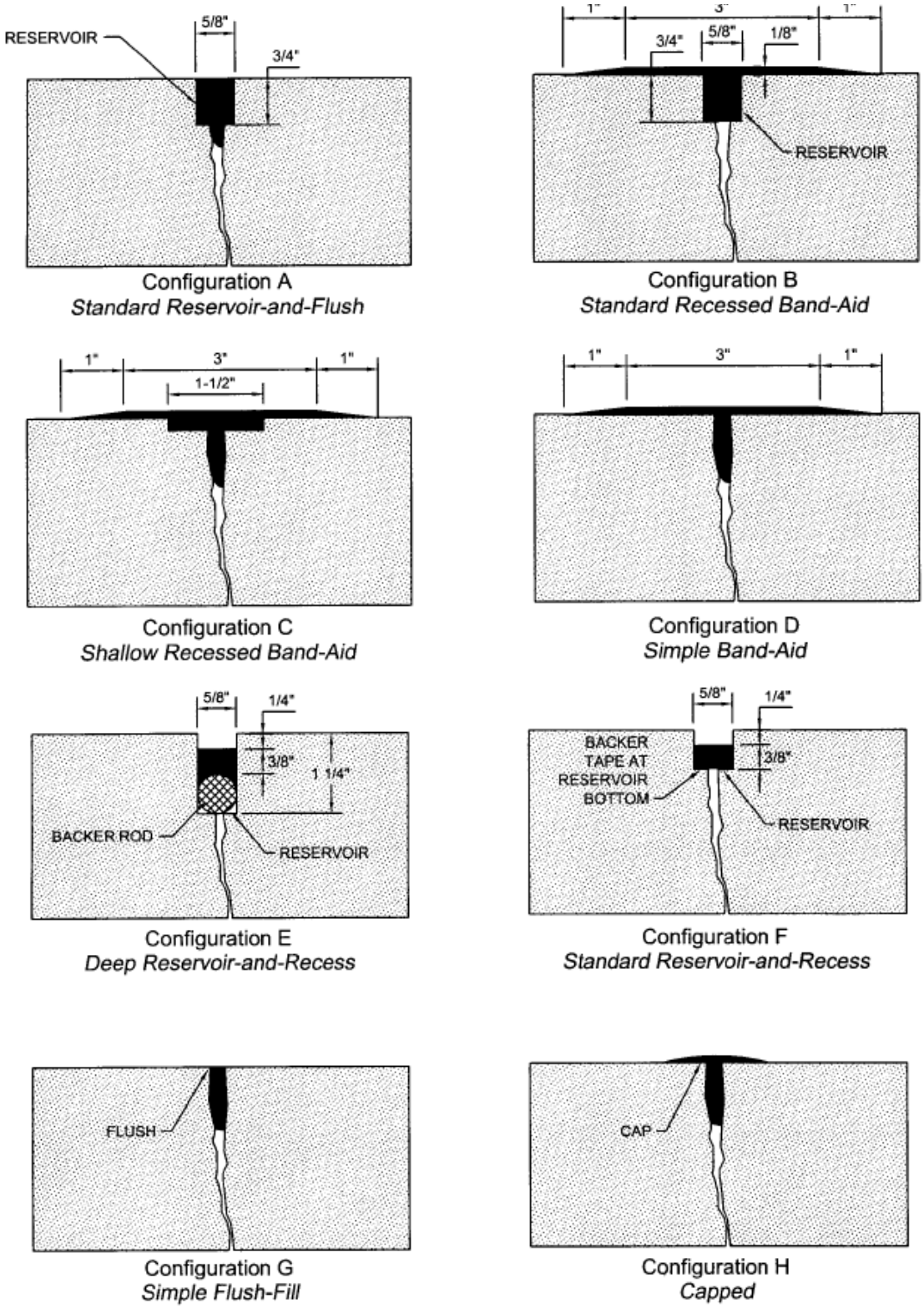
2. Cracks shall be clean and free of all deleterious materials, including any old sealant, incompressibles, and organic material. The crack shall be free of any standing water and any moisture along the sidewalls of the crack as evidenced by a darker color than the adjacent pavement. This shall be accomplished in one of three manners: wire-brushing – where the crack channels are cleaned with a mechanical wire brush followed by high-pressure compressed air; hot air blasting – where the crack channels are cleaned, heated, dried with hot compressed air (HCA) lance connected to a high pressure air compressor; or high-pressure air blasting – where the crack channels are cleaned with high-pressure compressed air. Pavement cracks to be sealed or filled shall be cleaned and dried using one of the methods described previously within 10 minutes of the application of the sealer/filler. Equipment for the two operations should be kept in a compact configuration such that not more than 50 feet separates equipment required by the two operations. Additionally, not more than 10 minutes time shall passed between the cleaning of a crack and the filling of the crack with the appropriate sealing/filling material.

F. Installation

1. Sealer/filler materials should not be applied when the pavement surface is wet or when the pavement temperature is less than 40 º F without the use of hot air blasting or the approval of the Engineer.

2. Sealant/Crack filler should be applied to fill the crack from the bottom to the top in order to prevent air bubbles from forming and creating a point of weakness in the sealant. Upon application, hot sealant/filler material should not make a hissing or popping noise indicative of moisture in the crack. Noises of this kind should indicate that additional drying of the crack is necessary in order to facilitate proper bonding of the material to the sidewalls of the crack. Application of the sealant/filler material shall be made in such a way as to completely fill the crack and provide enough excess to facilitate completion of the seal/fill consistent with the configuration selected. The use of a squeegee or applicator disk to shape the application material to conform to one of the material placement configurations shown on Figure 1 is required. Care shall be taken not to place any sealant/filler material on top of any pavement markings, manholes, or drainage castings. The Contractor shall be responsible to prevent tracking of the sealant/filler material onto the adjacent pavement surfaces to the satisfaction of the Engineer.

3. The manufacturer's technical representative shall be notified by the Contractor and shall be present during the initial installation. Prior to beginning the work, the Contractor will be required to demonstrate to the satisfaction of the Engineer and the manufacturer's representative his ability to apply the material in accordance with the manufacture's specifications. Operations and procedures which are considered by the Engineer as detrimental to the effectiveness of the material will not be permitted.



Material placement configurations for crack treatments

Figure 1

2206.4 Improved Street Chip Seal

A. Description: This work shall consist of the application of a thin, uniform layer of emulsified asphalt to the existing pavement surface in order to universally seal cracks from the intrusion of surface water. Cover aggregate shall then be uniformly distributed upon the asphalt layer and seated in place with the use of a rubber-tired roller. Any excess aggregate material shall be removed, leaving a durable wearing surface.

B. Material Requirements

1. Emulsified Asphalt

   a. The asphaltic sealant material applied to the roadway surface shall consists of a rapid-setting emulsified asphalt either an anionic RS-2 meeting the criteria of ASTM D 977 or a cationic CRS-2 meeting the criteria of ASTM D 2397. These materials may be modified with rubber products in the form of liquid latex, styrene-butidane-rubber, or styrene-butidane-styrene to enhance performance of the material as approved by the Engineer. If a polymer-modified material is used, the emulsified asphalt shall meet the additional specification criteria required by the Engineer.

   b. A sample of the emulsified asphalt may be taken from any of the distributors or delivery tankers on the job site. Failure of the emulsified asphalt to meet the material specification criteria at the time of application shall require the Contractor, at his own expense, to correct all unsatisfactory areas. No additional areas shall be sealed until correction has been made to the satisfaction or the Engineer.

2. Cover Aggregate – Pre-coated Chips

   a. Materials: Aggregate materials shall consist of an approximately cubic and uniformly-graded, hard, durable 100 percent crushed and washed limestone, sandstone, lightweight aggregate, basalt/porphyry, granitic material, steel slag, gravel, or chat. Chat is a by-product from the production of lead and zinc from the area located in southwestern Missouri, northeastern Oklahoma, and southeastern Kansas. Lightweight aggregate shall consist of expanded shale. The application rates reported in these specifications is for the Bethany Falls Limestone in the Kansas City area. The specific gravity of this material is approximately 2.58.

   b. Physical properties required of the aggregate materials:

Los Angeles Abrasion (ASTM C131)	35% loss (maximum)
Soundness using Mag. Sulfate (ASTM C 88, 5 cycles)	18% loss (maximum)
Soundness using Sodium Sulfate (ASTM C 88, 5 cycles)	12% loss (maximum)
Total Shale, clay, coal, and lignite content (ASTM C 142)	0.5% by weight (max)
Absorption	4.0% (max)

   c. Gradation: Gradation of cover aggregates shall conform to the following percentages:

Sieve Size	Percent Passing
3/4” (19mm)	100
1/2” (12.5mm)	90-95
3/8” (9.5mm)	30-50
No. 4 (4.75mm)	0-5
No. 8 (2.36mm)	0

d. Pre-coating of Chips: Aggregate chips shall be uniformly heated in a dryer until surface dry. All material shall be free of moisture, dust, and lumps and shall be approved by the Engineer prior to use. The aggregate chips shall then be pre-coated with 0.9%+ 0.025% a liquid asphalt cement having a viscosity of 2000 poise, +20%. The asphaltic material and hot aggregate shall be measured separately and accurately immediately before introduction into the mixer. Mixing shall be accomplished at a temperature between 275 º F and 325 º F, sufficient to produce a thoroughly and uniformly coated aggregate. The pre-coated chips shall be stockpiled at least 3 days prior to use.

3. Weighing: Weighing of cover aggregate shall be accomplished by the Contractor on scales that he furnishes for the purpose of weighing the cover aggregate as required in Section 2205.7 entitled "Scales and Weighing of Vehicles." All loads of cover aggregate will be weighed and evidenced by approved delivery tickets showing the net weight in pounds for each load. Two copies of each ticket shall accompany the load to the work site. Upon the load being incorporated in the work, the Engineer will sign both copies and one of these copies will be returned to the Contractor.

C. Spot Patching: Areas where base failure of the roadway has occurred, or where the surface is broken out shall be repaired prior to the sealing operation. The failed sections will be marked by the Engineer, and shall be removed by sawing a neat rectangular hole into the pavement. The failed material shall be removed without damage to the adjacent pavement. Where base failures have occurred, the pavement shall be removed to the subgrade which shall be corrected to the satisfaction of the Engineer prior to patching. Unstable material shall be overexcavated and replaced with base materials meeting the requirements of Section 2203. All surfaces shall be properly primed and tacked in accordance with Section 2204.

The prepared hole shall be patched with hot-mix asphaltic patching material by placing in layers not to exceed 2 inches; each layer being thoroughly compacted before the next layer is placed. After the patching material is placed and raked to a uniform surface, it shall be thoroughly compacted by rolling with a roller meeting the requirements of Section 2205.8. The edges shall be well bonded with the old surface. The completed patch shall be in the same plane as the existing pavement.

The asphaltic concrete used for patching at the different locations shall be as directed by the Engineer and shall conform to one of the mixes as set out in Section 2205.4.

D. Sealing

1. Cleaning: After all holes and cracks have been repaired to the satisfaction of the Engineer, and immediately before sealing the Contractor shall thoroughly clean the area to be sealed with a mechanical pickup type sweeper to insure proper adhesion of the new seal coat to the existing pavement. The street shall be dry before applying the seal coat.

2. Sealing: After the street has been prepared as set forth above the Contractor shall apply the emulsified asphalt by means of an approved distributor meeting the requirements of Section 2204.4. Provisions shall be made by the Contractor to properly protect the curbs and gutters from the asphaltic spray. Emulsified asphalt shall be applied at a rate between 0.28 and 0.35 gallons per square yard. The specific rate for each job will be determined by the Engineer in the field.

   Immediately after the application of the asphalt, the Contractor shall, by means of a self-propelled mechanical spreader, apply a uniform layer of cover aggregate. This material shall be spread at the rate specified by the Engineer. This rate shall be between 18 and 25 pounds per square yard of pre-coated limestone chips. The application rate shall be set to prevent bleeding of the asphaltic material

through the cover aggregate. If material is spread on any area in excess of the amount specified by the Engineer, the surplus shall be immediately removed and placed elsewhere as directed. No payment will be made to the Contractor for the picking up and redistribution of such excess. Hand spreading will be permitted only in those areas not accessible to the mechanical spreader.

Immediately after spreading the cover aggregate, the entire surface shall be rolled with multiple-wheel, pneumatic-type rollers meeting the requirements of Section 2205.8. Rolling shall be continued until a thoroughly compacted surface with a uniform aggregate coverage has been obtained, a minimum of 6 passes. The Engineer may require additional rollers if one roller cannot keep up with the operations. The first pass of the rollers over the cover aggregate shall not exceed 3 miles per hour. The rollers shall not exceed 5 miles per hour during any rolling operation.

Forty-eight hours after spreading the cover aggregate, the entire surface shall be swept with a mechanical pickup type sweeper to remove any loose or excess cover aggregate.

During the sealing operation as described above, the Contractor shall cooperate with the Engineer in arranging a program and schedule of work so traffic may be handled or routed around or through the section being sealed. Whenever possible, the street will be closed; but when this is not possible, the sealing will be done in strips while traffic is diverted to the balance of the street. No traffic will be permitted on the sealed portion of the roadway until rolling is completed. All traffic control signage shall conform to the MUTCD handbook for traffic control in work zones.

When bleeding occurs or more material is required, additional cover aggregate shall be spread as directed. As soon as the cover material has adhered to the surface, and the emulsion is thoroughly cured all excess cover aggregate shall be removed with a mechanical pickup type sweeper. This curing period is generally 48 hours, but may be adjusted by the Engineer.

2206.5 Unimproved Street Chip Seal

A. Description: This work shall consist of the application of a thin, uniform layer of liquified asphalt to the surface of the existing roadway which may either consist of an existing surface of asphaltic concrete pavement or a gravel-surfaced road. Cover aggregate shall then be distributed uniformly upon the liquified asphalt and seated in place with the use of a rubber-tired roller leaving a durable wearing surface.

B. Requirements for Liquified Asphalt Materials

Asphaltic materials used for the sealing of unimproved streets shall be liquified either by the introduction of a diluent (cutback) or by emulsification. The particular grade of cutback material for use on a particular roadway shall be determined by the Engineer. Cutback asphaltic materials shall comply with the requirements of either ASTM D 2027 or ASTM D 2028. The particular grade of emulsified asphalt material for use on a particular roadway shall be determined by the Engineer. Anionic emulsified asphaltic materials shall comply with the requirements for either a rapid or medium-setting emulsion as described in ASTM D 977 while cationic emulsified asphaltic materials shall comply with the requirements for either a medium or rapid-setting emulsion as described in ASTM D 2397.

C. Requirements for Cover Aggregate Materials

1. Aggregate materials shall consist of an approximately cubical and uniformly-sized, hard, durable 100 percent crushed and washed limestone, sandstone, lightweight aggregate, basalt/porphyry, granitic material, steel slag, gravel, or chat. Chat is a by-product from the production of lead and zinc from the area located in southwestern Missouri, northeastern Oklahoma, and southeastern Kansas. Lightweight

aggregate shall consist of expanded shale. Due to the variation in specific gravities between these materials, the application rate will need to be adjusted to reflect the change in specific gravity. The application rates reported in these specifications is for the Bethany Falls Limestone in the Kansas City area. The specific gravity of this material is approximately 2.58.

2. Physical properties required of the aggregate materials:

Los Angeles Abrasion (ASTM C 131)	35% loss (maximum)
Soundness using Mag. Sulfate (ASTM C88, 5 cycles)	18% loss (maximum)
Soundness using Sodium Sulfate (ASTM C 88, 5 cycles)	12% loss (maximum)
Total Shale, clay, coal, and lignite content (ASTM C 142)	0.5% by weight (max)
Absorption	4.0% (max)

Aggregate chips applied to cutback asphalt shall be shown to have a moisture content less than 1 percent immediately prior to application. Aggregate chips applied to emulsified asphalt shall be shown to have a moisture content of 3 percent or less immediately prior to application.

Gradation for aggregate chips used for Single sealing:

Square Sieve Size	Percent Passing
1/2" (12.5mm)	100
3/8" (9.5mm)	80-100
No. 4 (4.75 mm)	0-26
No. 10 (2.00mm)	0-2

Gradation for aggregate chips used for the first application of a Double sealing:

Square Sieve Size	Percent Passing
3/4" (19mm)	100
1/2" (12.5mm)	90 to 100
3/8" (9.5mm)	40 to 70
No. 4 (4.75mm)	0 to 15
No. 10 (2.0mm)	0-2

Gradation for aggregate chips used for the second application of a Double sealing shall conform to the gradation for a Single sealing above.

The Contractor shall furnish scales for weighing cover aggregate as required in Section 2201.7 entitled "Scales and Weighing of Vehicles". All loads of cover aggregate will be weighed as required, and evidenced by approved delivery tickets showing the net weight in pounds for each load. Two copies of each ticket shall accompany the load to the work site. In order for the load to be received and incorporated into the work, both copies will be signed by the Engineer (or inspector) and one of these copies returned to the Contractor.

D. Sealing

Sealing shall be accomplished in the same manner as described in Section 2206.3.D except as modified herein. Where a seal coat is applied to a gravel-surface roadway the surface shall be prepared in accordance with Section 2204.4. The surface shall then be primed in accordance with Section 2204.4 prior to the application of the seal coat.

The application rate of cutback asphalt shall be in the range 0.25 to 0.45 gallons per square yard as directed by the Engineer or demonstrated to result in a satisfactory seal in a test strip provided by the Contractor. Anti-Strip agent may be added to Cutback Asphalt at a rate not to exceed 1 percent of the residual asphalt volume as directed by the Engineer in order to improve adhesion of the asphalt to the moist aggregates. The cutback agent shall be thoroughly mixed and blended with the cutback asphalt. The application rate of emulsified asphalt shall be in the range of 0.28 to 0.40 gallons per square yard as approved or directed by the Engineer. The distributor used shall meet the requirements of Section 2204.4.

Limestone materials shall be spread at the rate specified by the Engineer with the range of 16 to 24 pounds per square yard.

Where double sealing is indicated on the Plans or required by the Engineer, the area shall be treated with two seal coats. The application rate of the asphaltic material for the first application shall be approximately one-half of that used for a single seal with the remainder applied during the second seal application. The application rate of the first application of cover aggregate shall be within the range specified for a single seal. The application rate of the second application shall be approximately one-half the application rate of the first layer.

2206.6 Improved Street Slurry Seal

A. Description: This work shall consist of the application of Slurry Seal Material to an existing surface. The Slurry Seal shall consist of a mixture of emulsified asphalt, mineral aggregate and potable water, properly proportioned, mixed and spread on the surface in accordance with this specification and as directed by the Engineer.

B. Material

1. Emulsified Asphalt: The emulsified asphalt shall conform to Grade SS-1h of ASTM D 977, for emulsified asphalt, or Grade CSS-1h of ASTM D 2397, for cationic emulsified asphalt. Quick-set emulsified asphalts QS-1h and CQS-1h may also be used. They shall conform to ASTM D 977 and ASTM D 2397 respectively, except that the test requirements for cement mixing and storage stability shall not apply. Refer to the International Slurry Surfacing Association (ISSA) Bulletin No. 139. The emulsified asphalt shall have not less than 60% residue after distillation when tested using ASTM D 244 and shall have a penetration of between 40 and 90 when tested using ASTM D 2397 at 77° F. Each load of emulsified asphalt delivered shall have a certificate of analysis/compliance matching the material used in the mix design.

2. Aggregate for Slurry Seal: The mineral aggregate used for this work shall be natural or manufactured crushed granite, slag, or chat which is a byproduct of the milling of lead and zinc ores and shall conform to one of the following grading requirements when tested in accordance with ASTM C 136 and ASTM C 117. All aggregate shall conform to the quality requirements of ASTM D 1073.

GRADING REQUIREMENTS FOR AGGREGATE			
Sieve Size	Amount Passing Sieves, Weight %		
	Type I	Type II	Tolerance
3/8 inch (9.5 mm)	100	100	
No. 4 (4.75 mm)	100	90 – 100	+/- 5%
No. 8 (2.36 mm)	90 – 100	65 – 90	+/- 5%
No. 16 (1.18 mm)	65 – 90	45 – 70	+/- 5%
No. 30 (600 um)	40 – 65	30 – 50	+/- 5%
No. 50 (300 um)	25 – 42	18 – 30	+/- 4%
No. 100 (150 um)	15 – 30	10 – 21	+/- 3%
No. 200 (75 um)	10 - 20	5 – 15	+/- 2%

The percent passing the No. 200 (75 um) sieve shall be determined by ASTM C 117.

3. Mineral Filler: Mineral Fillers are of two types, chemically active and chemically inactive. Both shall conform to ASTM D 242. Chemically active mineral fillers such as Portland cement, hydrated lime, and ammonium sulfate are used to improve workability, regulate the setting time, and, in some cases, to alter the aggregate gradation. Chemically inactive mineral fillers such as limestone dust, fly ash, and rock dust are used mainly to alter aggregate gradation.

4. Water: All water used shall be potable and shall be free of harmful salts or contaminates.

5. Mix Design: The Engineer shall approve all slurry seal materials and methods prior to mixing and application. The Contractor shall submit a completed and tested slurry seal mix design for the Engineer's approval. The approved test method for emulsified asphalt slurry seal shall be found in ASTM D 3910. The mix design shall be made with the same materials the Contractor will be using on the project. The percentage of each material must be shown on the mix design. Proportions of the mixture shall be as follows unless variations are approved by the Engineer:

	TYPE I	TYPE II
Aggregate for Slurry Seal	8.0 to 12.0 lbs per sq yd 3.63 to 5.44 kg/m^2 (dry basis)	13.5 to 16.5 lbs per sq yd 7.32 to 8.95 kg/m^2 (dry basis)
Emulsified Asphalt (Residual Asphalt Content)	10.0 to 16.0% by weight of dry aggregate	7.5 to 13.5% by weight of dry aggregate
Mineral Filler	1.5 to 3.0% by weight of dry aggregate	1.5 to 3.0% by weight of dry aggregate
Water	Minimum amount necessary to obtain a fluid and homogenous mixture	Minimum amount necessary to obtain a fluid and homogenous mixture

Once the proper consistency is obtained, changes in proportioning of the various components of the mixture shall be held to a minimum.

6. Application Rates: The slurry seal mixture shall be of proper consistency at all times so as to provide the application rate required by the surface condition and shall be in accordance with the following:

Type I: 8.0 to 12.0 lbs per sq yd
Type II: 13.5 to 20 lbs per sq yd

Application rates are affected by the unit weight of the aggregate, the gradation of the aggregate and

the demand of the surface to which the slurry seal is being applied.

7. Equipment: The slurry mixing machine shall be a continuous flow mixing unit and shall be capable of delivering accurately a predetermined proportion of aggregate, water and asphalt emulsion to the mixing chamber and to discharge the thoroughly mixed product on a continuous basis. The equipment shall be capable of pre-wetting the aggregate immediately prior to mixing with the emulsion. The mixing unit of the mixing chamber shall be capable of thoroughly blending all of the components together without violent mixing. The mixing machine shall be equipped with an approved fines feeder that includes an accurate metering device or method to introduce a predetermined proportion of mineral filler into the mixer. The mineral filler shall be fed at the same time and location as the aggregate. The fines feeder shall be required whenever added mineral filler is a part of the aggregate blend. The mixing machine shall be equipped with a water pressure system and fog-type spray bar, adequate for complete fogging of the surface receiving slurry treatment. Attached to the mixer machine shall be a mechanical type squeegee distributor, equipped with flexible material in contact with the surface of the pavement to prevent loss of slurry from the distributor. It shall be maintained so as to prevent loss of slurry on varying grades and crown by adjustments to insure uniform spread. There shall be a steering device and a flexible strike-off. The spreader box shall have an adjustable width. The box shall be kept clean and build-up of asphalt and aggregate on the box or in the corners shall not be permitted. Use of burlap drags or other drags shall be approved by the Engineer. Hand squeegees, shovels, and other equipment shall be provided if necessary to supplement the slurry mixing machine. Power brooms, power blowers, air compressors, and hand brooms suitable for cleaning the surface and cracks of the existing surface shall be implemented to provide a clean surface.

8. Construction Requirements

   a. Surface Preparation: Immediately prior to applying the slurry, clean the surface of all loose material, mud spots, vegetation, and other objectionable material. Any standard cleaning method used to clean pavements will be acceptable except water flushing. A pickup sweeper must be used unless otherwise approved by the Engineer. Manholes, valve boxes, drop inlets, and other service entrances shall be protected from the slurry seal by a method approved by the Engineer.
   b. Application: The surface shall be pre-wetted by fogging ahead of the slurry box unless waived by the Engineer. Water used in pre-wetting the surface shall be applied at such a rate that the entire surface is damp with no apparent flowing water in front of the slurry box. The slurry mixture shall be of the desired consistency upon deposit on the surface and no additional elements shall be added. Total time of mixing shall not exceed four (4) minutes. A sufficient amount of slurry shall be carried in all parts of the spreader at all times so that a complete coverage is obtained. Overloading of the spreader shall be avoided. No lumping, balling, or unmixed aggregate shall be permitted. No segregation of the emulsion and aggregate fines from the coarse aggregate shall be permitted. If the coarse aggregate settles to the bottom of the mix, the slurry shall be removed from the pavement. No excessive breaking of emulsion shall be allowed in the spreader box. No streaks, such as those caused by oversized aggregate will be left in the finished pavement.
   c. Hand Work: Approved squeegees shall be used to spread slurry in areas not accessible to the slurry mixer. Care should be exercised in leaving no unsightly appearance from the hand work.
   d. Curing: Treated areas shall be allowed to cure for four hours, or until such time as the Engineer permits their opening to traffic.
   e. Weather Limitation: The slurry seal shall not be applied if either the pavement or air temperature is below 60° F and falling. The mixture shall not be applied if the relative

humidity exceeds 80%.

f. Traffic Control: Suitable methods shall be used to protect the slurry from all types of traffic until sufficiently cured to accept traffic. The length of time before traffic is permitted to use the surface depends on the type of emulsified asphalt, mixture characteristics, and weather conditions.

g. Lines: Care shall be taken to insure straight lines along curb and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide good appearance.

h. Property Owners Notification: The Contractor shall supply and place door tags on the doors of all involved property owners. The door tag language shall be approved by the Engineer.

i. Provisions for Public Convenience During Sealing Operation: The Contractor shall provide and maintain sufficient signs, barricades, warning lights, flag persons and watch persons to protect the work and public in a manner satisfactory to the Engineer. Any areas damaged prior to acceptance by the Engineer shall be repaired at the Contractor's expense. "No Parking" signs will be furnished by the Contractor. These signs shall comply with the standards established by the MUTCD with regard to size, color, working height and placement. When "No Parking" signs are posted on the streets with parking meters, the Contractor shall cover the parking meter heads with cloth or paper bags. The Contractor shall take all necessary precautions to protect the public (pedestrian and vehicular) from flying debris. The Contractor shall use warning signs and devices to warn motorists and pedestrians of work ahead.

2206.7 Improved Street Micro-Surfacing

A. Description: This work shall consist of the application of a polymer modified asphalt emulsion, mineral aggregate, mineral filler, potable water, and other additives, properly proportioned, mixed and spread on a paved surface in accordance with this specification and as directed by the Engineer.

B. Materials

1. Emulsified Asphalt: The emulsified asphalt shall be a quick wet polymer modified asphalt emulsion conforming to the requirements specified in ASTM D 2397 or AASHTO M 208 for Grade CSS-1h. The cement mixing test shall be waived for this emulsion. The polymer material shall be milled or blended into the asphalt or emulsifier solution prior to the emulsification process. The emulsified asphalt shall have not less than 62% residue after distillation when tested using ASTM D 244. The temperature for this test shall be held below 280° F. Higher temperatures may cause the polymers to break down. In addition, the emulsified asphalt shall have a penetration of between 40 and 90 when tested using ASTM D 2397 at 77° F (25° C) and shall have a minimum softening point of 135° F when tested using ASTM D 36. Each load of emulsified asphalt delivered shall have a certificate of analysis/compliance matching the material used in the mix design.

2. Aggregate for Micro-Surfacing: The aggregate shall be a manufactured crushed stone such as granite, or chat which is a by-product of the milling of lead and zinc ores. The aggregate shall be totally crushed with 100% of the parent aggregate being larger than the largest stone in the gradation to be used. The mineral aggregate used shall conform to one of the following grading requirements when tested in accordance with ASTM C 136 and ASTM C 117. All aggregate shall conform to the quality requirements of ASTM D 1073.

GRADING REQUIREMENT FOR AGGREGATE			
Sieve Size	Amount Passing Sieves, Weight %		
	Type I	Type II	Tolerance
3/8 inch (9.5 mm)	100	100	
No. 4 (4.75 mm)	90 – 100	70 – 90	+/- 5%
No. 8 (2.36 mm)	65 – 90	45 – 70	+/- 5%
No. 16 (1.18 mm)	45 – 70	28 – 50	+/- 5%
No. 30 (600 um)	30 – 50	19 – 34	+/- 5%
No. 50 (300 um)	18 – 30	12 – 25	+/- 4%
No. 100 (150 um)	10 – 21	7 – 18	+/- 3%
No. 200 (75 um)	5 - 15	5 – 15	+/- 2%

The combined aggregate prior to the addition of any chemically active mineral filler shall have a sand equivalent of not less than 65 when tested by ASTM D 2419. The aggregate shall have a weighed average loss not greater than 25% using magnesium sulfate when tested by ASTM C 88. Testing of abrasion resistance shall not exceed 30% when tested by ASTM C 131.

3. Mineral Filler: Mineral filler shall be any recognized brand of non-air entrained Portland cement or hydrated lime. The mineral filler shall be free of lumps and accepted upon visual inspections. The type and amount of mineral filler needed shall be determined by a laboratory mix design and will be considered as part of the aggregate gradation.

4. Water: All water used shall be potable and shall be free of harmful salts or contaminates.

5. Additives: Additives may be added to the emulsion mix or any of the component materials to provide the control of the quick-traffic properties. They must be included as part of the mix design and be compatible with the other components of the mix.

6. Mix Design: The Engineer shall approve all micro-surfacing materials and methods prior to mixing and application. The Contractor shall submit a completed and tested micro-surfacing mix design for the Engineer's approval. The approved test method for micro-surfacing shall be found in ASTM D 6372. The mix design shall be made with the same materials the Contractor will be using on the project. The percentage of each material must be shown on the mix design. Proportions of the mixture shall be as follows unless variations are approved by the Engineer.

	TYPE I	TYPE II
Aggregate for Micro-surfacing	10.0 to 20.0 lbs per sq yd 4.53 to 9.07 kg/m^2 (dry basis)	13.5 to 16.5 lbs per sq yd 7.32 to 8.95 kg/m^2 (dry basis)
Emulsified Asphalt (Residual Asphalt Content)	7.5 to 13.5% by weight of dry aggregate	7.5 to 13.5% by weight of dry aggregate
Polymer Based Modifier	Minimum of 3% solids based on asphalt weight content	Minimum of 3% solids based on asphalt weight content
Additive	As needed	As needed
Mineral Filler	0.0 to 3.0% by weight of dry aggregate	0.0 to 3.0% by weight of dry aggregate
Water	Minimum amount necessary to obtain a fluid and homogenous mixture	Minimum amount necessary to obtain a fluid and homogenous mixture

Once the proper consistency is obtained, changes in proportioning of the various components of the mixture shall be held to a minimum.

7. Application Rates: The Micro-Surfacing mixture shall be of proper consistency at all times so as to provide the application rate required by the surface condition and shall be in accordance with the following:

   Type II: 10.0 to 20.0 lbs per sq yd
   Type III: 15.0 to 30.0 lbs per sq yd

   Application rates are affected by the unit weight of the aggregate, the gradation of the aggregate, and the demand of the surface to which the micro-surfacing is being applied.

8. Equipment

   a. Micro-Surfacing Mixing Equipment: The micro-surfacing mixing machine shall be specifically designed and manufactured to lay micro-surfacing. The machine shall be self-propelled, continuous flow mixing unit able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, control setting additive, and water to a revolving multi-blade double-shafted mixer and discharge the mixed product on a continuous flow basis. The machine shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, control additive, and water to maintain an adequate supply to the proportioning controls. On major highway work, the machine may be required to be a self-loading machine capable of loading materials while continuing to lay micro-surfacing. The self-loading machine shall be equipped to allow the operator to have full control of the forward and reverse speed during application of the micro-surfacing material and be equipped with opposite side drivers stationed to assist in alignment. The self-loading device, opposite side drivers stations, and forward and reverse speed controls shall be original equipment manufacturer designed.
   b. Proportioning Devices: Individual volume or weight controls for proportioning each material, and used in material calibration, shall be provided and properly marked.
   c. Calibration: Each mixing unit to be used in the performance of the work shall be calibrated prior to construction. Calibration documentation shall include an individual calibration of each material at various settings, which can be related to the machine metering devices. No machine will be allowed to work on the project until a calibration has been completed. Final calibration sheets shall be provided to the Engineer for acceptance.
   d. Micro-Surfacing Spreading Equipment: The machine shall include a surfacing box with twin-

shafted paddles or spiral augers fixed in a spreader box. A flexible front seal shall be provided to insure no loss of mixture at the road surface contact point. The rear flexible seal shall act as a final strike-off and shall be adjustable in width. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off box. The box shall have suitable means provided to side-shift the box to compensate for variations of pavement geometry. A secondary strike-off shall be provided to improve the surface texture. It shall have the same leveling adjustments as the spreader box.

e. Auxiliary Equipment: Hand squeegees, shovels, traffic control equipment, and other support and safety equipment shall be provided as necessary to perform the work.

f. Cleaning Equipment: Power brooms, pickup sweepers, power blowers, air compressors, and hand brooms suitable for cleaning shall be utilized to provide a clean surface.

9. Construction Requirements

a. Surface Preparation: Immediately prior to applying the micro-surfacing, the surface shall be cleaned of all loose material, silt spots, vegetation, and objectionable material as determined by the Engineer. Any standard cleaning method used to clean pavements will be acceptable except water flushing. Manholes, valve boxes, drop inlets, and other service entrances shall be protected from the micro-surfacing by a method approved by the Engineer.

b. Application: If the pavement area to be covered is extremely oxidized and raveled or is concrete or brick, a tack coat may be required at the discretion of the Engineer. The tack coat shall conform to Section 2204 and shall be a SS or CSS grade. The tack coat shall be allowed to break sufficiently before the application of micro-surfacing. The surface shall be pre-wetted by fogging ahead of the spreader box unless waived by the Engineer. Water used in pre-wetting the surface shall be applied at such a rate that the entire surface is damp with no apparent flowing water in front of the spreader box. The micro-surfacing mixture shall be of the desired consistency upon deposit on the surface and no additional elements shall be added. A sufficient amount of material shall be carried in all parts of the spreader box at all times so that a complete coverage is obtained. Overloading of the spreader box shall be avoided. No lumping, balling, or unmixed aggregate shall be permitted. No streaks, such as those caused by oversized aggregate shall be left in the finished surface.

c. Hand Work: Areas which cannot be reached with the mixing machine shall be surfaced using approved hand squeegees to provide a complete and uniform coverage. If necessary, the area to be hand-worked shall be lightly dampened prior to mix placement. The same type of finish as applied by the spreader box shall be required.

d. Curing: Micro-surfacing shall be allowed to cure for one hour, or until the Engineer permits opening the street to traffic.

e. Weather Limitation: Micro-surfacing shall not be applied if either the pavement or air temperature is below 60° F and falling. The mixture shall not be applied if the relative humidity exceeds 80%.

f. Traffic Control: Suitable methods shall be used to protect the micro-surfacing from all types of traffic until sufficiently cured to accept traffic. The length of time before traffic is permitted to use the surface shall be determined by the Engineer.

g. Lines: Care shall be taken to insure straight lines along curb and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide good appearance.

h. Property Owners Notification: The Contractor shall supply and place door tags on the doors of all involved property owners. The door tag language shall be approved by the Engineer.

i. Provisions for Public Convenience During Surfacing Operation: The Contractor shall provide and maintain sufficient signs, barricades, warning lights, flag persons and watch persons to

protect the work and public in a manner satisfactory to the Engineer. Any areas damaged prior to acceptance by the Engineer shall be repaired at the Contractor's expense. "No Parking" signs will be furnished by the Contractor. These signs shall comply with the standards established by the MUTCD with regard to size, color, working height and placement. When "No Parking" signs are posted on the streets with parking meters, the Contractor shall cover the parking meter heads with cloth or paper bags. The Contractor shall take all necessary precautions to protect the public (pedestrian and vehicular) from flying debris. The Contractor shall use warning signs and devices to warn motorists and pedestrians of work ahead.

2206.8 Method of Measurement

A. Asphaltic Crack Seal will be measured per pound.

B. Chip seal will be measured by one of the following:

1. Per square yard or tenth part thereof.

2. Actual quantities used:

   a. Asphaltic concrete patch, per ton or tenth part thereof.
   b. Bitumen (asphaltic cement or liquid asphalt) per gallon.
   c. Coated cover aggregate, per ton or tenth part thereof.

C. Slurry seal will be measured per square yard or tenth part thereof.

D. Micro-surfacing will be measured per square yard or tenth part thereof.

2206.9 Basis of Payment

A. Asphaltic Crack Seal will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

B. Chip Seal will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

C. Slurry Seal will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

D. Micro-surfacing will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

SECTION 2207 COLD MILLING

2207.1 Scope

This section governs the furnishing of all labor, materials and equipment for the performance of cold milling pavement surfaces as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions. This work will consist of the removal of the existing surface, loading, hauling, and stockpiling, if required, of the milled material and the cleaning of the milled surface.

2207.2 Equipment

Milling the surface of pavements shall be completed by the use of a milling machine conforming to the following:

A. Machine: The cold milling machine shall be self-propelled and able to automatically control grade and slope of the milled surface. Operate the automatic grade and slope control from a travelling stringline a minimum of 30 feet long, attached the milling machine and operating parallel to the direction of travel. Other methods of positive grade control may be used if approved by the Engineer. The machine shall have the means of milling without damaging the remaining pavement (torn, gouged, shoved, broken, etc.). The machine shall be capable of blading the cuttings into a single windrow or depositing them directly into a truck.

B. Air Pollution: The machine shall be equipped with a dust suppression system including water storage tanks and high pressure spray bars.

C. Operating Width: It is desirable that the cutting width be greater than 6 feet. In the event the cutting width is less than 6 feet, a system of electronic grade control for consecutive passes will be required.

D. Cutting Drum: The cutting drum shall be totally enclosed to prevent discharge of any loosened material on adjacent work areas.

2207.3 Construction

A. Methods of Operations for Milling

1. Utilities: Street surfaces adjacent to manholes, water valves and other utility extensions shall be completely removed to the full depth of cut specified for the street unless otherwise specified by the Engineer.

2. Material Disposal: All material from the milling operation shall be removed immediately from the surface of the pavement and properly disposed of by the Contractor at an approved disposal area.

3. Surface Conditions: The drum lacing patterns shall produce a smooth surface finish after milling, with groove depths not to exceed 1/4 inch and groove spacing not to exceed 1 inch unless otherwise approved by the Engineer.

B. Types of Cuts to be made by Milling

1. Leveling: Sufficient passes shall be made such that all irregularities or high spots are eliminated, and that 100% of the surface is milled.

2. Average Depth: Sufficient passes, or cuts, shall be made in order to remove a specified depth over the entire street section. These depths will be designated in the Plans or Special Provisions.

3. Curb Cut: Sufficient passes or cuts shall be made to remove the specified depth at the curb for a specified width. These dimensions will be designated in the Plans or Special Provisions.

4. Bridge Deck Milling: Sufficient passes, or cuts, shall be made in order to remove the material as specified on the Plans or in the Special Provisions.

C. Cleanup: All loose asphalt and debris shall be removed from the street surface and curb and gutter. Any material and debris that adheres to the curb and gutter shall be removed.

D. Opening to Traffic: If the milled area will be opened to traffic prior to surfacing, provide a smooth riding surface by either milling or placing a wedge of hot mix asphalt or other approved material of a thickness and design that will remain in place under traffic. The transition between the milled area and transverse joints shall be a minimum of 1 vertical to 24 horizontal. The transition between the milled surface and manholes, utility fixtures or other appurtenances shall be a minimum of 1 vertical to 12 horizontal. Transitions shall be removed prior to surfacing.

2207.4 Method of Measurement

Cold milling will be measured per square yard or tenth part thereof for the specified depth.

2207.5 Basis of Payment

Cold milling will be paid for by one of the following:

A. Contract unit bid price.

B. Contract lump sum bid price.

SECTION 2208 PORTLAND CEMENT CONCRETE PAVEMENT

2208.1 Scope

This section governs the furnishing of all labor, materials and equipment for the placement of Portland Cement Concrete Pavement as shown on the Plans and in accordance with the Standard Drawings, the specifications, and the Special Provisions.

2208.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

ASTM
A 615 Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
A 775 Standard Specification for Epoxy-Coated Steel Reinforcing Bars

A 1064 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
C 31 Standard Practice for Making and Curing Concrete Test Specimens in the Field
C 39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
C 143 Standard Test Method for Slump of Hydraulic-Cement Concrete
C 172 Standard Practice for Sampling Freshly Mixed Concrete
C 231 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
C 309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
C 1064 Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete

D 1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
D 1752 Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
D 2628 Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements
D 2835 Standard Specification for Lubricant for Installation of Preformed Compression Seals in Concrete Pavements
D 6690 Standard Specification for Joint and Crack Sealants, Hot-Applied, for Concrete and Asphalt Pavements
D 7174 Standard Specification for Preformed Closed-Cell Polyolefin Expansion Joint Fillers for Concrete Paving and Structural Construction
E 965 Test Method for Measuring Surface Macrotexture Depth Using a Sand Volumetric Technique

AASHTO
M 148 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
M 213 Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
M 324 Joint Sealants, Hot-Poured, for Concrete and Asphalt Pavements

MCIB Mid-West Concrete Industry Board Concrete Specifications - Concrete Pavement
The current editions of the "Bulletins" and Approved Sections of the "Standard Concrete Specifications" issued by the Mid-West Concrete Industry Board, Inc. (MCIB) are made a part hereof by reference. However, when the provisions of this Specification differ from the provisions of such "Bulletins" and "Sections" the provisions of this Specification shall govern.

KCMMB Kansas City Metro Materials Board Specifications

Kansas Department of Transportation
Standard Specifications for State Road and Bridge Construction, 2015 Edition

Missouri Highways and Transportation Commission
Missouri Standard Specifications for Highway Construction, 2011 Edition

National Concrete Pavement Technology Center Guide Specifications for Concrete Overlays, September 2015, including latest revisions

2208.3 Materials

A. Concrete: Concrete shall conform to referenced specifications as called out in the Contract Documents. If no direct reference to concrete specifications is included in the Contract Documents, concrete shall meet KCMMB

specifications.

1. If KCMMB concrete is specified, an approved KCMMB concrete mix shall be required.

2. If MCIB concrete is specified, concrete shall comply with MCIB Section entitled “Concrete Pavement”.

3. If KDOT specifications are referenced for concrete, provide material in compliance with the latest version of KDOT specifications. Approval of component materials will be based on submittal of certifications from supplier. Aggregates shall meet the quality requirements specified by KDOT. Engineer reserves the right to perform testing of components to verify compliance.

4. If MoDOT specifications are referenced, provide material in compliance with the latest version of MoDOT specifications. Approval of component materials will be based on submittal of certifications from supplier. Aggregates shall meet the quality requirements specified by MoDOT. Engineer reserves the right to perform testing of components to verify compliance.

5. Proposed concrete mix designs for use on the project shall be submitted to Engineer for approval at least two (2) weeks in advance of anticipated use. Mix design shall be approved prior to use of that mix.

6. Field testing of concrete shall be performed by the Engineer at the frequency required by the referenced specification. Unless otherwise specified, the following tests shall be performed once for every 50 cuyd of concrete placed:

    a. Sampling of fresh concrete per ASTM C 172
    b. Slump per ASTM C 143
    c. Air Content per ASTM C 231
    d. Temperature per ASTM C 1064
    e. Cylinders cast per ASTM C 31 and tested per ASTM C 39. Four cylinders shall be cast with one tested at 7 days, 2 tested at 28 days and one held in reserve.

7. For concrete overlays, material and construction specifications shall be governed by the National Concrete Pavement Technology Center Guide Specifications for Concrete Overlays, September 2015, including latest revisions.

B. Reinforcement

1. Bars: Non-epoxy coated bars shall conform to ASTM A 615. Epoxy coated bars shall conform to ASTM A 775.

2. Welded Steel Wire: Welded steel wire fabric shall conform to ASTM A 1064.

3. Supporting Elements: Representative samples of supporting elements shall be submitted and approved by the Engineer prior to their use in the project.

4. Fibers: When specified in the Contract Documents, fibers shall be incorporated into the concrete at the rate recommended by the manufacturer but no less than a minimum of 3 pounds per cubic yard of concrete for macro fibers and 1 pound per cubic yard of concrete for micro fibers. Fibers shall meet the requirements of KDOT Standard Specifications for State Road and Bridge Construction, 2015 Edition, Section 1722.2. Micro fibers are used to control plastic shrinkage cracks in concrete while macro fibers control cracking in hardened concrete and are often used as a substitute for traditional crack

control steel reinforcing bars or mesh. In addition, macro fibers add toughness, and impact and fatigue resistance to hardened concrete.

C. Isolation Joint Fillers: Isolation joint fillers shall conform to ASTM D 1751, D 1752, or ASTM D 7174.

D. Joint Sealing Compounds: Joint sealing compounds shall conform to the standards for the type of sealant specified as listed in the following table:

Joint Seals and Sealants	AASHTO	ASTM
Hot-poured, Polymeric Asphalt Based	M 324	D 6690
Preformed Polychloroprene Elastomeric		D 2628
Lubricant for Installation of Preformed Seal	-----	D 2835
Preformed Expansion Joint Filler	M 213	D 1751, D 1752 or D 7174

E. Curing Membrane: All material to be used or employed in curing Portland Cement Concrete must be approved by the Engineer prior to its use. It shall be of the liquid membrane type and shall conform to ASTM C 309, Type II, Class B or AASHTO M 148, Type 2, white pigmented.

2208.4 Construction

Portland Cement Concrete Pavement shall be constructed to the configuration, and to the lines and grades shown on the Plans.

A. Grading, Subgrade Preparation and Base Course: All excavation, embankment, subgrade stabilization or aggregate base course required shall be as defined in Sections 2100 “Grading and Site Preparation”, 2201 "Subgrade Preparation", 2202 “Subgrade Stabilization”, and 2203 “Aggregate Base Course”. If areas of the subgrade are below the lines, grades and cross-sections shown on the Plans, they shall be brought to the proper line, grade and cross-section by one of the following:

1. Additional fill material placed in accordance with applicable sections.

2. Areas may be filled with additional thickness of Portland Cement Concrete Pavement.

B. Surface Preparation for Concrete Overlay: Prepare surface for concrete overlay as specified in the National Concrete Pavement Technology Center Guide Specifications for Concrete Overlays, September 2015.

C. Forms: All forms shall be in good condition, clean, and free from imperfections. Each form shall not vary more than 1/4 inch in horizontal and vertical alignment for each 10 feet of length.

1. Material & Size: Forms shall be made of metal and shall have a height equal to or greater than the prescribed edge thickness of the pavement slab. Wood forms may be substituted when approved by Engineer and if they are free from warp with sufficient strength for the intended application.

2. Strength: Forms shall be of such cross-section and strength, and so secured as to resist the pressure of the concrete when struck off, vibrated, and finished, and the impact and vibration of any equipment which they may support.

3. Installation: Forms shall be set true to line and grade, supported through their length and, joined neatly in such a manner that the joints are free from movement in any direction.

4. Preparation: Forms shall be cleaned and lubricated prior to each use and shall be so designed to permit their removal without damage to the new concrete.

D. Joints: Generally joints shall be formed at right angles to the true alignment of the pavement and to the depths and configuration specified by the appropriate standard or as modified by the Plans and specifications. For additional guidance on jointing, see American Concrete Paving Association jointing guides. All joints shall be sealed with sealant meeting the requirements of Section 2208.3.D. Unless specified otherwise on the Plans, specifications, Standard Drawings or Special Provisions, use hot-poured joint sealant.

1. Isolation Joints: Isolation joints shall be placed at all locations where shown on the Plans and Standard Drawings or as directed by the Engineer.

    a. Isolation joints shall extend the entire width of the pavement and from the subgrade to the surface of the pavement. The material will have a suitable tear strip or removable cap provided to allow for the application of the joint sealer to the required depth.
    b. Under no circumstances shall any concrete be left across the isolation joint at any point.
    c. Material: Isolation joints shall be formed by a one-piece, one inch thick preformed joint filler cut to the configuration of the correct pavement section.
    d. Stability: Isolation joints shall be secured in such a manner that they will not be disturbed during the placement, consolidation and finishing of the concrete.
    e. Dowels: If isolation joints are to be equipped with dowels they shall be of the size and type specified, and shall be firmly supported in place, by means of a dowel basket or other support method approved by the Engineer, which shall remain in place. Each dowel shall be lightly painted or greased with a product approved by the Engineer.

2. Contraction Joints: Contraction joints shall be placed where indicated and to the depth indicated by the Plans, specifications and Standard Drawings.

    a. Method: Contraction joints shall be sawed.
    b. When sawing joints, the Contractor shall begin as soon as the concrete hardens sufficiently to prevent excessive raveling along the saw cut and shall finish before conditions induce uncontrolled cracks, regardless of the time or weather. All sawed joints shall begin with a relief cut that shall be approximately 1/8 inch wide, and a minimum of 1/3 the thickness of the slab unless shown otherwise on the Plans. If the Plans indicate a joint width greater than 1/8" but with no backer rod, the Contractor may saw the initial relief cut to the full width. If a reservoir cut is specified that uses a backer rod, a second stage saw cut which widens the joints to allow the insertion of joint sealing material shall be performed. The second stage saw cut shall not be performed until the concrete is at least 48 hours old and shall be delayed longer when the sawing causes raveling of the concrete. If second stage sawing is performed prior to the completion of the curing period, the Contractor shall maintain the cure by use of materials approved by the Engineer.
    c. The Contractor shall be responsible for using suitable methods to cut joints straight and in the correct location. The Contractor shall protect joints from damage until completion of the project and shall repair damaged joints to the satisfaction of the Engineer.
    d. Where not indicated on the Plans or Standard Drawings, joint spacing for concrete overlays shall not exceed 12 times the thickness of the overlay, and shall be constructed such that the larger dimension of any panel does not exceed 125% of the smaller dimension. Joints of adjacent panels shall be aligned. Joints shall intersect pavement free edges at 90 degrees, and shall extend a minimum of 1 foot from the pavement edge. Saw joints shall be one-third the thickness of the slab, or two inches, whichever is greater.

e. For bonded concrete overlays, joints shall be located above existing joints, shall be sawed full depth plus one-half inch for overlays up to 4 inches in two stages. The first stage provides a relief cut approximately 1/8 inch wide.

f. Dowels: If contraction joints are to be equipped with dowels they shall be of the size and type specified and shall be firmly supported in place and accurately aligned parallel to the pavement line and grade with an allowable tolerance of 1/8 inch.

3. Longitudinal and Construction Joints: Longitudinal joints and construction joints shall be placed as shown on the Plans or where the Contractor's construction procedure may require them to be placed with approval of the Engineer. Longitudinal construction joints (joints between construction lanes) shall be keyed or tied joints of the dimensions shown on the Plans or Standard Drawings. Transverse construction joints of the type shown on the Plans or Standard Drawings shall be placed wherever concrete placement is suspended for more than 30 minutes. Unless shown otherwise on the Plans, do not place a construction joint within 5 feet of another transverse expansion, contraction or construction joint.

4. Center Joints: Longitudinal center joints shall be constructed using the methods specified in Section 2208.4.D.2 "Contraction Joints".

5. Tie Bars: Tie bars shall be deformed steel of the dimensions specified by the Plans or Standard Drawings. Tie bars shall be installed at the specified spacing and firmly secured so as not to be disturbed by the construction procedure. Tie bars shall not be placed mechanically or by hand into the plastic concrete during the paving operation unless approved by the Engineer. Tie bars shall not be located within one foot of an intersecting joint.

E. Placing, Finishing, Curing, and Protection: Concrete shall be furnished in quantities required for immediate use and shall be placed in accordance with the requirements of the applicable specification as stipulated in Section 2208.3.A. Prior to commencing construction, the Contractor shall furnish a concrete delivery plan which includes at a minimum the number of trucks which will be dedicated to the project, the location of the concrete plant, the route and distance from the plant to the job site, and the anticipated rate of concrete usage. It is essential that concrete be delivered in sufficient quantities to prevent stoppage of the paving operation.

1. Concrete Placement: The concrete shall be deposited on the subgrade to the required depth and width of the construction lane in successive batches and in a continuous operation without the use of intermediate forms or bulkheads. The subgrade shall be moistened prior to the placement of concrete. The concrete shall be placed as uniformly as possible in order to minimize the amount of additional spreading necessary. The concrete shall not be permitted to drop freely a distance of greater than 3 feet. While being placed, the concrete shall be vibrated and compacted with suitable tools so that the formation of voids or honeycomb pockets is prevented.

   The concrete shall be well vibrated and tamped against the forms and along all joints. Care shall be taken in the distribution of the concrete to deposit a sufficient volume along the outside form lines so that the curb section can be consolidated and finished simultaneously with the slab.

   No concrete shall be placed around manholes or other structures until they have been brought to the required grade, alignment, and cross slope.

   Concrete shall not be allowed to extrude below the forms.

   Limitations for time of placement and other items not specifically covered by this specification shall be in accordance with the most recent Standard Specifications of the State Department of Transportation

for the state the work is being performed in. The Engineer may extend placement time limitations based on field conditions and concrete consistency and workability.

2. Concrete Finishing Methods: The pavement shall be struck off and consolidated with a mechanical finishing machine. Hand finishing methods may be used for small or irregular areas. Furnish paving and finishing equipment applicable to the type of construction as follows:

    a. Slip-form Machines: Furnish slip-form machines capable of spreading, consolidating, screeding, and float finishing the freshly placed concrete in one pass to provide a dense and homogeneous pavement with minimal hand finishing.
    b. Self-Propelled Form-Riding Machines: Furnish mechanical, self-propelled spreading and finishing machines capable of consolidation and finishing the concrete with minimal hand finishing. Do not use machines that displace the fixed side forms.
    c. Manual Fixed-Form Paving Machines: Furnish spreading and finishing machines capable of consolidating and finishing the concrete with minimal hand finishing.
    d. Hand Methods: When finishing by hand methods, concrete shall be consolidated by use of vibrating units operating in the concrete. Unless the vibrating apparatus is such that the full width of concrete is consolidated in a single passage, a definite system or pattern shall be used in the operation of the vibrator so the full width of concrete in each linear foot of lane will receive adequate and uniform consolidation. The system and methods of vibrating shall be subject to approval of the Engineer. Vibrating equipment shall, under no circumstances, be used as a tool for moving concrete laterally on the grade.

3. Concrete Finishing

    a. Do not apply moisture (water, finishing aids, etc.) to the surface of the concrete pavement. The concrete should be provided with proper consistency and workability to place, strike off, consolidate, finish and texture without the addition of moisture. Only in the event of exceptional and unusual circumstances may the Engineer consider allowing a fine, fog mist to be added.
    b. Floating: All surfaces shall be consolidated and floated after strike-off and prior to final surface finish.
    c. Straightedging: Following the floating and while the concrete is still plastic, the surface shall be tested for trueness with a 10-foot straightedge placed parallel to the centerline and operated across the entire width of the pavement. The straightedge shall be advanced in successive stages not to exceed half its length and the operation repeated. Surface deviations greater than 1/8 inch shall be corrected and the straightedging repeated. Straightedging may be eliminated if the pavement smoothness is verified using a profilograph as specified in Section 2211.
    d. Edging: Before final finishing is completed and before the concrete has taken its initial set, the edges of the slab and curb shall be finished to 1/8” radius, or that shown on the Plans or Standard Drawings by the paving equipment, or with hand edging tools.
    e. Final Surface Finish
        i. Dragged Surface Treatment: For roadways with a design speed of 45 mph or less to be posted at 45 mph or less, astroturf or burlap shall be dragged longitudinally over the finished surface to produce a tight, uniform, textured surface, and the edges shall be rounded in a workmanlike manner.

            For roadways to be posted at 50 mph or more, astroturf or burlap shall be dragged longitudinally over the finished surface to produce a tight, uniform, textured surface, and the edges shall be rounded in a workmanlike manner. The texture achieved by

the astroturf or burlap drag shall be tested by the Contractor in accordance with ASTM E 965, "Test Method for Measuring Surface Macrotexture Depth Using a Sand Volumetric Technique", to ensure the texture is adequate for skid resistance. Test locations will be determined by the Engineer. The results of ASTM E 965 shall show an average texture depth of any lot, as defined below, and shall have a minimum value of 0.032 inch. Any lot showing an average of less than 0.032 inch but equal to or greater than 0.024 inch will be accepted as substantial compliance but the Contractor shall amend their operation to achieve the required 0.032 inch minimum depth. (It is not the intention of this tolerance to allow the Contractor to continuously pave with an average texture depth of less than 0.032 inch). Any lot showing an average texture depth of less than 0.024 inch shall require diamond grinding of the pavement represented by this lot to attain the necessary texture. Any *individual test* showing a texture depth of less than 0.020 inch shall require diamond grinding of the pavement represented by this lot to attain the necessary texture. Limits of any failing individual test shall be determined by running additional tests at 100 foot intervals before and after the failing test location. All testing of the surface texture shall be completed no later than the day following pavement placement.

ii. Groove Treatment: For roadways to be posted at 50 mph or more, the surface of the traveled lanes shall be grooved in a transverse direction unless specified otherwise in the Plans, Special Provisions, or Specifications. If approved by the Engineer, a suitable longitudinal grooving or a dragged surface treatment as described in Section 2208.4.E.3.e.i may be used in lieu of the transvers grooving. Surface grooving shall be done with a mechanical device such as a wire broom or comb or by hand. The broom or comb shall have a single row of spring steel tines, rectangular in cross section, 1/8 inch to 3/16 inch wide; spaced on 3/4 inch centers of sufficient length, thickness, and resilience to form grooves to a depth of a minimum of 1/8 inch and a maximum of approximately 3/16 inch in the plastic concrete. If grooves are to be installed by hand, the proposed equipment and process to be used shall be approved by the Engineer. This operation shall be done at such time and in such manner that the desired surface texture will be achieved while minimizing displacement of the larger aggregate particles and before the surface permanently sets. Where abutting pavement is to be placed, the grooving should extend as close to the edge as possible without damaging the edge. If abutting pavement is not to be placed, the 6 inch area nearest the edge or 1 foot from the face of the curb is not required to be grooved. For small or irregular areas or during equipment breakdown, grooving may be done by hand methods.

4. Curing: As soon as practical after the concrete is finished it shall be cured with an approved curing method. If a liquid curing membrane is used, it shall be white pigmented and applied in accordance to the manufacturer's directions.

   a. Method of Applying Curing Membrane: A nozzle producing a uniform fan pattern will be used on all spray equipment when applying the liquid curing membrane. The curing compound should be applied immediately after final finishing, and before the loss of all free water on the surface of the concrete. Normally one smooth, even coat shall be applied at a rate of 150 to 200 square feet per gallon, but two coats may be necessary to ensure complete coverage and effective protection. Second coats should be applied at right angles to the first.
   b. Curing Formed Surfaces: If the forms are removed from finished concrete pavement within a period of 72 hours or if a slip-form paving machine has been used, all exposed surfaces shall be cured. Curing membrane damaged by joint sawing operations shall be repaired by the Contractor as directed by the Engineer.

5. Protection: The Contractor shall, at his own expense, protect the concrete work against damage or defacement of any kind until it has been accepted by the Engineer. All vehicular traffic shall be prohibited from using the new concrete pavement until the following criteria have been met:

   a. Construction traffic: New concrete pavement may be opened to light construction traffic after a minimum of four (4) days of cure time has elapsed and the joints have been protected from the intrusion of foreign material by an approved method. The Contractor may reduce this length of time by one of these options, performed at the expense of the Contractor:
      i. Achieve a minimum compressive strength of 70% of the 28 day design strength as determined in accordance with ASTM C 39.
      ii. Achieve a minimum flexural strength of 350 psi using a third point loading method.
   b. All traffic: New concrete pavement may be opened to all traffic after a minimum of seven (7) days of cure time has elapsed and the joints have been sealed in accordance with Section 2208.4.D. The Contractor may reduce this length of time by one of these options, performed at the expense of the Contractor:
      i. Achieve a minimum compressive strength of 100% of the 28 day design strength as determined in accordance with ASTM C 39.
      ii. Achieve a minimum flexural strength of 450 psi using a third point loading method.

   Concrete pavement that is not acceptable to the Engineer because of damage or defacement shall be removed and replaced, or repaired, to the satisfaction of the Engineer, at the expense of the Contractor.

6. Pavement Smoothness: If required by the Contract Documents, pavement smoothness shall adhere to Section 2211. If not required by the Contract Documents, the Engineer shall determine areas to be checked for surface tolerance by the Contractor. The areas identified by the Engineer shall be checked with a 10 foot straightedge placed parallel to the center line at any location within a driving lane. Areas showing high spots of more than 1/4 of an inch in 10 feet shall be marked and ground down with approved grinding equipment to an elevation where the area or spot will not show surface deviations in excess of 1/8 inch when tested with a 10 foot straight edge. Grinding will be performed on the full width of the lane failing to meet the above criteria. The cost of correcting the smoothness and any other associated costs such as traffic control shall be at Contractor's expense.

7. Diamond Grinding: If required by the Contract Documents or if pavement smoothness criteria from Section 2208.4.E or Section 2211 are not achieved, the Contractor shall grind the riding surface to reduce or eliminate the irregularities.

   a. Use a self-propelled grinding machine with diamond blades mounted on a multi-blade arbor. Avoid using equipment that causes excessive ravels, aggregate fractures, or spalls. Provide uniform texture the full width of the lane.
   b. Transverse grooving will not be required.
   c. Use vacuum equipment or other continuous methods to remove grinding slurry and residue. Prevent the grinding slurry from flowing across lanes being used by traffic or into streams, lakes, ponds or other bodies of water, inlets, storm sewer or other drainage system.
   d. After corrections have been made to the riding surface, test the pavement for smoothness using the same technique used to determine smoothness originally. Furnish and operate the smoothness measurement equipment, and evaluate the results as specified in Section 2211.
   e. Perform additional grinding as required to attain the required smoothness. Correct all deviations (in excess of 1/2 inch in a length of 25 feet or ¼ inch in a length of 10 feet) within each section regardless of the profile index value.

8. Temperature Limitation: Concrete work shall be in accordance with the requirements of the state DOT specifications for the state where the work is being performed.

9. Backfill: A minimum of 24 hours shall elapse before forms are removed and 5 days shall elapse or the concrete must have attained 75% of its 28 day compressive strength before pavement is backfilled unless otherwise approved by the Engineer.

10. Backfill shall be accomplished in accordance with Sections 2100 and 2201 entitled "Grading and Site Preparation" and "Subgrade Preparation".

11. The Contractor shall be responsible for the repair of any existing street pavement damaged by the construction to the satisfaction of the Engineer.

12. Joint Sealing and Cleanup: All joints shall be sealed with an approved joint sealer meeting the requirements of Section 2208.3 applied in accordance with this section and the manufacturer's directions within 7 days of the placement of the concrete and prior to the opening of the pavement to traffic. If pavement design does not specifically require the use of joint sealant, prepare the joint as described on the Plans or in the specifications.

    The Contractor shall be responsible for the removal of excess dirt, rock, broken concrete, concrete splatters and overspray from the area of the construction.

2208.5 Integral Curb

If required by the Plans, Standard Drawings or Special Provisions, integral curbs shall be placed along the edges of all street pavement, except at such locations as the Engineer may direct.

The integral curb shall be constructed during or immediately following the finishing operation unless otherwise shown on the Plans. Special care shall be taken so that the curb construction does not lag behind the pavement construction and form a "cold joint".

Steel curb forms or integral slip-forming shall be required to form the backs of all curbs except where impractical because of small radii street returns or other special sections.

Concrete shall be consolidated with an approved vibrator.

Curbs shall be finished to the cross-section as shown on the Plans with a mule; or templates supported on the side forms and with a float not less than four feet in length, unless another method is approved by the Engineer.

The finished surface of the curb and gutter shall be checked for no more than 1/4 inch deviation by the use of a 10 foot straightedge and corrected if necessary.

Where grades are flat and while the concrete is still plastic, the flowline of the gutter should be checked by the Contractor to verify positive drainage.

Finishing, edging, curing, protection, jointing, temperature limitations and backfill shall all comply with Section 2208.4. The curb shall have a brush or broom finish.

2208.6 Repairing Defects

Any defect occurring prior to final acceptance of the project or the end of a Contract warranty period shall be repaired by removing and replacing the affected area to the nearest joint, or as directed by the Engineer. After project final acceptance or expiration of the warranty period, repair defects in conformance with the following. Do not begin corrective work until after submitting a plan and receiving the Engineer's approval for repair methods.

Defect Type	Defect Direction	Defect Location	Description	Repair Procedure	Alternate Procedure
Plastic Shrinkage Crack	Any	Anywhere	Only partially penetrates depth	Do nothing	Fill with HMWM2
Uncontrolled Crack	Transverse	Mid-slab	Full-depth	Saw and seal crack	LTR3
Uncontrolled Crack	Transverse	Crosses or ends at transverse joint	Full-depth	Saw and seal the crack; Epoxy uncracked joint	
Uncontrolled Crack	Transverse	Relatively parallel and within 5 ft of joint	Full-depth	Saw and seal the crack; Seal joint	FDR4 to replace crack and joint
Saw cut or Uncontrolled Crack	Transverse	Anywhere	Spalled	Repair spall by PDRS if crack not removed	
Uncontrolled Crack	Longitudinal	Relatively parallel and within 1 ft of joint; May cross or end at longitudinal joint	Full-depth	Saw and seal crack; Epoxy uncracked joint	Cross stitch crack
Uncontrolled Crack	Longitudinal	Relatively parallel and in wheel path 1-4.5 ft (from joint)	Full-depth, hairline or spalled	Remove and replace slab	Cross stitch crack
Uncontrolled Crack	Longitudinal	Relatively parallel and further than 4.5 ft from a long joint or edge	Full-depth	Cross-stitch crack; Seal longitudinal joint	
Saw cut or Uncontrolled Crack	Longitudinal	Anywhere	Spalled	Repair spall by PDRS if crack not removed	
Uncontrolled Crack	Diagonal	Anywhere	Full-depth	FDR4	
Uncontrolled Crack	Multiple per Slab	Anywhere	Two cracks dividing slab into 3 or more pieces	Remove and replace slab	

HMWM = High molecular weight methacrylate poured over surface and sprinkled with sand for skid resistance.
LTR = Load-transfer restoration; 3 dowel bars per wheel path grouted into slots sawed across the crack; Slots must be parallel to each other and the longitudinal joint.
FDR = full-depth repair; 10 ft long by one lane wide. Extend to nearest transverse contraction joint if 10 ft repair would leave a segment of pavement less than 10 ft long.
PDR = partial-depth repair; Saw around spall leaving 2 in between spall and 2 in deep perimeter saw. Chip concrete free, then clean and apply bonding agent to patch area. Place a separating medium along any abutting joint or crack. Fill area with patching mixture.
Cross-stitching: for longitudinal cracks only, drill ¾" holes at 35° angle, alternating from each side of joint on 30-36 inch spacing. Epoxy #5 epoxy coated deformed steel tie-bars into hole.

2208.7 Method of Measurement

Portland Cement Concrete Pavement will be measured per square yard or tenth part thereof for the specified depth.

2208.8 Basis of Payment

Portland Cement Concrete Pavement will be paid for by one of the following:

A. Contract unit bid price.

B. Contract lump sum bid price.

SECTION 2209 CURBING

2209.1 Scope

This section governs the furnishing of all labor, materials and equipment for the construction or reconstruction of curbing as shown on the Plans and in accordance with the Standard Drawings, the specifications, and the Special Provisions.

2209.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

ASTM
D 698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))

2209.3 Materials

All Materials shall conform to Section 2208.3. Materials submittals and testing shall conform to Section 2208.

2209.4 Construction

The curbing shall be constructed or reconstructed to the configuration and to the lines and grades shown on the Plans.

A. Removal of Existing Curbing for Reconstruction: Existing curbing shall be totally removed to the nearest contraction or expansion (isolation) joint or with the approval of the Engineer it may be sawed provided no free section is left that is less than 5 lineal feet in length, and provided the entire curbing section is sawed a minimum of 2 inches below any exposed surface, or sufficiently to prevent disturbance or damage to all adjacent structures or slabs, whichever is greater.

B. Grading and Subgrade Preparation: All excavation or embankment shall conform to Sections 2100 and 2201 entitled "Grading and Site Preparation" and "Subgrade Preparation".

Compaction shall conform to Section 2201.4.B.

C. Forms: All forms shall be in good condition, clean, and free from imperfections. Each form shall not vary more than 1/4 inch in horizontal and vertical alignment for each 10 feet in length. Face forms will be used when feasible. Forms shall have a height equal to or greater than the height of the curb face being formed. The forms shall be set true to line and grade and shall be supported to stay in position while depositing and

consolidating the concrete. The forms shall be designed to permit their removal without damage to the concrete. The forms shall be lubricated.

D. Slip-Form Curb Machine: A slip-form curb machine may be used in lieu of forms. The machine must be equipped with mechanical internal vibrators and be capable of placing curb to the correct cross section, line and grade within the allowable tolerances.

E. Joints: The joints shall be formed at right angles to the alignment of the curbing and to the depths specified by the appropriate Standard Drawing or as shown on the Plans. Joints should be aligned with concrete pavement joints where feasible.

1. Isolation Joints: Isolation joints shall be placed at all radius points, driveways, curb inlets, or where directed by the Plans or Engineer.

    a. Material: Isolation joints shall be formed by a one piece, one inch thick preformed joint filler cut to the configuration of the correct curb section, and conforming to Section 2208.3.D.
    b. Stability: Isolation joints shall be secured in a manner so they will not be disturbed by depositing and consolidating of concrete.
    c. Edging: The edges of the joints shall be rounded with an edging tool of 1/4 inch radius.

2. Contraction Joints: Curbing shall have contraction joints at intervals of not less than 10 feet or more than 15 feet. They shall extend through the entire curb section from the top of the curb to a depth 2 inches below pavement surface.

    a. Method: Contraction joints shall be formed or sawed.
        i. When sawing joints, the contractor shall begin as soon as the concrete hardens sufficiently to prevent excessive raveling along the saw cut and shall finish before conditions induce uncontrolled cracks, regardless of the time or weather. When joint sealing backup material is specified with sawed joints, the first stage, which provides a relief cut shall be approximately 1/8 inch wide, and shall be to Plan depth. The second stage which widens the joints to allow the insertion of joint sealing backup material to Plan depth shall not be performed until the concrete is at least 48 hours old, and shall be delayed longer when the sawing causes raveling of the concrete. If second stage sawing is performed prior to the completion of the curing period, the Contractor shall maintain the cure by use of curing tapes, plastic devices, or other materials approved by the Engineer.
        ii. When forming joints, templates shall be 1/8” metal cut to the configuration of the curbing section. The templates shall be secured at the proper locations so that they will not be disturbed by the depositing of concrete. The templates shall be removed as soon as the concrete has attained its initial set and finished with a ¼ inch radius on all exposed edges.
    b. Joint Sealer: When specified, joint sealants shall conform to Section 2208.3.

F. Concrete Work: Concrete for curbing shall be placed in accordance with the requirements of Section 2208.4. Isolation and contraction joints shall be constructed as shown on the Plans, Standard Drawings, or where directed by the Engineer.

1. Concrete Placement: Concrete shall be mechanically vibrated and shall not be allowed to extrude below the forms to cause an irregular alignment of the abutting street pavement.

2. Finishing: After placing and initial strike-off the curb shall be tooled to the required radii. If the surface

of the concrete is sufficiently wet that a ridge is formed at the inside of the radius tool, finishing will cease until the excessive moisture has evaporated.

After initial set, the face forms shall be removed and the surface finished to the required dimensions. No water, dryer, or additional mortar shall be applied to the free surface of the concrete.

The finished surface of the concrete shall be broomed perpendicular to the curb with a clean broom to provide an antiskid surface.

In all cases the finished curb shall have a true surface, free from sags, twists, or warps, and shall have a uniform color and appearance.

3. Curing: As soon as practical after the concrete is finished it shall be cured with a liquid curing membrane meeting the requirements of Section 2208.4.E.4, applied according to the manufacturer's directions.

   If front and/or back forms are removed from finished curbing within a period of 72 hours of placement these surfaces shall also be cured.

   Wet burlap, cotton mat, waterproof paper, polyethylene sheeting or earth backfill is not an acceptable curing method for curbing.

4. Protection: The Contractor shall protect the concrete work against damage or defacement of any kind until it has been accepted by the Engineer. Concrete which is damaged or defaced, shall be removed and replaced, or repaired to the satisfaction of the Engineer, at the expense of the Contractor.

5. Temperature Limitations: Concrete work shall be performed in accordance with requirements of the state DOT specifications for the state where the work is being performed.

6. Backfill: Backfill shall conform to Section 2208.4.E.9. The Contractor shall be responsible for the repair of any pavement disturbed by the construction to the satisfaction of the Engineer.

7. Joint Sealing and Clean-Up: Unless otherwise specified or waived by the Engineer, an approved joint sealer shall be applied in accordance with the manufacturer's directions within 7 days of the placement of the concrete. The Contractor shall be responsible for the removal of excess dirt, rock, broken concrete, concrete splatters and overspray from the area of the construction.

8. Surface Tolerances: Curbing shall have a surface tolerance of 1/4 inch in 10 feet when checked with a ten foot straightedge.

9. Repairing Defects: Defects in the concrete shall be repaired in accordance with Section 2208.6.

2209.5 Method of Measurement

Curbing will be measured per lineal foot or tenth part thereof for the applicable type.

2209.6 Basis of Payment

Curbing will be paid for by one of the following:

A. Contract unit bid price.

B. Contract lump sum bid price.

SECTION 2210

This section has been intentionally left blank.

SECTION 2211 SMOOTHNESS

2211.1 Scope

This section governs the furnishing of all labor, materials and equipment for the determination of pavement surface smoothness, evaluation of results, and corrective actions as shown on the Plans and in accordance with the Contract Documents, Standard Drawings, the specifications and the Special Provisions.

2211.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

Kansas Department of Transportation
Standard Specifications for State Road and Bridge Construction, 2015 Edition
Kansas Test Method KT-46 from KDOT Construction Manual, latest revision

Missouri Highways and Transportation Commission
Missouri Standard Specifications for Highway Construction, 2011 Edition
MoDOT Engineering Policy Guide Section 106.3.2.59 TM-59, Determination of the International Roughness Index

2211.3 Equipment

Equipment for determination of pavement smoothness and performance of corrective actions shall be in compliance with the specifications of the Department of Transportation of the state where the work is performed; for MoDOT, Section 502.8 and for KDOT, Sections 503 and 603.

2211.4 Construction

If specified in the Contract Documents, profilographing shall be performed on roadways classified as arterials, major collectors, freeways, expressways and interstates.

A. Exceptions: Unless otherwise specified in the Contract Documents, profilographing will not be required for local roads or minor collectors. In addition, other exceptions shall be as specified in the state DOT specifications for the state the work is being performed in.

1. Finished pavements on local roads, minor collectors and other areas exempted from profilographing shall be checked with a 10 foot straightedge placed parallel to the center line at any location within a driving lane. Areas showing high spots of more than 1/4 of an inch in 10 feet shall be marked and ground down with approved grinding equipment to an elevation where the area or spot will not show surface deviations in excess of 1/8 inch when tested with a 10 foot straight edge. Grinding will be

performed on the full width of the lane failing to meet the smoothness criteria. The cost of correcting the smoothness and associated traffic control shall be at Contractor's expense.

B. Profilographing: Profilograph testing and evaluation shall be performed in accordance with the State Department of Transportation specifications and test methods for the state where the work is being performed; for MoDOT, Section 502.8 and for KDOT, Sections 503 and 603. Within two days after the paving, furnish the Engineer with the profilogram and its evaluation.

C. Corrective Actions: Corrective actions shall be performed at the Contractor's expense and in accordance with the State Department of Transportation specifications for the state where the work is being performed; for MoDOT, Section 502.8 and for KDOT, Sections 503 and 603.

D. Final Report: The Contractor shall submit a final report to the Engineer with final profilograph results verifying compliance with the specified pavement smoothness requirements.

E. Pay Adjustments: No pay adjustments (incentive or disincentive) shall be made to the smoothness or pavement items based on the results of the profilograph testing.

2211.5 Method of Measurement

Smoothness will be measured as a lump sum unit.

2211.6 Basis of Payment

Smoothness will be paid for by Contract lump sum bid price.

END OF SECTION

DIVISION II
CONSTRUCTION AND MATERIAL SPECIFICATIONS
SECTION 2600 STORM SEWERS

APPROVED AND ADOPTED THIS 15th DAY OF FEBRUARY, 2017
Last Revised March 3, 2020 (See underlined text, pg.16)

KANSAS CITY METROPOLITAN CHAPTER
OF THE AMERICAN PUBLIC WORKS ASSOCIATION

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SECTION 2601 GENERAL

2601.1 Scope

This section governs the furnishing all labor, materials, and equipment necessary for the complete installation of storm sewers and appurtenances as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions. Unless otherwise noted within these specifications, the word "sewers" shall refer to pipe sewers, box culvert sewers, or open channels.

2601.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards exist, the more stringent standard shall apply.

APWA

Section 2100	Grading and Site Preparation
Section 2150	Erosion and Sediment Control
Section 2200	Paving
Section 2300	Incidental Construction
Section 2400	Seeding and Sodding

ASTM

A 48	Standard Specification for Gray Iron Castings
A 139	Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)
A 153	Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
A 240	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
A 615	Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
A 641	Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
A 742	Standard Specification for Steel Sheet, Metallic Coated and Polymer Precoated for Corrugated Steel Pipe
A 744	Standard Specification for Castings, Iron-Chromium-Nickel, Corrosion Resistant, for Severe Service
A 745	Standard Practice for Ultrasonic Examination of Austenitic Steel Forgings
A 760	Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
A 761	Standard Specification for Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches
A 788	Standard Specification for Steel Forgings, General Requirements
A 929	Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe
A 1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
C 33	Standard Specification for Concrete Aggregates
C 76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
C 88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C 361	Standard Specification for Reinforced Concrete Low-Head Pressure Pipe
C 443	Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
C 478	Standard Specification for Circular Precast Reinforced Concrete Manhole Sections
C 506	Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
C 507	Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe
C 923	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals

C 990 Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
C 1628 Standard Specification for Joints for Concrete Gravity Flow Sewer Pipe, Using Rubber Gaskets
D 1683 Standard Test Method for Failure in Sewn Seams of Woven Apparel Fabrics
D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
D 3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
D 3887 Standard Specification for Tolerances for Knitted Fabrics
D 5034 Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
F 593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
F 594 Standard Specification for Stainless Steel Nuts
F 2306 Standard Specification for 12 to 60 in. [300 to 1500 mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications
G 152 Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials

AASHTO
M 31 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
M 36 Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drain
M 55 Standard Method of Test for Steel Welded Wire Reinforcement, Plain, for Concrete
M 196 Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
M 197 Standard Specification for Aluminum Alloy Sheet for Corrugated Aluminum Pipe
M 245 Standard Specification for Corrugated Steel Pipe, Polymer-Precoated, for Sewers and Drains
M 246 Standard Specification for Steel Sheet, Metallic-Coated and Polymer-Precoated, for Corrugated Steel Pipe
M 274 Standard Specification for Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe
M 294 Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter

ANSI/AWWA
C 206 Field Welding of Steel Water Pipe

ACI 301 Specifications for Structural Concrete

Federal Standard 595B

MCIB Mid-West Concrete Industry Board Concrete Specifications - Concrete Pavement
The current editions of the "Bulletins" and Approved Sections of the "Standard Concrete Specifications" issued by the Mid-West Concrete Industry Board, Inc. (MCIB) are made a part hereof by reference. However, when the provisions of this Specification differ from the provisions of such "Bulletins" and "Sections" the provisions of this Specification shall govern.

KCMMB Kansas City Metro Materials Board Specifications

Kansas Department of Transportation
Standard Specifications for State Road and Bridge Construction, 2015 Edition

Missouri Highways and Transportation Commission
Missouri Standard Specifications for Highway Construction, 2011 Edition

2601.3 Cleanup

Cleanup shall follow the work progressively. The Contractor shall remove from the project site all rubbish, equipment, tools, surplus or discarded materials, and temporary construction items.

Streets to be opened to local traffic at the end of the day's operation shall be cleaned of dirt or mud. All equipment and material stockpiles shall be secured for safe passage of vehicles and pedestrians. If streets are to remain open to traffic, cleaning shall be performed at a minimum of once per day at the end of the day's work or as directed by the Engineer or Owner.

Clean-up shall be considered subsidiary to other items in the Contract Documents.

SECTION 2602 PIPE SEWER CONSTRUCTION

2602.1 Scope

This section governs the furnishing of all labor, materials and equipment for the construction of pipe storm sewers and appurtenances at the location and to the lines and grades indicated on the Plans.

2602.2 Materials

A. Reinforced Concrete Pipe

1. Pipe: Reinforced concrete pipe shall conform to the following ASTM Standards and be of the minimum strength designated herein or such higher strength as may be required by the Plans:

    a. Round Pipe: ASTM C 76, Class III (minimum), Wall B (minimum)
    b. Arch Culvert Pipe: ASTM C 506, Class A-III
    c. Elliptical Pipe: ASTM C 507, Class HE-III

    Except for fittings and closure pieces, each joint of pipe shall not be less than eight feet long for pipe diameters 48 inches or less and shall not be less than six feet long for pipe diameters larger than 48 inches.

2. Reinforcement: Circumferential reinforcement shall be full-circle type. Part-circle reinforcement will not be approved. All reinforcing shall be located and spaced as recommended by the pipe manufacturer.

3. Joints

    a. Rubber Gasket Joints: Rubber gasket joints shall conform to ASTM C 443 or ASTM C 1628-06 with the following additions and exceptions.
        i. Replace ASTM C 1628-06 5.1.1 with: Circular Cross-Section or "O-Ring" Gaskets for standard use shall meet Class A requirements. Non-Circular Cross-Section or "Profile" Gaskets for standard use shall meet Class E requirements.
        ii. Replace ASTM C 1628-06 9.4 with: The manufacturer shall conduct concurrently the hydrostatic test described in 9.2 and the structural test described in 9.3. If proven watertight under these combined conditions, hairline cracks that do not leak shall not be cause for rejection. A vacuum of the American Concrete Pipe Association, may be used in lieu of the hydrostatic test referenced above.
        iii. Joint design details shall be submitted for approval together with design data and test results verifying the adequacy of the joint design.
    b. Preformed Flexible Joint Sealant: This sealant shall be either rope form or flat tape form

conforming to ASTM C 990. Primer, if recommended by the manufacturer, shall be applied within the manufacturers' time requirements on all bell and spigot joint surfaces. Joint shall be thoroughly sealed and watertight.

B. Corrugated Metal Pipe (CMP): Pipe, coupling bands, and end section conform to the following requirements:

1. Material

   a. Aluminized Steel Type 2 — AASHTO M274, ASTM A 929
   b. Polymer-Coated Steel — AASHTO M246, ASTM A 742
   c. Aluminum Alloy — AASHTO M197, ASTM B 744

2. Pipe

   a. Steel (Aluminized Steel, Type 2, CSP and Spiral Rib) AASHTO M36, ASTM A 760
   b. Steel (Polymer-Coated, GSP, Spiral Rib, Smooth Interior CSP) AASHTO M36, AASHTO M245, ASTM A 745
   c. Aluminum (CMP, Spiral Rib) AASHTO M196, ASTM A 788

Minimum wall thickness of the pipe shall be as follows:

Circular Culvert Pipe (2-2/3" x 1/2" Corrugations)					
Under Roadways or In Street Right-of-Ways		**Under Railroads**		**Not Under Roadways**	
Diameter	**Minimum Thickness**	**Diameter**	**Minimum Thickness**	**Diameter**	**Minimum Thickness**
12"-21"	.064"	12"-18"	.079"	12"-30"	.064"
24"-30"	.079"	21"-24"	.109"	36"-54"	.079"
36"-54"	.109"	30"-36"	.138"	60"-84"	.109"
60"-72"	.138"	42"-84"	.168"		
84"	.168"				

Circular Culvert Pipe (3" x 1" and 5" x 1" Corrugations)			
Under Roadways or In Street Right-of-Ways		**Not Under Roadways**	
Diameter	Minimum Thickness	Diameter	Minimum Thickness
36" – 54"	.079"	36" – 54"	.064"
60" – 84"	.109"	60" – 84"	.079"

Circular Culvert Pipe (3/4" x 3/4" x 7-1/2" Spiral Rib)			
Under Roadways or In Street Right-of-Ways		**Not Under Roadways**	
Diameter	Minimum Thickness	Diameter	Minimum Thickness
12" – 24"	.064"	12" – 42"	.064"
30" – 42"	.079"	48" – 60"	.079"
48" – 66"	.109"	66" – 84"	.109"
72" – 84"	.138"		

Arch Culvert Pipe (2-2/3" x 1/2" Corrugations)			
Under Roadways or In Street Right-of-Ways		**Not Under Roadways**	
Equivalent Diameter	Minimum Thickness	Span*	Rise*
15"	.064"	17"	13"
18"	.064"	21"	15"
21"	.064"	24"	18"
24"	.079"	28"	20"
30"	.079"	35"	24"
36"	.109"	42"	29"
42"	.109"	49"	33"
48"	.109"	57"	38"
54"	.109"	64"	43"
60"	.138"	71"	47"

* Subject to manufacturing tolerances.

Arch Culvert Pipe (3" x 1" Corrugations)			
Equivalent Diameter	**Minimum Thickness**	**Span***	**Rise***
36"	.064"	40"	31"
42"	.064"	46"	36"
48"	.064"	53"	41"
54"	.079"	60"	46"
60"	.079"	66"	51"
66"	.079"	73"	55"
72"	.079"	81"	59"
78"	.109"	87"	63"
84"	.109"	95"	67"
90"	.109"	103"	71"

* Subject to manufacturing tolerances.

Arch Culvert Pipe (3/4" x 3/4" x 7-1/2" Spiral Rib)			
Equivalent Diameter	**Minimum Thickness**	**Span***	**Rise***
18"	.064"	20"	16"
21"	.064"	23"	19"
24"	.064"	27"	21"
30"	.079"	33"	26"
36"	.079"	40"	31"
42"	.079"	46"	36"
48"	.109"	53"	41"
54"	.109"	60"	46"
60"	.109"	66"	51"
66"	.109"	73"	55"

* Subject to manufacturing tolerances.

3. Joints: Joints shall have a gasket and may be either bell and spigot joints or made with external coupling bands. The bands shall be drawn and secured on the pipe by connecting devices as furnished by the manufacturer. Pipe ends for annular corrugation shall be identical to the rest of the pipe barrel (plain ends), or in the case of helical pipe, the pipe ends at the joint shall be reformed to an annular corrugation and flange (reformed end). Gaskets shall be furnished in accordance with the Plans and Special Provisions. Coupling bands shall be reviewed and approved by the Engineer prior to installation.

C. Structural Plate Pipe and Pipe Arches: Structural plate and galvanizing shall conform to the requirements of ASTM A 761. Bolts, nuts, and washers for reconnecting plates shall be galvanized in accordance with ASTM A 153 and meet manufacturer's recommendations.

D. High Density Polyethylene (HDPE) Pipe

1. Material: Pipe manufactured for this specification shall comply with and be certified to meet the requirements for test methods, dimensions and markings found in ASTM F 2306 and AASHTO M-294, current additions. Pipe and blow molded fittings shall be made from PE compounds which conform to the requirements of cell class 435400C in the latest version of ASTM D3350.

2. Pipe Sizes: Nominal sizes for this specification include 12-60 inch diameters designated in AASHTO M294 and ASTM F 2306 as full circular cross section with an outer corrugated pipe wall and essentially smooth inner wall (waterway). Pipe corrugations shall be annular.

3. Joints: Joints shall have a gasket and may be either bell and spigot joints or made with external coupling bands. The fittings and couplings bands shall be fabricated from the same material as the pipe conforming to AASHTO M294. The coupling bands shall cover at least two full corrugations of each section of pipe and shall prevent infiltration of soil into the pipe. Gaskets shall be furnished in accordance with the Plans and Special Provisions. Coupling bands shall be reviewed and approved by the Engineer prior to installation.

4. Certification: All high-density polyethylene (HDPE) pipe used for culvert and storm sewer applications shall conform to the requirements of AASHTO M294 and ASTM F 2306, current edition. Pipe shall be provided only by manufacturers that are certified through the National Transportation Product Evaluation Program (NTPEP) Third Party Certification program.

5. Pipe Usage: High density polyethylene pipe (HDPE) may not be used for crossroad applications of collector roadways or higher unless approved by the Engineer. If approved by the engineer, HDPE in accordance with ASTM F2648, latest version, may be used in lieu of ASTM F2306 and AASHTO M294 in drainage applications that are designated as private.

E. Dual Walled Polypropylene Pipe

1. For 12-inch to 60-inch pipe, polypropylene pipe shall have a double wall with a smooth interior and annular exterior corrugations and conform to ASTM F2881 and AASHTO M330. The pipe shall not be perforated unless otherwise specified.

2. For 12-inch to 60-inch pipe, pipe shall be joined with a gasketed integral bell and spigot joint meeting the requirements of ASTM F2881.

3. Coupling bands shall cover at least two full corrugations on each section of pipe and shall prevent the infiltration of soil into the pipe.

4. Certification: All polypropylene (PP) pipe used for culvert and storm sewer applications shall be provided only by manufacturers that are certified through the National Transportation Product Evaluation Program (NTPEP) Third Party Certification program.

F. Dual and Triple Walled Polypropylene Pipe

1. For 12-inch to 30-inch pipe, polypropylene pipe shall have a double wall with a smooth interior and annular exterior corrugations and conform to ASTM F2881 and AASHTO M330 Type S. For 36-inch and larger pipe sizes, polypropylene pipe shall have a triple wall with smooth interior and exterior surfaces with inner corrugations and conform to ASTM F 2764 and AASHTO M330 Type D. The pipe shall not be perforated unless otherwise specified.

2. For 12-inch to 30-inch pipe, pipe shall be joined with a gasketed integral bell and spigot joint meeting the requirements of ASTM F2881. For 36-inch and larger pipe, pipe shall be joined with a gasketed integral bell and spigot joint meeting the requirements of ASTM F2764.

3. Coupling bands shall cover at least two full corrugations on each section of pipe and shall prevent the infiltration of soil into the pipe.

4. Certification: All polypropylene (PP) pipe used for culvert and storm sewer applications shall be provided only by manufacturers that are certified through the National Transportation Product Evaluation Program (NTPEP) Third Party Certification program.

G. Granular Bedding Material: Refer to Section 2100 Clearing and Site Preparation.

H. Flowable Backfill (CLSM): Refer to Section 2100 Clearing and Site Preparation.

2602.3 Construction

A. Trench Excavation: Refer to Section 2100 Clearing and Site Preparation.

1. Unclassified Excavation: Refer to Section 2100 Clearing and Site Preparation.

2. Rock Excavation: Refer to Section 2100 Clearing and Site Preparation.

3. Earth Excavation: Refer to Section 2100 Clearing and Site Preparation.

4. De-watering: Refer to Section 2100 Clearing and Site Preparation.

5. Cribbing and Sheeting: Refer to Section 2100 Clearing and Site Preparation.

6. Unstable Foundation: Refer to Section 2100 Clearing and Site Preparation.

7. Protection of Property: The Contractor shall satisfactorily shore, support, and protect any and all structures and all pipes, sewers, drains, conduits, and other facilities, and shall be responsible for any damage resulting thereto. The Contractor shall not be entitled to any damages or extra pay on account of any postponement, interference, or delay caused by any such structures and facilities being on the line of work, whether or not they are shown on the Plans; specifically, but not limited to, damage due to delay in utility relocation.

B. Laying and Jointing

1. Handling and Protection: All pipe shall be protected during installation against shock and free fall, and be installed without cracking, chipping, breaking, bending, or damage to coating materials. Damaged pipe materials shall be replaced with new materials.

2. Grade Control: Maximum deviation from indicated alignment of any pipe after installation and backfilling shall not be greater than 0.1 foot. All pipe shall have a continuous slope free from depressions that will not drain. The Contractor shall establish such grade control devices as are necessary to maintain the above tolerances.

3. Laying: The laying of pipe in finished trenches shall commence at the lowest point, and pipe shall be installed with the bell end forward or upgrade. All pipe shall be laid with ends abutting and true to line and grade. Pipe laid shall be carefully centered to form a sewer with a uniform invert.

4. Bedding: Bedding shall be rodded, spaded, and consolidated as necessary to provide firm uniform support for the pipe, and not subject pipe to settlement or displacement.

5. Jointing: Preparatory to making filled, bonded, and watertight sealed pipe joints, all surfaces of the portions of the pipe to be jointed shall be clean and dry. Lubricants, primers, adhesives, and other substances that are used shall be compatible with the jointing material recommended or specified.

   Other than for trimming sewer pipe to be flush with the inside walls of storm sewer structures, no pipes may be trimmed unless ordered by the Engineer.

   Trenches shall be kept water-free and as dry as possible during bedding, laying, and jointing, and for as long a period as required to protect the pipe joints and concrete in structures.

   As soon as possible after the joint is made, sufficient bedding material shall be placed alongside each side of the pipe to offset conditions that might tend to move the pipe off line and grade.

   a. Concrete Pipe
      i. Plastic Joint Sealant: Plastic joint sealant shall be applied to the tongue and spigot prior to its insertion into the bell or groove. A sufficient amount of sealant shall be

used to fill the annular joint space with some excess. Wipe the outside surface of the joint with additional material to assure a complete seal.

ii. Flexible Gaskets: Flat gaskets may be cemented to the pipe tongue or spigot. O-ring gaskets shall be recessed in a groove on the pipe tongue or spigot and confined by the bell or groove after the joint is completed. Roll-on gaskets shall be placed around the tongue or spigot and rolled into position as the joint is assembled. Flat gaskets and O-ring gaskets shall be lubricated as recommended by the manufacturer.

a) Flat gasket: Flat flexible gaskets shall conform to ASTM C 443. If there is no recess provided for the gasket, the surface of the tongue shall be cleaned and rubber adhesive applied. Using quick-drying adhesive, gaskets may be applied ahead of the laying operation or in the plant.

b) O-ring gasket: O-ring or roll-on flexible gaskets shall conform to ASTM C 361, Section 4.10. The entire surface of the bell that comes in contact with the rubber gasket shall be well lubricated with a soap lubricant. The entire gasket shall be greased with soap. Only the soap lubricant supplied by the pipe manufacturer shall be used. Adhesive type cements shall not be used.

b. Corrugated Metal Pipe. Corrugated metal pipe joints shall have a gasket and may be either bell and spigot joints or made with external coupling bands. The bands shall be drawn and secured on the pipe by connecting devices as furnished by the manufacturer. Pipe ends for annular corrugation shall be identical to the rest of the pipe barrel (plain ends), or in the case of helical pipe, the pipe ends at the joint shall be reformed to an annular corrugation and flange (reformed end). Gaskets shall be furnished in accordance with the Plans and Special Provisions. Coupling bands shall be reviewed and approved by the Engineer prior to installation.

c. HDPE Pipe: HDPE pipe shall be assembled, installed, and backfilled in accordance with the manufacturer's instructions. Joints shall have a gasket and may be either bell and spigot joints or made with external coupling bands. The fittings and couplings bands shall be fabricated from the same material as the pipe conforming to AASHTO M294. The coupling bands shall cover at least two full corrugations of each section of pipe and shall prevent infiltration of soil into the pipe. Gaskets shall be furnished in accordance with the Plans and Special Provisions. Coupling bands shall be reviewed and approved by the Engineer prior to installation.

During construction of the project in areas subjected to heavy construction equipment traffic, pipe sizes 12" - 42" shall have a minimum cover of 3 feet, and pipe sizes 48"- 120" shall have a minimum cover of 4 feet.

d. Structure Connections: Pipes connected to structures shall be cut parallel with the inside face of the structure for structures having plane walls and parallel with the spring line of the pipe for structures having curved walls. Projection of the pipe beyond the inside face shall not exceed 1 inch (measured at the springline for structures having curved walls).

C. Backfill of Trenches

1. General: Refer to Section 2100 Clearing and Site Preparation.

SECTION 2603 BORING AND JACKING

2603.1 Scope

This section governs the furnishing of all labor, materials and equipment for the construction of steel casings, complete

with bulkheads and sand fill, by boring and/or jacking at the locations and to the lines and grades indicated on the Plans, or where constructed at the Contractor's option, when approved, to bypass obstructions without open cutting.

2603.2 Materials

A. Steel Casing

1. Steel casing for bored or jacked construction shall conform to ASTM A 139.

2. Steel shall be grade B under railroads and grade A for all other uses.

3. Minimum wall thickness for steel casing shall be in accordance with the following table:

Diameter of Casing	Under Railroads	All Other Uses
24"	0.406"	0.281"
26"	0.438"	0.281"
28"	0.469"	0.312"
32"	0.500"	0.312"
34"	0.500"	0.312"
36"	0.500"	0.344"

4. Casing joints shall be welded by a certified welder in accordance with ANSI/AWWA C206.

B. End Seals: End seals shall be manufactured end seals, concrete plugs with allowances for water flow, or brick shall be in accordance with ASTM C 32, Grade SS or SM and mortar in accordance with ASTM C 270.

C. Sand Fill: Sand fill shall comply with ASTM C 33 or MCIB Section 4, Fine Aggregate. Moisture content of the sand shall not exceed 0.5%.

2603.3 Construction Details

A. Boring and Jacking

1. Prior to starting work, complete details of the methods and the liner material to be used shall be submitted to the Engineer for approval.

2. The maximum allowable deviation from indicated alignment and grade shall be as follows except when altered by the Plans or Special Provisions:

   a. Alignment 1.0%
   b. Grade 1.0%

B. Casing Installation

1. The steel casing shall be advanced in a continuous operation without interruption. Sections of the casing pipe shall be welded together to form a continuous conduit capable of resisting all stresses including jacking stresses. The casing in its final position shall be within alignment and grade tolerances specified in Section 2603.3.A.2. There shall be no space between the earth and the outside of the casing. Any voids which do occur shall be filled by pressure grouting.

2. Boring operations shall be performed by experienced crews using a rotary type boring machine designed especially for this purpose. Boring shall be performed in a manner to prevent disturbing the overlying and adjacent materials.

3. Jacking

   a. Jacking frame, guides, blocking, head, and reaction devices shall be arranged to apply uniform pressure about the casing circumference without damage to the casing material, and to maintain alignment within specified tolerances.
   b. Jacking reaction device shall provide adequate resistance to withstand 200 percent of the maximum jacking pressure.
   c. Provide jacks of adequate number and size for the required jacking pressure; but not less than two jacks.
   d. Maintain jacking pit and pipe installation in such condition that drainage does not accumulate. Control and disposition of surface and subsurface water at the site of jacking operations shall be the Contractor's responsibility.
   e. Excavation at the heading shall not be extended more than 1 inch outside the top and sides (upper 300-degree sector) of the casing and shall be true to grade at the invert (lower 60-degree sector).
   f. Once jacking begins, it shall proceed without interruption until installation of the entire length of the jacked casing is complete.

4. Excavation in Jacked Casings: Perform excavation within jacked casings by hand or machine methods as necessary to remove the materials encountered without disturbing the overlying material. The jacked casing shall be advanced a sufficient distance ahead of the excavation face and/or shield used as necessary to protect the workman and the work, and to prevent the uncontrolled entry of unstable materials into the casing.

5. Unstable Materials: If materials are encountered during casing installation that cannot be excavated safely or without creating voids around the exterior of the casing, the Contractor shall discontinue casing installation and stabilize such materials by dewatering, chemical soil stabilization, grouting, or other methods, and/or modify equipment and procedures as necessary to complete the casing installation.

C. Sewer Pipe Installation

1. Pipe shall be placed inside the casing to the indicated line and grade by the use of wood skids or other equivalent methods. The wood shall be pressure-treated with a preservative in accordance with ASTM D 1760. Cut surfaces shall be given 2 heavy brush coats of the same preservative. The wood skids shall be securely fastened to the sewer pipe with steel straps.

2. End seals shall be constructed after the sewer pipe is installed and approved.

3. The annular space between the casing and sewer pipe shall be filled with sand blown in so that all space is filled without disturbing the alignment and grade of the sewer pipe. Flowable Backfill (CLSM) meeting Section 2102.2.E, may be substituted in lieu of sand fill. Alternative methods may be submitted for approval by the Engineer.

SECTION 2604 STRUCTURES

2604.1 Scope

This section governs the furnishing of all labor, materials and equipment for the performance of all work necessary for construction of cast-in-place and precast concrete structures for inlets, manholes, junction boxes, box culverts, headwalls, and incidental structures.

Masonry or brick structures shall not be allowed under these Specifications.

2604.2 Materials

A. Concrete Mixes: Concrete shall be MCIB Mix Number A 558-1-2-0.421 or KCMMB 4K, unless otherwise specified.

B. Concrete Materials

1. For KCMMB mixes, concrete shall be an approved mix with admixtures that are approved for use in that mix design.

2. For MCIB mixes:

    a. Air-entraining admixtures shall provide an air content within the range of 4 1/2 to 7 1/2 percent by volume as measured by the pressure method (ASTM C 231). The air entraining admixtures shall meet the requirements of ASTM C 260.
    b. Portland Cement: Portland cement shall conform to ASTM C 150 Type I. Where high early strength is desired, Type III can be used.
    c. Fine Aggregate: Fine aggregate shall be clean, natural sand meeting the requirements of ASTM C 33. Grading shall be within the limits as set forth by MCIB.
    d. Coarse Aggregate: Coarse aggregate shall be limestone meeting the requirements of ASTM C 33. The sum total of all deleterious material shall not exceed the requirements of ASTM C 33.

3. Water: Water shall be clean and free from deleterious substances. Only potable water will be acceptable without testing.

C. Reinforcing Steel: Reinforcing bars shall conform to ASTM A 615 or AASHTO M 31, Grade 60. Welded steel wire fabric shall conform to ASTM A 1064 or AASHTO M 55.

D. Precast Concrete Structures

1. Manholes: Precast manholes shall conform to ASTM C 478.

2. End Sections for Concrete Pipe: Shall be flared end sections of the pipe manufacturer's standard design, and shall meet all applicable requirements of ASTM C 76 for Class II or higher classes of pipe.

3. Rectangular Structures: Shall conform to the inside dimension indicated on the Plans and be designed for the following loads:

    a. HS-20 live load for all structures in/or under pavement, shoulders, driveways, and other traffic areas.
    b. 2,000-lb wheel live load for curb opening inlets and junction boxes in non-traffic areas.
    c. 50 pcf equivalent fluid pressure for soil pressure on vertical walls.
    d. 120 pcf for unit weight of soil cover on top slabs.

4. Joints: Joints between concrete structures shall be filled with plastic joint compound or preformed plastic compound as stated herein.

   a. Barrel Sections: Minimum cross sectional area of preformed compound between concrete barrel sections shall be 1 inch square or 1.25 inches diameter. Minimum cross-sectional area of the preformed compound between the concrete adjustment ring and cone barrel section shall be two beads of either 1 inch square or 1.25 inches in diameter.

   b. Manhole Adjustment Rings: Rings shall be constructed of concrete, HDPE, or recycled rubber.

      If HDPE adjustment rings are used, they shall be injection molded-recycled HDPE - as manufactured by LADTECH, Inc. or approved equal. They shall be bolted to the structure top section and otherwise installed as per manufacture's recommendations.

      If recycled rubber adjustment rings are used, they shall consist of no less than 80%, by weight, recycled rubber and no less than 10% by volume shredded fiber as manufactured by GNR Technologies or approved equal. They shall be installed as per manufacturer's recommendations.

      The top and bottom of all adjustment rings shall be sealed using a mastic filler meeting the requirements of 2503.D.6 or an epoxy paste. The epoxy paste shall be a two component, moisture insensitive, containing no solvents, and capable of bonding with all materials it is to be used on, like Epoxytec Micor C.P.P or approved equal. Minimum cross-sectional area of preformed compound between concrete adjustment rings shall be two beads of either 1 inch square or 1.25 inches in diameter.

   c. Manhole Ring and Covers: Minimum cross-sectional area of preformed compound between the concrete adjustment ring and the manhole casting shall be two beads of either 1 inch square or 1.25 inches in diameter.

   d. External Manhole Chimney Frame Seal: External frame seal shall consist of a flexible rubber sleeve, interlocking adjustment extension(s), and stainless steel compression bands. The flexible rubber sleeve and extension shall be extruded or molded from a high grade rubber compound conforming to the applicable requirements of ASTM C 923 with a minimum tensile strength of 1500 psi and minimum elongation at break of 350%. At a minimum, the compression bands shall be 16-gauge stainless steel conforming to ASTM A 240, Type 304, with a minimum width of one inch. Screws, nuts, and bolts shall be stainless steel conforming to ASTM F 593 and 594, Type 304. The compression bands shall have the capacity to tighten with enough pressure to make a watertight seal around the rubber chimney sleeve.

E. Air Entrainment: All concrete shall be air entrained. Minimum strength requirements shall be as specified in Section 2604.2.A. Concrete Mixes.

F. Manhole Castings

1. Rings and Covers: Castings shall be gray iron conforming to ASTM A 48, Class 35B. Castings of rings and covers shall be of the shape, dimension, minimum weight, and type as indicated on Plans or Standard Drawings and be free from manufacturing defects. All curb inlet castings shall have cam locks or approved equal. If requested by special order, castings shall be cleaned and painted with one coat of tar prior to delivery. Bearing surfaces between all rings and covers for installation in all areas

shall be machined to provide even seating and interchangeability of like pieces.

All manhole rings and covers placed in paved areas shall be rated for H20 traffic. Cam lock covers or similar shall not be placed in roadway pavement unless shown on the Plans or directed by the Engineer. All covers shall have provisions for opening, such as concealed pick holes.

2. Steps: All steps shall comply with Section 2509.3.G.2.b. Cast iron steps shall not be used.

G. Steel End Sections: Steel end sections shall be fabricated from aluminized base metal as specified in Section 2602, and shall be flared end sections of the metal pipe manufacturer's standard design. End sections shall be furnished with a steel toe plate. Bituminous coating is not required.

H. Toe Walls: Flared end sections for concrete and steel pipe shall be set on a concrete toe wall centered on the end of the section. Toe walls shall be 8 inches thick by 24 inches deep by the width of the end section.

2604.3 Construction

A. Concrete Structures: Concrete construction shall conform to the current ACI 301 Specifications for Structural Concrete.

1. Precast Structures: The Contractor may, at his option, construct precast concrete inlets, junction boxes, and box culverts, in lieu of the cast-in-place structures indicated on the Plans; except that all concrete base slabs for pre-cast inlets, manholes, and junction boxes may be cast-in-place. Solid concrete brick or block shall be used to block inlets and similar structures to grade during placement of base slab concrete.

   Precast concrete box culvert sections shall be installed on a 4-inch leveling course of untreated compacted aggregate conforming to Section 2200 Paving. Leveling courses shall extend 1 foot past the line of the box section, and be finished to a true plane surface to provide uniform bearing for the precast section.

   Any adjustments required for precast structures to meet field conditions shall be at the cost of the Contractor.

2. Finishing: Exposed edges of all slabs, walls, and other concrete structures shall be beveled 3/4" or edged with a 1-1/4" radial tool.

   a. Formed Surfaces: Immediately following removal of the forms, fins and irregular projections shall be removed. Form tie connections, holes, honeycomb spots, and other defects shall be chipped to ensure the voided area is exposed, and shall be chipped back to solid material. These areas shall be thoroughly cleaned, saturated with water, and painted with a grout approved by the Engineer. The repaired surfaces shall be cured in accordance with these specifications.
   b. Exposed Slabs: Finish for exposed slabs shall be wood float texture. Exposed edges shall be beveled or edged with a radial tool.

3. Form Removal: Forms shall remain in place until the concrete has attained sufficient strength to support loads imposed by backfilling, construction, and traffic. Within 24 hours of form removal, small holes and pockmarks of exposed walls shall be filled with Portland cement grout and rubbed smooth. Concrete voids and honeycombs shall be chipped open with a light hammer to expose weak areas for

inspection. At the direction of the Engineer, expansive repair grout shall be used for partial reconstruction of otherwise sound structures.

a. Walls: Forms shall remain in place for a minimum of 5 days or until the concrete reaches a minimum strength of 2000 psi.
b. Slabs: Form shall remain in place for a minimum of 7 days or until the concrete reaches a minimum strength of 3000 psi.

4. Manhole Riser Adjustments: Manhole rings and covers shall be adjusted to match the slope and height, or grade, of pavements. In no case shall the surface pitch of the manhole ring and cover mismatch the pavement slope by more than 1/2 inch. The difference in height between the top of manhole cover and the top of precast cone shall not exceed 24 inches.

   In lieu of replacing concrete adjustment rings that are properly seated and structurally sound but have a small fracture, an external rubber chimney may be fitted to secure a watertight seal between the casting (manhole ring and cover) and the concrete cone barrel section.

B. Invert Channels: Form concrete invert channels in manholes, inlets, and junction boxes to make changes in direction of flow with smooth curves of as large a radius as permitted by the inside dimension of the structure.

Grade changes and transitions shall be smooth and uniform, and all parts of the invert channel and adjacent floor shall slope to drain. Channel bottom shall be finished smooth without roughness or irregularity. Invert channels for precast concrete structures may be cast integrally with the structure base slabs at the Contractor's option.

C. Excavation and Backfill: Refer to Section 2100 "Clearing and Site Preparation".

SECTION 2605 OPEN CHANNELS

2605.1 Scope

This section governs the furnishing of all labor, materials and equipment for the construction of open channel lining at the location, and to the lines, grades, and dimensions indicated on the Plans. Grading shall have been previously completed in accordance with Section 2100 Grading and Site Preparation.

2605.2 Materials

A. Concrete Materials: Concrete shall be in accordance with 2604.2.B, unless otherwise specified. Reinforcing steel shall conform to ASTM A 615 or AASHTO M 31, Grade 60. Welded steel wire fabric shall conform to ASTM A 1064 or AASHTO M 55.

B. Stone: Stone for riprap, and gabion linings shall consist of quarried rock and be sound, durable, and angular in shape. No more than 10 percent shall have an elongation greater than 3:1, and no stone shall have an elongation greater than 4: 1. Material shall be free from cracks, seams, or other defects. Shale and stone with shale seams are not acceptable.

1. The minimum unit weight of the stone shall be 155 pounds per cubic foot as computed by multiplying the specific gravity times 62.4 pounds per cubic foot.

2. Not more than 10 percent of the stone shall exhibit splitting, crumbling, or spalling when subject to 5

cycles of the sodium sulfate soundness test in accordance with ASTM C 88.

3. Riprap: Riprap shall have a minimum thickness of 15 inches, or 1.5 times as thick as the larger stones, whichever is greater.

The gradation for RipRap (Light Stone) shall be as follows:

Weight of Stone In Lbs.	Percent Passing by Weight
250	100 (minimum)
100	50 (maximum)
75	70 (maximum)
5	10 (maximum)

The gradation for RipRap (Heavy Stone) shall be as follows:

Weight of Stone In Lbs.	Percent Passing by Weight
1,000	100 (minimum)
500	50 (maximum)
75	10 (maximum)

The Contractor shall provide certification that the material meets the specified gradations.

4. Gabion Fill Stone: Stone shall be of the following gradations:

U.S. Standard Square Mesh Sieve	Percent Passing by Weight
10”	100
8”	85 - 100
6”	0 - 15
4”	0- 10
3”	0

Stone shall be graded within the above limits as required to provide a unit weight in-place of 100 pounds per cubic foot or greater.

The Contractor shall provide certification that the material meets the specified gradations.

C. Filter Blanket: Filter blanket may be either of the following types at the Contractor’s option:

1. Granular Filter: Granular filter material shall consist of sound, durable rock particles conforming to the following gradation:

Sieve Size	Cumulative Percent Passing By Weight
1”	100
1/2”	70 - 100
No. 4	50 - 85
No. 10	35 - 70
No. 40	20 - 50
No. 100	15 - 40

The Contractor shall provide certification that the material meets the specified gradations.

2. Filter Fabric: Filter fabric shall consist of woven or nonwoven fabric. The synthetic fiber of either the woven or nonwoven fabric shall consist of polypropylene, nylon, or polyester filaments. The percent open area shall be not less than 4 percent nor more than 10 percent. The cloth shall provide an Equivalent Opening Size (EOS) no finer than the U.S. Standard Sieve No. 100. In addition, filter fabric shall meet the following physical requirements:

   a. Tensile Strength: Minimum grab tensile strength, both warpwise and fillingwise, shall be 200 pounds when tested in accordance with ASTM D 5034, using a 4-inch by 6-inch specimen and a jaw speed of 12 inches per minute.
   b. Elongation: Grab elongation shall be not less than 15 percent nor more than 60 percent, both warpwise and fillingwise, when tested in accordance with ASTM D 5034.
   c. Tear Strength: Minimum trapezoid tear strength shall be 100 pounds, both warpwise and fillingwise. Method of test for woven fabrics shall be in accordance with ASTM D 1117.
   d. Bursting Strength: Minimum bursting strength shall be 400 psi when tested in accordance with ASTM D 3887.
   e. Seam Strength: Woven fabric shall have a minimum seam-breaking strength of 180 pounds when tested in accordance with ASTM D 1683, using a jaw speed of 12 inches per minute.
   f. Width: Filter fabric shall be furnished in widths of not less than 6 feet.

D. Gabion Baskets: Baskets shall be of the dimensions indicated on the drawings and be fabricated using hexagonal triple-twist wire mesh.

1. Wire: Wire shall be galvanized steel having a minimum tensile strength of 60,000 psi, and shall be zinc coated in accordance with ASTM A 641 Class 3.

2. Wire Mesh: Maximum dimension of the mesh opening shall be 4-1/2 inches or less, and the maximum area of the mesh opening shall not exceed 12 square inches. Wire shall be 0.120-inch (minimum) diameter.

3. Selvedge Wire: Selvedge wire shall be 0.1535-inch (minimum) diameter. All perimeter edges of the mesh forming the gabion shall be securely selvedged so that joints formed by tying the selvedges have a strength equal to or greater than the body of the basket.

4. Lacing and Stay Wire: Wire shall be 0.0866-inch diameter or larger. Other connection methods, such as stainless steel clips, may be substituted with approval of the Engineer.

5. Diaphragms: Gabions shall be divided into cells not greater than 4 feet in width by wire mesh diaphragms. Diaphragms shall be factory secured to the base of the basket by continuous spiral wire.

6. PVC (Polyvinyl Chloride) Coating: Where specified in the Plans, all wire used in the fabrication of the baskets and in the wiring operations during construction shall, after zinc coating, have an extruded coating of PVC. The coating shall be gray in color ranging between series 26187 and 26293 or between series 26373 and 26375, semi-gloss, as per Federal Standard 595B. The PVC coating shall be a nominal thickness of 0.02165 inches and shall nowhere be less than 0.015 inches in thickness. The coating shall be resistant to the destructive effects of immersion in acidic, salt or polluted water, exposure to ultraviolet light, and abrasion and shall retain these characteristics after a period of not less than 3,000 hours under test in accordance with ASTM G 23.

E. Sod: Sod shall conform to the requirements of Section 2400 Seeding, Sodding and Overseeding.

F. Seed: Seeding shall conform to the requirements of Section 2400 Seeding, Sodding and Overseeding.

2605.3 Construction

A. Foundation Preparation: After completion of grading in accordance with Section 2100, the area to receive channel lining shall be trimmed and dressed to conform to the cross sections indicated on the Plans within a tolerance of plus or minus 1 inch from the theoretical slope lines and grades. All deleterious materials shall be removed from the foundation area.

B. Concrete Lining

1. Preparation: Subgrade shall be moistened by sprinkling. Forms shall be securely staked, braced, and set to line and grade. Reinforcement and tie bars shall be held in position by bar chairs, concrete brick, or other approved devices.

2. Placing and Finishing: Place, consolidate, and strike off concrete to the thickness indicated on the drawings. Concrete shall be tamped or vibrated to eliminate all voids and bring sufficient mortar to the top for finishing. Surface finish shall be a wood-float finish. Round all edges and joints with a 1/4 inch radius edging tool, except contraction joints may be sawed to a depth of 30 percent of the thickness of the concrete lining after concrete has hardened but before uncontrolled cracking occurs. Apply curing membrane as specified in Section 2000 “Paving”.

C. Filter Blanket

1. Granular Filter: Place granular filter to its full thickness in a single operation. Construction methods shall be such that the material is placed without segregation. Compaction of granular filter material is not required.

2. Filter Fabric: Place filter fabric with its long dimension horizontal and lay free of tension, stress, folds, wrinkles, or creases.

    a. Place to provide 18 inches minimum overlap at each joint and anchor to prevent dislocation during construction of overlaying material.
    b. Fabric shall not be left exposed more than two weeks prior to placement of overlaying material. Tracked or wheeled equipment or vehicles shall not be operated on the fabric.

D. Riprap Placement: Riprap shall be placed on the prepared foundation in a manner which will provide a reasonably well-graded mass of stone with the minimum practicable percentage of voids. The entire mass of stone shall be placed so as to be in conformance with the lines, grades, and thicknesses indicated. A filter blanket of filter fabric conforming to Section 2605.2.C.2 shall be constructed under all riprap. Riprap shall be placed to full-course thickness in one operation and in such a manner as to avoid displacing the fabric. The Contractor shall place the riprap in such a way as to not tear, puncture, or shift the fabric. Riprap shall not be dropped more than 3 feet when being placed directly on the fabric. Tears or rips in the fabric shall be repaired with fabric lapped a minimum of 12 inches in all directions.

1. Placing: Placing of riprap in layers, or by dumping into chutes, or by similar methods likely to cause segregation will not be permitted.

2. Distributing: The larger stones shall be well distributed and the entire mass of stone shall conform to the specified gradation. All material shall be so placed and distributed that there will be no objectionable accumulations of either the larger or smaller sizes of stone.

3. Hand Placing: It is the intent of these specifications to produce a fairly compact riprap protection in which all sizes of material are placed in their proper proportions. Hand placing or rearranging of individual stones by mechanical equipment may be required to the extent necessary to secure the specified results.

E. Gabion Baskets

1. Assembly: Assemble each gabion unit by binding all vertical edges together with a continuous piece of connecting wire stitched around the vertical edge with coils spaced at 3 inches or less. Set empty units to line and grade and join units by stitching with connecting wire along adjoining edges. Install and securely fasten internal tie wires in each cell if necessary to retain the shape of the cell during filling operations.

2. Filling: Fill gabion cells with stone carefully by hand or machine to provide a minimum of voids and avoid bulges and distortions of the gabion. After filling, secure the lid to the sides, ends, and diaphragm by stitching with connecting wire.

3. Filter Fabric/Gabion Unit Placement: A filter blanket of filter fabric conforming to Section 2605.2.C.2 shall be constructed under all Gabion Baskets. The Contractor shall place the gabions in such a way as to avoid tearing, puncturing, or shifting the fabric. Tears or rips in the fabric shall be repaired with fabric lapped a minimum of 12 inches in all directions.

F. Sod: Sod shall be installed as specified in Section 2400 Seeding, Sodding and Overseeding, except all sod placed in drainage channels or ditches, including both the side slopes and bottom, shall be anchored in accordance with 2204.3.D.

SECTION 2606 MEASUREMENT AND PAYMENT

2606.1 Measurement

The quantities of accepted work will be measured in the following units. All measurements will be plan measure except for authorized changes.

A. Pipe: By the linear foot of each size and type. Measurement will be to the nearest 0.1 foot for each line between structures, and made to the inside face of the connecting structure. Precast or prefabricated end sections will be excluded from the pipe measurement. Excavation, bedding, and backfill shall be included in the cost per linear foot of pipe per each size and type.

B. Prefabricated or Precast End Sections: By the number of each size and type.

C. Concrete Box Culverts: By the linear foot of each size and type. Measurement will be along the center line of the culvert between the back faces of the headwalls. Headwalls will be measured separately as “Structures”.

D. Structures: Inlets, manholes, headwalls, endwalls, curb inlets, field inlets, and other similar structures will be measured by the number of each size and type as listed in the Contract Documents.

E. Casings: Casings for pipe installation by boring and/or jacking methods will be measured by the linear foot of

each size and type.

F. Pipe Encasement: Pipe encasement will be measured by the linear foot of each size and type.

G. Concrete Channel Lining: By the square yards of surface area. Measurement will be parallel to sloping surfaces.

H. Filter Blanket: Unless otherwise stated in the Agreement, there will be no separate measurement or payment for filter blanket. All costs for such work shall be included in the price of the related item.

I. Riprap: By the square yard of surface area per each size and depth as specified on the Plans or Standard Drawings. Measurement will be parallel to sloping surfaces. The thickness of the riprap shall conform to the plan dimension. Measurement and payment of the filter fabric shall be included in the cost per square yard of the riprap.

J. Gabion Baskets: By the cubic yard on the basis of Plan dimensions.

K. Sodding: Measurement shall be per square yard. Areas that are disturbed which lie outside the construction limits, as defined by the Plans, will not be measured for payment, but shall be restored to a condition equal to or better than that existing prior to construction. For lined (riprap or concrete) channels, sod placement and/or repairs shall be incidental to the cost of placement of the lining material.

L. Seeding: Measurement shall be per square yard. Areas that are disturbed which lie outside the construction limits, as defined by the Plans, will not be measured for payment, but shall be restored to a condition equal to or better than that existing prior to construction. For lined (riprap or concrete) channels, sod placement and/or repairs shall be incidental to the cost of placement of the lining material.

2606.2 Payment

Payment will be made at the respective unit or lump sum price listed in the Contract Documents, and shall be full compensation for all labor, materials, and equipment necessary to complete the respective unit in place. There will be no separate measurement or payment for any item of work not specifically identified and listed in the Contract Documents, and all such work shall be considered a subsidiary item with all costs pertaining thereto included in the prices for other items listed in the Contract Documents. At the Engineer's option, partial payment may be made for any item listed in the Contract Documents, providing that the Contractor is diligently and satisfactorily pursuing full completion of such partially complete item in accordance with the approved progress schedule.

END OF SECTION

DIVISION II
CONSTRUCTION AND MATERIAL SPECIFICATIONS SEWERS
SECTION 2800 – STREET LIGHTS

APPROVED AND ADOPTED THIS 15th DAY OF FEBRUARY, 2017

KANSAS CITY METROPOLITAN CHAPTER
OF THE AMERICAN PUBLIC WORKS ASSOCIATION

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SECTION 2801 GENERAL

2801.1 Scope

This section governs the furnishing of all labor, materials and equipment for the installation and testing of a complete, operational street light system as shown on the Plans and in accordance with the Standard Drawings, the specifications and the Special Provisions.

2801.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

APWA
Section 2100 Grading and Site Preparation
Section 2150 Erosion and Sediment Control
Section 2200 Paving
Section 2300 Incidental Construction
Section 2400 Seeding and Sodding

AASHTO
A307 Portland Bolt
LTS-6 Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals
M 133 Standard Specification for Preservatives and Pressure Treatment Processes for Timber
M 284 Standard Specification for Epoxy-Coated Reinforcing Bars
M-31 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
T-12 Structural Support Signs, Luminaries, and Traffic Signals
T-65 Standard Method of Test for Mass [Weight] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings

ACI 301 Specifications for Structural Concrete

ANSI
B18.2 Fasteners
C1 Specification of General Requirements for a Quality Program
C2 National Electrical Safety Code
C136.10 Locking-Type Photocontrol Devices and Mating Receptacles—Physical and Electrical Interchangeability and Testing
C80.1 Electrical Rigid Steel Conduit
C80.4 Fittings for Rigid Metal Conduit & Electrical Metal
05.1 Stand Specifications for Wood Poles

ASTM
A 36 Standard Specification for Carbon Structural Steel
A 53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
A 123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
A 153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
A 252 Standard Specification for Welded and Seamless Steel Pipe Piles
A 307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength

A 615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
A 775 Standard Specification for Epoxy-Coated Steel Reinforcing Bars
B 695 Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel
D 2683 Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing
D 3035 Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR)
F 436 Standard Specification for Hardened Steel Washers Inch and Metric Dimensions

GSA
A-A-1923 A Shield Expansion (Lag, Machine and Externally Threaded Wedge Bolt Anchors)

ICEA
S-95-658 Power Cables Rated 2000 Volts or less for the Distribution of Electrical Energy

NEMA
TC-2 Electrical Polyvinyl Chloride (PVC) Conduit
TC-3 Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing
TC-7 Smooth-Wall Coilable Electrical Polyethylene Conduit

UL
508A Standard for Industrial Control Panels
514 Metallic Outlet Boxes, Conduit, Tubing, and Cable Fittings

MCIB Mid-West Concrete Industry Board Concrete Specifications - Concrete Pavement
The current editions of the "Bulletins" and Approved Sections of the "Standard Concrete Specifications" issued by the Mid-West Concrete Industry Board, Inc. (MCIB) are made a part hereof by reference. However, when the provisions of this Specification differ from the provisions of such "Bulletins" and "Sections" the provisions of this Specification shall govern. Reference December 2000 Specifications if most recent version does not contain specified mix designs.

KCMMB Kansas City Metro Materials Board Specifications

2801.3 Appurtenances

All appurtenances shall be installed as shown on the Plans, specifications, Standard Drawings, or the Special Provisions. Any deviations must be established by the Contractor and authorized by the Owner. No additional payments will be made for appurtenances.

2801.4 Incidental Work and Parts

Work incidental to the installation of a street lighting system that is not covered in these specifications shall be performed in accordance with the Special Provisions and Standard Drawings. All incidental parts, which are not shown on the Plans or specified in the specifications and which are necessary to complete the street lighting system, shall be supplied and installed by the Contractor to the satisfaction of the Owner. No additional payments will be made for incidental work or parts.

2801.5 Existing Lighting

Existing lighting shall be maintained in effective operation by the Contractor except for shutdowns with approval from the Owner for alterations or final removal. The Contractor shall take all precautions necessary to minimize the

downtime of the existing street lighting systems to be modified.

2801.6 Electrical Service

The Contractor is responsible for contacting the electrical utility company in advance to schedule delivery of service to each power supply. Unless otherwise specified, the Contractor shall pay the electrical utility company's fees to deliver electrical service and shall be billed for all electrical utility service charges until the entire project is substantially complete and the burn test is successfully completed. After those milestones the electrical service can be transferred to the Owner.

2801.7 Maintenance Work

The Contractor is responsible for making all repairs and replacements, including downed poles, damaged or cut cables, and burnt out lamps, to the street light system, regardless of the cause or responsible party, until the work is determined by the Owner to be substantially complete.

SECTION 2802 MATERIALS AND EQUIPMENT

2802.1 Scope

This section governs the furnishing all labor, materials, and equipment necessary for all work required to complete the street lighting system as shown on the Plans and in accordance with the specifications, Standard Drawings, and the Special Provisions.

2802.2 General

All lighting equipment shall be of new stock unless the Contract provides for relocation of existing units or use of units furnished by others. New equipment and material shall be in accordance with ICEA, NEMA, and NESC, as applicable, and shall meet the approval of the Owner.

2802.3 Concrete

All concrete for bases and pads, whether reinforced or non-reinforced, shall be a KCMMB 4K mix, unless otherwise specified in the Special Provisions or Plans. Concrete construction shall be in accordance with ACI 301 Standard Specifications for Structural Concrete.

2802.4 Flowable Backfill (CLSM)

All flowable backfill (CLSM) shall comply with Section 2100 Grading and Site Preparation.

2802.5 Reinforcing Steel

Grade 40 or 60 deformed reinforcing steel shall be placed as shown on the Plans or on the Standard Drawings and shall conform to ASTM A 615 or AASHTO M 31 for plain or ASTM A 775 or AASHTO M 284 for epoxy coated.

Upon request, Contractor shall provide documentation of reinforcing steel that shall include the steel manufacturer's certified mill test report showing complete chemical and physical test results for each heat.

2802.6 Conduit

The location and type of conduit shall be as shown on the Plans or Standard Drawings. The Contractor may furnish and install polyvinyl chloride (PVC), or high-density polyethylene (HDPE) conduit for the distribution system. Galvanized Rigid Steel (GRS) conduit shall be used where conduit is to be installed externally on a structure.

A. Polyvinyl Chloride (PVC): Rigid non-metallic conduit shall be polyvinyl chloride (PVC), Schedule 40, and shall conform to NEMA Standard TC-2 and NEMA TC-3. The conduit shall bear an Underwriters' Laboratories (U.L.) label and be clearly and durably marked at least every 10 feet with the material designation, nominal duct size, and the name and/or trademark of the manufacturer. Fittings for PVC conduit shall be in accordance with U.L. 514. Cement used for the fittings shall be in accordance with the conduit manufacturer's recommendations.

B. High Density Polyethylene (HDPE): Flexible non-metallic conduit shall be high-density polyethylene conduit (HDPE), Schedule 80. The conduit shall be smooth walled inside and out, and shall be gray in color. The conduit shall be a plastic duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance. The conduit shall be manufactured to NEMA Standard TC-7 and ASTM D 3035 SDR11 specifications. The conduit shall be clearly and durably marked at least every 10 feet with the material designation, nominal duct size, and the name and/or trademark of the manufacturer. Fittings for HDPE conduit shall be in accordance with ASTM D 2683. Epoxy used for the fittings shall be in accordance with the conduit manufacturer's recommendations. An approved factory coupling shall be used for connection of the HDPE conduit to a 90° factory PVC elbow or between two lengths of HDPE conduit. The coupling shall be of high density polyethylene material. The coupling shall provide an airtight and watertight lock connection.

C. Galvanized Rigid Steel (GRS): Galvanized rigid steel conduit shall be shall be in accordance with ANSI C80.1. GRS conduit shall be galvanized on both the inside and the outside surfaces. The weight (mass) of zinc coating shall be no less than 0.5 ounce per square foot of coated surface, as determined in accordance with AASHTO T 65. The interior or exterior surface, or both, may be given a coating of suitable material to facilitate installation of wires and cables and to permit the conduit to be readily distinguished from pipe used for purposes other than electrical. All metal conduit ends shall be provided with a bushing to protect the cable from abrasion. Fittings shall be in accordance with ANSI C80.4. A sufficient number of conduit hangers shall be supplied to attach the GRS conduit to the structure, as recommended by the manufacturer. One (1) No. 6 AWG, bare copper ground wire shall be attached to each end of the GRS conduit with a grounding bushing. The ground wire shall be connected to a ground rod at each end of a GRS conduit run, or extended to an adjacent GRS conduit or ground rod.

2802.7 Anchor Bolts

Anchor bolts shall be of size, length and deformation as shown on the Plans, the Standard Drawings or in the Special Provisions and shall conform to ASTM A 307. Nuts, washers and no less than the top eight inches of the bolts shall be galvanized (2.02 ounces per square foot) as specified by ASTM A 153. Nut dimensions shall conform to requirements of ANSI B18.2 for heavy semi-finished hex nuts. Washer dimensions shall conform to ASTM F 436.

2802.8 Screw Anchor Foundations

Screw anchor foundations shall be fabricated of new steel. The length and diameter shall be as shown on the Standard Drawings, the Plans or in the Special Provisions. The shaft shall be steel pipe conforming to ASTM A 252, Grade 2 with minimum wall thickness per ASTM A 53, Schedule 40. The edges of the conduit access slot shall be

smooth and clean to prevent damage to the conduit. The conduit access slot shall be large enough for entry of three, two inch diameter ducts. The base plate steel shall conform to ASTM A 36, shall telescope the shaft and shall be fastened to the shaft with continuous circumferential welds, top and bottom. Mounting holes shall be radially elongated. After fabrication, the foundation shall be hot dip galvanized conforming to ASTM A 123. Mounting bolts shall be one inch diameter. Bolts, nuts and washers shall conform to Section 2802.7.

2802.9 Breakaway Supports

All poles, except 14-foot poles, shall be attached to a cast aluminum breakaway base sized according to the Standard Drawings, the Plans or the Special Provisions. Breakaway supports shall conform to AASHTO LTS-6.

2802.10 Cable

The types and lengths of cables shall be supplied as shown on the Plans, Standard Drawings, or as specified in the Special Provisions. All cable shall be stranded annealed soft drawn copper wire, and shall be the AWG size as listed on the Plans. Cable shall be 600-volt and be thermoplastic or thermosetting polyethylene insulated. All cable shall be plainly marked on the outside with the manufacturer's name and identification in accordance with industry practice.

A. Distribution Cable: Distribution cables shall be insulated three-conductor cables (3c), type RHH, RHW-2 or USE-2, meeting the requirements of ICEA S-95-658. Average thickness of insulation shall be no less than 60 mils. The conductors should be no larger than No. 4 AWG and no smaller than No. 8 AWG.

B. Pole and Bracket Cable: Pole wiring above handhole, inside the pole to luminaire(s) shall be insulated two-conductor No. 10 AWG cables (2c #10), type THHN/THWN. For poles with dual luminaires separate cables will be required for each luminaire, which will extend up from the break-away fused connectors.

C. Cable-In-Duct: Cable-In-Duct shall consist of three insulated power cables, factory installed in conduit intended for direct burial. The duct shall meet all the specifications for high density polyethylene, as described in Section 2802.6.B. The duct shall be clearly and durably marked at least every 10 feet with the material designation, nominal duct size, and the name and/or trademark of the manufacturer. The cables shall meet all the specifications for distribution cable, as described in Section 2802.10.A.

2802.11 Enclosures

Enclosures shall be as specified on the Plans, the Standard Drawings, or in the Special Provisions. The construction and installation shall be according to the NEC, NESC, and local applicable utility standards.

2802.12 Splices

Splices shall be made with copper type K split bolt connectors. All splices shall be protected with a waterproof resin splice kit installed in accordance with the manufacturer's recommendations.

2802.13 Cabinets

Cabinets shall be as specified on the Plans, the Standard Drawings, or in the Special Provisions.

2802.14 Lighting Contactors, Relays, and Terminal Blocks

Lighting contactors, relays and terminal blocks shall be as specified on the Plans, the Standard Drawings, or in the

Special Provisions. The lighting contactor panel shall be labeled per UL 508A.

2802.15 Circuit Breakers

Circuit breakers shall be as specified on the Plans, the Standard Drawings, or in the Special Provisions.

2802.16 Lightning Arrestors

Lightning arrestors shall be as specified on the Plans, the Standard Drawings, or in the Special Provisions.

2802.17 Fuses

Fuses and fuseholders shall be as specified on the Plans, the Standard Drawings, or in the Special Provisions.

2802.18 Photoelectric Controls

The photoelectric control shall meet the requirements of ANSI C136.10. The control shall be adjusted to operate at a footcandle level designated by the Owner, as measured in accordance with the standard. The control shall be designed so that if it fails, the system is energized. Photoelectric cells shall sense light levels with a non-drifting phototransistor. The photoelectric cell shall have a time delay to avoid turn off due to lightning and transient light.

2802.19 Pull and Junction Boxes

Pull and junction boxes shall be as specified on the Plans, the Standard Drawings, or in the Special Provisions.

2802.20 Poles

The type and length of pole and arm will be specified in Plans or Special Provisions. New installations shall match with existing equipment (luminaire type, pole type, etc.). All poles shall have ID plates with the following information:

1) Manufacturer's name
2) Date of manufacture
3) Part/order number

A. Aluminum Poles: The pole shaft shall be a seamless, round, tapered tube of aluminum alloy 6063-T6. The pole base flange shall be a one piece casting of aluminum alloy 356. It shall telescope the shaft and be attached to the shaft by a continuous circumferential weld. The pole shall be furnished with an internally mounted dampener to damp wind induced harmonic vibration. Anchor bolt covers of aluminum alloy 356 and hex socket attachment screws of 300 series stainless steel shall be provided. The shaft, base, anchor bolt covers and arm shall have a natural color satin finish, unless otherwise specified on the Plans or in the Special Provisions. A handhole shall be provided near the base for wiring access. The handhole shall be positioned as specified on the Plans. The handhole cover shall be secured with hex socket attachment screws of 300 series stainless steel. Handhole minimum size shall be clear 4"x6". A ground connector capable of accepting 6 AWG wire shall be provided inside the pole, convenient to the handhole. The pole shall mount on the bolt circle diameter specified on the Standard Drawings, the Plans or in the Special Provisions. The top of the pole shall be equipped with a removable cap. The pole and arm, when equipped with the specified luminaire, shall meet load requirements per AASHTO T-12.

B. Steel Poles: The shaft shall be round or octagonal, tapered, and fabricated from cold rolled open hearth,

basic oxygen or electric furnace steel. The shaft shall be one piece for lengths to 40 feet and may be two-piece for lengths exceeding 40 feet. The two piece shaft shall be field assembled by a slip joint, the minimum length of which is one and one half times the diameter of the shaft at the joint. The field assembled pole must not require a weld to develop full strength. All welds in the fabrication of the shaft shall be continuous and longitudinal. The pole base flange shall be of cast steel or fabricated steel plate. It shall telescope the shaft and be secured top and bottom, by continuous circumferential welds. It shall be designed to avoid stress risers under dynamic loading. The anchor bolt covers shall be formed, forged or cast, and shall be attached to the base with hex socket threaded fasteners. A handhole shall be provided near the base for wiring access. The handhole shall be positioned 90 degrees away from the mounting arm. The handhole cover shall be secured with hex socket threaded fasteners. Handhole minimum size shall be clear 4"x6". A ground connector capable of accepting 6 AWG wire shall be provided inside the pole convenient to the handhole. The steel pole, arm, and all incidental parts shall be finished with hot dip galvanizing in accordance with ASTM A 123. All fasteners shall be of 300 series stainless steel or of carbon steel galvanized in accordance with ASTM A 153. The pole shall mount on the bolt circle diameter specified on the Standard Drawings, the Plans, or in the Special Provisions. The top of the pole shall be equipped with a removable cap. The pole and arm, when equipped with the specified luminaire, shall meet load requirements per AASHTO T-12.

C. Wood poles: New wood poles shall be preservative-treated in conformance with AASHTO M-133. Wood poles shall be fabricated in conformance with the ANSI Standard Specifications and Dimensions for Wood Poles, ANSI Publication 05.1. Poles shall be marked or have other documentation to confirm compliance with this requirement as well as the class designation. Poles shall be in good condition as acceptable by the Engineer and shall be in conformance with the applicable ANSI requirements for sweep, crook, defects and mechanical damage. Poles deemed unacceptable by the Engineer should be removed from the job site. Hardware shall include cable hardware as well as pole hardware including insulators, cable supports, guy anchors, guy wires and the like. Hardware shall be indicated on the drawing, or as specified herein. Hardware shall also be made available for inspection by the Engineer, and hardware deemed defective by the Engineer shall be removed from the job site. As a minimum, pole guying shall be provided where indicated on the Plans and at every dead-end pole and at any pole having non-offsetting cable support stresses, i.e. non-symmetrical cable attachments.

2802.21 Bracket Arms

The bracket arm assembly shall be a one piece welded assembly with a connector or weld at the outboard end, unless otherwise specified in the Plans, Standard Drawings, or Special Provisions. The bracket arm shall be of the same material and finish as the pole and to the length specified. For wood poles, the bracket arm shall be of 6063-T6 alloy. The outboard end of the bracket arm shall be sized to fit the specified luminaire. If applicable, any open outboard end of an arm shall be covered with an end cap. Small holes shall be drilled at the ends of both arms on the bottom side to allow for drainage of condensation.

2802.22 Luminaires

The manufacturer, type and model of approved, acceptable luminaires will be specified on the Plans or in the Special Provisions.

A. Rectilinear Luminaire: The housing shall be aluminum or steel and shall provide a moisture proof and dust proof light chamber and weather protection for the ballast. The lens shall be a single piece of optically clear, flat, heat resistant, impact resistant glass. The lens shall be enclosed in a frame which is hinged to the underside of the luminaire housing. The frame shall be securely retained in the open or closed position and shall be readily opened, closed, or removed. The luminaire shall mount to the pole with a rectilinear

mounting arm. Aluminum shall be finished as specified on the Plans or in the Special Provisions. Steel shall be finished as specified on the Plans or in the Special Provisions. The luminaire shall be prewired, requiring only connection of service wires to a terminal. The luminaire shall be equipped with a regulator type ballast capable of operating the specified lamp. The ballast shall operate at 240 vac, have a power factor of 0.90 or better, shall provide reliable lamp starting at -20 degrees F or higher, and shall provide 10% or better lamp power regulation with a 10% input voltage variation. The ballast assembly shall be separated from the lamp compartment by a metal heat barrier.

The lamp socket shall be preset at the factory to meet the requirements of the IESNA classification for Type III cutoff light distribution unless otherwise specified on the Plans. The illuminance on the roadway surface shall be the required level and uniformity without hot spots, dark spots or striations as determined by the Engineer.

The luminaire shall not be provided with a photocell receptacle unless otherwise noted on the Plans or Special Provisions.

Luminaires shall be pre-wired, requiring only connection of service wires to a terminal board. The ballast shall be a regulator type, high power factor, for high-pressure sodium at a voltage of 120/208/240/277 volts. The ballast shall be capable of reliably operating the lamp with a line voltage varying plus or minus 5 percent from normal. The entire ballast, including condensers, shall be mounted on a power door or drop assembly and be easily removable and replaceable with gloved hands and without tools through the use of quick disconnecting mechanical devices and electrical plugs. The ballast assembly shall be separated from the lamp compartment by a metal heat barrier.

B. Cobrahead Luminaire: Cobra Head style luminaires shall be a power door or drop ballast type and be constructed of a single piece die-cast aluminum upper housing and one-piece or two-piece bottom door, hinged at the back and latched on the street side. The luminaire shall be equipped with an integral slipfitter for 2-inch luminaire arm mounting. The mounting device shall allow the luminaire to be mounted absolutely level and shall have no more than four (4) fasteners serving both the leveling and clamping functions. It shall allow one person to install the luminaire by simultaneously holding it in position and tightening the fasteners, such that the luminaire will be properly level at the first attempt. The luminaire shall be equipped with a 'trigger latch' for easy, one-hand, no-tools opening of the fixture for installation and servicing. The luminaire shall provide a moisture proof and dust proof chamber and weather protection for the ballast. A removable power-pad/module with quickconnect electrical hookup for easy installation of the electrical system and easy access to the ballast compartment shall be mounted on the door. Top housing mounting or a bridge assembly configuration will not be accepted.

The lens shall be a single piece of optically clear, flat, heat-resistant, impact resistant glass. The sealed optical assembly shall be fully shielded (emitting no direct uplight). The reflector shall be natural unpainted alzak aluminum and shall be secured to the top housing.

The lamp socket shall be preset at the factory to meet the requirements of the IESNA classification for Type III cutoff light distribution unless otherwise specified on the Plans or Special Provisions. The illuminance on the roadway surface shall be the required level and uniformity without hot spots, dark spots or striations as determined by the Engineer.

The luminaire shall not be provided with a photocell receptacle unless otherwise noted on the Plans or Special Provisions.

Luminaires shall be pre-wired, requiring only connection of service wires to a terminal board. The ballast shall be a regulator type, high power factor, for high-pressure sodium at a voltage of 120/208/240/277 volts. The ballast shall be capable of reliably operating the lamp with a line voltage varying plus or minus 5

percent from normal. The entire ballast, including condensers, shall be mounted on a power door or drop assembly and be easily removable and replaceable with gloved hands and without tools through the use of quick disconnecting mechanical devices and electrical plugs. The ballast assembly shall be separated from the lamp compartment by a metal heat barrier.

C. Post Top Luminare: The luminaire housing shall be constructed of cast aluminum and shall be as specified on the Plans or Special Provisions. The ballast shall be a regulator type, high power factor, for high-pressure sodium at a voltage of 120/208/240/277 volts. The ballast components shall be housed in a totally enclosed integral compartment, and the optical section of the unit shall be completely sealed and gasketed. The pressed prismatic refractor shall be one piece polycarbonate plastic. The refractor shall be for IESNA Type III distribution, unless otherwise specified on the Plans or Special Provisions.

The lamp socket shall be preset at the factory to meet the requirements of the IESNA classification for Type III cutoff light distribution unless otherwise specified on the Plans or Special Provisions. The illuminance on the roadway surface shall be the required level and uniformity without hot spots, dark spots or striations as determined by the Engineer.

The luminaire shall not be provided with a photocell receptacle unless otherwise noted on the Plans or Special Provisions.

Luminaires shall be pre-wired, requiring only connection of service wires to a terminal board. The ballast shall be a regulator type, high power factor, for high-pressure sodium at a voltage of 120/208/240/277 volts. The ballast shall be capable of reliably operating the lamp with a line voltage varying plus or minus 5 percent from normal. The entire ballast, including condensers, shall be mounted on a power door or drop assembly and be easily removable and replaceable with gloved hands and without tools through the use of quick disconnecting mechanical devices and electrical plugs. The ballast assembly shall be separated from the lamp compartment by a metal heat barrier.

D. LED Luminaire: LED luminaires shall be a power door or drop driver type and be constructed of a die-cast aluminum upper housing and one-piece or two-piece bottom door, hinged at the back and latched on the street side. The luminaire shall be equipped with an integral slipfitter for 2-inch luminaire arm mounting. The mounting device shall allow the luminaire to be mounted absolutely level and shall have no more than four (4) fasteners serving both the leveling and clamping functions. It shall allow one person to install the luminaire by simultaneously holding it in position and tightening the fasteners, such that the luminaire will be properly level at the first attempt. The luminaire shall provide a moisture proof and dust proof chamber and weather protection for the ballast. A removable power-pad/module with quickconnect electrical hookup for easy installation of the electrical system and easy access to the driver compartment shall be mounted on the door. Top housing mounting or a bridge assembly configuration will not be accepted.

The lens shall be a single piece of optically clear, flat, heat-resistant, impact resistant glass. The sealed optical assembly shall be fully shielded (emitting no direct uplight). The light from the LED's shall be reflected to the roadway to minimize glare. The reflector shall be secured to the top housing.

The lamp socket shall be preset at the factory to meet the requirements of the IESNA classification for Type III cutoff light distribution unless otherwise specified on the Plans or Special Provisions. The illuminance on the roadway surface shall be the required level and uniformity without hot spots, dark spots or striations as determined by the Engineer.

The luminaire shall not be provided with a photocell receptacle unless otherwise noted on the Plans or Special Provisions.

Luminaires shall be pre-wired, requiring only connection of service wires to a terminal board. The ballast

shall be a regulator type, high power factor, for high-pressure sodium at a voltage of 120/208/240/277 volts. The ballast shall be capable of reliably operating the lamp with a line voltage varying plus or minus 5 percent from normal. The entire ballast, including condensers, shall be mounted on a power door or drop assembly and be easily removable and replaceable with gloved hands and without tools through the use of quick disconnecting mechanical devices and electrical plugs. The ballast assembly shall be separated from the lamp compartment by a metal heat barrier.

2802.23 Lamps

Luminaires equipped with high pressure sodium vapor or LED lamps. Lamp life for high pressure sodium lamps shall not be less than 24,000 hours. Burnout for high pressure sodium lamps at 20,000 hours shall not exceed 20%. Rated initial lumen output for high pressure sodium lamps shall be:

1) 70 watt: 6,300 lumens
2) 100 watt: 9,800 lumens
3) 150 watt: 16,000 lumens
4) 250 watt: 29,000 lumens
5) 400 watt: 54,000 lumens
6) 1000 watt: 140,000 lumens

LED lamp guidelines shall be defined in the Plans or Special Provisions and in conformance with IESNA.

2802.24 Shop Drawings

Shop drawings for manufactured equipment shall be submitted to the Engineer. Manufacturer's bulletins, leaflets and other descriptive data which contain cuts, dimensions, specifications and wiring diagrams will be acceptable for standard cataloged equipment. Such bulletins, leaflets and other descriptive data shall be clearly marked to show which item is to be used and which paragraph of the contract specification it is to satisfy. Orders for equipment shall not be placed until written approval is obtained from the Engineer.

2802.25 Spare Equipment

If spare equipment is included in the Contract Documents, it shall conform to these specifications, the Standard Drawings, and the Special Provisions. All spare equipment shall be from the same manufacturer and of the same style, model, etc. as equipment installed on the project. The items shall be delivered new and undamaged to a place and time mutually agreed on by the Contractor and the Owner, unless otherwise specified in the Contract Documents.

SECTION 2803 POLE FOUNDATION CONSTRUCTION

2803.1 Scope

This section governs the furnishing all labor, materials, and equipment necessary for the performance of all work required to construct pole foundations as shown on the Plans and in accordance with the specifications, the Standard Drawings, and the Special Provisions.

2803.2 Conduit Bends

Conduit bends shall be installed in concrete foundations as shown on the Plans or Special Provisions and positioned

in the direction of the duct or cable run.

2803.3 Anchor Bolts

Anchor bolts shall be installed in concrete foundations as shown on the Plans, Special Provisions, or the Standard Drawings. All portions of the anchor bolts extending above the foundation shall be threaded. Anchor bolts shall align with the bolt holes on the shoe base. Anchor bolts shall be provided with two (2) hex head nuts, flat washer, and lock washer. When the concrete foundation requires a concrete cap, one nut shall be installed on each anchor bolt to be embedded in the concrete foundation with the top of the nut approximately 1/8" above the top of the foundation.

2803.4 Concrete Foundations

All concrete foundations shall be of the size and type and materials as shown on the Plans, Special Provisions, or Standard Drawings.

A. Location: The Contractor is responsible for verifying the correct line and elevations of all concrete bases prior to installation. The Contractor shall stake the location of all street lighting poles to be installed. The Engineer shall inspect the staking prior to any excavation and/or construction. Minor relocation of equipment to avoid conflicts may be allowed with the approval of the Owner.

B. Reinforcing Steel: Reinforcing steel for concrete bases shall be accurately cut and bent to the dimensions and shapes shown on the Plans or Standard Drawings. Cutting and bending tolerances for reinforcing steel shall be in accordance with the Concrete Reinforcing Steel Institute's Manual of Standard Practice. When placed in the work and before concrete is placed, reinforcing steel shall be free from dirt, oil, paint, grease, loose mill scale, thick rust, any dried mortar and other foreign substances. Reinforcing bars shall be positively secured against displacement. The bars shall be firmly tied at alternate crossings or closer. The steel shall be spot welded or tied in the correct position with proper clearance maintained between the bare earth or forms and the reinforcement. Measurements to reinforcing steel will be made to the centerline of bar, except where the clear distance from face of concrete is shown on the Plans or Standard Drawings. Splicing of bars shall not be allowed.

C. Conduits: PVC conduits and conduit bends should be set in the forms for concrete bases. Pole foundations shall have separate conduits for exiting/entering cables and a separate one inch (1") conduit for the ground wire. The direction of the exiting conduits shall be as shown on the Plans or Standard Drawings. Conduit set in concrete bases shall extend approximately three inches (3") above the base vertically and a minimum of three inches (3") outside the base horizontally underground.

D. Construction: The bottom of all concrete bases shall rest on firm ground. Forms shall be true to line and grade. The top of the foundation for street light poles, except raised foundations, shall be finished to curb or sidewalk grade, or as directed by the Engineer. Forms shall be rigid and securely braced in place. Conduits and anchor bolts shall be placed in proper position, to proper heights, and held in place by means of a template until the concrete sets. Conduits shall be covered before concrete is poured to prevent concrete from entering the conduits. Both forms and ground which will contact the concrete shall be thoroughly moistened before placing concrete.

Pole foundations shall be poured monolithic. Foundations shall be consolidated by an internal type vibrator. The vibrator shall operate at frequencies of vibration not less than 4,500 cycles per minute under load. The amplitude of vibration shall be adequate to consolidate concrete properly. The concrete shall be cured with an approved moisture barrier such as wet burlap, polyethylene, etc., for a period of seventy-two (72) hours. Cold weather curing shall be such that the concrete temperature shall be maintained above freezing for the

entire curing period. Forms shall not be removed until the concrete is thoroughly set. The exposed portions of the foundation shall be finished to present a neat appearance. Finishing should be done with the positioning jig in place. If the jig must be removed for finishing, it shall be re-installed immediately after finishing and left in place throughout the cure period. Prior to installing the pole, the positioning jig shall be removed and loose concrete cleaned from around the anchor bolts and conduits.

Cinders, broken concrete, broken rock or other hard or undesirable material shall not be used for backfilling around the finished foundation. The earthen backfill material shall be placed in layers not to exceed six inches (6") deep, and each layer shall be thoroughly compacted to the approximate density of the adjacent material before the next layer is placed.

E. Expansion Joints: Expansion joints shall be provided where a concrete pole foundation is adjacent to concrete. After concrete has cured a minimum of seven days, the joint shall be cleaned, filled and sealed as shown on the Plans or Standard Drawings.

2803.5 Screw Anchor Foundations

The Contractor is responsible for verifying the correct line and grade of all screw anchor foundations prior to installation. The Contractor shall stake the location of all street lighting poles to be installed. The Engineer shall inspect the staking prior to any excavation and/or construction. Minor relocation of equipment to avoid conflicts may be allowed with the approval of the Engineer.

Screw anchor foundations shall be of the size and type required as indicated on the Plans or Standard Drawings.

Pre-drilling of holes for the screw anchor foundation is not allowed except for a depression to improve location accuracy. If screw anchor foundations are not able to be used for any reason, concrete foundations shall be installed at the Contractor's expense.

The screw anchor foundation shall be screwed straight into the ground and the steel base plate shall be at the proper elevation and properly oriented to receive the shoe base. During installation the anchor shall be plumbed with a level. The base plate shall be flush with the finished grade. Minor leveling adjustments may be made with the use of leveling shims or washers. Shims and washers shall be galvanized or cadmium-plated steel no more than one-quarter inch (0.25") thick. Only one shim or washer will be allowed at any one anchor bolt. The installing torque for screw anchor foundations shall be between the maximum and minimum torque ratings per the manufacturer's recommendations.

Conduit bends shall be installed into all screw anchor foundations through the slots in the base of the anchors. After conduit bends are installed and capped, the internal cavity of the screw anchor foundation shall be backfilled with sand or other fine aggregate material, as approved by the Engineer.

SECTION 2804 UNDERGROUND CABLE

2804.1 Scope

This section governs the furnishing all labor, materials, and equipment necessary for the performance of all work required to install underground cable in duct or cable in conduit where shown on the Plans or where directed by the Engineer. The work shall be done in accordance with these specifications, the Standard Drawings, and the Special Provisions.

2804.2 Location

The underground cable in duct or cable in conduit shall be installed at the location indicated on the Plans. Deviations required due to the terrain or underground obstructions shall be in accordance with the National Electrical Code, ANSI C1, the National Electrical Safety Code, ANSI C2, and have prior concurrence of the Engineer. All duct and conduit shall be routed to avoid root damage.

2804.3 Conduit Installation

Conduit shall be installed as shown in the Plans or Standard Drawings. The size of the conduit used shall be as shown on the Plans or Standard Drawings. It shall be the privilege of the Contractor, at his own expense, to use larger size conduit if desired, as approved by the Engineer. Where larger size conduit is used, it shall be for the entire length of the run from outlet to outlet. No reducing couplings will be permitted.

Wherever a conduit passes beneath a curbed street, aluminum conduit markers shall be installed in the curb immediately over the conduit location. Conduit markers shall be furnished by the Contractor and are subsidiary to the installation of conduit. The conduit marker shall be inscribed as approved by the Owner. The conduit marker shall be installed in the top of the curb by drilling the curb and epoxying the conduit marker in place.

The ends of all conduits shall be well reamed to remove burrs and rough edges. All conduits shall be cleaned and swabbed prior to installation of cable. Field cuts shall be made square and true so that the ends will butt or come together for the full diameter thereof. The end of each conduit run shall be covered to prevent water or debris from entering the conduit while the system is being constructed.

Existing underground conduit to be incorporated into a new system shall be cleaned with a mandrel and blown out with compressed air.

An approved factory coupling shall be used for connection of the HDPE conduit to a 90° factory PVC elbow or between two lengths of HDPE conduit. No couplings or joints will be allowed in HDPE conduits at intermediate points unless approved by the Engineer.

Conduit bends, except factory bends, shall have a radius of not less than six times the inside diameter of the conduit. Where factory bends are not used, conduit bends shall be made without crimping or flattening, using the longest radius practicable and utilizing an appropriate conduit bending tool.

The conduit shall be installed continuous from outlet to outlet or as otherwise shown on the Plans. The conduit may be directional bored to minimize disruption to the existing improvements or may be plowed or trenched. Unless otherwise specified, conduit shall be installed under roadway pavement sections at a depth not less than 36 inches below top of pavement. In all other areas, conduit shall be placed to a depth of 24 to 36 inches below finish grade.

At all outlets, conduit shall enter from the direction of the run. PVC conduit bends shall enter all junction or pull boxes from below the box and shall extend into the box a minimum of 2 inches unless otherwise specified. GRS conduits may enter a pull or junction box from the side. The side of the box shall be drilled per the manufacturer's recommendations. The hole shall be no more than one-half inch (½") larger than the conduit. The gap between the box and conduit shall be filled with sealing compound.

2804.4 Trenching

Trenches shall be excavated to a maximum width of six inches (6") and deep enough to provide the minimum cover for conduits not less than 24 inches or greater than 36 inches or as shown in the Plans. If the bottom of the trench is in rock or rocky soil, the conduit shall be placed on a six inch (6") protective layer of clean, tamped backfill material. Trenches shall be backfilled as soon as practical after the installation of conduit, but after inspection of the trench by the Engineer. Backfill material installed within six inches (6") of the conduit shall be free of rock or other solid material

that might cause mechanical damage to conduit. The backfill material shall be placed in layers not to exceed 6 inches (6") deep, and each layer shall be thoroughly compacted to the approximate density of the adjacent material before the next layer is placed. In lieu of tamped backfill material, Contractor may at his privilege use flowable backfill (CLSM) as specified in Section 2802.4. Four to six inches of backfill material directly below finished grade shall be topsoil. All disturbed areas shall be restored to the satisfaction of the Owner.

2804.5 Alternate Methods

Pushing, plowing, auguring, or boring may be used instead of trenching. Cable duct shall be plowed in. It shall be done by plow feeding the cable duct and the operation shall be non-injurious to the cables or duct. Where cable duct is plowed in, it shall be done by plow feeding the cable duct and the operation shall be non-injurious to the cables or duct. The cable duct shall be round and free of kinks as it is fed into the plow to ensure unrestricted movement of the wires and cables inside the duct. Pavement shall not be disturbed without the written permission of the Owner and then only in the event insurmountable obstructions are encountered. Conduit shall be placed under existing pavement by pushing, augering or boring. All disturbed areas shall be restored to the satisfaction of the Owner. Boring may be used instead of trenching at all other locations.

2804.6 Duct Joints

Duct shall be joined using materials and method recommended by the manufacturer. The interior shall be sufficiently smooth to prevent cable damage during pulling.

2804.7 Cable Splices

Distribution cables shall be continuous and unspliced from the control panel to the first light pole and between light poles. Cable shall be pulled with minimal dragging on the ground or pavement. Frame mounted pulleys or other suitable devices shall be used for pulling cables out of conduits into pull boxes. Powdered soapstone, talc or other approved lubricant shall be used to facilitate pulling cable in conduits. All cable to be installed in one conduit shall be pulled by the Contractor in one operation, and all ends shall be taped to exclude moisture and shall be so kept until the splices are made or terminal appliances attached. Ends of spare conductors shall be taped. Electrical tape shall be UL listed all weather vinyl plastic tape that is resistant to abrasion, puncture, flame, oil, alkalis and weathering. After cables are installed all conduit ends shall be sealed around the cables with a readily workable, soft, sealing compound. The compound shall be workable at 30° F and shall not melt or run at temperatures up to 175° F.

Underground cable splices shall be made in a pull or junction box. Splices in the distribution cable will only be permitted where circuits branch or tee. Tee splices shall be made with split bolt connectors or an approved equivalent. All splices shall be protected with a waterproof resin splice kit installed in accordance with the manufacturer's recommendations. All cables passing through a pull or junction box shall be coiled once around the inside of the box to allow for splicing and connecting wires in the future. Wiring within power supplies and boxes shall be neatly arranged and laced up.

2804.8 Pull or Junction Boxes

Pull or junction boxes shall be installed as shown on the Plans, Standard Drawings, or as directed by the Engineer. Pull or junction boxes shall not be installed in sidewalk ramps. In joint use boxes, cables shall be clearly identified as street light cables with permanent plastic tags. Additional pull boxes may be installed at the Contractor's expense when approved by the Engineer.

The top surface of all pull or junction boxes shall be flush with surfaced areas. For non-surfaced areas, the top surface of all pull or junction boxes shall be flush or a maximum of 1" above finish grade. All boxes shall have one-

half inch (½") clean crushed aggregate or other porous material for a minimum depth of twelve inches (12") below the box for drainage. The excavated opening outside the junction box shall be wide enough to allow compaction of the backfill material. Cinders, broken concrete, broken rock or other hard or undesirable material shall not be used for backfilling. The backfill material shall be placed in layers not to exceed six inches (6") deep, and each layer shall be thoroughly compacted before the next layer is placed. All disturbed areas shall be restored to the satisfaction of the Engineer.

If shown on the Plans or Standard Drawings, the cable hooks for pull or junction boxes shall be galvanized steel or brass with a minimum diameter of 3/8 inch and a minimum length of five inches (5").

2804.9 Surface Restoration

Disturbed areas shall be restored to a condition equal to or better than that existing prior to construction. Sidewalk and street cuts shall be restored in accordance with APWA Sections 2100, 2200, and 2300 or as directed by the Engineer.

SECTION 2805 OVERHEAD CABLE INSTALLATION

2805.1 Scope

This section governs the furnishing all labor, materials, and equipment necessary for the performance of all work required to install overhead cable where shown on the Plans or where directed by the Engineer. It includes installation of the cable, pole line hardware, anchors, guys, grounds, and connections. The work shall be done in accordance with these specifications, the Standard Drawings, the Special Provisions, the National Electrical Safety Code, and Utility Company requirements.

2805.2 Cable Installation

All terminations shall be by wedge clamp. Connections shall be made with bolted type connectors. When cut, the insulated conductors shall be secured to the messenger with aluminum tie straps.

SECTION 2806 EXTERNAL CONDUIT ON STRUCTURE

2806.1 Scope

This section governs the furnishing of labor, materials, and equipment necessary for the performance of all work required to install Galvanized Rigid Steel (GRS) conduit externally on structures. Conduit on structures will include conduit on bridges, retaining walls or other structures, and shall be installed as shown on the Plans, Standard Drawings, or as directed by the Engineer.

2806.2 Installation

The final location of all conduit and junction boxes shall be approved by the Engineer before installation begins. Conduit shall not be attached to prestressed concrete girders or prestressed, precast concrete deck panels. The conduit shall be secured to the concrete with clamps at no more than 5-foot intervals. Concrete anchors shall be in accordance with U.S. Government G.S.A. specification A-A-1923A, Type 4, and shall be galvanized in accordance with ASTM A 153, B 695-91 Class 50, or constructed of stainless steel. The minimum embedment in concrete shall be 1 3/4 inches. If it is necessary to anchor the conduit to steel bridge members, the attachment method shall not involve drilling, grinding or welding. Attachment method to steel members shall be approved by the Engineer. Expansion fittings shall be installed at each end of a bridge and each location where the conduit crosses a bridge

expansion joint. The expansion fitting shall provide a minimum movement in either direction as shown on the Plans, Standard Drawings, or as specified by the Engineer. Clamps, concrete anchors, expansion fittings, and any hardware or material required for conduit installation on structures shall be at the Contractor's expense.

SECTION 2807 FEED POINT INSTALLATION

2807.1 Scope

This section governs the furnishing of labor, materials, and equipment necessary for the performance of all work required to install the enclosure, cabinet, circuit breakers, fuses, contactor, photoelectric control, control cable, mounting pad, meter socket, and entrance cable, where shown on the Plans or where directed by the Engineer. The feed point shall be in accordance with the Plans, utility company requirements, the specifications, the Standard Drawings, and the Special Provisions.

2807.2 Coordination

The Contractor shall coordinate his activities with the utility company to insure delivery of power to the feed point when and where required.

2807.3 Installation

The cabinet shall be cleaned of wrapping, shipping material, dirt, grease, etc. Scratches, abrasions or other surface damage shall be repaired to like new condition. The photoelectric cell shall be oriented to the North or to the East.

2807.4 Wiring

Installation of wiring shall be in accordance with the Plans, Standard Drawings, and appropriate articles of the NEC. All circuits shall be properly labeled in all power supplies and boxes by means of permanent plastic identification tags appropriately attached to the cables by plastic ties or electrical tape. The ends of the copper wire should be wrapped with electrical tape. Circuits shall be labeled with the power supply ID number and the circuit number.

SECTION 2808 POLE AND LUMINAIRE INSTALLATION

2808.1 Scope

This section governs the furnishing of labor, materials, and equipment necessary for the performance of all work required to install the street lighting poles and luminaires and to connect the luminaires to the distribution system. Poles and luminaires shall be installed where shown on the Plans or where directed by the Engineer. Poles and luminaires shall be installed in accordance with the specifications, the Standard Drawings, and the Special Provisions.

2808.2 Wiring

The luminaire shall be connected to the distribution system through in-line, waterproof, breakaway fuse holders installed in the pole wiring, and fused as shown on the Plans or Standard Drawings. Sufficient slack shall be left in the pole wire so that the fuseholder can be brought out of the pole through the handhole for fuse replacement or disconnection. The wire shall be without splices from the fuse holder to the connection at the luminaire. In joint use poles, cables shall be clearly identified as street light cables with permanent plastic identification tags appropriately attached to the cables by plastic ties or electrical tape. The neutral shall not be fused.

2808.3 Pole and Luminaire Erection on a Concrete Foundation

No sooner than five days after construction of the foundation, a nut and washer shall be installed on each anchor bolt. The pole base shall be fastened to the foundation with a break-away base using galvanized hardware, except the 14-foot pole which does not require a break-away base. Using the break-away hardware or the lower nuts, the pole shall be brought into vertical alignment (plumb), the top nuts tightened, and the anchor bolt covers installed. The luminaire and arm shall project from the street side of the pole and be perpendicular to the curb line. The opening between the pole base and the foundation shall be taped and grouted as shown on the Plans or Standard Drawings.

2808.4 Pole and Luminaire Erection on a Screw Anchor Foundation

The pole shall be fastened to the foundation with a break-away base using galvanized hardware except the 14-foot pole which does not require a break-away base. The pole shall be checked for plumb, minor corrections made using the break-away hardware or galvanized or cadmium plated steel shim stock, the nuts tightened and the anchor bolt covers installed. The luminaire and arm shall project from the street side of the pole and be perpendicular to the curb line.

2808.5 Bracket Arm Installation

Bracket arms for luminaires shall project from the street side of the pole and be perpendicular to the roadway. Install a rubber grommet around the hole at the top of the light pole for the cable entrance. Sufficient lengths of pole and bracket cable shall be run inside the length of the street light pole shaft, out through the grommet at the top of the pole, and through the bracket arm. The bracket arm is to be attached to the pole with clamp-on style or other approved supports using stainless steel hardware. Cables shall not be pinched when bracket arms are attached to poles.

For poles with dual luminaires, pole and bracket cables shall be identified by means of permanent plastic identification tags appropriately attached to the cables by plastic ties or electrical tape to indicate the directional orientation of each luminaire, unless otherwise specified by the Owner.

2808.6 Cover Skirt

If shown on the Plans or Standard Drawings, an aluminum cover skirt shall be installed around all sides of the base plate if a gap of more than one inch (1”) is visible between the bottom face of the base plate and the finished grade. The cover skirt is to be field cut and shaped to fit flush against the base plate and extend down to the finished grade or top of base.

2808.7 Luminaire on Wood Pole

The luminaire and arm shall be installed on the wood pole as shown on the Plans or on the Standard Drawings. The luminaire and arm shall project from the street side of the pole and be perpendicular to the roadway unless shown otherwise on the Plans.

2808.8 Luminaire on Mast Arm Pole

The luminaire slipfitter shall be installed on the davit supplied with the mast arm pole. Internal wiring shall be as specified in Section 2808.2. The luminaire and davit shall project from the street side of the pole and be perpendicular to the roadway unless shown otherwise on the Plans or Standard Drawings.

2808.9 Luminaire Adjustment

The luminaire shall be adjusted and leveled in accordance with the manufacturer's instructions, to place the nadir directly below the light center, unless shown otherwise on the Plans or Standard Drawings.

2808.10 Lamp Installation

The installation date shall be marked on the base of the lamp prior to installing it in the luminaire housing.

2808.11 Clean Up

Poles and luminaires shall be cleaned of wrapping, shipping material, dirt, grease, etc. Scratches, abrasions or other surface damage shall be repaired to like new condition.

SECTION 2809 GROUNDING

2809.1 Scope

This section governs the furnishing all labor, materials, and equipment necessary for the performance of all work required to install grounding for the street lighting system. Grounding shall be installed where shown on the Plans, Standard Drawings, or where directed by the Engineer. Grounding shall be installed in accordance with the specifications, the Standard Drawings, and the Special Provisions.

2809.2 Individual Ground

All electrical systems, equipment and appurtenances, including poles and feed points, shall be properly grounded in accordance with NEC requirements. A minimum ½-inch by 10-foot copper grounding rod shall be driven into the bottom of the trench adjacent to the pole or feed point foundation so that top of the rod is a minimum of twelve inches (12") below finished grade. All connections to ground rods shall be a minimum No. 6 AWG copper wire made with exothermic welds or compression clamps as directed by the Engineer. The ground wire is to be run through a one inch (1") diameter conduit in the base. At the feed point, the grounding wire shall connect to the neutral bus and the enclosure.

On a wood pole, the grounding wire shall go up the pole and fasten to the luminaire or the arm. The lower eight feet (8') of the grounding wire on a wood pole shall be covered with standard molding. If an existing utility ground is available, the grounding wire should connect to it instead of another ground rod.

If subsurface conditions exist which prohibit the placement of the ground rod in a vertical position, the rod may be driven at an oblique angle, not to exceed 45-degrees from vertical, or when authorized by the Engineer, buried in a trench a minimum of twenty-four inches (24") below finished grade.

2809.3 System Ground

A minimum ½-inch by 10 foot copper grounding rod shall be driven into the bottom of the trench adjacent to the feed point foundation so that the top of the rod is a minimum of twelve inches (12") below finished grade. All connections to ground rods shall be a minimum No. 6 AWG copper wire made with exothermic welds or compression clamps as directed by the Engineer. The ground wire is to be run through a one inch (1") diameter conduit in the base. At the feed point, the grounding wire shall connect to the neutral bus and the enclosure.

A neutral conductor is required for each branch circuit. At each pole, the neutral conductor shall be connected to the ground connector inside the pole shaft.

SECTION 2810 SYSTEM TESTING AND ACCEPTANCE

2810.1 Scope

This section governs the furnishing all labor, materials, and equipment necessary for the performance of all work required for system testing and acceptance in accordance with the specifications, the Standard Drawings, and the Special Provisions.

2810.2 Cable Testing

Prior to final inspection, the Contractor shall test all cables for unscheduled grounds. Each conductor shall be tested to ground with a megohmeter at 500 volts. Readings in each case shall be infinity. The resistance test shall be performed by the Contractor in the presence of and documented by the Engineer. The ground rod shall have a resistance to ground of 25 ohms or less. If the resistance is more than 25 ohms, the Contractor shall install additional ground rods which are bonded to the first ground rod, until the required resistance is achieved. No payments will be made for additional ground rods.

2810.3 Operational Testing

The Contractor is responsible for testing the completed street lighting system. Prior to acceptance, the Contractor shall notify the Engineer for an inspection as soon as the system is ready. All street lighting system elements shall function properly as a complete system for a minimum period of fifteen (15) days before acceptance is granted. The fifteen (15) day period shall be cyclical and initiated by the Engineer. Any malfunction observed or recorded shall stop the test period for the entire system as of the time of the malfunction. A period shall start when the malfunction has been repaired to the satisfaction of the Engineer. After the burn test is completed, the street light system must remain in operation if the street is open to vehicle traffic.

2810.4 Maintenance Information

Before acceptance of the work, the Contractor shall furnish the Owner four (4) copies of the manufacturers' written instructions for maintenance and operation of all lighting equipment and wiring diagrams of the installation or system. At a minimum, the manufacturer's instructions shall include documented, organized instructions, wiring and component layout diagrams, and parts lists with part numbers.

2810.5 As-Built Plans

Prior to acceptance of the work, the Contractor shall submit marked-up or corrected Plans showing in detail all construction changes, especially the location and depth of conduit.

2810.6 Final Clean Up

Before final acceptance, the Contractor shall restore to a condition equal to or better than that existing prior to construction, for all property, both public and private, within, adjacent to and beyond the limits of construction that have been disturbed or damaged while executing the work. This includes, but not limited to, existing curb and gutter, sidewalk, pavement, drainage structures, irrigation systems, street lighting and traffic signal equipment. All unpaved areas damaged during construction shall be restored to the original condition. Unless otherwise directed, grassy

areas which were originally sodded shall be re-sodded. Restoration work shall be at the Contractor's expense. All restoration work shall be acceptable to the Engineer.

SECTION 2811 REMOVALS AND RELOCATIONS

2811.1 Scope

This section governs the furnishing all labor, materials, and equipment necessary for the performance of all work required for the removal and/or relocation of the street lighting system as shown on the Plans and in accordance with the specifications, the Standard Drawings, and the Special Provisions.

2811.2 Removals and Relocations

All removals and/or relocations shall be noted and identified on the Plans. An itemized removal schedule and/or relocation plan shall be submitted. Any damage sustained to the lighting unit during the removal or relocation operation shall be repaired, or replaced in kind, to the satisfaction of the Engineer at the Contractor's expense. Site restoration shall conform to these specifications.

A. Removals: This item shall consist of the disconnection and removal of poles, aerial and underground cables, luminaires, all associated apparatus, connections and backfilling the pole holes and other associated work specified herein. Abandoned section of buried cable shall be de-energized at its power source, taped and labeled “abandoned”. All equipment and materials, except for luminaires and bracket/mast arms, shall become property of the Contractor and shall be removed from the site, unless otherwise specified on the Plans.

B. Relocations: The re-use of existing poles and appurtenant items will be acceptable under this item, upon physical inspection and approval by the Engineer. Any additional cable, splices and other materials required to make the relocated pole operational shall be at the Contractor’s expense.

SECTION 2812 MEASUREMENT AND PAYMENT

2812.1 General

There shall be no measurement or separate payment for any items of work, appurtenances, incidental work or parts not specifically identified or listed in the Contract Documents and all costs pertaining thereto shall be included in the Contract unit prices for other items which are listed in the Contract Documents.

2812.2 Method of Measurement

The quantities of accepted work will be measured or determined as follows:

A. Pole Foundations: Pole foundations will be measured per each for each type listed in the Contract Documents.

B. Trenching: Trenching will be measured along the trench from center of facility to center of facility to the nearest 0.1 linear foot.

C. Conduit: Conduit will be measured along the conduit from center of facility to center of facility to the nearest 0.1 linear foot.

D. Underground Cable: Underground cable will be measured along the trench line from center of facility to center of facility to the nearest 0.1 linear foot for each size of cable installed. Five (5) feet shall be added to the measured length for each entry into and for each exit from foundation, service entrance and junction box. Twenty-five (25) feet shall be added to the measured length for each connection to the overhead cable system. The measured ground length, plus additions, multiplied by the number of cables in the trench equals the number of cable feet. For measurement purposes, a cable is defined as the group of conductors required to complete a circuit. A cable will normally consist of two conductors plus, if specified, a neutral conductor. If preassembled "cable in duct" is specified. The cable will consist of the duct and all conductors contained therein.

E. Overhead Cable: Overhead cable will be measured on the ground along the pole line from center of facility to center of facility, to the nearest 0.1 linear foot.

F. Feed Points: Feed points will be measured per each for each type listed in the Contract Documents.

G. Poles and/or Luminaires: Poles and/or luminaires will be measured per each for each type listed in the Contract Documents.

H. Pull or Junction Boxes: Pull or junction boxes will be measured per each for each type listed in the Contract Documents.

I. Spare Equipment: Spare equipment will be measured per each for each type listed in the Contract Documents.

J. Removals: Removals will be measured as one per Contract.

K. Relocations: Relocations will be measured as one per Contract.

L. Street Lighting System: Street Lighting System will be measured as one per Contract.

2812.3 Basis of Payment

Payment for quantities of accepted work will be made as follows when included in the Contract Bid Items:

A. Pole Foundations: Pole foundations will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

B. Trenching: Trenching will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

C. Conduit: Conduit will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

D. Underground Cable: Underground cable will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

E. Overhead Cable: Overhead cable will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

F. Feed Points: Feed points will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

G. Poles and/or Luminaires: Poles and/or luminaires will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

H. Pull or Junction Boxes: Pull or junction boxes will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

I. Spare Equipment: Spare equipment will be paid for by one of the following:

1. Contract unit bid price.

2. Contract lump sum bid price.

J. Removal: Removal will be paid for at the Contract lump sum bid price.

K. Relocation: Relocation will be paid for at the Contract lump sum bid price.

L. Street Lighting System: The complete, functioning street lighting system including all equipment, materials, labor, supervision, and other ancillary requirements to construct the street lighting system depicted on the Plans will be paid at the Contract lump sum bid price.

END OF SECTION

DIVISION II
CONSTRUCTION AND MATERIAL SPECIFICATIONS
SECTION 2900 WATERLINES

APPROVED AND ADOPTED THIS 15th DAY OF FEBRUARY, 2017

KANSAS CITY METROPOLITAN CHAPTER
OF THE AMERICAN PUBLIC WORKS ASSOCIATION

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(Minor updates on page 5 – underlined – May 31, 2017)

SECTION 2901 GENERAL

2901.1 Scope

This section governs the furnishing of all labor, materials, and equipment necessary for the complete installation of waterlines, fittings, valves, valve boxes, fire hydrants, and other appurtenances as shown on the Plans and in accordance with the Standard Drawings, the specifications, and the Special Provisions.

2901.2 Referenced Standards

The following standards are referenced directly in this section. The latest version of these standards shall be used. If conflicting standards are referenced, the more stringent standard shall apply.

APWA

Section 2100	Grading and Site Preparation
Section 2150	Erosion and Sediment Control
Section 2200	Paving
Section 2300	Incidental Construction
Section 2400	Seeding and Sodding

ASTM

A 36	Standard Specification for Carbon Structural Steel
A 126	Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
A 276	Standard Specification for Stainless Steel Bars and Shapes
A 307	Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
A 536	Standard Specification for Ductile Iron Castings
A 564	Standard Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes
A 1011	Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
C 33	Standard Specification for Concrete Aggregates
C 150	Standard Specification for Portland Cement
C 478	Standard Specification for Circular Precast Reinforced Concrete Manhole Sections
D 1784	Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
D 2241	Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
D 3139	Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
D 4976	Standard Specification for Polyethylene Plastics Molding and Extrusion Materials
F 477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

ANSI/AWWA

C 104/A21.4	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
C 105/A21.5	American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems
C 110/A21.10	American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In.
C 111/A21.11	American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
C 115/A21.15	American National Standard for Flanged Ductile-Iron Pipe with Threaded Flanges
C 116/A21.16	American National Standard for
C 151/A21.51	American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water

AWWA

C 207	Steel Pipe Flanges for Waterworks Service – Sizes 4 In. Through 144 In.
C 509	Resilient-Seated Gate Valves for Water Supply Service

C 515 Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service
C 550 Protective Interior Coatings for Valves and Hydrants
C 600 Installation of Ductile Iron Water Mains and Their Appurtenances
C 900 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In.
C 909 Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 In. and Larger

MCIB Mid-West Concrete Industry Board Concrete Specifications - Concrete Pavement
The current editions of the "Bulletins" and Approved Sections of the "Standard Concrete Specifications" issued by the Mid-West Concrete Industry Board, Inc. (MCIB) are made a part hereof by reference. However, when the provisions of this Specification differ from the provisions of such "Bulletins" and "Sections" the provisions of this Specification shall govern. Reference December 2000 Specifications if most recent version does not contain specified mix designs.

KCMMB Kansas City Metro Materials Board Specifications

2901.3 Cleanup

Cleanup shall follow the work progressively. The Contractor shall remove from the project site all rubbish, equipment, tools, surplus or discarded materials, and temporary construction items.

Streets to be opened to local traffic at the end of the day's operation shall be cleaned of dirt or mud. All equipment and material stockpiles shall be secured for safe passage of vehicles and pedestrians.

SECTION 2902 MATERIALS

2902.1 Scope

This section governs materials for waterlines, including fittings, valves, valve boxes, fire hydrants, and appurtenances.

2902.2 Pipe and Fittings

A. Ductile-Iron

1. Pipe: Unless indicated otherwise on the construction plans, all ductile iron pipe 6-inch and larger shall be Class 50; 4-inch pipe shall be Class 51 complete with all accessories and conforming to ANSI A21.51, AWWA C151, ASTM A 536, and Grade 64-42-10.

2. Joints: Unless otherwise specified, shall be of the push-on type conforming to ANSI A21.11/AWWA C111, except gaskets shall be neoprene or synthetic rubber. Natural rubber will not be acceptable. Gaskets shall be certified as suitable for chlorinated potable water in accordance with ANSI/NSF61.

3. Restrained Joints

   a. Restrained push-on joints for ductile iron pipe and fitting shall be American "Flex-Ring" or "Fast Grip"; Clow "Super-Lock"; U.S. Pipe "TR Flex" or "Field Lok"; or Griffin "Snap-Lok".
   b. Restrained Mechanical Joints shall be EBAA Iron "Mega-Lug" or Ford Uni-Flange. "Mega-Lug" shall not be used on plain end fittings.
   c. Restrained joint fittings shall be One Bolt.

4. Fittings

   a. All ductile-iron fittings shall be complete with all accessories and shall conform to ANSI A21.10/AWWA C110, 350 psi pressure rating.
   b. Fitting joints shall be Mechanical Joint (MJ), Flange Joint (FLG), or Push-On Joint, per ANSI A21.11/AWWA C111. All MJ glands shall be ductile iron. Fittings shall be distinctly cast upon them, the pressure rating and the letters "DI" or "Ductile". FLG fittings shall be used only for above ground installations.
   c. Flanged Joints shall be provided with full-face gaskets and shall meet the requirements of ANSI A21.15/AWWA C115.

5. Appurtenances

   a. Welded – On Outlets may not be used in lieu of tees.
   b. Tapping Sleeves
      i. All material in the body, lugs, outlet, flange, bridge plate, bolts, nuts and washers shall be ASTM A 276 Type 304 or Type 316 or ASTM A 564 Type 630 stainless steel.
      ii. The body shall be a minimum of 14 gauge stainless steel and shall fit cast iron pipe classes A, B, C, and D.
      iii. The outlet shall be a minimum of 14-gauge stainless steel. The branch outlet shall be supplied with a tap and plug to permit pressure testing the sleeve prior to tapping the main.
      iv. The flange shall conform to AWWA C207 Class D with drilling in accordance with ANSI B 16.1 Class 125, and shall be indexed per MSS-SP 60 to accept tapping valve.
      v. All welding on the coupling shall be done with stainless steel rods.
      vi. Sleeve gaskets shall be full circumferential a minimum of 1/4" thick gridded with tapered lap joint ends and stainless steel bridge plates molded flush into the gasket.
      vii. The outlet flange face shall be supplied with a bonded, full-face gasket. All gaskets shall be grade 30 specially compounded rubber, synthetic rubber, or 100 percent neoprene that shall have the necessary qualities to allow outside storage, permanence, and resistance to set after installation.
      viii. All bolts, nuts and washers shall be loose; lifter bar style bolt attachments shall not be permitted. All bolts and/or nuts shall be impregnated or coated to prevent seizure. Minimum diameter shall be 5/8".
      ix. Sleeve shall be designed for a minimum working pressure of 175 psi.
      x. General: Power Seal Model 3490-AS; JMC 432; Cascade CST-Ex stainless steel extra heavy duty; Ford Model FTSS; Romac STD Band SST-III; Smith Blair Type 665.
      xi. Power Seal Model 3490MJ or approved equal may also be used.

6. Tie Rods: ASTM A 276, Type 304 or Type 316 Stainless Steel.

7. Couplings: Dresser "Style 38" or Smith-Blair "441 or 411 Flexible Coupling"; without pipe stop. Bolted compression type couplings shall be manufactured of steel or ductile iron specifically for use with ductile iron pipe.

8. Shop Coating: Pipe and fittings shall be furnished with a standard thickness exterior bituminous coating complying with ANSI/AWWA C116/A21.51. Fittings may be furnished with a fusion-bonded epoxy coating complying with ANSI/AWWA C116/A21.16.

9. Linings: All pipes and fittings shall be cement mortar lined conforming to ANSI A21.41/AWWA C 104. All buried pipe and fittings shall be coated with black asphaltic coating minimum 1 mil in thickness per ANSI A21.51/AWWA C 151. Fittings shall have distinctly cast upon them the pressure rating and letters "DI" or "DUCTILE". Any pipe or fittings above ground shall be prime coated with 6 mils DFT of Tnemec 140-1211 Epoxy Primer.

10. Bolts and Nuts

    a. Bolts: ASTM A 307, chamfered or rounded ends projecting 1/4 to 1/2 inch from surface.
    b. Nuts: ASTM A 307, hexagonal, ANSI B18.2.2.

11. Marking: Markings shall be legibly indented in the pipe or painted thereon with waterproof paint.

12. Protective Coatings

    a. Polyethylene Encasement
        i. Polyethylene encasement materials shall be in accordance with ASTM D 4976 and AWWA C105/A21.5; LLD-12 mil or KDCL-4 mil. LLD-12 mil polywrap shall be blue.

Item	LLD-12 mil	HDCL-4 mil
Tensile Strength, psi	4,400	6,300
Elongation, percent	1,000	100
Dielectric Strength, v/mil	1,900	800
Tear Resistance, gf	4,400	250
Impact Resistance, g	1,100	800

        ii. The minimum tube size for each pipe diameter shall be in accordance with AWWA C105 as follows:

Polyethylene Flat Tube Widths (inches)		
Nominal Pipe Diameter (inches)	**Push-on Bell & Spigot Joints**	**Mechanical Joints**
4	14	16
6	17	20
8	21	24
10	25	27
12	29	30
14	33	34
16	37	37
18	41	41
20	45	45
24	53	53

        iii. Adhesive tape shall be a general purpose adhesive tape1-inch wide and approximately 8 mils thick, such a Scotch Tape No. 50, Polyken No. 900, Tapecoat CT or approved equal (Duct Tape will not be allowed).

    b. Exterior Surfaces Underground (Excluding Pipe & Fittings): All metal surfaces, including each mechanical coupling, shall be thoroughly cleaned and then coated with Tnemec coal-tar epoxy "High-Build Tnemec Tar". All material and the application thereof shall conform to AWWA C203.

c. Above ground pipe and fittings shall be field coated with Tnemec Coal Tar Epoxy "High-Build Tnemec Tar".

B. Polyvinyl Chloride (PVC) 4-inch through 12-inch

1. Pipe: PVC pipe shall meet the requirements of ANSI/AWWA C900 or ANSI/AWWA C909 with cast iron pipe O.D., for PVC pipe. Materials from which the pipe is manufactured shall have been tested and approved for conveying potable water by the National Sanitation Foundation and the Underwriter's Laboratories, and shall be marked with the U.L. logo.

2. Fittings: Where fittings are required, ductile-iron fittings shall be used.

   Pipe wall thickness shall be as required to provide a minimum wall thickness with a Dimension Ratio (DR) of 18 for pressure Class 235 and a DR of 14 for pressure Class 305 as defined in ANSI/AWWA C900.

   Joints for PVC pipe shall be slip-on type with integral bell and spigot pipe, or pipe with extruded type couplings, meeting the requirements of ASTM D 3139, except flexible elastomeric gaskets meeting the requirements of ASTM F 477, shall be synthetic rubber. Natural rubber will not be acceptable.

C. Polyvinyl Chloride (PVC) 2 Inch: PVC pressure pipe shall be designed to carry potable water at pressures (including surge) up to the maximum class rating. Materials from which the pipe, couplings, and fittings are manufactured shall conform to ASTM D 1784, Type 1, Grade 1, 2,000 psi design stress. The minimum wall thickness for the pipe shall be DR 17 (Class 250) or Schedule 40 (Class 270).

All PVC pipe shall conform to the latest revisions of ASTM D 2241, Department of Commerce PS22-70 (SDR-PR) pressure rated pipe, and National Sanitation Foundation Testing Laboratories (NSF). Pipe ends shall be tapered to accept gasketed couplings. Flexible elastomeric gaskets, meeting the requirements of ASTM F 477, shall be synthetic rubber. Natural rubber will not be acceptable.

The couplings and fittings shall accommodate the pipe for which they are used. The minimum pressure ratings shall be 235 psi for couplings and 250 psi for the fittings. The insertion depth of the pipe in the coupling shall be controlled by an internal PVC mechanical stop in the coupling.

D. Fusible Polyvinyl Chloride (FPVC)

1. Pipe: FPVC shall meet the requirements of ASTM D 1784, cell classification 12454, for PVC compounds, AWWA C900, and ASTM D 2241 for standard dimensions. Materials from which the pipe is manufactured shall have been tested and approved for conveying potable water by the National Sanitation Foundation. Pipe shall be marked with nominal pipe size, dimension ratio, AWWA pressure class, AWWA standard designation number, NSF-61 mark verifying suitability for potable water service, extrusion production record code, and cell classification. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible defects. FPVC pipe shall be blue in color and pressure rated at 200 psi with a dimension ratio (D.R.) of 14 as defined in AWWA C900.

   FPVC pipe shall be as manufactured under the trade name "Fusible C-900" for Underground Solutions, Inc., Poway, CA Patent No. 6,982,05, no exceptions.

2. Fittings: All fittings shall be ductile iron.

E. Prestressed Concrete Cylinder, Steel Cylinder Type

1. Pipe: All pipe shall be manufactured and designed according to the requirements of the latest editions of AWWA C301, “Prestressed Concrete Pressure Pipe, Steel-Cylinder Type, for Water and Other Liquids”, AWWA C304, “Design of Prestressed Concrete Cylinder Pipe”, and AWWA M9, “Concrete Pressure Pipes”, except as modified herein. Prestressed concrete cylinder pipe shall be embedded cylinder type for all sizes.

    a. The cylinder hoop stress at 1.5 times working pressure shall not exceed the yield strength of the steel. A minimum cylinder thickness of 10 gauge shall be furnished.
    b. Cold-rolled sheets will not be acceptable.
    c. The length of pipe with restrained joints shall be as indicated on the Plans or as specified. Restrained joints and pipe cylinders shall be designed to withstand the calculated stresses at all points along the pipe with restrained joints. The maximum longitudinal stress in pipe cylinders shall not exceed 13,500 psi at the specified working pressure; or 17,000 psi at the specified working pressure plus surge pressure, or the field test pressure, whichever is the greatest.
    d. Mortar coating thickness shall be a minimum of one-inch (1") over the prestressing wire.
    e. Cement: Cement shall be ASTM C 150, Type II. The 28-day rodded test cylinder concrete compressive strength used for the design of the pipe shall not exceed 7,000 psi. If a test cylinder compressive strength between 6,500 psi and 7,000 psi is used for design, a concrete mix design shall be submitted.
    f. Fine aggregate shall be clean natural or manufactured sand as required by ASTM C 33. No “rebound” shall be allowed in the cement mortar used for pipe.
    g. Rubber gaskets shall be synthetic rubber.

2. Joints

    a. Bell-and-Spigot
        i. Provide bell-and-spigot-type joints for all buried pipe unless otherwise specified or indicated on the Plans.
        ii. Provide joints with steel joint rings and O-ring rubber gaskets conforming to AWWA C 301.
        iii. Protect interior surface of the completed joint by grouting with Portland cement mortar.
        iv. The exterior surface of the completed joint shall be covered with a wide joint diaper (harness clamp restrained joint diaper with full width closed cell polyethylene foam lining) filled with grout.
        v. All bells and spigots shall be the deep joint type (minimum 4-1/8 inches in joint depth).
    b. Flanged
        i. Provide flanged joints for all interior and exposed exterior pipe except where otherwise specified or indicated on the Plans.
        ii. Flanges shall have a pressure rating not less than that required for pipe.
        iii. Flanges, bolts, and gaskets shall conform to AWWA C 207, Class D and shall be drilled ANSI B16.1 Class 125.
    c. Coupled
        i. Furnish couplings where indicated on the Plans or Standard Drawings.
        ii. Furnish pipe ends suitable for receiving the style of coupling indicated on the Plans or Standard Drawings.
        iii. Furnish anchored couplings where restraint is required to withstand specified operating or hydrostatic test pressure and where indicated on the Plans or Standard Drawings.

d. Special
    i. Furnish pipe with joints suitable for attaching to valves and accessories and for indicated transitions.
    ii. Joints shall be plain end, flanged, mechanical, or as otherwise indicated on the Plans or Standard Drawings.
    iii. Adapters may be furnished in lieu of pipe with special joints.
e. Restrained: Provide either clamp-type or snap-ring type rubber and steel joints acceptable to Engineer where restraint is required for joint to withstand specified operating and hydrostatic test pressure and where indicated on the Plans or Standard Drawings.

3. Closure Assemblies: Provide closure assemblies acceptable to Engineer where indicated on the Plans or Standard Drawings and as required by the sequence of construction.

4. Test Plugs

a. Provide pressure test plugs where required to test the installation.
b. Design test plugs to withstand hydraulic test pressure and external loading.
c. Join test plugs to pipe with selected joint and restrain as required to maintain internal pressures with external loading applied.
d. Provide outlets of proper size to facilitate flushing and disinfection.

5. Fittings and Specials

a. Fabricate conforming to AWWA C301 and M9.
b. Design to withstand internal pressure and external loading not less than that of adjoining pipe.
c. Furnish fittings with bell-and-spigot ends where such fittings connect with concrete pipe.
d. Furnish wall fittings with approved anchor ring where indicated on the Plans or Standard Drawings. Such fittings shall be of ductile iron or fabricated steel.
e. Furnish all adapters, outlets, and other specials as specified or where indicated on the Plans or Standard Drawings.
f. Furnish openings for air valve, drain, sampling, sensing, testing, and other connections with threaded bosses or flanged outlets sized and located where indicated on the Plans or Standard Drawings. Steel connections shall be lined and coated with mortar or other protective coating material if mortaring is not feasible.
g. Provide tangent blow-off and drain assemblies where indicated on the Plans or Standard Drawings. Outlet shall be a minimum 6-inch anchored mechanical joint spigot.
h. Short Bevel Fittings: Furnish and maintain two nominal full bevels and four nominal half bevel bends on site during pipe installation for minor alignment adjustments. Replenish as used until pipe is installed. Return unused bevels to pipe manufacturer.

6. Pipe Marking: In addition to the marking specified in paragraph "Pipe Marking", the following information shall be marked on each pipe, fitting, and special:

a. Design pressure
b. Laying schedule number on all fittings and specials
c. Date of casting
d. Length of any short pipe

2902.3 Valves and Valve Boxes

A. Gate Valves: The type, size, and location of valves shall be as shown on the Plans or Standard Drawings. Except as modified or provided herein, all gate valves in pipe lines shall be 200 psi, iron body, gate valves

with non-rising stems. Gate valves shall be resilient-seated conforming to all applicable requirements of ANSI/AWWA C509 and C515.

B. Butterfly Valves: Butterfly valves shall be used for water line valves larger than twelve (12) inches in diameter unless otherwise directed by the Engineer. Butterfly valves shall be of the rubber-seat, tight-closing type. Valve discs shall seat at 90-degree with pipe axis. Mechanical joint end valves shall be of the short body type. Packing shall be O-ring cartridge designed for permanent duty in underground service.

All butterfly valves and operators shall conform to AWWA C504 for Class 150B service. Metal mating seat surfaces shall be 18-8 stainless steel or more. Each valve shall be provided with an operator with a torque rating at least equal to the torques listed in AWWA C504, Table 1. Butterfly valves shall be epoxy coated inside and outside conforming to ANSI/AWWA C550. All exposed valve bolts and nuts shall be stainless steel.

C. Valve Ends: Valve ends shall be of the mechanical joint type, conforming to ANSI A21.11 /AWWA C111 except where flanged ends are required on the Plans.

The end flanges of flanged gate valves shall conform in dimensions and drilling to ANSI B16.1 for cast-iron flanges and flanged fittings, Class 125, unless explicitly provided otherwise on the Plans or Standard Drawings. The laying lengths of the flanged valves shall conform to the dimensions of ANSI B16.10.

D. Bonnet Thrust Plates: The bonnet shall have a removable thrust plate to permit the removal and replacement of the valve stem and “O” ring seal while the valve is in service. All bolts and nuts in the bonnet shall be stainless steel.

E. Tapping Valves: The size and location of the tapping valves shall be as shown on the Plans or Standard Drawings. The valves shall be 200 psi, ductile iron body, resilient-seated gate valves with non-rising stems conforming with all applicable requirements of ANSI /AWWA C509 and C515, except that the outlet end shall be standard mechanical joint end conforming to ANSI A21.11 /AWWA C111 and the inlet end shall have an inlet flange conforming to ANSI B16.1 for cast iron flanges, Class 125.

F. Tapping Sleeves

1. Stainless Steel: The minimum working pressure rating shall be 150 psig. The height from the flange surface to the pipe centerline shall comply with MSS SP-111. Recess dimensions are per MSS SP-60.

    a. Top Shell: The top shell shall be 18-8 Type 304 stainless steel, minimum 12 gauge thickness.
    b. Bottom Shell: The bottom shell shall be 18-8 Type 304 stainless steel, minimum 14 gauge thickness.
    c. Flange: The flange shall be 18-8 Type 304 stainless steel and shall have a 3/4-inch NPT test report.
    d. Gasket: The tapping sleeve shall have a full circumferential gasket made of synthetic rubber.

2. Iron: The minimum working pressure rating shall be 150 psig. The tapping sleeves shall comply with MSS SP-111.

    a. Tapping sleeves shall be cast iron complying with ASTM A 126, Class B or DI complying with ASTM A 536 and shall be compatible with the tapping valve.
    b. Coating shall comply with AWWA C550.

c. Cast iron tapping sleeves shall have MJ connection x flange end. The flange end shall include a recess to provide positive alignment of the tapping valve. Recess dimension are per MSS SP-60.
d. Bolts shall comply with ANSI/AWWA C111/A21.11.

G. Stem Seals and Coatings

1. All valves shall be provided with stem seals of the "O" ring type. Two "O" rings shall be used with at least one "O" ring inserted above the thrust collar. The packing plate shall be attached to the valve bonnet by not less than three (3) bolts and one "O" ring below the thrust collar.

2. All exterior surfaces of each valve shall be cleaned and painted in the shop with two (2) coats of asphalt varnish conforming to Federal Specifications TT-V-51-E. The interior surfaces of resilient-seated gate valves shall have a protective coating of fusion-bonded, nontoxic epoxy which is safe for potable water.

H. Valve Operation: All valves shall be equipped with a 2-inch square wrench nut and the direction of rotation to open the valve shall be to the left (counterclockwise) unless otherwise noted in the Special Provisions.

I. Extension Stems: When the distance from the top of the valve cover to the valve operating nut exceeds 3 feet, each buried valve shall be provided with an extension stem and operating nut shall conform to the Plans or Standard Drawings.

J. Valve Boxes, Bases, Lids and Covers

1. One-piece Valve Box and Base: One-piece valve boxes and bases shall be injection molded plastic conforming to ANSI/ASTM D 2853-70, Class 1212.

2. Two-piece Valve Box and Base

a. Valve Boxes: In paved areas, including driveways and sidewalks, valve boxes shall be 6-inch, Class 52, DIP. In non-paved areas, the Contractor may use 6-inch, Class 152, PVC pipe.
b. Valve Bases: Valves bases shall be Clay & Bailey No. 2260-4 or an approved equal. Bases are required under all valve boxes.
c. Lids and Covers: Valve lids and covers for use in pavement shall be Clay & Bailey No. 2193, 2193NS or an approved equal. Valve lids and covers for all other areas may be Clay & Bailey No. 2196, or an approved equal. Valve lids shall have "Water" cast in the lid.

2902.4 Fire Hydrants

A. General: Fire hydrants shall be dry barrel, standard compression, two-piece standpipe, break-away design conforming to AWWA C502 and shall comply with one of the two types as follows or as noted in the Special Provisions:

1. Hydrants shall have minimum design working pressure of 150 psig and test pressure of 300 psig.

2. One 4.5-inch pumper nozzle, two 2.5-inch hose nozzles, 5.25-inch minimum mechanical valve opening left and 6-inch inlet connection.

3. Two 2.5-inch hose nozzles, 5.25-inch minimum mechanical valve opening left and a 6-inch inlet

connection.

4. Hydrants should be the same type, configuration, and color as the fire hydrants in use by the Owning Authority as noted in the Plans or Special Provisions.

B. Operating Nut Dimensions: Operating stem and nozzle cap nuts shall be 1.5-inch point to flat pentagon.

C. Nozzle Threads and Caps: Hydrant nozzles shall meet NFPA standard thread requirements. All nozzle caps shall be equipped with chains attached to the hydrant. All hydrant threads shall be oil lubricated by means of an oil reservoir or grease zerk.

D. Bury Depth: The bury length of hydrant barrel shall be determined by the depth from finish grade to the invert of the connecting pipe.

E. Extension Kits

1. Extension kits shall be supplied by the hydrant manufacturer.

2. All extension shall be factory painted (baked on enamel) and shall match the color of the barrel section.

2902.5 Specials

A. General: Air release, meter, and pressure-reducing valve vaults shall be precast concrete conforming to ASTM C 478. Access lid castings shall be as shown in the Plans, Standard Drawings, or as noted in the Special Provisions.

Vaults that must be cast in place due to their special nature shall conform to the Plans, Standard Drawings, and concrete specifications in Section 2902.8.

B. Pressure Reducing Valves: Pressure reducing valves shall be designed to provide tight shutoff under conditions of no flow and shall not “hunt” under ordinary flow conditions. Pressure reducing valves shall be as noted in the Special Provisions, selected and sized as recommended by the valve manufacturer. Pressure reducing valves shall be suitable for operation under the pressure and flow conditions as shown on the Plans.

C. Combination Air Valves: Combination air-release and vacuum-relief valves shall be installed at the locations indicated on the Plans. Each valve assembly shall be installed complete with appropriate piping and valves as shown on the Plans or Standard Drawings. All piping and isolation valves shall be brass except for the air outlet from the valve which shall be brass or copper tubing.

Air releases for mains 12-inches in diameter or smaller shall have 1-inch combination air-release valves, APCO No. 143C or approved equal.

D. Blow-Off Assemblies: Blow-off assemblies shall be installed at the locations indicated on the Plans or Standard Drawings. Blow-off assemblies shall be installed with the appurtenant piping and valves as indicated on the Plans, Standard Drawings, or Special Provisions.

E. Corporation Cocks: The Contractor will furnish and install three-fourth inch (3/4") corporation cocks along the pipeline where necessary to vent the line during filling. The number and location of the corporation cocks shall be determined by the Engineer. After testing and disinfection of the line, the corporation cocks shall be removed and replaced with a tapered brass plug.

2902.6 Bedding Material

Granular Bedding Material: All materials used for granular embedment for pipe bedding shall conform to the requirements of ASTM C 33 and shall meet the graduation identified in Section 2102.4.G.

2902.7 Location Wire and Tape

Location wire or detection marking tape shall be buried above water mains.

A. Location Wire: Location wire shall be a minimum 12 gauge copper clad steel (CCS), minimum break load of 280 lbs. with blue 30 mil HDPE jacket for open trench installations or 12 gauge copper clad steel (CSS), minimum break load of 1,100 lbs. with blue 45 mil HDPE jacket for directional drilling or jack and boring installations.

B. Detection Marking Tape: Detection marking tape shall be solid aluminum foil core tape completely encased in polyethylene jacket, 5.5 mils thick minimum, and 6-inches wide.

The detection tape marking tape shall be blue in color and have “Buried Water Line Below” printed on the tape at 20- to 30-inch intervals. The detection and marking tape shall be installed directly above the centerline of the pipe and 18- to 24-inches below finish grade.

2902.8 Concrete

This specification is intended primarily for concrete thrust blocks, encasements and vaults. Concrete for all driveway, sidewalk, roadway pavement, and/or curb and gutter replacement shall conform to the requirements of Section 2301, 2302, 2200 and the appropriate authority having jurisdiction thereof.

The concrete shall be MCIB WA535-1/2-4 as designated by the Mid-West Concrete Industry Board, Inc., Kansas City, Missouri or approved KCMMB 4K mix as indicated on the Plans or Standard Drawings.

2902.9 Casing Pipe

Casing pipe shall be used where required at railroad or highway crossings. The casing pipe shall be in accordance with the Plans, Standard Drawings, or Special Provisions and meet the requirements of the railroad or highway authority with regard to type of material, wall thickness and coating of casing pipe. No casing will be installed without the approval of the involved highway or railroad authority.

A. Material: New, smooth wall, welded steel pipe fabricated from ASTM A 36 plate or ASTM A 1011 sheet with minimum yield point of 36,000 psi, conforming to AWWA C200.

B. Casing Thickness: The following table provides a listing of minimum casing diameters and thickness:

Casing Pipe Diameter (inches)	Nominal Wall Thickness (inches)	
	Under Highway	Under Railroad
12	0.188	0.282
14	0.188	0.282
16	0.188	0.282
18	0.250	0.312
20	0.281	0.344
22	0.281	0.375
24	0.281	0.406
26	0.312	0.438
28	0.312	0.469
30	0.312	0.469
32	0.344	0.500
34	0.344	0.531
36	0.344	0.531
38	0.344	0.531
40	0.375	0.563
42	0.375	0.563
44	0.375	0.563
48	0.375	0.563
50	0.406	0.625
52	0.406	0.625
54	0.406	0.625
60	0.450	0.650

C. Joints: All joints in steel pipe casings shall be field welded to conform to API 1104 or AWWA C206.

1. Clean to SSPC-SP3 and apply iron oxide field coating to all exterior joints after field welding.

2. Clean to SSPC-SP3 and apply iron oxide field coating to all interior joints on 24 inch diameter casings and larger after field welding.

D. Factory Coatings and Linings: Coat exterior and line interior of all casing pipe with iron oxide primer applied at 33 microns (1.5 mils) minimum thickness. Hold coatings and linings back from end joints to be welded at least 2 inches each side of joint.

E. Casing Spacers

1. Casing spacers shall be used to install the carrier pipe inside the encasement pipe. Casing spacers shall fasten tightly onto the carrier pipe so that when the carrier pipe is being installed the spacers will not move along the pipeline. Casing spacers shall be doubled on each end of the encasement.

2. Each casing spacer shall be capable of providing support for the carrier pipe in service at a maximum spacing of 10'. Calculations shall be provided to the Engineer by the casing spacer manufacturer showing that the casing spacer will support the service load at the recommended spacing, including a factor of safety of two (2). Casing spacers used under this specification shall meet or exceed the specifications described herein as projection-type that has a minimum of projections around the circumference totaling the number of diameter inches.

3. Projection-type casing spacers panels, risers and fasteners shall be constructed of Stainless Steel

type 304. Casing spacer skids shall be constructed of UHMV Polyethylene. Projection-type casing spacers shall be Power Seal Model 4810 or approved equal.

F. End Seals: Power Seal Model 4810ES or approved equal.

G. Sand: Clean, natural sand in accordance with ASTM C 33.

SECTION 2903 CONSTRUCTION

2903.1 Grading and Excavation

A. General: Excavation and trenching work shall include the necessary clearing, grubbing, and preparation of the site; removal and disposal of all debris; excavation and trenching as required; the handling, storage, transportation and disposal of all excavated material; all necessary sheeting, shoring, and protection work; preparation of subgrades; pumping and dewatering as necessary or required; protection of adjacent property; and other appurtenant work.

Excavation and trenching work shall be performed in a safe and proper manner with suitable precautions being taken against all hazards.

The Contractor shall explore and expose any and all obstructions in advance of excavation so that minor changes in grade and alignment may be made.

In paralleling present water, sewer and gas mains, the Contractor shall protect all service connections and shall arrange to furnish service to the consumers with minimum interruption.

All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing sidewalks and driveways. Gutters shall be kept clear or other satisfactory provisions made for street drainage.

B. Classification of Excavated Material: No classification of excavated materials will be made. Excavation and trenching work shall include the removal and subsequent handling of all materials excavated or otherwise removed in performance of the contract work regardless of the type, character, composition, or condition thereof. See Section 2100 “Clearing and Site Preparation”.

C. Blasting: When blasting is permitted by the Engineer, the Contractor shall use the utmost care to protect life and property. The Contractor shall obtain any required permits from the agency having site jurisdiction and shall comply with all laws, ordinances, and the applicable safety code requirements and regulations relative to the handling, storage and use of explosives and protection of life and property, and he shall be responsible for all damage caused by his or his subcontractor's operations.

The Contractor shall provide insurance as required by the Contract Documents before performing any blasting. The governing agency shall be notified at least 24 hours before blasting operations begin.

No blasting of any kind for rock excavations or any other purpose will be allowed unless noted otherwise on the Plans or permitted by the Engineer.

D. Unauthorized Excavation: Any part of the trench excavated below grade shall be corrected with material approved by the Engineer placed and compacted by the Contractor to the satisfaction of the Engineer.

E. Removal of Water: The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and groundwater entering excavations, trenches, or other parts of the work. Each

excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe to be installed therein, is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

All excavations for concrete structures or trenches which extend down to or below static groundwater elevations shall be dewatered by lowering and maintaining the groundwater surface beneath such excavations a distance of not less than 12-inches below the bottom of the excavation.

Surface water shall be diverted or otherwise prevented from entering excavated areas or trenches to the greatest extent practicable without causing damage to adjacent property.

The Contractor will be held responsible for the condition of any pipe or conduit which he may use for drainage purposes, and all such pipes or conduits shall be left clean and free of sediment.

F. Sheeting and Shoring: Except where banks are cut back on a stable slope, excavation for structures and trenches shall be properly and substantially sheeted, braced, or shored as necessary to prevent caving or sliding, to provide protection for workmen and the work, and to provide protection for existing structures and facilities. Sheeting, bracing, and shoring shall be designed and built to withstand all loads that might be caused by earth movement or pressure and shall be rigid, maintaining shape and position under all circumstances.

Trench sheeting shall not be pulled unless pipe strength is sufficient to carry trench loads based on trench width to the back of sheeting.

Sheeting shall not be pulled after backfilling.

Where trench sheeting is left in place, such sheeting shall not be braced against the pipe, but shall be supported in a manner which will preclude concentrated loads or horizontal thrusts on the pipe. Cross braces installed above the pipe to support sheeting may be removed after pipe embedment has been completed.

G. Stabilization: Trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workmen.

Trench bottoms which are otherwise solid but which become mucky on top due to construction operations shall be reinforced with one or more layers of crushed stone or gravel. Not more than 1/2-inch depth of mud or muck shall be allowed to remain on stabilized trench bottoms when the pipe bedding material is placed thereon.

H. Trench Excavation: The Contractor shall not open more trench in advance of pipe laying than is necessary to expedite the work. One block or 300 feet, whichever is the shorter, shall be the maximum length of open trench ahead of pipe laying unless by written permission of the Engineer.

Except where tunneling or boring and jacking is specified and shown on the plan by the Engineer, all trench excavations shall be open cut.

I. Alignment and Grade: The alignment and grade or elevation of the pipeline shall be as shown on the Plans.

The Contractor must maintain a constant check of the pipe alignment and trench depth and will be held responsible for any deviations therefrom.

Unless otherwise shown or indicated on the Plans or unless otherwise set forth by the Engineer, the

horizontal and vertical alignment of the water main shall be maintained to within the following tolerances of 3-inches horizontally and 42” to 48” vertical depth of cover.

J. Minimum Cover: Except where otherwise shown, trenches shall be excavated to a depth sufficient to provide a minimum depth of backfill cover over the top of the pipe as indicated above. Greater pipe cover depths may be necessary on existing pipe, conduits, drains, drainage structures, or other obstructions encountered at normal pipe grades.

Measurement of pipe cover depth shall be made vertically from the outside top of pipe to finish grade or pavement surface elevations.

K. Trench Widths

1. Minimum Widths: Minimum trench widths shall be in accordance with the Plans, Standard Drawings, and manufacturers’ recommendations.

2. Maximum Widths: The allowable maximum trench widths hereinafter specified apply only to that portion of the trench below the horizontal plane parallel to and six (6) inches above the top of the pipe. The allowable maximum widths may be exceeded at manholes, bore pits, tees, and in unstable earth material. Where the maximum trench width is exceeded the Contractor shall provide the appropriate strength class of pipe embedment to provide safe support strength to the pipeline.

3. When the side clearance exceeds two and one-half (2.5) times the outside pipe diameter at either side of a flexible conduit, it shall be the Contractor's responsibility at no additional cost to the Owner to provide bedding adequate to develop the required lateral support for the pipe and/or provide a pipe of sufficient strength class to accommodate the loading conditions as approved by the Engineer.

L. Unauthorized Trench Widths: When, for any reason, the width of the lower portion of the trench as excavated at any point exceeds the maximum permitted in the foregoing tables, either pipe of adequate strength, special pipe embedment, or arch concrete encasement, as required by loading conditions and as determined by the Engineer, shall be furnished and installed by and at the Contractor’s expense.

M. Trench Bottom in Earth: The trench in earth shall have a flat bottom the full width of the trench and shall be excavated to the grade to which the pipe is to be laid. The surface shall be graded to provide a uniform bearing and continuous support for each pipe at every point along its entire length.

N. Rock Exploration: Unless shown otherwise on the Plans or noted in the Special Provisions, no rock exploration has been made. On those projects where rock exploration has been made, test holes have been drilled at locations and intervals as shown on the Plans or subsurface information report to determine the approximate location and depth of rock.

Resistance to penetration was assumed to be “solid rock.” This information is furnished for general-reference purposes only.

The Contractor must form his own opinion as to the character of materials which will be encountered from an inspection in the ground, from his own investigation of the test hole information, or from such other investigations as he may desire.

O. Trench Bottoms in Rock: All rock excavation shall be carried to a minimum of 6-inches below the bottom of the pipe. Granular pipe embedment material shall be used to restore the trench bottom to the desired elevation and grade and to provide a uniform bearing and continuous support for the pipe along its entire length. Care shall be exercised to prevent any portion of the pipe from coming to bear on solid rock or

boulders.

P. Mechanical Excavation: The use of mechanical equipment will not be permitted in locations where its operations would cause damage to trees, buildings, culverts, or other existing property, utilities, or structures above or below ground. In all such locations, hand-excavating methods shall be used.

Mechanical equipment used for trench excavation shall be of the type, design, and construction and shall be so operated that the rough trench excavation bottom elevation can be controlled, that uniform trench widths and vertical sidewalls are obtained at least from the bottom of the trench, and that trench alignment will be centered in the trench with adequate clearance between the pipe and sidewalls of the trench. Undercutting the trench sidewall to obtain clearance will not be permitted.

All mechanical trenching equipment, its operating conditions, and the manner of its operations, shall be subject at all times to the approval of the Engineer.

Q. Stream Crossings: Stream crossings shall be made in accordance with these specifications and as shown on the Plans.

The trench width shall be as required for proper pipe installation and the trench depth shall be as required to give minimum cover shown on the Plans or Standard Drawings. Pipe encasement, where required, shall be in accordance with the specifications and placed as indicated on the Plans or Standard Drawings.

R. Highway and Railroad Crossings: The Contractor shall make highway and railroad crossing in accordance with the specifications, the Special Provisions and as shown on the Plans.

All construction or work performed and all operations of the Contractor, his employees, or his subcontractors within the limits of highway or railroad right-of-ways shall be in conformity with all the requirements, regulations and be under the control (through the Engineer) of the authority owning or having jurisdiction over and control of the right-of-way.

The Contractor shall pay fees and obtain permits to make the crossings unless otherwise directed.

2903.2 Installation

A. General: Laying of PVC pipe, ductile-iron pipe (DIP), and HDPE pipe installation of valves, and hydrants; and embedment and backfill shall conform to the following specifications and the details as shown on the Plans or Standard Drawings.

1. Unless otherwise specified or shown on the plans, the water mains shall be laid to have a minimum cover of 42-inches, measured from the finished grade or from established street grades shown on the Plans or Standard Drawings.

2. Whenever pipe laying is stopped, the open end of the line shall be sealed with a watertight plug which will prevent trench water from entering the pipe.

3. Where the pipe is to be installed inside a casing pipe or tunnel liner, creosoted timber skids shall be strapped to each pipe before it is placed in the casing pipe or tunnel liner in accordance with the specifications and as shown on the Plans or Standard Drawings. Sand fill shall be used when shown on the Plans or Standard Drawings. The ends of each casing pipe or tunnel liner shall be closed with a dry brick wall or as shown on the Plans or Standard Drawings. The closures for each casing pipe or tunnel liner shall not be constructed until all testing of the line has been completed and accepted.

B. PVC Pipe: This specification addresses the installation of AWWA C900, C905, and C909 PVC pipe. Ductile iron fittings and valves are covered in other sections. PVC shall be installed to the minimum of AWWA C605 latest revision and per the specifications.

1. Handling: Pipe, fittings, and other accessories shall at all times be handled with care to avoid damage. Under no circumstances shall they be dropped. Pipe fittings shall be handled as specified for ductile-iron pipe. Any damaged pipe, fittings, or accessories shall be rejected.

2. Cutting Pipe: All pipes shall be cut with a saw or special cutting tool. Cutting shall be done in a neat manner without damage to the pipe. Cuts shall be smooth, straight and at right angles to the pipe axis. After cutting, the end of the pipe shall be dressed and beveled. Beveling shall be done with a specifically designed beveling tool. Hand beveling will not be allowed. When cutting pipe with couplings, mark the field cut pipe end the same distance in as the mark appeared on the original full-length pipe section.

3. Cleaning: The interior of all pipe and fittings shall be thoroughly cleaned of foreign matter before being installed and shall be kept clean until the work has been accepted.

4. Pipe Laying: PVC pipe shall be installed in strict accordance with the requirements and instructions of the pipe manufacturer. It shall be protected from lateral displacement and deflection by pipe embedment material installed as specified for pipe embedment and as shown on the Plans or Standard Drawings. No pipe shall be laid under unsuitable trench conditions. Whenever pipe laying is stopped, the open end of the line shall be sealed with a watertight plug which will prevent trench water from entering the pipe.

5. Assembly: For push on pipe, the spigot shall be inserted into the bell to the line on the spigot. The previously completed joints must be braced so the line does not become “stacked”, “over belled”, or inserted past the reference mark on the spigot. If the insertion mark is not visible after assembly, the joints shall be dissembled and done correctly.

6. Alignment: Piping shall be laid to the lines and grades as specified, as indicated on reference points, or as indicated on the Plans. The Contractor must obtain approval from the Engineer for any changes in the alignment or grade.

7. Joint Deflection: Pipelines or runs intended to be straight shall be laid straight. Deflections from a straight line using joint deflection shall not exceed the pipe manufacturer’s published axial joint deflection or 1-degree, whichever is less.

8. Bending Pipe: The Contractor will not be allowed to bend PVC pipe. The Contractor shall use the CertainTeed High Deflection Coupling if joint deflection is insufficient and an 11-1/4 bend is too large of an angle.

9. Mechanical Joints: Mechanical joints shall be carefully assembled in accordance with the manufacturer’s recommendations. If effective sealing is not obtained, the joint shall be disassembled, thoroughly cleaned, and reassembled. Kor-Blue bolts, or approved equal, shall be used for all necessary assembly. Bolts shall be uniformly tightened to the torque values listed in ANSA/AWWA C111/A21.11. Over-tightening of bolts to compensate for poor installation practice will not be permitted.

10. Push-on Joints: All joint surfaces shall be lubricated with heavy vegetable soap solution immediately before the joint is completed. Lubricant shall be stored in closed containers and shall

be kept clean. Each spigot end shall be suitably beveled to facilitate assembly.

11. Fittings: Unless directed otherwise by Engineer, Contractor shall determine the type and locations of bends required to complete the main installation. Mains shall be installed with the least number of bends practical. The Contractor will cut off the bevel of the PVC pipe before insertion into an MJ fitting.

12. Trace Wire: The Contractor shall install trace wire in the trench with the PVC pipe.

13. Thrust Restraint for PVC: Certa-lok restrained joint PVC shall be used or installed using the EBBA Iron 1900 Series restraint harness or approved equal according to the manufacturer's recommendations. Thrust restraint devices shall be provided on all pipe installed in encasement pipes and installed for street crossings.

14. Reaction Anchorage and Blocking: Where thrust restraint devices are inappropriate or when directed by the Engineer, concrete thrust blocks, thrust collars, or gravity blocks shall be used to prevent movement of the pipe caused by internal pressure.

C. Ductile-Iron Pipe (DIP)

1. Handling: Pipe, fittings and accessories shall be handled in a manner that will ensure installation in a sound, undamaged condition. Equipment, tools, and methods used in unloading, reloading, hauling, and laying pipe and fittings shall be such that the pipe, pipe coating, and fittings are not damaged. Hooks shall not be used. Under no circumstances shall pipe or accessories be dropped or dumped. Pipe and fittings on which the cement lining has been broken or loosened shall be replaced by the Contractor. Where the damaged areas are small and readily accessible, the Contractor may be permitted to repair the lining.

2. All pipe coating which has been damaged shall be repaired by the Contractor before installing the pipe.

3. Cutting Pipe: Ductile-iron pipe shall be cut with either a saw or an abrasive wheel. Cutting of existing cast-iron pipe shall be done with either a saw or abrasive wheel, or when there is a free end, with mechanical pipe cutters. The cutting of pipe with a torch will not be permitted.

4. Cutting shall be done in a neat manner without damage to the pipe, or the cement lining. Cuts shall be smooth, straight, and at right angles to the pipe axis. After cutting, the end of the pipe shall be dressed with a file to remove all roughness and sharp corners.

5. Cleaning: The interior of all pipe and fittings shall be thoroughly cleaned of foreign matter before being installed and shall be kept clean until the work has been accepted. Such surfaces shall be wire brushed, if necessary, wiped clean, and kept clean until jointing is completed.

6. Inspection: Pipe and fittings shall be carefully examined for cracks and other defects immediately before installation. Spigot ends shall be examined with particular care since they are vulnerable to damage from handling. All defective, damaged, or unsound pipe and fittings shall be rejected and marked as such and removed from the site of the work.

7. Push-on Joints: The gasket seat in the bell shall be wiped clean after which the gasket should be placed. A thick film of lubricant should be applied to the entire inner surface of the gasket and on the spigot end of the pipe. The lubricant and the gaskets shall be as recommended and supplied by the manufacturer of the pipe being used. The lubricant shall be odorless, tasteless, nontoxic,

and suitable for use in potable water. Field-cut pipe shall be beveled by filing or by mechanical means to remove any sharp or rough edges that might otherwise damage the gasket.

8. Mechanical Joints: Mechanical joint pipe shall be used only when shown on the Plans or Standard Drawings and shall be installed in strict accordance with the manufacturer's recommendations.

9. Flanged Joints: When bolting flanged joints, care shall be taken to ensure that there is no restraint on the opposite end of the pipe or fitting which would prevent uniform gasket compression or which would cause unnecessary stress in the flanges. One flange shall be free to move in any direction while the flange blots are being tightened. Bell-and-spigot joints shall not be packed or assembled until all flanged joints affected thereby have been tightened. Bolts shall be tightened gradually and at a uniform rate so that gasket compression is uniform.

10. Restrained Joints: Restrained joints and anchoring joints shall be installed in strict accordance with the pipe manufacturer's recommendations.

11. Alignment of Bell-and-Spigot Pipe: Pipelines or runs intended to be straight shall be laid straight. Deflections from a straight line or grade shall not exceed the quantities stipulated in Tables 4 and 5 of ANSI/AWWA C600.

12. Trace Wire: The Contractor shall install trace wire in the trench with the DIP pipe.

13. Laying Pipe: Pipe shall be protected from lateral displacement by pipe embedment material installed as specified. Under no circumstances shall the pipe be laid in water, and no pipe shall be laid under unsuitable trench conditions.

D. HDPE Pipe

1. Handling: HDPE pipe and fittings shall be handled to insure installation in a sound undamaged condition. During loading, transportation and unloading, every precaution shall be taken to prevent injury to the pipe. No pipe shall be dropped from cars or trucks, or allowed to roll down slides without proper retaining ropes. During transportation each pipe shall rest on suitable pads, strips, skids, or blocks securely wedged or tied in place. Any pipe that is scratched more than 10% of the wall thickness shall not be used.

2. Laying Pipe: HDPE pipe shall not be installed when trenches or weather conditions are not suitable for such work. HDPE pipe shall be installed in a trench with engineered embedment and backfill per the Excavation and Trenching section, except the bedding material particle size shall not exceed 1/2 inch for pipe smaller than 4 inches in diameter. The bedding material may be sliced in around the pipe.

3. Fusion: Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The preferred joining method shall be the butt fusion method. The butt fusion equipment used in the joining procedures should be capable of temperature requirements of 400^0 F, alignment, and an interfacial fusion pressure of 75psi. Electrofusion couplings shall be used when butt fusion equipment cannot be used. Electrofusion coupling assembly shall be completed as scribed in the attachment at the end of this section. Socket fusion, hot gas fusion, threading, solvents, and epoxies will not be used to join HDPE pipe. The operator of the butt fusion or electrofusion machine shall be trained and certified by the fusion equipment supplier to operate the fusion machine.

4. Trace Wire: The Contractor shall install trace wire in the trench with the HDPE pipe.

E. Fusible Polyvinyl Chloride Pipe (FPVC)

1. Handling (Pipe): Pipe shall be loaded, off-loaded, and otherwise handled in accordance with AWWA M23 and all pipe suppliers' guidelines shall be followed. The use of chains, wire rope, chokers, or other pipe handling implements that may scratch, nick, cut, or gouge the pipe are strictly prohibited. Any scratch or gouge greater than 10% of the wall thickness will be considered significant and may be cause for rejection. Damaged areas may be removed by cutting, limits of acceptable length of pipe shall be determined by the Owner or Engineer.

2. Handling (Fittings and Accessories): Fittings and accessories shall be handled in a manner that will ensure installation in a sound, undamaged condition. Equipment, tools, and methods used in unloading, reloading, and hauling fittings and accessories shall be such that fittings and accessories are not damaged. Fittings on which the cement lining has been broken or loosened shall be replaced by the Contractor at his sole expense. Where damaged areas are small and readily accessible, the Contractor may be permitted to repair the lining.

3. Cutting Pipe: All pipe shall be cut with facing blades specifically designed for cutting fusible polyvinyl chloride pipe.

4. Cleaning: The interior of all pipe and fittings shall be thoroughly cleaned of foreign matter before being installed and shall be kept clean until the work has been accepted.

5. Inspection: FPVC pipe shall be installed in strict accordance with the requirements and instructions of the pipe supplier for open cut, horizontal directional drilling (HDD), or pipe bursting installation methods.

6. Alignment: Waterlines or runs intended to be straight shall be laid straight. Deflections from a straight line or grade shall not exceed the pipe suppliers recommended bending radius guidelines.

7. Laying Pipe: Pipe shall be protected from lateral displacement by pipe embedment material installed as specified. Under no circumstances shall the pipe be laid in water, and no pipe shall be laid under unsuitable trench conditions.

8. Tracer Wire: The Contractor shall install trace wire in the trench with the FPVC pipe.

2903.3 Jointing

A. Push-on Joints: The gasket seat in the bell shall be wiped clean after which the gasket should be placed. A thick film of lubricant should be applied to all of the inner surface of the gasket and on the spigot end of the pipe.

The lubricant and the gaskets shall be as recommended and supplied by the manufacturer of the pipe being used. The lubricant shall be odorless, tasteless, nontoxic, and suitable for use in potable water.

Field-cut pipe shall be bevel filed to remove any sharp or rough edges which might otherwise damage the gasket.

B. Mechanical Joints: The mechanical joint shall be used only when shown on the Plans or Standard Drawings.

C. Flanged Joints: When bolting flanged joints, care shall be taken to ensure that there is no restraint on the opposite end of the pipe or fitting which would prevent uniform gasket compression or which would cause

unnecessary stress in the flanges. One flange shall be free to move in any direction while the flange bolts are being tightened. Bell-and-spigot joints shall not be packed or assembled until all flanged joints affected thereby have been tightened. Bolts shall be tightened gradually and at a uniform rate so that gasket compression is uniform.

D. Restrained Joints: Restrained joints and anchoring joints shall be installed in strict accordance with the pipe manufacturer's recommendations.

E. Fused Joints: Fusible polyvinyl chloride pipe lengths shall be assembled in the field with butt fused joint. Butt fusion shall be completed in strict accordance with the pipe suppliers' written guidelines for this procedure.

1. Butt fusion shall be performed by qualified fusion technicians as documented by the pipe supplier.

2. Fusion joints shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine. The fusion data logging and joint report shall be generated by software developed specifically for the butt-fusion of fusible polyvinyl chloride pipe. The software shall register and/or record the parameters required by the pipe supplier and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report. Joint reports shall be submitted and approved by the pipe supplier prior to installation of any fusible polyvinyl chloride pipe.

3. Only appropriately sized and outfitted machines that have been approved by the pipe supplier shall be used for the fusion process. Fusion machines must incorporate the following elements:

    a. Heat Plate: Heat plates shall be in good condition with no deep gouges or scratches. Plates shall be clean and free of any debris or contamination. Heater controls shall function properly, cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused per the pipe suppliers' guidelines.
    b. Carriage: Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Insert pins shall be installed with no interference to carriage travel.
    c. General Machine: Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
    d. Data Logging Device: An approved data logging device with the current version of the pipe suppliers' recommended and compatible software shall be used. Data logging device operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.

4. Other equipment specifically required for the fusion process shall include the following:

    a. Pipe rollers shall be used for support of pipe to either side of the machine.
    b. A weather protection canopy that allows full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in inclement, extreme temperatures, and /or windy weather, per the pipe supplier's recommendations.
    c. An infrared (IR) pyrometer for checking pipe and heat plate temperatures.
    d. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.

2903.4 Connection to Existing Mains

The Contractor shall furnish and install all fittings necessary to join the existing and new water mains as shown on the Plans or Standard Drawings.

The Owning Authority shall be given at least 24 hours' notice prior to turning off any water supply mains. The Contractor shall coordinate tie-ins with the Owning Authority to minimize down time.

Connections shall be made using suitable fittings from the conditions encountered. Each connection with an existing pipe shall be made at a time and under conditions which will minimize any disruption in service. Special care shall be taken to prevent contamination when dewatering, cutting into, and making connections with existing pipe. The interior of all pipe, fittings, and valves installed in such connections shall be thoroughly cleaned and swabbed with, or dipped in chlorine solution having a chorine content of 200 parts per million (ppm).

2903.5 Polyethylene Encasements

A. General: Polyethylene encasement shall be installed on ductile-iron pipe and fittings. The polyethylene shall prevent contact between the pipe, fittings, and the surround embedment.

B. Installation: The polyethylene encasement shall be installed as specified in ANSI/AWWA C105/A21.5 "Method A".

1. Method A: Polyethylene tubing shall be approximately 2-feet longer than the length of the pipe section to provide a 1-foot overlap on each adjacent pipe section. Tube ends need not be taped in place unless directed by the Engineer.

2. Repairs: Any rips, punctures, or other damages to the polyethylene shall be repaired with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe, and secured with adhesive tape as directed by the Engineer. Duct tape is not allowed.

2903.6 Setting Valves, Fittings and Hydrants

A. Valves and Fittings: All valves, fittings, plugs and caps shall be set and joined to the pipe in the manner heretofore specified for cleaning, laying and joining pipe, except that large valves may require special support so that the pipe will not be required to support the valve weight.

Each valve shall be inspected before installation to ensure that all foreign substances have been removed from within the valve body, and shall be opened and closed to see that all parts are in first-class working condition. Gate valves shall be set vertical in the horizontal pipeline.

Valves and pipe shall be supported in such a manner as to prevent stress in either with no deflection in the valve/pipe joint. Valve boxes and lids shall be installed at each valve and shall be supported and maintained centered and plumb over the operating nut of the valve. The valve box shaft shall not transmit shock or stress to the valve. Install valve box covers flush with the surface of the finished area or as directed by the Engineer.

All bends and tees shall be provided with thrust blocks of plain concrete, as specified. All dead ends on new mains shall be closed with plugs or caps suitably restrained to prevent blowing off under test pressure.

B. Hydrants: All new hydrant installations shall be as shown on the Plans or Standard Drawings and shall include all necessary excavation and backfill to make the installation complete.

Each hydrant shall be inspected before installation for direction of opening, nozzle size and threading, nozzle caps and chains, operating nut, and cap nut dimensions, tightness of pressure-containing bolting,

cleanliness of inlet elbow and weep hole openings, and handling damage and cracks. Defective hydrants shall be corrected or replaced.

All hydrants shall stand plumb. The weep holes of the hydrant shall be kept clear and free to drain. The areas around each hydrant and hydrant valve shall be thoroughly compacted to prevent settlement of these areas.

Hydrants shall be set to a grade that allows their proper operation. Traffic hydrants with breakaway joint must be set with the joint above the ground line. Hydrants behind curbs shall be placed with the hydrant centerline at least 24-inches from the back of curb or 4-feet from the edge of pavement when there is no curb. Hydrants shall be rotated so as to have the pumper nozzle facing the street or rotated to face any direction as required by the Engineer.

2903.7 Thrust Restraint

A. Hydrants: The back of the base elbow of each hydrant shall be braced against a sufficient area of unexcavated earth or rock with a concrete thrust block or be restrained by suitable restrained joints as shown on the Plans or Standard Drawings.

B. Fittings: All plugs, caps, tees, bends and other fittings, unless otherwise specified, shall be provided with reaction blocking or suitably restrained joints as shown on the Plans or Standard Drawings.

C. Thrust Blocks: Vertical and horizontal reaction blocking shall be concrete as specified herein. Thrust blocks shall be installed between solid ground and the fitting to be restrained. Concrete shall be located to contain the resultant thrust force and permit access to pipe and fitting joints for repairs.

D. Restrained Joints: Restrained push-on or mechanical joints, mechanical joint anchoring fittings, and mechanical joints utilizing set screw ductile-iron retainer glands may be used in lieu of concrete thrust blocking if so indicated on the Plans, Standard Drawings or as approved by the Engineer.

2903.8 Embedment and Backfilling

Embedment and backfill shall be accomplished in accordance with the laying condition as specified and as shown on the Plans or Standard Drawings.

A. Pipe Embedment: Embedment for pipe shall be in accordance with these specifications and details of the laying condition as indicated on the Plans or Standard Drawings. See Section 2100 “Clearing and Site Preparation”.

B. Trench Backfill: Backfill for the entire length of the pipeline shall be compacted full depth of the trench above the embedment. See Section 2100 “Clearing and Site Preparation”.

C. Placement and Compaction: See Section 2100 “Clearing and Site Preparation”.

2903.9 Disinfection and Testing

A. Disinfection: After installation, the entire main shall be flushed and disinfected by chlorination. Flushing shall be carried out until turbidity-free water is obtained from all points along the main at the maximum velocity, which can be developed. The flushing velocity shall be at least 2.5 feet per second. All flushing shall be done in the presence of the Engineer. The Contractor shall notify the Engineer at least 24 hours in advance of the times and places which flushing is to be done.

The Contractor shall disinfect the main or prepare the main for disinfection by the Owning Authority when so noted in the Plans, Standard Drawings, or Special Provisions.

1. Chlorination by the Contractor shall conform to AWWA C651 and be performed using a one percent (1%) chlorine solution prepared from granular calcium hypochlorite (1 pound of HTH per 8 gallons of water). Water entering the new main shall receive a dose of the chlorine solution fed at a constant rate such that the water will have not less than 60 mg/l free chlorine.

Chlorine Required to Produce 60 mg/l Concentration in 100-feet of Pipe

Pipe Diameter (Inches)	1% Chlorine Solution (Gallons)
4	0.16
6	0.36
8	0.65
10	1.02
12	1.44

2. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances.

3. At the end of the 24-hour period, the treated water in all portions of the main shall have a residual of not less than 45 mg/l free chlorine.

4. The Contractor shall dechlorinate the test water to 0 mg/L. Mains shall be flushed prior to placing in service. The flushing water shall be disposed of without damage to public or private property.

5. The contractor shall repeat disinfection procedure should initial treatment fail to yield satisfactory results of a passing Bac-T test or minimum residual at no cost to the Owner.

B. Hydrostatic Testing: The Contractor shall perform hydrostatic pressure and leakage tests in accordance with AWWA C600 procedures. Where practicable, mains shall be tested in lengths between line valves or plugs of no more than 1,000 feet in length.

Conduct test at a pressure of 150 psi measured at the highest point of the main. Duration of the test shall be not less than 2 hours. Maintain pressure throughout test +5 psi of test pressure.

Leakage test shall be conducted concurrently with the pressure test. Acceptable when leakage does not exceed that determined by the following formula:

$L = 0.0000075SD(P)^{1/2}$, in which
L = maximum allowable leakage in gallons per hour
S = length of pipe tested in feet
D = nominal internal diameter of pipe being tested in inches
P = average actual leakage test pressure in psi (pounds per square inch)

When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gal/hr/in of nominal valve size shall be allowed. When hydrants are in the test section, the test shall be made against the closed hydrant. All visible leaks at exposed joints and all leaks evident on the surface where joints are covered shall be repaired regardless of total leakage as shown by test. All pipes, fittings, valves and other materials found to be defective under test shall be removed and replaced at the Contractor's expense.

Lines which fail to meet test shall be repaired and retested as necessary until the test requirements are met.

2903.10 Surface Restoration

A. Seeding and Sodding: All unpaved areas cut by the line of trench or excavation or damaged during the work shall be seeded or sodded. Seeding and sodding shall conform to the requirements of Section 2400.

B. Sidewalks and Driveways: All paved sidewalk and driveway areas cut by the line of trench or excavation or damaged during the work shall be replaced. Sidewalk and driveway replacement shall conform to the requirements of Section 2301 and Section 2302.

C. Streets and Curbing: All paved street, shoulder and curbing areas cut by the line of trench or excavation or damaged during the work shall be replaced to conform to the lines and grades of the original pavement and shall be of equal quality, thickness and appearance to that removed.

Paving and curb replacement shall conform to the requirements of Section 2200.

SECTION 2904 WATER MAINS NEAR SEWERS

2904.1 Horizontal Separation

Water mains shall be laid at least 10-feet horizontally from any sewer. When local conditions prevent a lateral separation of 10-feet, a water main may be laid closer than 10-feet to a sewer, provided that the water main is laid in a separate trench, or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18-inches above the top of the sewer. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer must be reconstructed of ductile-iron pipe and should be pressure tested to assure water tightness before backfilling. The required length of sewer to be replaced will be the length necessary to achieve 10-feet horizontal separation.

2904.2 Vertical Separation

A. Whenever water mains must cross above sewers, the water main shall be laid at such an elevation that the bottom of the water main is 18-inches above the top of the sewer. A full length of water main pipe shall be centered over the sewer line to be crossed so that the joints will be equally distant from the sewer and as far away as possible. This vertical separation shall be maintained for that portion of the water main located within 10-feet, horizontally, or any sewer it crosses.

When it is impossible to obtain minimum vertical separation set forth above, the sewer must be reconstructed of ductile iron pipe and shall be pressure tested to assure water tightness before backfilling.

B. Where a water main must cross under a sewer, a vertical separation of 18-inches between the bottom of the sewer and the top of the water main shall be maintained, with adequate support, especially for the larger sized sewer lines to prevent them from settling on and breaking the water main. The sewer shall be reconstructed of ductile-iron pipe for a distance of 10-feet on either side of the crossing, and shall be pressure tested to assure water tightness before backfilling.

2904.3 Sewer Manholes and Inlets

No water pipe shall pass through, or come in contact with, any part of a sewer or a sewer manhole.

SECTION 2905 MEASUREMENT AND PAYMENTS

2905.1 Methods of Measurement

The quantities of completed work will be measured in the following units:

A. Water Main - Pipe

1. Open Trenched: Measurement of various size and types of water mains including fittings or bends, will be in linear feet, as called for in the Contract Documents and/or as shown on the Plans, based on field-measured lengths of acceptably installed pipe, as measured along the centerline thereof. Retainer glands, thrust blocks, encasement, location wire and tape, and other subsidiary items to the pipe will not be measured separately.

2. Tunneled, Bored or Jacked: Measurement will be made in linear feet for the applicable size, and type of water main, tunneled, bored or jacked as called for in the Contract Documents and/or as shown on the Plans, based on actual field-measured lengths of acceptably installed pipe within casing or tunnel liner, including sand fill, end seals and other subsidiary items.

B. Valves and Valve Boxes: Measurement will be made for the applicable size and type of valve, including valve boxes, bases, lids and covers, as determined by the quantity of valves installed.

C. Fire Hydrants: Measurement will be made based on the actual number of hydrants installed as called for on the Plans or as directed by the Engineer. No measurement for payment will be made for branch piping, fittings, couplings, thrust blocks or other appurtenant items except valves and valve boxes.

D. Specials (Meter Vaults, Air Valves, Pressure-Relief Valves, etc.): Measurement for these type items will be made based on the actual number of units installed, as called for on the Plans or as directed by the Engineer.

2905.2 Basis of Payment

Payment will be made at the respective unit or lump-sum price listed in the Contract Documents and shall be full compensation for all labor, materials, and equipment necessary to complete the respective unit in place. There will be no separate measurement or payment for any item of work not specifically identified and listed in the Contract Documents, and all such work shall be considered a subsidiary item with all costs pertaining thereto included in the prices for other items listed in the Contract Documents. .At the Engineer's option, partial payment may be made for any lump sum item listed in the Contract Documents, providing that the Contractor is diligently and satisfactorily pursuing full completion of such partially complete item in accordance with the approved job progress schedule.

END OF SECTION

Blue Springs, Missouri
Public Works Department

SECTION 2100 – GRADING AND SITE PREPARATION

CITY OF BLUE SPRINGS, MISSOURI
CONSTRUCTION SPECIFICATIONS

The City of Blue Springs hereby adopts Section 2100 of the Kansas City Metropolitan Chapter of APWA Construction and Material Specifications, the latest edition. The following additions, deletions and/or revisions are adopted as a part of Section 2100 for use within the City of Blue Springs. Text in bold italics indicates revisions or additions to the APWA standard.

Section 2102 Grading

2102.4.G – Granular Bedding Materials

Delete paragraph 2102.4.G, including tables, and replace with the following:

"Granular Bedding Materials: Granular bedding materials shall meet ASTM C33 with the gradation requirements as shown on the City of Blue Springs Standard Details STM-06 for Storm Sewer Embedment, SAN-11 for Sanitary Sewer Embedment, and WAT-16 for Waterline Embedment."

2102.4.J.2 – Standard Trench

Delete paragraph 2102.4.J.2 and replace with the following:

"Standard Trench: Suitable backfill material for trenches between 24 and 48 inches wide shall be either flowable backfill (CLSM) or dense, well-graded aggregate base material. Aggregate base material shall meet the requirements as shown on the City of Blue Springs Standard Detail STR-07 Street Cut Restoration."

2102.4.O.4 – Street Right-of-Way Areas

Delete paragraph 2102.4.O.4 and replace with the following:

"Street Right-of-Way Areas: All structures located under or within paved or graveled areas shall meet the backfill requirements as shown on the City of Blue Springs Standard Details STM-01, STM-02, STM-03, STM-04, STM-06, STR-07, STR-10, SAN-11, and WAT-16."

2102.4.O.5 – Areas other than Street Right-of-Way

Delete paragraph 2102.4.O.5 and replace with the following:

"Areas other than Street Right-of-Way: All structures shall meet the backfill requirements as shown on the City of Blue Springs Standard Details STM-01, STM-02, STM-03, STM-04, STM-06, STR-07, STR-10, SAN-11, and WAT-16."

2102.6.E – Consolidated Rock Embankment

Add the following:

"The upper layer of rocks shall be filled with a 6-inch thick layer of 3/4-inch choker stone prior to placing soil material."

Section 2104 Backfill Details

2104 – Backfill Details

Delete Figures 1, 2, and 3. Add the following:

"Backfill details as shown on the City of Blue Springs Standard Details STM-01, STM-02, STM-03, STM-04, STM-06, STR-07, STR-10, SAN-11, WAT-16."

Blue Springs, Missouri
Public Works Department

SECTION 2150 – EROSION AND SEDIMENT CONTROL

CITY OF BLUE SPRINGS, MISSOURI
CONSTRUCTION SPECIFICATIONS

The City of Blue Springs hereby adopts Section 2150 of the Kansas City Metropolitan Chapter of APWA Construction and Material Specifications, the latest edition. The following additions, deletions and/or revisions are adopted as a part of Section 2150 for use within the City of Blue Springs. Text in bold italics indicates revisions or additions to the APWA standard.

Section 2154 Sediment Controls and Diversions

2154.5.A – (Silt Fence) Materials, Construction Requirements and Maintenance

Add the following:

"1. Silt fence shall not be used in swales, drainage-ways, channels and other conduits of concentrated storm water flow."

"2. Silt fence shall not be used to direct or divert water."

Blue Springs, Missouri
Public Works Department

SECTION 2200 – PAVING

CITY OF BLUE SPRINGS, MISSOURI
CONSTRUCTION SPECIFICATIONS

The City of Blue Springs hereby adopts Section 2200 of the Kansas City Metropolitan Chapter of APWA Construction and Material Specifications, the latest edition. The following additions, deletions and/or revisions are adopted as a part of Section 2200 for use within the City of Blue Springs. Text in bold italics indicates revisions or additions to the APWA standard.

Section 2202 Subgrade Stabilization

2202.3 - Materials

Add the following:

"E. Aggregate: MoDOT Type 5 aggregate may be used for untreated aggregate layer in lieu of the material specified in this paragraph and shall meet the requirements as shown on the City of Blue Springs Standard Details STR-01, STR-02, STR-03, STR-04, and STR-05."

2202.4 – Composition

Delete the first (1st) paragraph of 2202.4 and replace with the following:

"Fly ash shall be applied at a rate determined by laboratory testing using the materials from the site and the specific fly ash to be supplied unless otherwise designated by the Contract Documents. Testing shall be the responsibility of the Contractor and is subsidiary to other items. The minimum application rate shall be 15% by weight unless testing indicates otherwise."

Section 2203 Aggregate Base Course

2203.3.A – Materials

Add the following:

"MoDOT Type 5 aggregate can be used for untreated aggregate layer in lieu of the material specified in this paragraph."

2203.4.C.6 – Plant Mix Bituminous Drainable Base

Delete paragraph 2203.4.C.6 and replace with the following:

"These materials shall be placed, handled, hauled, and accepted based on the requirements of Section 2205 and in accordance with the following:

- ***a. Contamination of the finished base material that affects the drainage capability of the product shall not be permitted. Any areas determined to be contaminated shall be completely removed without disturbing the adjacent or underlying material and replaced at contractor's expense.***
- ***b. Rutting or other displacement of the permeable base or the underlying base will not be permitted. If displacement occurs, the material shall be completely removed without disturbing the adjacent or underlying material and shall be replaced at the contractor's expense.***
- ***c. A minimum of three passes of a 5 to 10 ton steel wheel roller shall be made, compacting the material until no further displacement is noted. Compaction shall begin as soon after spreading the mixture as the mixture is able to bear the weight of the roller without undue displacement and shall be completed before the temperature of the mixture drops below 100 F. The compacted thickness of a single lift shall be a maximum of 4 inches."***

Section 2204 Prime and Tack Coat

2204.3.A Materials

Delete table 2204.3.A and replace with the following:

Material to be Treated	Application Usage	Type of Emulsion of Grade of Cutback	Application Rate (Gal/SY) (L/SM)	Application Temperature °F (°C)	Cure Time at 70°F (21°C)
Existing Asphalt of Concrete Surface	Tack	RC-70	0.05-0.10 Gal/SY (0.23-0.46L/SM)	150-225 (65-107)	1-6 hrs
	Tack	SS-1 SS-1h SS-1HP CSS-1 CSS-1h	0.05-0.15 Gal/SY (0.23-0.69 L/SM)	70-160 (22.5-42)	1-3 hrs
Treated Base (lime, flyash, cement)	Prime	MC-30 MC-70	0.1-0.3 Gal/SY (0.46-1.38 L/SM)	85-120 (29-49)	12-24 hrs
	Prime	SS-1 SS-1h SS-1HP CSS-1 CSS-1h	0.1-0.3 Gal/SY/in (0.46-1.38 L/SM/mm)	70-160 (20-70)	24-48 hrs

Untreated Aggregate Base w/Fines	Prime	MC-30 MC-70	0.1-0.3 Gal/SY (0.46-1.38 L/SM)	85-120 (29-49)	12-24 hrs
Untreated Aggregate Base w/o Fines	Prime	MC-250	0.2-0.5 Gal/SY (0.92-2.30 L/SM)	85-120 (29-49)	12-24 hrs
Untreated Aggregate Base	Prime	SS-1 SS-1h SS-1HP CSS-1 CSS-1H	0.1—0.3 Gal/SY/in (0.46-1.38 L/SM/mm)	70-160 (20-70)	24-48 hrs
	Prime	EAP PAE, or PEP	0.1-0.3 Gal/SY (0.46-1.38 L/SM)	70-160 (20-70)	12-24 hrs

Section 2205 Asphaltic Concrete Surface and Base

2205.3.A – Asphalt

Add the following table:

Asphalt location	*Mix Type*	*Recycled Mix Allowed?*
Industrial/Arterial surface	***5 or 6***	***No***
Base courses greater than 2 inches below the surface on industrial and arterial streets	***5***	***Yes***
Local and Collector surface	***5 or 6***	***No***
Base courses greater than 2 inches below the surface on local and collector streets	***5***	***Yes***

2205.6 – Transportation of Mix

Delete the third (3rd) paragraph of section 2205.6 and replace with the following:

"Haul trucks shall be limited to a max load of twenty-five (25) tons. Haul trucks shall be provided with covers of sufficient size and weight to completely cover the truck bed to protect the load and to prevent cooling of the upper surface. Failure to have the load completely covered shall be sufficient cause for rejection of the entire load. The load shall remain covered until the truck is next in line to be unloaded. In no case shall a load remain uncovered for more than 10 minutes before starting to use the load. If for any reason there is a delay in completely using a load, the remaining part of the load shall be recovered until it can be used. It shall be the responsibility of the Contractor to inform all truck drivers of these provisions before starting work."

2205.9.C Spreading and Finishing

Add the following:

"The maximum compacted lift thickness for the surface coarse shall be two inches (2.00")"

2205.9.D.4 – Longitudinal Joints

Delete the second (2nd) paragraph of section 2205.9.D.4 and replace with the following:

"When paving against existing concrete pavement, curb and gutter or other structure, the edge to be joined shall be tack coated. The elevation of the screed above the surface of the first mat should be equal to the amount of roll-down expected during compaction of the new mat. Where drainage of stormwater will flow from the new mat onto abutting curb and gutter, add an additional ⅛" - ¼" of thickness to the new mat. ADA ramp areas shall be flush with the curb."

Section 2207 Cold Milling

2207.2.A – Machine

Delete paragraph 2207.2.A and replace with the following:

"Machine: The cold milling machine shall be self-propelled and able to automatically control grade and slope of the milled surface. Operate the automatic grade and slope control from a travelling stringline a minimum of 30 feet long, attached the milling machine and operating parallel to the direction of travel. Other methods of positive grade control may be used if approved by the Engineer. The machine shall have the means of milling without damaging the remaining pavement (torn, gouged, shoved, broken, etc.). The machine shall be capable of blading the cuttings into a single windrow or depositing them directly into a truck. Only a track type milling machine shall be used (no rubber tire milling machines are allowed)."

2207.3.C – Cleanup

Delete paragraph 2207.3.C and replace with the following:

"Cleanup: All loose asphalt and debris shall be removed from the street surface and curb and gutter on the same day that milling operations occur. Any material and debris that adheres to the curb and gutter shall be removed."

Section 2208 Portland Cement Concrete Pavement

2208.1 – Scope

Add the following:

"Portland cement concrete pavement shall only be used with approval of the Director of Public Works."

2208.3.A – Concrete

Delete paragraph 2208.3.A including all subsections and replace with the following:

"All concrete materials for paving curb and gutter, sidewalks, paths, commercial driveways and other pavements in the Right-of-Way shall conform to the KCMMB specifications."

2208.6 – Repairing Defects

Delete paragraph 2208.6, including table, and replace with the following:

"Any damaged concrete panel, or panels, with random cracking shall be removed and replaced at the Contractor's expense. The minimum replacement area shall be one full panel. Any alternate repair methods shall be approved by the Owner."

Blue Springs, Missouri
Public Works Department

SECTION 2600 – STORM SEWERS

CITY OF BLUE SPRINGS, MISSOURI
CONSTRUCTION SPECIFICATIONS

The City of Blue Springs hereby adopts Section 2600 of the Kansas City Metropolitan Chapter of APWA Construction and Material Specifications, the latest edition. The following additions, deletions and/or revisions are adopted as a part of Section 2600 for use within the City of Blue Springs. Text in bold italics indicates revisions or additions to the APWA standard.

Section 2602 Pipe Sewer Construction

2602.2.B – Corrugated Metal Pipe (CMP)

Delete paragraph 2602.2.B including all subsections and tables and replace with the following:

"Corrugated metal pipe shall not be used in the construction of public infrastructure. Storm drainage systems to remain privately owned and maintained may use corrugated Aluminized Steel Pipe."

2602.2 – Materials

Add the following:

"G. Polypropylene Pipe

1. ***For 15-inch to 24-inch pipe, polypropylene pipe shall have a double wall with a smooth interior and annular exterior corrugations and conform to ASTM F2881 and AASHTO M330. For 30-inch and larger pipe sizes, polypropylene pipe shall have a triple wall with smooth interior and exterior surfaces with inner corrugations and conform to ASTM F 2764. The pipe shall not be perforated unless otherwise specified.***

2. ***For 15-inch to 24-inch pipe, pipe shall be joined with a gasketed integral bell and spigot joint meeting the requirements of ASTM F2881. For 30-inch and larger pipe, pipe shall be joined with a gasketed integral bell and spigot joint meeting the requirements of ASTM F2764.***

3. ***Coupling bands shall cover at least two full corrugations on each section of pipe and shall prevent the infiltration of soil into the pipe."***

2602.2.E – Granular Bedding Material

Delete paragraph 2602.E and replace with the following:

"Granular Bedding Material: Granular bedding material shall meet the requirements as shown on the City of Blue Springs Standard Detail STM-06."

2602.3.B.5.d – Structure Connections

Delete paragraph 2602.3.B.5.d and replace with the following:

"Structure Connections: Pipes connected to structures shall be cut parallel with the inside face of the structure for structures having plane walls and parallel with the spring line of the pipe for structures having curved walls. Projection of the pipe beyond the inside face shall be one inch (1.00") to three inches (3.00") (measured at the springline for structures having curved walls). When installed, all gaps and openings intended to be closed, shall be sealed with grout, concrete or other approved materials. Gap between the pipe and structure shall be four inches (4.00") to eight inches (8.00")."

2602.3.C – Backfill of Trenches

Delete paragraph 2602.3.C and replace with the following:

"Backfill of Trenches: Backfill of trenches shall meet the requirements as shown on the City of Blue Springs Standard Detail STM-06."

Section 2603 Boring and Jacking

2603.2.C – Sand Fill

Delete paragraph 2603.2.C and replace with the following:

"Spacers: Spacer and carrier pipe installed to manufacture specifications."

2603.3.C.1 – Sewer Pipe Installation

Delete paragraph 2603.3.C.1

2603.3.C.3 – Sewer Pipe Installation

Delete paragraph 2603.3.C.3

Section 2604 Structures

2604.2.D – Precast Concrete Structures

Add the following:

"Precast concrete structures shall meet the requirements as shown on the City of Blue Springs Standard Details STM-01, STM-02, STM-03, and STM-04."

2604.2.F – Manhole Castings

Add the following:

"3. Metal Castings: Metal castings shall meet the requirements as shown on the City of Blue Springs Standard Detail STM-05."

2604.2.H – Toe Walls

Delete paragraph 2604.H and replace with the following:

"Toe Walls: Flared end sections for concrete and steel pipe shall be set on a concrete toe wall centered on the end of the section. Toe walls shall be 8 inches thick by 36 inches deep by the width of the end section and shall meet the requirements as shown on the City of Blue Springs Standard Detail STM-08."

2604.3.A.1 – Precast Structures

Delete paragraph 2604.3.A.1 and replace with the following:

"1. Precast Structures: The Contractor may, at their option, construct precast inlets, junction boxes, and box culverts, in lieu of the cast-in-place structures indicated on the Plans: except that all concrete base slabs for pre-cast inlets, manholes, and junction boxes may be cast-in-place. Solid concrete brick or block shall be used to block inlets and similar structures to grade during placement of base slab concrete.

Precast concrete box culverts shall have a 3-inch thick grade slab cast under the precast culvert. The grade slab shall be at least as wide as the structure and shall stop short of the toe walls. Commercial grade concrete may be used with minimum 2500 psi compressive strength. The slab should be set with precise grade control to match the elevations required for the culvert.

Any adjustments required for precast structures to meet field conditions shall be at the cost of the Contractor."

2604.3.A.2 – Finishing

Add the following:

"c. When top slab is incorporated into the adjacent sidewalk, it shall meet the latest ADA specifications and requirements as shown on the City of Blue Springs Standard Details STM-01, STM-02, STM-03, and STM-04."

2604.3 – Construction

Add the following:

"D. Cast in Place Box Culvert: Cast in place box culverts shall have a 3-inch thick grade slab cast under the bottom slab. The grade slab shall be at least as wide as the structure and shall stop short of the toe walls. Commercial grade concrete may be used with minimum 2500 psi compressive strength. The slab should be set with precise grade control to match the elevations required for the culvert."

Blue Springs, Missouri
Public Works Department

SECTION 2800 – STREET LIGHTING

CITY OF BLUE SPRINGS, MISSOURI
CONSTRUCTION SPECIFICATIONS

Street Lighting

Street lighting is intended to enhance visibility of pedestrians at conflict points at nighttime in which people can see comfortably and can quickly react to conflicts between motorists and pedestrians. Street lighting is not designed to provide security lighting for homes or businesses. Street lighting can improve, safeguard, facilitate, and encourage vehicular and pedestrian traffic.

Subdivisions

Subdivision street lights are owned and maintained by Kansas City Power and Light (KCP&L). Standard practice: a street light shall be provided at each public street intersection and at the end of cul-de-sacs longer than 300-feet in length. The standard city light is a 13,500 lumens (or LED equivalent as specified), 70 watt LED, enclosed fixture on a steel pole, and all electric lines shall be buried underground.

For new subdivisions, the developer or his/her engineer shall contact the City of Blue Springs Public Works, Engineering Division for installation requirements of new streetlights. The final layout shall be reviewed by the engineering division of the city for conflicts and location within easements. Any additional easements shall be acquired and recorded by the developer per KCP&L requirements.

Arterial Street Lighting

KCPL has established design standards for street lighting. Existing street light systems may be required to meet the design criteria and new street light systems shall be designed to them. To maintain reliability and maintenance only fixtures approved by KCPL and the City of Blue Springs will be acceptable. Wooden Poles are prohibited for new or retro-fit applications.

Streetlight Upgrade

For developers or Home Owners Associations (HOA) who choose to improve and beautify their neighborhoods with decorative street lighting, or additional street or area lights is only allowable when an agreement is made between the City and Developer/HOA for the HOA to pay the increased cost for the decorative lighting and/or lighting that exceeds the City's Standards.

Blue Springs, Missouri
Public Works Department

SECTION 2900 – WATERLINES

CITY OF BLUE SPRINGS, MISSOURI
CONSTRUCTION SPECIFICATIONS

The City of Blue Springs hereby adopts Section 2900 of the Kansas City Metropolitan Chapter of APWA Construction and Material Specifications, the latest edition. The following additions, deletions and/or revisions are adopted as a part of Section 2900 for use within the City of Blue Springs. Text in bold italics indicates revisions or additions to the APWA standard.

Section 2902 Materials

2902.2.A.1 – Pipe

Delete paragraph 2902.2.A.1 and replace with the following:

"Pipe: Unless indicated otherwise on the construction plans, all ductile iron pipe 6-inch and larger shall be Class 52 complete with all accessories and conforming to ANSI A21.51, AWWA C151, ASTM A 536, and Grade 64-42-10."

2902.2.A.3.c – Restrained Joints

Delete paragraph 2902.2.A.3.a and replace with the following:

"Restrained joint fittings shall be Krause or approved equal One Bolt System."

2902.2.C – Polyvinyl Chloride 2 inch

Delete paragraph 2902.2.C.

2902.2.D – Fusible Polyvinyl Chloride (FPVC)

Add the following:

"FPVC shall only be used with approval of the City Engineer."

2902.2.E – Prestressed Concrete Cylinder, Steel Cylinder Type

Delete paragraph 2902.2.E and all subsections.

2902.3.B – Butterfly Valves

Delete the first paragraph of 2902.3.B and replace with the following:

"Butterfly Valves: Butterfly valves shall be used for water line valves twelve (12) inches and larger in diameter unless otherwise directed by the City Engineer. Butterfly valves shall be of the rubber-seat, tight-closing type. Valve discs shall seat at 90-degree with pipe

axis. Mechanical joint end valves shall be of the short body type. Packing shall be O-ring cartridge designed for permanent duty in underground service."

2902.3.F.2 – Iron

Delete paragraph 2902.3.F.2 and all subsections.

2902.3.H – Valve Operation

Delete paragraph 2902.3.H and replace with the following:

"Valve Operation: All valves shall be equipped with a 2-inch square wrench nut and the direction of rotation to open the valve shall be to the left (counterclockwise)."

2902.3.J – Valve Boxes, Bases, Lids and Covers

Delete paragraph 2902.3.J and all subsections and replace with the following:

"J. Valve Boxes, Bases, Lids and Covers

Valve boxes, bases, lids and covers shall meet the requirements as shown on the City of Blue Springs Standard Details WAT-02 and WAT-03."

2902.4.A.4 – Hydrants

Delete paragraph 2902.4.A.4 and replace with the following:

"Hydrants shall meet the requirements as shown on the City of Blue Springs Standard Detail WAT-01."

2902.5.A – General

Delete paragraph 2902.5.A and replace with the following:

"General: Air release, meter, and pressure-reducing valve vaults shall be precast concrete conforming to ASTM C 478. Access lid castings shall be as shown in Plans, Standard Drawings, or as noted in the Special Provisions, and shall meet the requirements as shown on the City of Blue Springs Standard Detail WAT-12."

2902.5.D – Blow-Off Assemblies

Delete paragraph 2902.5.D and replace with the following:

"Blow-Off Assemblies: Blow-off assemblies shall only be used when approved by the City Engineer. When approved, blow-off assemblies shall be installed at the locations indicated on the Plans or Standard Drawings. Blow-off assemblies shall be installed with the appurtenant piping and valves as indicated on the Plans, Standard Drawings, or Special Provisions."

2902.6 – Bedding Material

Delete paragraph 2902.6 and replace with the following:

"Granular Bedding Material: All materials used for granular embedment for pipe bedding shall conform to the requirements of ASTM C 33 and shall meet the requirements as shown on the City of Blue Springs Standard Detail WAT-16."

2902.7 – Location Wire and Tape

Delete paragraph 2902.7 and all subsections and replace with the following:

"Location wire shall be attached to the top of the water main and shall meet the requirements as shown on the City of Blue Springs Standard Detail WAT-17."

Section 2903 Construction

2903.1.C – Blasting

Change "Engineer" in the first sentence to "Community Development Director".

2903.2.A.3 – Installation

Delete paragraph 2903.2.A.3.

2903.2.D – HDPE Pipe

Add the following:

"HDPE pipe shall only be used with approval of the City Engineer."

2903.2.E – Fusible Polyvinyl Chloride Pipe (FPVC)

Add the following:

"FPVC pipe shall only be used with approval of the City Engineer."

2903.4 – Connection to Existing Mains

Delete section 2903.4 and replace with the following:

"The Contractor shall furnish and install all fittings necessary to join the existing and new water mains as shown on the Plans or Standard Drawings.

The Contractor shall coordinate with the City of Blue Springs at least three (3) business days before the City will shut off any water mains.

Connections shall be made using suitable fittings from the conditions encountered. Each connection with an existing pipe shall be made at a time and under conditions which will minimize any disruption in service. Special care shall be taken to prevent contamination when dewatering, cutting into, and making connections with existing pipe. The interior of all pipe, fittings, and valves installed in such connections shall be thoroughly cleaned and swabbed with, or dipped in chlorine solution having a chorine content of 200 parts per million (ppm).”

2903.7.A – Thrust Restraint

Delete paragraph 2903.7.A and replace with the following:

“Hydrants shall meet the requirements as shown on the City of Blue Springs Standard Detail WAT-01.”

2903.8 – Embedment and Backfilling

Delete paragraph 2903.8 and replace with the following:

“Embedment and backfill shall be accomplished in accordance with the laying condition as specified and as shown on the Plans or Standard Drawings and shall meet the requirements as shown on the City of Blue Springs Standard Detail WAT-16.”

Section 2904 Water Mains Near Sewers

2904.1 – Horizontal Separation

Delete paragraph 2904.1 and replace with the following:

“Water mains shall be located at least ten feet horizontally from any existing or proposed line carrying non-potable fluids such as, but not limited to drains, storm sewers, sanitary sewers, combined sewers, sewer service connections, and process waste or product lines. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten-foot separation, the department may allow deviation on a case by case basis, if supported by data from the design engineer. Such deviation may allow installation of the water main closer to a non-potable fluid line, provided that the water main is laid in a separate trench located as far away from the non-potable line as feasible and meets other specific construction requirements. Locating a water main on an undisturbed earth shelf located on one side of the non-potable line is not recommended and requires justification by the engineer and specific case-by-case approval of the department. In either case, an elevation shall be maintained such that the bottom of the water main is at least 18 inches above the top of the non-potable line while meeting minimum cover requirements. In areas where the recommended separations cannot be obtained, either the waterline or the non-potable line shall be constructed of mechanical or manufactured restrained joint pipe, fusion welded pipe, or cased in a continuous casing. Casing pipe must be a material that is

approved for use as water main. Concrete encasement shall be in accordance with the City of Blue Springs Standard Detail MIS-05."

2904.2 – Vertical Separation

Delete paragraph 2904.2 and replace with the following:

"Water mains crossing sewers, or any other lines carrying non-potable fluids shall be laid to provide a minimum vertical clear distance of 18 inches between the outside of the water main and the outside of the non-potable pipeline. This shall be the case where the water main is either above or below the non-potable pipeline. An 18-inch separation is a structural protection measure to prevent the sewer or water main from settling and breaking the other pipe. At crossings, the full length of water pipe shall be located so both joints will be as far from the non-potable pipeline as possible, but not less than ten feet or centered on a 20-foot pipe. In areas where the recommended separations cannot be obtained either the waterline or the non-potable pipeline shall be constructed of mechanical or manufactured restrained joint pipe, fusion welded pipe, or cased in a continuous casing that extends no less than ten feet on both sides of the crossing. Special structural support for the water and sewer pipes may be required. Casing pipe must be a material that is approved for use as water main. Concrete encasement shall be in accordance with the City of Blue Springs Standard Detail MIS-05."

ATTACHMENT A
SUPPLEMENTARY ELECTRICAL TECHNICAL SPECIFICATIONS

SECTION 26 0500

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general electrical requirements, and specific requirements on supports and electrical metering.

1.2 SUBMITTALS

A. Product Data: Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of electrical support component used

B. Shop Drawings:
   1. Descriptive information that states conformance to codes, recognized testing, or manufacturing standards.
   2. Manufacturer's name and catalog cuts listing type, model No., catalog No., materials, styles, finish.

C. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

D. Review submittals for equipment furnished under other Sections prior to installation and electrical rough-in. Verify location, size, and type of connections. Coordinate details of equipment connections with supplier and installer.

E. Contractor shall note any deviations from the requirements of the contract plans and specifications.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction such as Underwriters Laboratories, Inc., and marked for intended use.

B. Perform Work in accordance with the current edition of the National Electrical Code (NEC) and the National Electrical Safety Code (NESC).

C. Perform Work in accordance with local ordinances, codes and statutes.

D. Work shown and specified in these Contract Documents establishes the minimum standard of construction. Comply with any additional requirements of the codes or local requirements.

1.4 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow:
   1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

B. Coordinate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.

C. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces. Comply with the requirements of the NEC.

D. Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.

PART 2 - PRODUCTS

2.1 SUPPORTING DEVICES

A. Continuous Slot Channel (Strut) Steel Support Systems: Comply with Metal Framing Manufacturers Association Standard MFMA-4, factory-fabricated components for field assembly.
   1. Finishes:
      a. Hot-dip galvanized: Hot-dip galvanized after fabrication and applied according to MFMA-4.
      b. Electro-galvanized: Electroplated coating of zinc after fabrication and applied according to MFMA-4.
      c. Pre-galvanized: Hot dip galvanized prior to fabrication applied according to MFMA-4.
      d. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
      e. Epoxy Coatings: Strut and fittings shall be painted with water born epoxy according to MFMA-4.
      f. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
   2. Fittings and Accessories: Products of channel and angle manufacturer and designed for use with those items.
   3. Fitting and Accessory Materials: Same as channels and angles.
   4. Channel Dimensions: Selected for structural loading.
   5. Rated Strength: Selected to suit structural loading.

B. End caps. Provide end caps on all channels. End caps shall be gray, PVC plastic, manufactured for the specific size of channel furnished.

C. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

D. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following requirements.
   1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened Portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
   2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated or stainless steel as required in Part 3 of this specification, for use in hardened Portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
   3. Through Bolts: Structural type, hex head, high strength. Comply with ASTM A325.
   4. Toggle Bolts: All-steel springhead type.
   5. Hanger Rods: Threaded steel.

2.2 CONDUCTORS IN VERTICAL CONDUIT

A. Support for Conductors in Vertical Conduit: Provide a factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

2.3 EQUIPMENT ENCLOSURES

A. Do not install equipment in a more severe environment than recommended by the equipment manufacturer. When not indicated, provide enclosures suitable for the environment in which they are located in accordance with NEMA Standard No. 250.

2.4 DISCONNECT MEANS

A. Provide each motor with a disconnecting means where required by the NEC.

2.5 DEVICE CONNECTIONS

A. Provide suitable lugs or connectors to accommodate line and load side conductors shown on the Drawings. Where available device connections are inadequate for the number and/or size of conductors required, provide bus extensions, adapter plates or power distribution blocks as required.

2.6 CONCRETE BASES AND HOUSEKEEPING PADS

A. Concrete: Minimum of 3000-psi (20.7-MPa), 28-day compressive strength.

2.7 TOUCHUP PAINT

A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.

B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

PART 3 - EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.

B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

D. Working clearance. Provide working clearance as required by the NEC.

E. Dedicated space. Provide dedicated space for electrical equipment as required by the NEC.

3.2 ELECTRICAL SUPPORTING DEVICE APPLICATION

A. Damp or Wet Locations and Outdoors: Provide hot dip galvanized steel slot (strut) channel, aluminum channel, or stainless steel (Type 304 or 316) channel. Provide stainless steel anchor bolts.

B. Indoor, Dry Locations: Provide pre-galvanized or electro-galvanized steel slot (strut) channel.

C. Do not attach aluminum channel directly to concrete. Provide plastic spacers or coat surfaces in contact with concrete with epoxy paint.

D. For channel attached to aluminum handrails or other aluminum structures, provide aluminum or stainless steel channels with stainless steel hardware.

E. Field Cuts: Grind all edges smooth, make cuts square unless angles are required for installation. Paint field cuts of galvanized steel channel with a galvanizing solution or zinc rich paint.

3.3 SUPPORT INSTALLATION

A. Install support devices to securely and permanently fasten and support electrical components.
   1. Do not fasten supports to piping, ceiling support wires, ductwork, mechanical equipment, or conduit.
   2. Install surface-mounted cabinets and panelboards with minimum of four anchors.
   3. Provide metal channel supports to stand cabinets and conduit one inch off wall in wet locations.
   4. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

B. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.

C. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.

D. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.

E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.

F. Spring-steel fasteners specifically designed for supporting single conduits or tubing may be used instead of malleable-iron hangers for 1-1/2-inch (38-mm) and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to slotted channel and angle supports. Do not use spring steel fasteners in damp, wet or corrosive locations.

G. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.

H. Simultaneously install vertical conductor supports with conductors.

I. Separately support cast boxes that are threaded to raceways and used for fixture support. Support sheet-metal boxes directly from the building structure or by bar hangers. If bar hangers are used, attach bar to raceways on opposite sides of the box and support the raceway with an approved fastener not more than 24 inches (610 mm) from the box.

J. Install metal channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength.

K. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

L. Securely fasten electrical items and their supports to the building structure per the following requirements, unless otherwise indicated. Perform fastening according to the following requirements unless other fastening methods are indicated. Verify with manufacturer the suitability of fasteners in

subparagraphs below for use in lightweight concrete or concrete slabs less than 4 inches (100 mm) thick. Fasteners which fracture or damage surfaces are not acceptable.

1. Wood: Fasten with wood screws or screw-type nails.
2. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
3. New Concrete: Concrete inserts with machine screws and bolts.
4. Existing Concrete: Expansion bolts.
5. Instead of expansion bolts, threaded studs driven by a powder charge and provided with lock washers may be used.
6. Steel: Welded threaded studs or spring-tension clamps on steel.
7. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or other items.
8. Light Steel: Sheet-metal screws.
9. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

3.4 CONDUCTORS IN VERTICAL CONDUIT

A. Provide support for conductors in vertical conduit where required by Article 300 of the NEC.

3.5 CONCRETE HOUSEKEEPING PADS

A. Install all freestanding electrical and control equipment on 4-inch high concrete pads (top 4 inches above finished floor). Arrange components in the electrical equipment so that any switch operating handle is not more than 6 feet 7 inches above the surrounding floor to comply with NEC 404.8.

B. Construct concrete housekeeping pads of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so expansion anchors will be a minimum of 10 bolt diameters from edge of the base.

3.6 DEMOLITION

A. Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.

B. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.

C. Abandoned Work: Remove all abandoned wiring. In exposed locations, cut and remove buried raceway 2 inches (50 mm) below the surface of adjacent construction. Cap raceways and patch surface to match existing finish. In concealed locations, cut raceways flush with surface. Plug or cap raceways.

D. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.

3.7 EXISTING ELECTRICAL WORK

A. Verify that abandoned wiring and equipment serve only abandoned facilities.

B. Disconnect existing electrical systems in walls, floors, and ceilings indicated for removal.

C. Existing Receptacle and Lighting circuits and devices which are not scheduled for demolition, but which are inadvertently affected by demolition activities, will be restored to full function.

D. Remove, relocate, and repair existing installations to accommodate new construction.

1. Remove abandoned wiring to source of supply.
2. Disconnect abandoned outlets and remove devices.
3. Provide blank cover for abandoned outlets which are not removed.
4. Disconnect and remove abandoned panelboards and distribution equipment.
5. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

E. Repair adjacent construction and finishes damaged during removal of existing electrical work.

F. Maintain access to existing, active electrical installations.

G. Extend existing installations using materials and methods compatible with existing electrical installations, and as specified.

3.8 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.

B. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.9 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touch up painting:
1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.
3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.10 CLEANING AND PROTECTION

A. On completion of installation, inspect and clean all electrical equipment and enclosures including panelboard, switchboard, transformer, motor control center, control panel and electrical enclosure interiors, light fixtures and lenses, outlet boxes, floor mounted devices, fittings, and wiring devices. Remove burrs, dirt, paint spots, and construction debris.

B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 26 0519

CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.2 SUBMITTALS

A. Product Data: For conductors and cables, splices, and connectors.

B. Shop Drawings:
1. Descriptive information that states conformance to codes, recognized testing or manufacturing standards.
2. Manufacturer's name and catalog cuts listing manufacturer, type, model No., catalog number.
3. Electrical characteristics such as voltage and ampacity.
4. Cable and Conductor material and insulation.
5. NEC designation and plenum rating where applicable.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Power and Lighting Circuits: Provide No. 12 AWG minimum conductors.

B. 120-volt Control and Alarm Circuits: Provide No. 14 AWG minimum conductors.

C. Conductor Material: Copper complying with ICEA S-95-658 /NEMA WC70 , solid conductor for No. 12 AWG and smaller, stranded for No. 10 AWG and larger.

D. Service entrance and below grade feeders: Provide single copper conductors with the following characteristics:
1. Insulated with 600-volt crosslinked polyethylene insulation.
2. Comply with UL standard 854 for Type USE-2.
3. Comply with UL standard 44 for Types RHW-2 and RHH.
4. Comply with VW-1 flame test ratings.
5. Comply with UL standard 44 for Gasoline and Oil Resistant II.

E. MC cable shall not be used.

F. NM and NMC cable shall not be used.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

B. Connections:

1. Soldered connections are not acceptable.
2. Push-in connectors are not acceptable.
3. Indoor dry locations for No. 10 AWG wire and smaller: Provide solderless twist-on connectors listed to UL 486C - Ideal "Wire Nuts," 3M "Scotchlok," or equal.
4. Indoor dry locations for No. 8 AWG wire and larger: Provide solderless connectors such as hydraulically crimped type or split bolts - Burndy, O.Z., Penn-Union or equal. Uninsulated joints shall be taped over with plastic tape, 3M "Scotch Brand" No. 33 Plus or equal, to provide an insulation value greater than or equal to that on the wire.
5. Indoor dry locations in junction boxes or wireways: Power distribution blocks consisting of a single block of tin plated aluminum alloy mounted to an insulating base. The block shall be provided with conductor openings and set screws. Provide with insulated covers. The power distribution block shall be secured to the enclosure. Provide Ilsco PDB series or equal.
6. Damp locations for No. 8 AWG wire and smaller: Provide solderless twist-on connections, factory pre-filled with silicone sealant listed to UL 486C and UL 486D – Ideal “WeatherProof” or equal.
7. Wet and below grade locations (including below grade pullboxes and manholes) for No. 8 AWG and smaller: Provide solderless twist-on connections, factory pre-filled with silicone sealant listed to UL 486C and UL 486D for direct burial – Ideal “Underground” or equal.
8. Wet and below grade locations (including below grade pullboxes and manholes) for No. 6 and larger: Provide connectors of one the following types:
    a. Multi-conductor connectors consisting of a single block of tin plated aluminum alloy covered with not less than 125 mils of dielectric plastisol. The block shall be provided with conductor openings and set screws. Each opening and set screw shall be provided with a removeable access plug. Do not install more than one conductor in any port. The assembly shall be listed to UL 486D for direct burial and submersible applications. Provide NSI Industries Polaris IPLW, ITW, ISPB, or ISPC series or equal.
    b. Gel splices consisting of a hydraulically crimped connector covered with a sealant gel and protective cover. The sealant gel shall seal upon contact to protect the splice from moisture. The gel shall be contained within a protective polypropylene enclosure. Splice shall be qualified to ANSI C119.1 for underground splicing and shall be UV resistant. Provide NSI Industries series WAGS, ESGS, ESGHS or equal.
    c. Poured splices consisting of a hydraulically crimped connector placed inside of a protective mold which is then filled with a waterproof polyurethane or resin. The polyurethane or resin shall be a liquid that when mixed that reacts to set into a solid, insulating material around the splice. The splice shall be listed to UL 486D for direct burial. Provide 3M series Scotchcast, Uraseal series ES, or equal.

2.3 TERMINATIONS

A. Compression type solderless lugs shall be tin plated cast copper and U.L. listed for the application. Terminal lugs shall have a temperature rating that is equal or greater than that of the wire and terminal equipment.

PART 3 - EXECUTION

3.1 CONDUCTOR DERATING

A. Conductors shown on the drawings are based on no more than three current carrying conductors in a raceway. If the Contractor chooses to combine homeruns resulting in more than three current carrying conductors in a raceway then the Contractor shall apply the NEC derating factors for more than three current carrying conductors in a raceway

3.2 INSTALLATION

A. Cables not installed in conduits shall be concealed in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.

3.3 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Terminations: Terminate stranded wire at screw terminals with compression type lugs. Terminations made by looping stranded wire around a terminal screw are not acceptable.

C. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

END OF SECTION

SECTION 26 0526

GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.2 SUBMITTALS

A. Product Data: For the following:
   1. Ground rods.
   2. Grounding conductors and cables
   3. Connector products

B. Shop Drawings:
   1. Descriptive information which states conformance to codes, recognized testing or manufacturing standards.
   2. Manufacturer's name and catalog cuts listing type, model No., catalog No., finish, performance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
   1. Comply with UL 467.

B. Comply with NFPA 70; for overhead-line construction and medium-voltage underground construction, comply with IEEE C2.

C. Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system.

PART 2 - PRODUCTS

2.1 GROUNDING AND BONDING CONDUCTORS

A. For insulated conductors, comply with Division 26 SECTION "Conductors and Cables".

B. Material: Copper.

C. Equipment Grounding Conductors: Insulated with green-colored insulation.

D. Isolated Ground Conductors: Insulated with green-colored insulation with yellow stripe. On feeders with isolated ground, use colored tape, alternating bands of green and yellow tape to provide a minimum of three bands of green and two bands of yellow.

E. Grounding Electrode Conductors: Stranded cable.

F. Underground Conductors: Bare stranded soft drawn copper.

G. Bare Copper Conductors: Comply with the following:
   1. For Solid Conductors: ASTM B 3.
   2. For Assembly of Stranded Conductors: ASTM B 8.

H. Ground Conductor and Conductor Protector for Wood Poles:
   1. No. 4 AWG minimum, soft-drawn copper conductor.
   2. Conductor protector: Wood, use pressure-treated fir, or cypress or cedar.

I. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

J. Protect exposed ground conductors in exterior locations to a height of 3'-0" minimum above grade with Schedule 40 PVC conduit or wood molding designed for the purpose.

2.2 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.

B. The following type of connectors may be used:
   1. Bolted pressure-type.
   2. Compression-type connectors, terminals and lugs shall be tin plated copper.
   3. Exothermic-welded type, in kit form, and selected per manufacturers written instructions.

2.3 GROUNDING RODS

A. Ground Rods: Copper-clad steel unless otherwise noted.
   1. 5/8 by 96 inches (16 by 2400 mm).

PART 3 - EXECUTION

3.1 APPLICATION

A. Use only copper conductors.

B. In raceways, use insulated equipment grounding conductors.

C. Direct Buried and Underground Connections: Use irreversible crimp connections.

D. Connections to Structural Steel: Use Exothermic-Welded connections or bolted pressure connections.

E. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.

F. Ground Rod Clamps at Ground Wells: Use bolted pressure clamps with at least two bolts.

3.2 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.

B. Install equipment grounding conductors in all feeders and circuits.

3.3 INSTALLATION

A. Ground Rods: At exterior locations drive ground rods until tops are 12 inches (305 mm) below final grade, unless otherwise indicated. Where multiple ground rods are required to meet resistance requirements, install ground rods a minimum of 6 feet apart. Interconnect ground rods with grounding electrode conductors.

B. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

C. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.

D. Metal Water Service Pipe: Provide grounding electrode conductor from the building's grounded service conductor at the main electric service equipment to the buildings main metal water service entrance. Connect grounding electrode conductors to main metal water service pipe with grounding clamp connectors. Where a dielectric main water fitting is installed, do not connect grounding electrode conductor to the street side of the water service pipe. Bond interior metal water piping system as required by the NEC.

E. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with grounding clamp connectors.

F. When grounding conductors are installed in metal conduit, bond conduit at each end to the grounding conductor.

G. Bond interior metal piping systems, including above ground gas piping system as required by the NEC.

3.4 CONNECTIONS

A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
   1. Use electroplated or tinned materials.
   2. Make connections with clean, bare metal at points of contact.
   3. Coat and seal connections having dissimilar metals with bitimus mastic or similar waterproofing material to prevent future penetration of moisture to contact surfaces.

B. Exothermic-Welded Connections: Comply with manufacturers written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable. Pull conductor and tap connection with a hammer to confirm a good weld. Molds shall be designed for the connection being made.

C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.

D. If metallic raceways terminate at metal housings without an electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.

E. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

F. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

G. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

H. Underground connections shall be U.L. listed for underground use.

I. Twisting ground wires together as the only means of connection is not acceptable.

END OF SECTION

SECTION 26 0533

RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.2 SUBMITTALS

A. Product Data: For conduit, surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings:
1. Descriptive information that states conformance to codes, recognized testing, or manufacturing standards.
2. Manufacturer's name and catalog cuts listing type, model No., catalog No., materials, styles, finish.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.4 COORDINATION

A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

A. Rigid Metal Conduit (RMC) - Steel: ANSI C80.1.

B. Rigid Metal Conduit (RMC) - Aluminum: ANSI C80.5.

C. Intermediate Metal Conduit (IMC): ANSI C80.6.

D. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

2.2 NONMETALLIC CONDUIT AND TUBING

A. Rigid Non-metallic Conduit (RNC): NEMA TC2, Schedule 40 and Schedule 80 PVC.

B. RNC Fittings: NEMA TC 3; match to conduit type and material.

C. High Density Polyethylene (HDPE): UL 651A, Schedule 80. Couplings shall be pressure tight rated to 200 psi and suitable for direct burial.

D. Electrical Nonmetallic Tubing (ENT) is not acceptable.

2.3 BOXES AND ENCLOSURES

A. Enclosure ratings: NEMA 250.

B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Shall not be used.

E. Junction and Pull Boxes:
1. Boxes less than 100 cubic inches: NEMA OS 1.
2. Boxes larger than 100 cubic inches: UL 50.
3. Screw covers shall be used unless otherwise indicated on drawings.

2.4 FACTORY FINISHES

A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard paint applied to factory-assembled surface raceways, enclosures, and cabinets before shipping.

2.5 WEATHERPROOF HUBS

A. Provide weatherproof hubs for any conduit entry on the top of all enclosures located in damp or wet locations.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. General: Use of any of the conduit types in accordance with NEC, Articles 342 through 360, is acceptable with the following exceptions.
1. EMT shall not be installed in concrete, in wet locations as defined by NEC, in wet locations as noted on the Drawings, or in direct contact with the earth.
2. Nonmetallic conduit shall only be installed underground or encased within poured concrete structures. Nonmetallic conduit shall be adapted to the appropriate type of metal conduit before it emerges from concealment. All elbows shall be metallic.

B. Outdoors, damp:
1. Exposed: RMC or IMC.
2. Concealed: RMC or IMC.
3. Boxes and Enclosures: NEMA 3R unless otherwise indicated.

C. Outdoors, wet:
1. Exposed: RMC or IMC.
2. Concealed: RMC or IMC.
3. Boxes and Enclosures: NEMA 3R unless otherwise indicated.

D. Indoors, dry:
1. Exposed: EMT.
2. Concealed: EMT.
3. Boxes and Enclosures: Type 1 unless otherwise indicated.

E. Indoors, damp:
   1. Exposed: RMC or IMC.
   2. Concealed: RMC or IMC.
   3. Boxes and Enclosures: Type 4 unless otherwise indicated.

F. Indoors, wet:
   1. Exposed: RMC or IMC.
   2. Concealed: RMC or IMC.
   3. Boxes and Enclosures: Type 4, unless otherwise indicated.

G. Conduit Penetrations: All conduits penetrating through floor slabs, concrete walls or grade shall be galvanized rigid steel with factory PVC coating or wrapped with PVC tape. Coating shall extend 2 inches minimum above slab or finished grade. PVC tape shall be 3M Scotchrap 50 (10 mils) or equal. Conduit shall be cleaned and painted with 3M Scotchrap pipe primer and tape shall be half-lapped to provide a minimum of 20 mils coating at any point on the conduit. Adapters from buried PVC conduit to galvanized rigid steel conduit shall be wrapped with PVC tape after assembly.

H. Conduit Installed Underground (Exterior of Buildings) – Direct Buried:
   1. Use: Only where indicated on the Drawings may conduits be installed direct buried on the exterior of building foundations.
   2. Material: PVC coated RGS or RNC Schedule 40. Nonmetallic conduit and fittings shall be joined by solvent cement.
   3. Size: 2-inch nominal size minimum.
   4. Depth: Top of conduit at 24 inches minimum below finished grade.
   5. Marking: Underground conduit routes shall be marked with tape printed with identification lettering as specified in "Electrical Identification". Tape shall be buried 8 to 10 inches below the surface over the entire length of the conduit.
   6. Cleaning: All conduits including spares shall be cleaned. A mandrel, not less than 12 inches long and diameter of ½ inch less that the diameter of the conduit shall be pulled through the conduit. Following the mandrel, a brush with stiff bristles shall be pulled through the conduit to clean out debris. Blocked conduits shall be replaced.

I. Conduit Installed Underground (Exterior of Buildings) – Directional Bore:
   1. Use: Where specifically noted on the drawings, provide conduit installed by directional bore.
   2. Material: UL Listed SDR 13.5 HDPE. Nonmetallic conduit and fittings shall be joined by solvent cement. HDPE shall be joined with UL approved fittings.
   3. Size: 2-inch nominal size minimum.
   4. Depth: Top of conduit at 30 inches minimum below finished grade.

J. Minimum Raceway Size: 3/4-inch trade size (DN 21).

K. Raceway Fittings: Compatible with raceways and suitable for use and location.
   1. Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.
   2. EMT: Use compression fittings only. Set screw fittings are not acceptable.

L. Do not install aluminum conduits embedded in or in contact with concrete or earth.

3.2 INSTALLATION

A. Keep raceways at least 8 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

B. Complete raceway installation before starting conductor installation.

C. Support raceways as specified in Division 26 SECTION "Basic Electrical Materials and Methods".

D. Install temporary closures to prevent foreign matter from entering raceways.

E. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.

F. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.

G. Conceal conduit within finished walls, ceilings, and floors, unless otherwise indicated.
   1. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.
   2. Conduits in unfinished areas associated with exposed equipment, and raceways on open ceiling construction, may be installed exposed.

H. Install conduits exposed and boxes surface mounted unless otherwise specified or shown.

I. RMC and IMC: Support and securely fasten in place at intervals not to exceed 10'-0".

J. EMT: Support and securely fasten in place at intervals not to exceed 5'-0".

K. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.
   1. Run parallel or banked raceways together on common supports.
   2. When bending parallel conduits, all conduit bends shall have the same radius or concentric bends.
   3. Raceway installation shall not obstruct light fixtures, electrical equipment and mechanical assemblies.

L. Join raceways with fittings designed and approved for that purpose and make joints tight.
   1. Use insulating bushings to protect conductors.

M. Terminations:
   1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
   2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

N. Install pull lines in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull line and tie to a support so that the line can not slip into conduit. [Provide labels with unique identifiers that match at each end of the conduit for all empty raceways.]

O. Telephone and Signal System Raceways, 2-Inch Trade Size (DN 53) and Smaller: In addition to above requirements, install indoor raceways in maximum lengths of 150 feet (45 m) and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.

P. Install raceway-sealing fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway-sealing fittings at the following points:
   1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.

Q. Stub-up connections: Stub-up conduits a minimum of 2" above floor or equipment pad of free standing equipment. Provide bushings on metallic conduit, and provide caps for spare conduits.

R. All conduit stub-outs and sleeves for wiring not installed in raceways shall have bushings installed on the end of each conduit where not connected to a box or fitting. Bushings shall be securely fastened to the conduit and shall be threaded or hammer-on type.

S. Flexible Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for recessed and semi-recessed lighting fixtures.

T. Set floor boxes level and flush with finished floor surface.

U. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

V. Temperature:
1. Conduits exposed to changes in temperature or attached to structures that may expand or contract shall be provided with expansion fittings.
2. Nonmetallic or PVC coated conduits shall not be installed in areas where the temperature may exceed 122 degrees F for extended periods of time.

W. Provide raceway expansion joints where raceway crosses building and structural expansion joints.

3.3 PENETRATION SLEEVES

A. Sleeves: Furnish sleeves for conduit passing through concrete walls, partitions, beams, floors and roof while same are under construction. A conduit sleeve shall be one size larger than the size of conduit which it serves except where sealing bushings are used in sleeves through walls below grade. Sleeves are not required for conduits installed before the wall, partition, floor, or roof is constructed.

B. Sleeves Set in Concrete Floor: Sleeves shall be 18-gauge galvanized steel or PVC. Sleeves shall extend 2 inches above the finished floor. Conduit passing through concrete or masonry walls shall have Schedule 40 galvanized steel sleeves. Sleeves shall be set flush with finished wall. If holes and sleeves are not properly installed and cutting and patching become necessary, it shall be done at no expense to Owner. Undertake no cutting or patching without first securing approval. Where penetrations must be waterproofed, properly caulk with oakum and run full of asphalt mastic or silicone rubber caulking.

C. Sleeves Penetrating Walls Below Grade: Sleeves shall be Schedule 40 black steel pipe with 1/4-inch thick steel plate secured to the pipe with continuous fillet weld or a factory made sealing fitting employing pressure rings and sealing grommet. The plate shall be located in the middle of the wall and shall be 1/4-inch wider all around than the sleeve which it encircles. The entire assembly shall be hot-dipped galvanized after fabrication.

3.4 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.5 CLEANING

A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes. Match factory finish with same material and color.

END OF SECTION

SECTION 26 0543

UNDERGROUND DUCT SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes underground duct, duct marking, electrical manholes, electrical handholes and accessories. Underground duct consists of multiple conduits grouped together generally routed via manholes or handholes. Underground duct shall be concrete encased.

B. Underground manholes and handholes may also be referred to as pullboxes or vaults.

C. For additional requirements for conduits, see SECTION “Raceways and Boxes”.

1.2 SUBMITTALS

A. Product Data: For the following:
1. Precast electrical manholes and handholes.
2. Duct marking.
3. Accessory equipment such as lids, covers, steps, ladders, pulling irons, end bell, cable racks and supports.

B. Shop Drawings:
1. Descriptive information which states conformance to codes, recognized testing or manufacturing standards.
2. Manufacturer's name and catalog cuts listing type, model No., catalog No., finish, performance data.
3. Dimensioned and scaled drawings showing duct entry locations. Clearly indicate where each different type of manhole or handhole is applied.
4. Precast manholes or handholes. Indicate reinforcing, and load ratings.
5. Composite or polymer concrete manholes or handholes. Indicate materials, reinforcing, and load ratings.

1.3 QUALITY ASSURANCE

A. AASHTO. Meet loading ratings indicated.

B. ANSI/ SCTE 77. Meet loading ratings indicated.

C. NESC. Manholes and handles shall meet the requirements of NESC, including clearance and grounding requirements.

D. NEC – Article 314.30.

PART 2 - PRODUCTS

2.1 ELECTRICAL MANHOLE AND HANDHOLE (POLYMER CONCRETE)

A. Polymer concrete underground enclosures shall be UL listed as “Underground Enclosures” and be provided with a cover that is UL listed as a “Cover For Underground Enclosure” for the application tier indicated.

B. Dimensions: Provide boxes with nominal dimensions as shown on the drawings. Dimensions given are interior, clear space measurements. Provide boxes within 5 percent of the dimensions given, or provide the next larger standard size.

C. Design loads shall meet the requirements of ANSI/SCTE 77 2007 for the Application Tier indicated. Design loads shall be ANSI TIER 15 Non-Deliberate Traffic.

D. Enclosure covers shall have the Tier rating embossed on the surface, the cover design load rating shall not exceed the underground enclosure. Cover shall be rectangular with provisions for locking. Cover shall have a cast logo with the word “ELECTRIC’ for power manholes or handholes, or as indicated.

E. Provide extensions as required to make the unit floor at least as low as the bottom duct, and as required to match knockouts.

2.2 DUCT SYSTEM

A. Depth: Provide 2-foot earth cover, minimum, and as much as required for clearance from existing buried utilities or other obstructions. Where practicable, slope ducts to provide minimum grade of 4 inches per 100 feet toward manholes.

B. Change of Direction: For bends exceeding a total of 10 degrees, either vertical or horizontal, provide long sweep bends having a minimum radius of 25 feet, except manufactured bends may be used at the ends of the run. Provide manufactured bends with a minimum radius of 36 inches for ducts of 3 inches diameter and larger, 18 inches radius for ducts smaller than 3 inches diameter.

C. Duct Material: Provide plastic duct conforming to NEMA TC6, Type DB for direct burial NEMA TC2, Schedule 40. Duct and fittings shall be joined by the use of solvent cement to assure a watertight joint. Where duct emerges from underground, an adaptor to steel shall be used at the lower end of the elbow, and the conduit above ground including the elbow shall be galvanized rigid steel.

D. Duct Size: Ducts shall not be smaller than 2 inches nominal diameter unless noted.

E. End Bells: Install on all ducts entering manholes or handholes. Concrete envelope shall be monolithic and poured into the walls of manholes.

PART 3 - EXECUTION

3.1 CIRCUIT IDENTIFICATION

A. Each circuit's conductors shall be identified with a nameplate by feeder breaker, starter or other source and shall be bundled together with plastic ties at each manhole, handhole or termination point.

3.2 CONDUCTOR ROUTING

A. General: Different voltages and types of conductors shall be separated at each manhole or handhole.

B. 120-volt Power Conductors: Maintain at least 6 inches clear from any other conductors.

C. 120-volt Control Conductors: [Maintain at least 12 inches clear from any other conductors.] [Route in rigid galvanized steel conduit through the manhole or handhole. Conduit shall be grounded. Provide an LB fitting where each control wire duct penetrates the wall and NEMA 4X junction boxes as required.]

3.3 MARKING

A. Mark all duct banks per SECTION “Electrical Identification”.

3.4 RODDING AND CLEANING OF DUCTS

A. The mandrel, not less than 12 inches long and diameter of 1/2-inch less than the diameter of the duct, shall be pulled through the duct, followed by a brush with stiff bristles to clean out any obstructions.

3.5 MANHOLES AND HANDHOLES

A. Install level and plumb

B. Set top of manhole or handhole to finish elevation.

C. Polymer concrete enclosures shall not have more than 25% of their sidewall area removed for conduit entry. Do not cut into sidewall structural reinforcing ribs, corners or enclosure lip.

D. Grout all duct entries so that the end bell is flush and smooth with the manhole wall and is watertight.

END OF SECTION

SECTION 26 0553

ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes electrical identification materials and devices required to comply with ANSI C2, NFPA 70, OSHA standards, and authorities having jurisdiction, and to provide a clearly labeled, easy to operate and maintain system.

B. A unique wire number shall be assigned to each control and alarm circuit conductor. Letter prefixes may be used. Markers displaying the wire number shall be securely attached to the conductor at all splices and at each and every connection to control panels, terminal strips, control stations, indicators, starters, contacts, sensors, relays and similar equipment.

C. Items requiring nameplates are listed in part 3 of this section.

D. Identification of each phase conductor of power and lighting circuits shall be accomplished by color-coding. The color assigned to a particular phase shall be consistent throughout the work.

E. Power feeder circuits 100 amps and larger, 600V and below, and all medium voltage circuits shall be uniquely identified with a circuit number and the panel of origin.

1.2 SUBMITTALS

A. Product Data: For each electrical identification product provided. Submit manufacturers literature, part numbers, specification sheets, and installation instructions.

1.3 QUALITY ASSURANCE

A. Comply with ANSI C2.

B. Comply with NFPA 70.

C. Comply with ANSI A13.1 and NFPA 70 for color-coding.

PART 2 - PRODUCTS

2.1 CONTROL AND ALARM CIRCUIT CONDUCTORS

A. Markers: Provide markers with permanent numbering/lettering securely fastened to the conductor. Provide non-smearing and solvent resistant markers. Provide markers with typed or printed numbering, hand lettering is not acceptable. Provide markers of one of the following type(s):
   1. Heat Shrink Markers: Provide heat shrink markers made of white polyolefin tubing printed with black numbering. PVC tubing is not acceptable. Heat shrink the tubing with a flameless heat gun designed for the purpose. Provide Thomas & Betts series HVM or equal.
   2. Sleeve Markers: Provide sleeve markers made of white PVC with imprinted black numbering designed to slip over the conductor and grip when released. Provide markers that interlock to assure alignment of the numbers/letters. Clip-on type markers are not acceptable. Provide Thomas & Betts series SMS or equal.

2.2 NAMEPLATES AND SIGNS

A. Safety Signs: Comply with ANSI C2, NFPA 70 and OSHA 1910.145.

B. Engraved Plastic Nameplates and Signs: Engraving stock, melamine plastic laminate, minimum 1/16 inch (1.6 mm) thick for signs up to 20 sq. in. (129 sq. cm) and 1/8 inch (3.2 mm) thick for larger sizes.
   1. Engraved legend with black letters on white face.
   2. Punched or drilled for mechanical fasteners.

C. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for the application. 1/4-inch (6.4-mm) grommets in corners for mounting.

D. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch (1-mm) galvanized-steel backing; and with colors, legend, and size required for the application. 1/4-inch (6.4-mm) grommets in corners for mounting.

E. Provide stainless steel nameplates, 0.025-inch thick minimum, 1.5 inches across, square or round, with stamped lettering for field mounted measurement and control devices. Provide Seton Name Plate Company, New Haven, Connecticut Style 250-S, SVT-15-S, or equal.

F. Lettering Size:
   1. For panelboards, motor control centers, transformers, floor-mounted control panel, and switchboards: 0.75-inch high minimum.
   2. For enclosed circuit breakers, safety switches, manual motor starters, magnetic motor starters, lighting contactors, wall-mounted control panel, automatic transfer switches, variable frequency drives and cables in manholes or handholes: 0.5-inch high minimum.
   3. For device legend plates: 0.125-inch high minimum.
   4. For all other nameplates: 0.25-inch high minimum.

2.3 POWER CONDUCTORS

A. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide (0.08 mm thick by 25 to 51 mm wide).

2.4 UNDERGROUND-LINE WARNING TAPE

A. Underground-Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape.
   1. Not less than 6 inches wide by 4 mils thick (152 mm wide by 0.102 mm thick).
   2. Compounded for permanent direct-burial service.
   3. Printed legend indicating type of underground line.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Manufacturers nameplate shall remain attached to each piece of equipment or device. Do not obscure the manufacturer’s nameplate with mounting hardware, paint or the device designation nameplate.

B. Identification Materials and Devices: Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations with corresponding designations in the Contract Documents or with those required by codes and standards. Use consistent designations throughout Project.

D. Align markers so that numbering/lettering is visible from the access opening of the panel or device.

E. Sequence of Work: If identification is applied to surfaces that require finish, install identification after completing finish work.

F. Color Banding Raceways and Exposed Cables: Band exposed and accessible raceways of the systems listed below:
   1. Bands: Pretensioned, wraparound plastic sleeves; colored adhesive tape; or a combination of both. Make each color band 2 inches (51 mm) wide, completely encircling conduit, and place adjacent bands of two-color markings in contact, side by side.
   2. Band Locations: At changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.

G. Circuit Identification Labels on receptacles: Install Pressure-sensitive, engraved plastic label on cover that indicates circuit number and power panel.

H. Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous underground line warning tape located directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Where width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches (400 mm) overall, use a single warning tape.

I. Color-Coding of Secondary Phase Conductors: Use the following colors for power and lighting phase conductors:
   1. 208-volt, 3-phase:Black, Red, and Blue
      480-volt, 3-phase: Brown, Orange, and Yellow
      240-volt, 1-phase:Black and Red
      Neutrals for 277 and 480-volt: Gray
      Neutrals for 120, 208, and 240-volt: White
      All Grounds: Green
   2. Factory apply color the entire length of conductors, except the following field-applied, color-coding methods may be used instead of factory-coded wire for sizes larger than No. 10 AWG:
      a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Use ¾" inch minimum wide tape in colors specified. Adjust tape bands to avoid obscuring cable identification markings.
      b. Colored cable ties applied in groups of three ties of specified color to each wire at each terminal or splice point starting 3 inches (76 mm) from the terminal and spaced 3 inches (76 mm) apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.

J. Power Feeder Circuit Identification: Plastic laminate tags for cables, feeders, and power circuits in vaults, pull and junction boxes, manholes, and switchboard rooms.
   1. Legend: 1/4-inch- (6.4-mm-) letter and number engraving with legend corresponding to indicated circuit designations.
   2. Tag Fasteners: Nylon cable ties.

K. Apply identification to equipment as follows:
   1. Indicate equipment name or designation, for example: PANEL LA

2. Indicate voltage, phase and wire characteristics, for example: 120/208 VOLTS, 3 PH, 4W.
3. Indicate the circuit source, for example: FED FROM: TRANSFORMER TA

L. Apply identification to junction boxes as follows:
1. Identify all junction boxes 4” x 4” and larger
2. For power circuits identify power source and circuit number if applicable, for example LA-12.
3. For other systems identify the system, for example: TEL, DATA, or FA
4. Use laminated plastic nameplates or permanent marker on the cover or door of the junction box.

M. Method of nameplate attachment:
1. Attach stamped stainless steel nameplates to the device with stainless steel wire or chain or secure under a case screw(s) not removed during normal maintenance or servicing.
2. Attach all other laminated plastic nameplates with screws, rivets or adhesive. Double-sided tape is not acceptable. When adhesive is used, clean and degrease surfaces.
3. Attach nameplates so that the enclosure rating for dust or moisture is not impaired.

N. Apply identification to conductors as follows:
1. Conductors to Be Extended in the Future: Indicate source and circuit numbers.
2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color-coding to identify circuits' voltage and phase.
3. Multiple Control and Communication Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color-coding, or cable marking tape.

O. Apply warning, caution, and instruction signs as follows:
1. Warnings, Cautions, and Instructions: Install to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.
2. Emergency Operation: Install engraved laminated signs with white legend on red background with minimum 3/8-inch- (9-mm-) high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.

END OF SECTION

SECTION 26 2416

PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes panelboards for systems 600 volts and below.

1.2 SUBMITTALS

A. Shop Drawings: Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes. For each panelboard and related equipment provide the following:
   1. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:
      a. Enclosure types and construction details.
      b. Bus configuration, current, and voltage ratings.
      c. Short-circuit current rating of panelboards and overcurrent protective devices.
      d. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
      e. Breaker layout and schedule.

B. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1 include the following:
   1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
   2. Time-current curves, including selectable ranges for each type of overcurrent protective device.
   3. Manufacturer’s written instructions provided with equipment.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from a single manufacturer.

B. Comply with Federal Specification W-P-115b Type 1, Class 1 and NEMA PB 1.

1.4 COORDINATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, and encumbrances to workspace clearance requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Panelboards, Overcurrent Protective Devices, Controllers, Contactors, and Accessories:
      a. Square D.
      b. Eaton Corporation; Cutler-Hammer Products.
      c. General Electric Co.; Electrical Distribution & Protection Div.

2.2 PANELBOARDS

A. Enclosures: Flush- or surface-mounted cabinets as indicated on drawings. Enclosure ratings shall be per NEMA 250.
   1. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
   2. Door: Provide all panels with hinged door and keyed lock.
   3. Finish: Manufacturer's standard enamel finish over corrosion-resistant treatment or primer coat.
   4. Directory Card: With transparent protective cover, mounted in metal frame, inside panelboard door.

B. Phase and Ground Buses:
   1. Material: Hard-drawn copper, 98 percent conductivity or tin-plated aluminum.
   2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors; bonded to box.

C. Service Equipment Label: UL labeled for use as service equipment for panelboards used as the main service equipment.

D. Future Devices: Provide mounting brackets, bus connections, circuit breaker fingers or stabs and all necessary appurtenances required for future installation of circuit breakers in all positions indicated as a space.

2.3 PANELBOARD SHORT-CIRCUIT RATING

A. Fully rated to interrupt symmetrical short-circuit current available at terminals. Series rating is not acceptable.

2.4 OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker:
   1. Circuit breakers shall meet the requirements of UL 489.
   2. Interrupting Capacity: Provide circuit breakers with interrupting capacities equal to or greater than the available fault currents shown on the Drawings. Minimum allowable interrupting capacity of 120- and 240-volt circuit breakers is 10,000 RMS symmetrical amperes. Minimum allowable interrupting capacity of 277- and 480-volt circuit breakers is 14,000 RMS symmetrical amperes.
   3. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
   4. Electronic trip-unit circuit breakers shall have RMS sensing; field-replaceable rating plug; and with the following field-adjustable settings:
      a. Instantaneous trip.
      b. Long- and short-time pickup levels.
      c. Long- and short-time time adjustments.
      d. Where indicated provide Ground-fault pickup level, time delay, and I^2t response.
      e. Provide with a sealable cover over the adjusting means, except for adjustable magnetic trips on thermal magnetic breakers which do not require covers.
   5. Ground Fault Circuit Interrupter (GFCI) Circuit Breakers for Personnel Protection: Provide UL Class A ground fault protection in addition to thermal magnetic protection. Circuit breaker shall conform to UL 943.
   6. Ground Fault Circuit Breakers for Equipment Protection: Provide 30 mA ground fault protection in addition to thermal magnetic protection.

7. Multipole units enclosed in a single housing or factory-assembled to operate as a single unit.

B. Molded-Case Circuit-Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.
   1. Lugs: Suitable for number, size, and conductor materials.
   2. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads.
   3. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
   4. Shunt Trip: As shown on drawings.
   5. Undervoltage Trip: As shown on drawings.
   6. Auxiliary Contacts: As shown on drawings.
   7. Key Interlock Kit: As shown on drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install panelboards and accessories according to NEMA PB 1.1.

B. Provide enclosures rated for environmental conditions at installed location.
   1. Outdoors, damp or wet: NEMA 250, Type 3R/12 [3R].
   2. Indoors, dry: NEMA 250, Type 1.
   3. Indoors, damp or wet: NEMA 250, Type 3R/12 [3R].

C. Mount plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.

D. Set field-adjustable switches and circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Deliver panelboard keys provided with panels to the Owner.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and panelboards as specified in Division 26 SECTION "Electrical Identification".

3.3 CLEANING

A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION

SECTION 26 2726

WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes wiring devices for systems 600 volts and below, which includes receptacles, switches and similar equipment.

1.2 SUBMITTALS

A. Shop Drawings:
   1. Descriptive information that states conformance to codes, recognized testing, or manufacturing standards.
   2. Manufacturer's name and catalog cuts listing type, model No., catalog No., materials, styles, finish and electrical ratings.
B. Operations and Maintenance Manuals shall include the following information:
   1. All information submitted with shop drawings.
   2. Manufacturer’s maintenance and repair instructions.
   3. Manufacturers written instructions provided with the equipment.

1.3 QUALITY ASSURANCE

A. Source Limitations: Each type of wiring device shall be from a single manufacturer, and shall be of the same style and model number.

PART 2 - PRODUCTS

2.1 FINISHES

A. Color:
   1. Wiring Devices Connected to Normal Power System: White unless otherwise indicated on drawings or required by NFPA 70.

2.2 RECEPTACLES

A. 20 Ampere, 125-volt Straight-Blade-Type Receptacles:
   1. Comply with NEMA WD 1, NEMA WD 6, FEDERAL SPECIFICATION W-C-596G, and UL 498.
   2. 20 Ampere Grounding type duplex receptacles shall be Specification Grade, NEMA 5-20R, Cooper No. 5352, Leviton No. 5352, Hubbell No. HBL 5352 Series or equal.
   3. 20 Ampere Grounding type single receptacles shall be Specification Grade, NEMA 5-20R, Cooper No. 5351, Leviton No. 5361, Hubbell No. 5361, or equal.

B. Ground Fault Circuit Interrupting (GFCI) 20 Ampere, 125-volt Straight-Blade-Type Receptacles:
   1. Comply with NEMA WD 1, NEMA WD 6, FEDERAL SPECIFICATION W-C-596G, UL 498 and UL 943.
   2. GFCI 20 Ampere Grounding type duplex receptacles shall be Specification Grade, NEMA 5-20R, Cooper No. XGF20, Leviton No. 6898, Hubbell No. GF5362 Series or equal.
   3. Unless otherwise indicated, feed-through feature shall not be used to protect downstream receptacles.

C. Faceplates or Covers for 20 Ampere Receptacles:
   1. Faceplates for surface-mounted boxes in exposed conduit work shall be galvanized steel.
   2. Faceplates for flush-mounted duplex receptacles shall be stainless steel, Cooper 93000 series, Leviton No. 84000 series, Hubbell No. S8 Series, or equal.
   3. Faceplates for flush-mounted single receptacles shall be stainless steel, Cooper 93000 series, Leviton No. 84000 series, Hubbell No. S7 Series, or equal.
   4. Faceplates for flush-mounted GFCI and TVSS receptacles shall be stainless steel, Cooper 93000 series, Leviton No. 84000 series, Hubbell No. S26 Series, or equal.
   5. Faceplates for weatherproof single receptacles shall be metal, heavy duty, self-closing, Cooper 1990 or 992, Leviton No. 4925-2, Hubbell No. 7420 or equal.
   6. Faceplates for weatherproof duplex receptacles shall be metal, heavy duty, Red Dot No. CK5GV, Cooper No. 994 or 989, Leviton 4926 or 4970, Hubbell HBL 5205W0 or HBL 5206W0, or equal.
   7. Faceplates for weatherproof ground fault interrupting duplex receptacles shall be metal, heavy duty, self-closing, Cooper No. 966 or 1966, Leviton 6196-FS or 6196-VFS, Hubbell No. WP26, or WPFS26 or equal.
   8. Weatherproof While In Use Covers: Where indicated and at all wet location receptacles, provide weatherproof while in use covers in accordance with NEC 406.9. Covers shall be die cast aluminum, heavy duty, self-closing, rated NEMA 3R, and be lockable. Provide Thomas & Betts/Red Dot “Code Keeper” (metal) series, Intermatic “Guardian” WP1000MC (metal) series, or equal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install devices and assemblies level, plumb, and square with building lines.

B. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

C. Remove wall plates and protect devices and assemblies during painting.

D. GFCI receptacle wiring. Each location shown as a GFCI receptacle shall have a GFCI receptacle at that location. Each GFCI receptacle shall be wired to the line side terminals. Unless specifically noted, no wiring shall be connected to the load terminals of the GFCI receptacle.

3.2 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:
   1. After installing wiring devices and after electrical circuitry has been energized, test for proper polarity, ground continuity, and compliance with requirements.
   2. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.

B. Remove malfunctioning units, replace with new units, and retest as specified above.

END OF SECTION

SECTION 26 2816

SAFETY SWITCHES AND ENCLOSED CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes safety switches (also known as disconnect switches, distribution equipment switches, or disconnects) and enclosed circuit breakers.

1.2 SUBMITTALS

A. Product Data: For safety switches and enclosed circuit breakers.

B. Shop Drawings: For each type of safety switch, enclosed circuit breaker, circuit breaker, accessory, and component indicated. Include dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
   1. Enclosure types, ratings and outline drawings.
   2. Current and voltage ratings.
   3. Short-circuit current rating.
   4. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
   5. Fuse ratings, type, and time-current coordination curves for each fuse.

C. Operation and Maintenance Data: For safety switches and enclosed circuit breakers to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1, include the following:
   1. Manufacturer's written instructions for testing and adjusting safety switches and circuit breakers.
   2. Time-current curves, including selectable ranges for each type of circuit breaker.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Safety switches and all components shall be designed, manufactured and tested in accordance with the latest applicable standards:
   1. NEMA KS-1
   2. UL 98

C. Fuses shall be UL listed and conform to NEMA FU1.

1.4 COORDINATION

A. Coordinate layout and installation of switches, circuit breakers, and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 SAFETY SWITCHES

A. Fusible and Non-Fusible Safety Switches, 1200 amp and smaller: Provide safety switches, Heavy Duty Type HD conforming to NEMA KS-1 and Federal Specification W-S-865C, 600-Volts, horsepower rated for motors as required. Provide number of poles and ampacity as noted or required by Code. Switches shall be fused where indicated, or where required by UL labeling or listing of equipment served. Handle shall have provisions for padlocking in the off position and the door shall have provisions for padlocking closed.

B. All safety switches in publicly accessible spaces shall have provisions for padlocking in the on position or if indicated on the plans.

C. Switch blades shall be visible when the switch is in the “Off” position and the door is open.

D. Provide factory installed neutral assembly for switches installed on circuits with a neutral.

E. Provide factory installed ground lug kits.

F. Safety Switches shall have defeatable door interlocks that prevent the door from opening when the handle is in the ON position. Defeater mechanism shall be accessible.

G. Fusible switches 30-amp through 600-amperes shall be furnished with rejection type Class “R” fuse clips and 601-amp through 1200-amperes shall be furnished with Class “L” fuse clips unless otherwise indicated.

2.2 FUSES FOR SWITCHES

A. Interrupting Capacity: Provide fuses with interrupting capacities equal to or greater than the available fault currents shown on the Drawings.

B. Type and Speed: Provide fuses of various types and of the appropriate speeds to provide selective coordination. Submit time-current coordination curves for each fuse.

C. Labeling: Provide a nameplate or a manufacturer's preprinted label attached adjacent to each fuse or set of fuses. Label shall indicate manufacturer's name, manufacturer's catalog number, UL class, voltage rating, current rating, and speed.

D. Manufacturer: All fuses provided shall be of the same manufacturer.

2.3 ENCLOSED CIRCUIT BREAKERS

A. Enclosed Circuit Breakers: Provide enclosures for thermal magnetic circuit breakers conforming to NEMA 250 and UL 489. Handle shall have provisions for padlocking in the off position and the door shall have provisions for padlocking closed.

B. Except for NEMA 1 units, all other enclosed circuit breakers shall have an exterior operating handle. Units with only covers or doors over breaker handles are not acceptable.

C. All enclosed circuit breakers in publicly accessible spaces shall have provisions for padlocking in the on position or if indicated on the plans.

D. Provide factory installed neutral assembly for enclosed circuit breakers installed on circuits with a neutral.

E. Provide factory installed ground lug kits.

F. Circuit breakers: Provide circuit breakers with the current and voltage ratings as shown. Circuit breakers shall be UL listed and conform to NEMA AB1, UL 489, and Federal Specification W-C-375B/GEN.

G. Interrupting Capacity: Provide circuit breakers with interrupting capacities equal to or greater than the available fault currents shown on the Drawings. Minimum allowable interrupting capacity of 120- and 240-volt circuit breakers is 10,000 RMS symmetrical amperes. Minimum allowable interrupting capacity of 277- and 480-volt circuit breakers is 14,000 RMS symmetrical amperes.

H. Series Rating: Do not apply circuit breakers at series interrupting ratings. Each breaker shall be capable of interrupting the fault current available at that location in the distribution system without the assistance of any other device(s).

I. Adjustable Circuit Breakers: Provide with a sealable cover over the adjusting means, except for adjustable magnetic trips on thermal magnetic breakers which do not require covers.

J. Molded Case thermal Magnetic Circuit Breakers: Provide circuit breakers with overcenter toggle type mechanisms for quick make and break, trip free operation. Breakers shall provide thermal overload and instantaneous magnetic trip for each pole of the unit. Breakers larger than 100 amperes shall have adjustable magnetic trip. Multiple pole breakers shall have one common operating handle.

K. Accessories: Provide auxiliary contacts, shunt tripping mechanisms, handle locking devices, lugs or terminals, and any other accessory as specified, indicated on the Drawings, or where required to perform the functions indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide enclosures rated for environmental conditions at installed location.
   1. Outdoors, damp or wet: NEMA 250, Type 3R/12 [3R] [4X, stainless steel].
   2. Indoors, dry: NEMA 250, Type 1.
   3. Indoors, damp or wet: NEMA 250, Type 3R/12 [3R] [4X, stainless steel].

B. Mount plumb and rigid without distortion of enclosure.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 26 SECTION "Electrical Identification".

B. Enclosure Nameplates: Label each enclosure with engraved metal or laminated-plastic nameplate as specified in Division 26 SECTION "Electrical Identification".

3.3 FUSE APPLICATIONS

A. Service Entrance: Class RK1 time delay.

B. Feeders: Class RK1, fast acting.

C. Motor Branch Circuits: Class RK5 time delay.

3.4 ADJUSTING

A. Set field-adjustable circuit-breaker trip ranges.

3.5 CLEANING

A. On completion of installation, vacuum dirt and debris from interiors; do not use compressed air to assist in cleaning.

B. Inspect exposed surfaces and repair damaged finishes.

END OF SECTION

Public Water Supply District No 13 of Jackson County

Standard Technical Specifications for Water Main Improvements

December 2020

HDR Project No. 10162790

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MISSOURI CERTIFICATE OF AUTHORITY #: 000856

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DIVISION 03

CONCRETE

SECTION 03 00 05
CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Cast-in-place concrete and grout.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Concrete Institute (ACI):
      a. 117, Specifications for Tolerances for Concrete Construction and Materials.
      b. 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
      c. 212.3R, Chemical Admixtures for Concrete.
      d. 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
      e. 304.2R, Placing Concrete by Pumping Methods.
      f. 305.1, Hot Weather Concreting.
      g. 306.1, Cold Weather Concreting.
      h. 318, Building Code Requirements for Structural Concrete.
      i. 347, Guide to Formwork for Concrete.
      j. CT-13, Concrete Terminology.
   2. ASTM International (ASTM):
      a. A82, Standard Specifications for Steel Wire, Plain, for Concrete Reinforcement.
      b. A185, Standard Specifications for Steel Welded Wire Reinforcement, Plain, for Concrete.
      c. A615, Standard Specifications for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
      d. A1064, Standard Specifications for Steel Wire and Welded Wire Replacement, Plain and Deformed, for Concrete.
      e. C31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
      f. C33, Standard Specifications for Concrete Aggregates.
      g. C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
      h. C94/C94M, Standard Specifications for Ready-Mixed Concrete.
      i. C138, Standard Method of Test for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
      j. C143, Standard Test Method for Slump of Hydraulic Cement Concrete.
      k. C150, Standard Specifications for Portland Cement.
      l. C172, Standard Practice for Sampling Freshly Mixed Concrete.
      m. C173, Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
      n. C231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
      o. C260, Standard Specifications for Air-Entraining Admixtures for Concrete.
      p. C309, Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete.
      q. C494, Standard Specification for Chemical Admixtures for Concrete.

r. C618, Standard Specifications for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
s. C1293, Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction.
t. C1315, Standard Specifications for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
u. D882, Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
v. D994, Standard Specifications for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
w. D1056, Standard Specifications for Flexible Cellular Materials-Sponge or Expanded Rubber.
x. D1709, Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method.
y. D1751, Standard Specifications for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
z. E96, Standard Test Methods for Water Vapor Transmission of Materials.
aa. E329, Standard Specifications for Agencies Engaged in Construction Inspection and/or Testing.

3. Corps of Engineers (COE):
   a. CRD-C621, Standard Specifications for Packaged, Dry, Hydraulic-Cement Grout (Nonshrink).
4. National Ready Mixed Concrete Association (NRMCA).
5. National Sanitation Foundation (NSF):
   a. 61, Drinking Water System Components - Health Effects.

B. Quality Control:
1. Concrete testing agency:
   a. Contractor to employ and pay for services of a testing laboratory to:
      1) Perform materials evaluation.
      2) Design concrete mixes.
   b. Concrete testing agency to meet requirements of ASTM E329.
2. Do not begin concrete production until proposed concrete mix design has been approved by Engineer.
   a. Approval of concrete mix design by Engineer does not relieve Contractor of his responsibility to provide concrete that meets the requirements of this Section.
3. Adjust concrete mix designs when material characteristics, job conditions, weather, strength test results or other circumstances warrant.
   a. Do not use revised concrete mixes until submitted to and approved by Engineer.
4. Perform structural calculations as required to prove that all portions of the structure in combination with remaining forming and shoring system has sufficient strength to safely support its own weight plus the loads placed thereon.

C. Qualifications:
1. Ready mixed concrete batch plant certified by NRMCA.
2. Formwork, shoring and reshoring for slabs and beams except where cast on ground to be designed by a professional engineer currently registered in the state where the Project is located.

1.3 DEFINITIONS

A. Per ACI CT-13 except as modified herein:
1. Concrete fill: Non-structural concrete.
2. Concrete Testing Agency: Testing agency employed to perform materials evaluation, design of concrete mixes or testing of concrete placed during construction.
3. Exposed concrete: Exposed to view after construction is complete.
4. Indicated: Indicated by Contract Documents.
5. Nonexposed concrete: Not exposed to view after construction is complete.
6. Required: Required by Contract Documents.

7. Specified strength: Specified compressive strength at 28 days.
8. Submitted: Submitted to Engineer.

1.4 SUBMITTALS

A. Shop Drawings:
1. See Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
2. Concrete mix designs proposed for use.
   a. Concrete mix design submittal to include the following information:
      1) Sieve analysis and source of fine and coarse aggregates.
      2) Test for aggregate organic impurities.
      3) Test for deleterious aggregate per ASTM C1293.
      4) Proportioning of all materials.
      5) Type of cement with mill certificate for cement.
      6) Type of fly ash with certificate of conformance to specification requirements.
      7) Slump.
      8) Air content.
      9) Brand, type, ASTM designation, and quantity of each admixture proposed for use.
      10) 28-day cylinder compressive test results of trial mixes per ACI 318 and as indicated herein.
3. Product technical data including:
   a. Acknowledgement that products submitted meet requirements of standards referenced.
   b. Manufacturer's installation instructions.
   c. Manufacturers and types:
      1) Joint fillers.
      2) Curing agents.
      3) Chemical sealer.
      4) Bonding and patching mortar.
      5) Construction joint bonding adhesive.
      6) Nonshrink grout with cure/seal compound.
4. Reinforcing steel:
   a. Show grade, sizes, number, configuration, spacing, location and all fabrication and placement details.
   b. In sufficient detail to permit installation of reinforcing without having to make reference to Contract Drawings.
   c. Obtain approval of Shop Drawings by Engineer before fabrication.
   d. Mill certificates.
5. Scaled (minimum 1/8 IN per foot) drawings showing proposed locations of construction joints, control joints, expansion joints (as applicable) and joint dimensions.
6. Strength test results of in place concrete including slump, air content and concrete temperature.
7. Certifications:
   a. Certification of standard deviation value in psi for ready mix plant supplying the concrete.
   b. Certification that the material and sources submitted in the mix design will be used in the concrete for this project.
8. Test reports:
   a. Cement mill reports for all cement to be supplied.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Storage of Material:
1. Cement and pozzolan:
   a. Store in moisture proof, weathertight enclosures.
   b. Do not use if caked or lumpy.

2. Aggregate:
    a. Store to prevent segregation and contamination with other sizes or foreign materials.
    b. Obtain samples for testing from aggregates at point of batching.
    c. Do not use frozen or partially frozen aggregates.
    d. Do not use bottom 6 IN of stockpiles in contact with ground.
    e. Allow sand to drain until moisture content is uniform prior to use.
3. Admixtures:
    a. Protect from contamination, evaporation, freezing, or damage.
    b. Maintain within temperature range recommended by manufacturer.
    c. Completely mix solutions and suspensions prior to use.
4. Reinforcing steel: Support and store all rebars above ground.

B. Delivery:
1. Concrete:
    a. Prepare a delivery ticket for each load for ready-mixed concrete.
    b. Truck operator shall hand ticket to Owner's Representative at the time of delivery.
    c. Ticket to show:
        1) Mix identification mark.
        2) Quantity delivered.
        3) Amount of each material in batch.
        4) Outdoor temp in the shade.
        5) Time at which cement was added.
        6) Numerical sequence of the delivery.
        7) Amount of water added.
2. Reinforcing steel:
    a. Ship to jobsite with attached plastic or metal tags with permanent mark numbers.
    b. Mark numbers to match Shop Drawing mark number.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following products and manufacturers are acceptable:
1. Nonshrink, nonmetallic grout:
    a. Sika "SikaGrout 212."
    b. Euclid Chemial "NS Grout."
    c. BASF Admixtures, Inc. "Masterflow 713."
2. Expansion joint fillers:
    a. Permaglaze Co.
    b. Rubatex Corp.
    c. Williams Products, Inc.
3. Form coating:
    a. Richmond "Rich Cote."
    b. Industrial Lubricants "Nox-Crete Form Coating."
    c. Euclid Chemical "Kurez DR VOX."
4. Cementitious concrete coating:
    a. Aquafin International.
    b. BASF Building Systems.
    c. Euclid Chemical Company.
5. Chemical sealer:
    a. L&M Construction Chemicals, Inc.
    b. Euclid Chemical Company.
    c. Dayton Superior.

B. Submit request for substitution in accordance with Section 01 25 13.

2.2 MATERIALS

A. Portland Cement: Conform to ASTM C150 Type I/II

B. Fly Ash:
   1. ASTM C618, Class F or Class C.
   2. Nonstaining.
      a. Hardened concrete containing fly ash to be uniform light gray color.
   3. Maximum loss on ignition: 6 PCT.
   4. Compatible with other concrete ingredients.
   5. Obtain proposed fly ash from a source approved by the State Highway Department in the state where the Project is located for use in concrete for bridges.

C. Admixtures:
   1. Air entraining admixtures: ASTM C260.
   2. Water reducing, retarding, and accelerating admixtures:
      a. ASTM C494 Type A through E.
      b. Conform to provisions of ACI 212.3R.
      c. Do not use retarding or accelerating admixtures unless specifically approved in writing by Engineer and at no cost to Owner.
      d. Follow manufacturer's instructions.
      e. Use chloride free admixtures only.
   3. Maximum total water soluble chloride ion content contributed from all ingredients of concrete including water, aggregates, cementitious materials and admixtures by weight percent of cement:
      a. 0.10 allconcrete.
   4. Do not use calcium chloride.
   5. Pozzolanic admixtures: ASTM C618.
   6. Provide admixtures of same type, manufacturer and quantity as used in establishing required concrete proportions in the mix design.

D. Water: Potable, clean, free of oils, acids and organic matter.

E. Aggregates:
   1. Normal weight concrete: ASTM C33, except as modified below.
   2. Fine aggregate:
      a. Clean natural sand.
      b. No manufactured or artificial sand.
   3. Coarse aggregate:
      a. Crushed rock, natural gravel, or other inert granular material.
      b. Maximum amount of clay or shale particles: 1 PCT.
   4. Gradation of coarse aggregate:
      a. Lean concrete and concrete topping: Size #7.
      b. All other concrete: Size #57 or #67.

F. Concrete Grout:
   1. Nonshrink, nonmetallic grout:
      a. Nonmetallic, noncorrosive, nonstaining, premixed with only water to be added.
      b. Grout to produce a positive but controlled expansion.
      c. Mass expansion not to be created by gas liberation.
      d. Minimum compressive strength of nonshrink grout at 28 days: 6500 PSI.
      e. In accordance with COE CRD-C621.
   2. Epoxy grout:
      a. 3-component epoxy resin system.
         1) Two liquid epoxy components.
         2) One inert aggregate filler component.
      b. Each component packaged separately for mixing at jobsite.

G. Reinforcing Steel:
   1. Reinforcing bars: ASTM A615, Grade 60.
   2. Welded wire reinforcement:
      a. ASTM A185 or ASTM A1064.
      b. Minimum yield strength: 60,000 PSI.
   3. Column spirals: ASTM A82 or ASTM A1064.

H. Forms:
   1. Prefabricated or job built.
   2. Wood forms:
      a. 5/8 or 3/4 IN 5-ply structural plywood of concrete form grade.
      b. Built-in-place or prefabricated type panel.
   3. Metal forms:
      a. Metal forms may be used except for aluminum in contact with concrete.
      b. Forms to be tight to prevent leakage, free of rust and straight without dents to provide members of uniform thickness.
   4. Chamfer strips: Clear white pine, surface against concrete planed.

I. Form Ties:
   1. Commercially fabricated for use in form construction.
      a. Field fabricated ties are unacceptable.
   2. Constructed so that ends or end fasteners can be removed without causing spalling at surfaces of the concrete.
   3. 3/4 IN minimum to 1 IN maximum diameter cones on both ends.
   4. Embedded portion of ties to be not less than 1 IN from face of concrete after ends have been removed.
   5. Cone size:
      a. 3/4 IN minimum to 2 1/2 IN maximum diameter cones on both ends.
      b. Depth of cone not to exceed the concrete reinforcing cover.
   6. Form release: Nonstaining and shall not prevent bonding of future finishes to concrete surface.

J. Chairs, Runners, Bolsters, Spacers, and Hangers:
   1. Stainless steel, epoxy coated, or plastic coated metal.
      a. Plastic coated: Rebar support tips in contact with the forms only.

K. Chemical Floor Sealer:
   1. Colorless low VOC water-based solution containing acrylic copolymers.
      a. ASTM C1315, Class B, minimum 30 PCT solids.
   2. L&M Construction Chemicals Inc. Dress & Seal WB 30.

L. Cementitious Concrete Coating:
   1. Polymer modified Portland cement based coating for concrete and masonry.
      a. Waterproof.
      b. Resistant to both positive and negative hydrostatic pressure.
      c. Breathable.
   2. BASF “Masterseal 581 Thoroseal”.
      a. Color:
         1) Interior surfaces: Standard gray.
         2) Exterior surfaces: Custom color to match concrete surface.
         3) Texture: Fine.

M. Membrane Curing Compound:
   1. ASTM C309, Type 1D, Class A or B.
   2. Fugitive dye shall dissipate over time and exposure.
   3. Curing compound shall not prevent bonding of any future coverings, coatings or finishes.

N. Expansion Joint Filler:
   1. In contact with water or sewage:
      a. Closed cell neoprene.
      b. ASTM D1056, Class SC (oil resistant and medium swell) of 2 to 5 PSI compression deflection (Grade SCE41).
   2. Exterior driveways, curbs and sidewalks:
      a. Asphalt expansion joint filler.
      b. ASTM D994.
   3. Other use:
      a. Fiber expansion joint filler.
      b. ASTM D1751.

2.3 CONCRETE MIXES

A. General:
   1. All concrete to be ready mixed concrete conforming to ASTM C94/C94M.
   2. Provide concrete of specified quality capable of being placed without segregation and, when cured, of developing all properties required.
   3. All concrete to be normal weight concrete. Provide pozzolan content for all cast-in-place construction.

B. Strength:
   1. Provide specified strength and type of concrete for each use in structure(s) as follows:

TYPE	WEIGHT	SPECIFIED STRENGTH*
All concrete	Normal weight	5000 PSI

* Minimum 28-day compressive strength.

C. Air Entrainment:
   1. Provide air entrainment in all concrete resulting in a total air content percent by volume as follows:

MAX AGGREGATE SIZE	TOTAL AIR CONTENT PERCENT
1 IN or 3/4 IN	6 ±1-1/2
<3/4 IN	6-1/2 ±1-1/2

   2. Air content to be measured in accordance with ASTM C231, ASTM C173, or ASTM C138.

D. Slump - 4 IN maximum, 1 IN minimum:
   1. Measured at point of discharge of the concrete into the concrete construction member.
   2. 8 IN maximum after addition of superplasticizer (if used).
   3. Concrete of lower than minimum slump may be used provided it can be properly placed and consolidated.
   4. Pumped concrete:
      a. Provide additional water at batch plant to allow for slump loss due to pumping.
      b. Provide only enough additional water so that slump of concrete at discharge end of pump hose does not exceed maximum slump specified and the maximum specified water-cement ratio is not exceeded.
   5. Slump may be adjusted in the field through the use of water reducers.
      a. Coordinate dosage and mixing requirements with concrete supplier.
   6. Determine slump per ASTM C143.

E. Selection of Proportions:
   1. General:
      a. Proportion ingredients to:
         1) Produce proper workability, durability, strength, and other required properties.

2) Prevent segregation and collection of excessive free water on surface.

2. Minimum cement contents and maximum water cement ratios for concrete to be as follows:

SPECIFIED STRENGTH	MINIMUMCEMENT, MAXIMUM AGGREGATE SIZE			MAXIMUM WATER CEMENT RATIO BY WEIGHT
	1/2 IN	3/4 IN	1 IN	
4000	564	564	564	0.45
4500	611	611	--	0.42
5000	---	686	665	0.40

3. Fly ash:
   a. For cast-in-pace concrete only, a maximum of 25 PCT by weight of Portland cement content per cubic yard may be replaced with fly ash at rate of 1 LB fly ash for 1 LB of cement.
   b. When fly ash is used, the water to cementitious materials ratio shall not exceed the maximum value specified herein.
4. Concrete mix proportioning methods for normal weight concrete:
   a. Proportion mixture to provide desired characteristics using one of methods described below:
      1) Method 1 (Trial Mix):
         a) Per ACI 318, Chapter 5, except as modified herein.
         b) Air content within range specified above.
         c) Record and report temperature of trial mixes.
         d) Proportion trial mixes per ACI 211.1.
      2) Method 2 (Field Experience):
         a) Per ACI 318, Chapter 5, except as modified herein:
         b) Field test records must be acceptable to Engineer to use this method.
         c) Test records shall represent materials, proportions and conditions similar to those specified.
5. Required average strength to exceed the specified 28-day compressive strength by the amount determined or calculated in accordance with the requirements of Chapter 5 of ACI 318 using the standard deviation of the proposed concrete production facility.

PART 3 - EXECUTION

3.1 FORMING AND PLACING CONCRETE

A. Formwork:
   1. Contractor is responsible for design and erection of formwork.
   2. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position.
      a. Allowable tolerances: As recommended in ACI 347.
   3. Provide slabs and beams of minimum indicated depth when sloping foundation base slabs or elevated floor slabs to drains.
      a. For slabs on grade, slope top of subgrade to provide floor slabs of minimum uniform indicated depth.
      b. Do not place floor drains through beams.
   4. Openings:
      a. Provide openings in formwork to accommodate work of other trades.
      b. Accurately place and securely support items built into forms.
   5. Chamfer strips: Place 3/4 IN chamfer strips in forms to produce 3/4 IN wide beveled edges on permanently exposed corners of members.
   6. Clean and adjust forms prior to concrete placement.

7. Tighten forms to prevent mortar leakage.
8. Coat form surfaces with form release agents prior to placing reinforcing bars in forms.

B. Reinforcement:
1. Position, support and secure reinforcement against displacement.
2. Locate and support with chairs, runners, bolsters, spacers and hangers, as required.
3. Set wire ties so ends do not touch forms and are directed into concrete, not toward exposed concrete surfaces.
4. Lap splice lengths: ACI 318 Class B top bar tension splices unless indicated otherwise on the Drawings.
5. Extend reinforcement to within 2 IN of concrete perimeter edges.
   a. If perimeter edge is earth formed, extend reinforcement to within 3 IN of the edge.
6. Minimum concrete protective covering for reinforcement: As shown on Drawings.
7. Do not weld reinforcing bars.
8. Welded wire reinforcement:
   a. Install welded wire reinforcement in maximum practical sizes.
   b. Splice sides and ends with a splice lap length measured between outermost cross wires of each fabric sheet not less than:
      1) One spacing of cross wires plus 2 IN.
      2) 1.5 x development length.
      3) 6 IN.
   c. Development length: ACI 318 basic development length for the specified fabric yield strength.

C. Construction, Expansion, and Contraction Joints:
1. Locate joints as indicated on Contract Drawings or as shown on approved Shop Drawings.
   a. Where construction joint spacing shown on Drawings exceeds the joint spacing indicated in Paragraph below, submit proposed construction joint location in conformance with this Section.
2. Unplanned construction joints will not be allowed.
3. Locate wall vertical construction joints at 30 FT maximum.
4. Locate construction joints in floor slabs and foundation base slabs so that concrete placements are approximately square and do not exceed 2500 SQFT.
5. Locate construction joints in columns and walls:
   a. At the underside of beams, girders, haunches, drop panels, column capitals, and at floor panels.
   b. Haunches, drop panels, and column capitals are considered part of the supported floor or roof and shall be placed monolithically therewith.
   c. Column based need not be placed monolithically with the floor below.
6. Install construction joints perpendicular to main reinforcement with all reinforcement continued across construction joints.
7. At least 72 HRS shall elapse between placing of adjoining concrete construction.
8. Thoroughly clean and remove all laitance and loose and foreign particles from construction joints.
9. Before new concrete is placed, dampen concrete surfaces.

D. Embedments:
1. Set and build in anchorage devices and other embedded items required for other work that is attached to, or supported by concrete.
2. Use setting diagrams, templates and instructions for locating and setting.

E. Placing Concrete:
1. Place concrete in compliance with ACI 304R and ACI 304.2R.
2. Place in a continuous operation within planned joints or sections.
3. Begin placement when work of other trades affecting concrete is completed.
4. Place concrete by methods which prevent aggregate segregation.
5. Do not allow concrete to free fall more than 4 FT.

6. Where free fall of concrete will exceed 4 FT, place concrete by means of tremie pipe or chute.

F. Consolidation: Consolidate all concrete using mechanical vibrators supplemented with hand rodding and tamping, so that concrete is worked around reinforcement and embedded items into all parts of forms.

G. Protection:
   1. Protect concrete from physical damage or reduced strength due to weather extremes.
   2. In cold weather comply with ACI 306.1 except as modified herein.
      a. Do not place concrete on frozen ground or in contact with forms or reinforcing bars coated with frost, ice or snow.
      b. Do not place heated concrete that is warmer than 80 DEGF.
      c. If freezing temperatures are expected during curing, maintain the concrete temperature at or above 50 DEGF for seven days or 70 DEGF for 3 days.
      d. Do not allow concrete to cool suddenly.
   3. In hot weather comply with ACI 305.1 except as modified herein.
      a. At air temperature of 90 DEGF and above, keep concrete as cool as possible during placement and curing.
      b. Do not allow concrete temperature to exceed 90 DEGF at placement.
      c. Prevent plastic shrinkage cracking due to rapid evaporation of moisture.
      d. Do not place concrete when the actual or anticipated evaporation rate equals or exceeds 0.2 LBS/SF/HR as determined from ACI 305.1, Figure 2.1.5.

H. Curing:
   1. Begin curing concrete as soon as free water has disappeared from exposed surfaces.
   2. Cure concrete by use of moisture retaining cover, burlap kept continuously wet or by membrane curing compound.
   3. Provide protection as required to prevent damage to concrete and to prevent moisture loss from concrete during curing period.
   4. Provide curing for minimum of seven days.
   5. Form materials left in place may be considered as curing materials for surfaces in contact with the form materials except in periods of hot weather.
   6. In hot weather follow curing procedures outlined in ACI 305.1.
   7. In cold weather follow curing procedures outlined in ACI 306.1.
   8. Curing vertical surfaces with a curing compound:
      a. Cover vertical surfaces with a minimum of two coats of the curing compound.
      b. Allow the preceding coat to completely dry prior to applying the next coat.
      c. Apply the first coat of curing compound immediately after form removal.
      d. Vertical surface at the time of receiving the first coat shall be damp with no free water on the surface.
      e. A vertical surface is defined as any surface steeper than 1 vertical to 4 horizontals.

I. Form Removal:
   1. Remove forms after concrete has hardened sufficiently to resist damage from removal operations or lack of support.
   2. Where no reshoring is planned, leave forms and shoring used to support concrete until it has reached its specified 28-day compressive strength.

3.2 CONCRETE FINISHES

A. Tolerances:
   1. Class A: 1/8 IN in 10 FT.
   2. Class B: 1/4 IN in 10 FT.

B. Surfaces Exposed to View:
   1. Provide a smooth finish for exposed concrete surfaces and surfaces that are:
      a. To be covered with a coating or covering material applied directly to concrete.
      b. Scheduled for grout cleaned finish.

2. Remove fins and projections, and patch voids, air pockets, and honeycomb areas with cement grout.
3. Cementitious concrete coating:
    a. Form facing material shall produce a smooth, hard, uniform texture.
        1) Use forms specified for surfaces exposed to view.
    b. Prepare the surface in accordance with manufactures printed installation instructions.
    c. Brush on coating to entire surface.
        1) As a mixing liquid for the coating, use bonding agent and water mixture as recommended by the manufacture.
        2) Apply two (2) coats at 2 LB/SQYD per coat.
    d. When second coat is set, float to a uniform texture with a sponge coat.
    e. Provide this finish at the following locations:
        1) Walls, columns, exposed to view.

C. Surfaces Not Exposed to View:
1. Patch voids, air pockets and honeycomb areas with cement grout.
2. Fill tie holes with nonshrink, nonmetallic grout.

D. Slab Float Finish:
1. After concrete has been placed, consolidated, struck off, and leveled, do no further work until ready for floating.
2. Do not use water to aid in finishing.
3. Begin floating when water sheen has disappeared, and surface has stiffened sufficiently to permit operation.
4. During or after first floating, check planeness of entire surface with a 10 FT straightedge applied at not less than two different angles.
5. Cut down all high spots and fill all low spots during this procedure to produce a surface within Class B tolerance throughout.
6. Refloat slab immediately to a uniform sandy texture.

E. Troweled Finish:
1. Float finish surface.
2. Next power trowel, and finally hand trowel.
3. Do not use water to aid in finishing.
4. Produce a smooth surface which is relatively free of defects with firsthand troweling.
5. Perform additional trowelings by hand after surface has hardened sufficiently.
6. Final trowel when a ringing sound is produced as trowel is moved over surface.
7. Thoroughly consolidate surface by hand troweling.
8. Leave finished surface essentially free of trowel marks, uniform in texture and appearance and plane to a Class A tolerance.
9. On surfaces intended to support floor coverings remove any defects of sufficient magnitude that would show through floor covering by grinding.

F. Broom Finish: Immediately after concrete has received a float finish as specified, give it a transverse scored texture by drawing a broom across surface.

3.3 GROUT

A. Preparation:
1. Nonshrinking, nonmetallic grout:
    a. Clean concrete surface to receive grout.
    b. Saturate concrete with water for 24 HRS prior to grouting.

B. Application:
1. Nonshrinking, nonmetallic grout:
    a. Mix in a mechanical mixer.
    b. Use no more water than necessary to produce flowable grout.
    c. Place in accordance with manufacturer's instructions.
    d. Completely fill all spaces and cavities below the bottom of baseplates.

e. Provide forms where baseplates and bedplates do not confine grout.
f. Where exposed to view, finish grout edges smooth.
g. Except where a slope is indicated on Drawings, finish edges flush at the baseplate, bedplate, member, or piece of equipment.
h. Protect against rapid moisture loss by covering with wet rags or polyethylene sheets.
i. Wet cure grout for seven days, minimum.

3.4 FIELD QUALITY CONTROL

A. Owner will employ and pay for services of a concrete testing laboratory to perform testing of concrete placed during construction.
   1. Contractor to cooperate with Owner in obtaining and testing samples.

B. Tests During Construction:
   1. Strength test:
      a. For each strength test, mold and cure cylinders from each sample in accordance with ASTM C31.
         1) Cylinder size: Per ASTM C31.
            a) 4 IN cylinders may not be used for concrete mixes with concrete aggregate size larger than 1 IN.
         2) Quantity:
            a) 6 IN DIA by 12 IN high: Four cylinders.
            b) 4 IN DIA by 8 IN high: Six cylinders.
      b. Field cure one (1) cylinder for the seven day test.
         1) Laboratory cure the remaining.
      c. Test cylinders in accordance with ASTM C39.
         1) 6 IN DIA cylinders:
            a) Test two cylinders at 28 days for strength test result and the one field cured sample at seven days for information.
            b) Hold remaining cylinder in reserve.
         2) 4 IN DIA cylinders:
            a) Test three cylinders at 28 days for strength test result and the one field cured cylinder at seven days for information.
            b) Hold remaining cylinders in reserve.
      d. Strength test result:
         1) Average of strengths of two 6 IN DIA cylinders or three 4 IN DIA cylinders from the same sample tested at 28 days.
         2) If one cylinder in a test manifests evidence of improper sampling, molding, handling, curing, or testing, discard and test reserve cylinder(s); average strength of remaining cylinders shall be considered strength test result.
         3) Should all cylinders in any test show any of above defects, discard entire test.
      e. Frequency of tests:
         1) All concrete:
            a) One strength test to be taken not less than once a day, nor less than once for each 60 CUYD or fraction thereof placed in any one day.
            b) Once for each 5000 SQFT of slab or wall surface area placed each day.
            c) If total volume of concrete on Project is such that frequency of testing required in above paragraph will provide less than five strength tests for each concrete mix, tests shall then be made from at least five randomly selected batches or from each batch if fewer than five batches are provided.
   2. Slump test:
      a. Per ASTM C143.
      b. Determined for each strength test sample.
      c. Additional slump tests may be taken.
   3. Air content:
      a. Per ASTM C231, ASTM C173, and ASTM C138.
      b. Determined for each strength test sample.

4. Temperature: Determined for each strength test sample.

C. Evaluation of Tests:
   1. Strength test results:
      a. Average of 28-day strength of two cylinders from each sample.
         1) If one cylinder manifests evidence of improper sampling, molding, handling, curing or testing, strength of remaining cylinder will be test result.
         2) If both cylinders show any of above defects, test will be discarded.

D. Acceptance of Concrete:
   1. Strength level of each type of concrete shall be considered satisfactory if both of the following requirements are met:
      a. Average of all sets of three consecutive strength tests equals or exceeds the required specified 28-day compressive strength.
      b. No individual strength test falls below the required specified 28-day compressive strength by more than 500 PSI.
   2. If tests fail to indicate satisfactory strength level, perform additional tests and/or corrective measures as directed by Engineer.
      a. Perform additional tests and/or corrective measures at no additional cost to Owner.

E. Concrete tolerances per ACI 117.

3.5 SCHEDULES

A. Form Types:
   1. Surfaces exposed to view:
      a. Prefabricated or job-built wood forms.
      b. Laid out in a regular and uniform pattern with long dimensions vertical and joints aligned.
      c. Produce finished surfaces free from offsets, ridges, waves, and concave or convex areas.
      d. Construct forms sufficiently tight to prevent leakage of mortar.
   2. Surfaces normally submerged or not normally exposed to view: Wood or steel forms sufficiently tight to prevent leakage of mortar.
   3. Other types of forms may be used:
      a. For surfaces not restricted to plywood or lined forms.
      b. As backing for form lining.

B. Grout:
   1. Nonshrinking, nonmetallic grout: General use.

C. Concrete:
   1. General use normal weight concrete: All locations.

D. Concrete Finishes:
   1. Slab finishes:
      a. Use following finishes as applicable, unless otherwise indicated:
         1) Floated finish: Surfaces intended to receive roofing, concrete topping, lean concrete, concrete fill and waterproofing.
         2) Troweled finish: Interior floor slabs, exposed roof slabs and base slabs of structures, equipment bases, and column bases.
         3) Broom finish: Sidewalks, docks, concrete stairs, and ramps.

END OF SECTION

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DIVISION 10

SPECIALTIES

SECTION 10 14 00
IDENTIFICATION DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Tag, tape and stenciling systems for equipment, piping, valves, pumps, ductwork and similar items.
   2. Hazard and safety signs.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Society of Mechanical Engineers (ASME):
      a. A13.1, Scheme for the Identification of Piping Systems.
   2. The International Society of Automation (ISA).
   3. National Electrical Manufacturers Association/American National Standards Institute (NEMA/ANSI):
      a. Z535.1, Safety Color Code.
      b. Z535.2, Environmental and Facility Safety Signs.
      c. Z535.3, Criteria for Safety Symbols.
      d. Z535.4, Product Safety Signs and Labels.
   4. National Fire Protection Association (NFPA):
      a. 70, National Electrical Code (NEC).
      b. 704, Standard System for the Identification of Hazards of Materials for Emergency Response.
   5. Occupational Safety and Health Administration (OSHA):
      a. 29 CFR 1910.145, Specifications for Accident Prevention Signs and Tags.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Product Technical Data including:
      a. Catalog information for all identification systems.
      b. Acknowledgement that products submitted meet requirements of standards referenced.
   3. Identification register, listing all items in PART 3 of this Section to be identified, type of identification system to be used, lettering, location and color.
   4. Schedule of Hazard and Safety Signage indicating text and graphics.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   1. W.H. Brady Co.
   2. Panduit.
   3. Seton.
   4. National Band and Tag Co.
   5. Carlton Industries, Inc.

B. Submit request for substitution in accordance with Section 01 25 13.

2.2 MANUFACTURED UNITS

A. Type F - Underground Warning Tape:
   1. Materials: Polyethylene.
   2. Size:
      a. 6 IN wide (minimum).
      b. Thickness: 3.5 MILS.
   3. Fabrication:
      a. Legend: Preprinted and permanently imbedded.
      b. Message continuous printed.
      c. Tensile strength: 1,750 PSI.
   4. Color: As specified.

B. Underground Tracer Wire:
   1. Materials:
      a. Wire:
         1) 12 GA AWG.
         2) Solid.
      b. Wire nuts: Waterproof type.
      c. Split bolts: Brass.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION

A. Install identification devices at specified locations.

B. Tracer Wire:
   1. Attach to pipe at a maximum of 10 FT intervals with tape or tie-wraps.
   2. Continuous pass from each valve box and above grade at each structure.
   3. Coil enough wire at each valve box to extend wire a foot above the ground surface.
   4. 1,000 FT maximum spacing between valve boxes.
   5. If split bolts are used for splicing, wrap with electrical tape.
   6. If wire nuts are used for splicing, knot wire at each splice point leaving 6 IN of wire for splicing.
   7. Use continuous strand of wire between valve box where possible:
      a. Continuous length shall be no shorter than 100 FT.

3.2 SCHEDULES

A. Process Systems:
   1. Trenches with piping:
      a. Tag type: Type F - Underground Warning Tape
      b. Location: Halfway between top of piping and finished grade.
      c. Letter height: 1-1/4 IN minimum.
      d. Potable water:
         1) Color: Blue with black letters.
         2) Legend:
            a) First line: “CAUTION CAUTION CAUTION”.
            b) Second line: “BURIED WATER LINE BELOW”.
      e. Storm and sanitary sewer lines:
         1) Color: Green with black letters.
         2) Legend:
            a) First line: “CAUTION CAUTION CAUTION”.
            b) Second line: “BURIED SEWER LINE BELOW”.

END OF SECTION

DIVISION 31

EARTHWORK

SECTION 31 10 00
SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Site clearing, tree protection, stripping topsoil and demolition.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 31 23 00 - Earthwork.
   4. Section 31 25 00 - Soil Erosion and Sediment Control.
   5. Section 32 91 13 - Topsoiling and Finished Grading.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect existing trees and other vegetation to remain against damage:
   1. Do not smother trees by stockpiling construction materials or excavated materials within drip line.
   2. Avoid foot or vehicular traffic or parking of vehicles within drip line.
   3. Provide temporary protection as required.

B. Repair or replace trees and vegetation damaged by construction operations:
   1. Repair to be performed by a qualified tree surgeon/licensed arborist.
   2. Remove trees which cannot be repaired and restored to full-growth status.
   3. Replace with new trees of minimum 4 IN caliper or as required by local tree ordinance.

C. Owner will obtain authority for removal and alteration Work on adjoining property, as applicable.

3.2 SITE CLEARING

A. Topsoil Removal:
   1. Strip topsoil to depths encountered or as specified within the soils report, 4 IN minimum.
      a. Remove heavy growths of grass before stripping.
      b. Stop topsoil stripping sufficient distance from such trees to prevent damage to main root system.
      c. Separate from underlying subsoil or objectionable material.
   2. Stockpile topsoil where directed by Engineer:
      a. Construct storage piles to freely drain surface water.
      b. Seed or cover storage piles to prevent erosion.
   3. Do not strip topsoil in wooded areas where no change in grade occurs.
   4. Borrow topsoil: Reasonably free of subsoil, objects over 2 IN DIA, weeds and roots.

B. Clearing and Grubbing:
   1. Clear from within limits of construction all trees not marked to remain.
      a. Include shrubs, brush, downed timber, rotten wood, heavy growth of grass and weeds, vines, rubbish, structures and debris.
   2. Grub (remove) from within limits of construction all stumps, roots, root mats, logs and debris encountered.

C. Disposal of Waste Materials:
   1. Do not burn combustible materials on site.
   2. Remove all waste materials from site.
   3. Do not bury organic matter on site.

END OF SECTION

SECTION 31 23 00
EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Earthwork.
   2. Excavation, trenching, backfilling, and compacting for all underground utilities.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 03 00 05 - Concrete.
   4. Section 32 11 23 - Granular Paving
   5. Section 31 25 00 - Soil Erosion and Sediment Control
   6. Section 32 91 13 - Topsoiling and Finished Grading.
   7. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. C33, Standard Specifications for Concrete Aggregates.
      b. D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3).
      c. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
      d. D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
      e. D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
      f. D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
      g. D6241, Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-MM Probe.
   2. American Association of State Highway and Transportation Officials Standard Method of Test (AASHTO):
      a. T104, Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate Test.
   3. State of Kansas Department of Transportation (KDOT):
      a. Standard Specifications for Highway Construction.
   4. State of Missouri Department of Transportation (MoDOT):
      a. Standard Specifications for Highway Construction.

B. Qualifications:
   1. Testing and inspection performed by an independent soils testing agency to assure that all work complies with this Section shall be supervised by a Professional Engineer licensed in the State where the Work is performed.

1.3 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Product Technical Data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.

3. Submit to Engineer for approval the name, location, and qualifications of the independent soils testing agency selected and hired by Contractor for compaction testing and soils inspection:
    a. Include the name and qualifications of the supervising Professional Engineer to be designated the Soils Engineer.
4. Submit sieve analysis reports on all granular materials:
    a. Analysis shall include the source location and material description.
    b. Analysis shall have been performed within 12 months of submittal.
5. Submit respective pipe or conduit manufacturer's data regarding bedding methods of installation and general recommendations.

B. Informational Submittals:
1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
2. Submit soils inspection and testing results:
    a. In-place moisture-density soil test reports. Fully document each with specific location or stationing information, lift or approximate elevation, and date, and other pertinent information.
    b. Inspection records of subgrade and compaction. Fully document each with specific location or stationing information, lift or approximate elevation, and date, and other pertinent information.

1.4 SITE CONDITIONS

A. Provide full access to public and private premises and fire hydrants, at street crossings, sidewalks and other points as designated by Owner to prevent interruption of facility operations or travel.
B. Protect and maintain bench marks, monuments or other established points and reference points:
1. If disturbed or destroyed, replace items to full satisfaction of Owner and controlling agency

C. Verify location of existing underground utilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Material properties for compaction:
1. Cohesionless materials include gravels, gravel-sand mixtures, sands and gravelly sands exclusive of clayey and silty material; materials which are free-draining and for which impact compaction will not produce a well-defined moisture-density relationship curve and for which the maximum density by impact methods will generally be less than by vibratory methods.
2. Cohesive materials include materials for which impact compaction will produce a well-defined moisture-density relationship curve, and include silts and clays.

B. Waste Materials:
1. Includes excess suitable material and material unsuitable for use in the Work.
2. Remove from Work area as excavated.
3. Keep excess suitable material segregated from other waste material.

C. Borrow Materials:
1. Refers to all fill, backfill and embankment material obtained from approved locations on or off the Work Site.
2. Borrow shall include all excavating, handling and final disposal of material as specified.
3. Material removed from borrow area(s) shall be approved by the Engineer.

D. Granular Fill Material:
1. Material shall be crushed limestone or crushed natural gravel with the following gradation:

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
1 IN	100
1/2 IN	60 to 90
No. 4	40 to 60
No. 10	15 to 35
No. 200	0 to 15

a. MoDOT Type 5.
b. KDOT AB-3.
2. Material shall not have a loss of more than 15 PCT after five cycles when tested for soundness with sodium sulfate as described in AASHTO T104.
3. Use:
a. Sub-base under road pavements.
b. Under slabs on grade.
c. To correct over excavation in trenches.
d. As shown on the Drawings.

E. Granular Drainage Fill:
1. Material shall be crushed limestone or crushed natural gravel with the following gradation:

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
1 IN	100
3/4 IN	50 to 100
1/2 IN	0 to 15
No. 10	0 to 4

2. Material shall not have a loss of more than 15 PCT after five cycles when tested for soundness with sodium sulfate as described in AASHTO T104.
3. Use:
a. Under slabs and mats where pressure relief valves or perforated drains are used for groundwater control.
b. At base of walls where perforated drains are shown.
c. Under electrical equipment pads, handholes, and manholes.
d. As shown on the Drawings.

F. Granular Bedding:
1. Material shall be crushed limestone or crushed natural gravel conforming to ASTM C33, gradation 67 (3/4 IN to No. 4 sieve) with the following gradation:

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
1 IN	100
3/4 IN	90 to 100
3/8 IN	20 to 55
No. 4	0 to 10
No. 200	0

2. Material shall not have a loss of more than 15 PCT after five cycles when tested for soundness with sodium sulfate as described in AASHTO T104.
3. Use:
a. As pipe bedding.
b. As shown on the Drawings.

G. Granular Pavement:
1. Material shall be crushed limestone with the following gradation:

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
1 IN	100
1/2 IN	55 to 90
No. 4	25 to 65
No. 10	0 to 15
No. 200	0 to 4

a. MoDOT Type 4, crushed stone.
b. KDOT SS-3.

2. Material shall not have a loss of more than 15 PCT after five cycles when tested for soundness with sodium sulfate as described in AASHTO T104.
3. Use:
   a. Roadway granular pavements.
   b. As shown on the Drawings.

H. Base Stabilization Rock:
1. Crusher run limestone, 4 IN maximum size.
2. Use:
   a. As shown on the Drawings.

I. Fill, Backfill, Select Backfill, and Embankment Material:
1. Fill Material includes suitable approved materials from excavations and borrow area(s):
   a. Shall be friable sandy or silty clay containing fine material sufficient to provide a dense mass free of voids and capable of satisfactory compaction.
   b. Shall be free of roots or other organic matter, refuse, cinders, ice, snow, frozen earth, or other unsuitable matter.
2. Do not use material containing cobbles, stones, or shale particles greater in dimension than one-half the depth of the layer to be compacted:
   a. Larger rocks may be incorporated in lower lifts of fill and embankments at locations specifically directed by Engineer.
3. Select Backfill shall be Fill Material that is free of cobbles, stones, and shale.

J. Lean Concrete, Mud Mat, or Flowable Fill:
1. Comply with Section 03 00 05.

K. Geotextile Filter Fabric:
1. Nonwoven polypropylene fabric.
2. Nonbiodegradable, and resistant to the chemical actions of water and the soil.
3. Not less than 4 OZ/SY.
4. Equivalent opening size: 50 to 100 (U.S. Standard Sieve).
5. Water flow rate: 120 GPM/SQFT minimum in accordance with ASTM D4491 test method.
6. Grab strength: 90 LBS minimum in either direction in accordance with ASTM D4632 test method.
7. Puncture strength: 250 LBS minimum in accordance with ASTM D6241 test method
8. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   a. Mirafi 140N by TenCate Geosynthetics America.
   b. Contech C-45NW by Contech Engineered Solutions LLC.
   c. ADS Geosynthetics 0451T by Advanced Drainage Systems, Inc.
9. Submit request for substitution in accordance with Section 01 25 13.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect existing surface and subsurface features on-Site and adjacent to Site as follows:
1. Adequately protect from damage all existing utilities, structures and property and remove or relocate only as indicated, specified or as directed by the Engineer.
2. Protect and maintain bench marks, monuments or other established reference points and property corners:
   a. If disturbed or destroyed, replace at own expense to full satisfaction of Owner and controlling agency.

3. Verify location of utilities:
    a. Omission or inclusion of utility items does not constitute non-existence or definite location.
    b. Secure and examine local utility records for location data.
    c. Take necessary precautions to protect existing utilities from damage due to any construction activity.
    d. Repair damages to utility items at own expense.
    e. In case of damage, notify Engineer at once so required protective measures may be taken.
4. Report inactive and abandoned utilities encountered in excavating and grading operations. Remove, plug, or cap as directed.
5. Maintain free of damage existing facilities, sidewalks, structures, and pavement that are not indicated to be removed:
    a. Any existing structure or facility that is inadvertently damaged, whether or not shown or fully located on the Plans, shall be repaired to original condition.
    b. All repairs shall be made and paid for by Contractor.
6. Confine operations to that area provided through easements, licenses, agreements and rights-of-way:
    a. The Contractor's entrance upon any lands outside of that area provided by easements, licenses, agreements or public rights-of-way, shall be at the Contractor's sole liability.
7. Provide full access to public and private premises, fire hydrants, street crossings, sidewalks and other points as designated by Owner.
8. Avoid surcharge or excavation procedures which can result in heaving, caving, or slides.

B. Salvageable Items: Carefully remove items to be salvaged to Owner, and store on Owner's designated premises unless otherwise directed.

C. Unsuitable and waste materials:
1. Dispose of excess, unsuitable, and waste material in a legal manner off site:
    a. Place waste material on Site only as directed by the Engineer.
2. Grade waste areas to drain and leave them with an orderly and neat appearance.

3.2 GENERAL REQUIREMENTS FOR EXCAVATION, FILLING, BACKFILLING, GRADING, AND TRENCHING

A. Materials Classification:
1. All materials encountered, regardless of type, character, composition, or condition thereof, shall be unclassified.
2. Excavation shall include all materials found within designated or required limits of excavation:
    a. Remove rock, if encountered, at no extra cost to Owner.

B. Excavation and Grading:
1. Perform as required by the Contract Drawings.
2. Contract Drawings may indicate both existing grade and finished grade required for construction of Project:
    a. Stake all units, structures, piping, roads, parking areas and walks and establish their elevations.
    b. Perform other layout Work required.
    c. Replace property corner markers to original location if disturbed or destroyed.
3. Protection of finish grade:
    a. During construction, shape and drain embankment and excavations.
    b. Maintain ditches and drains to provide drainage at all times.
    c. Protect graded areas against action of elements prior to acceptance of Work.
    d. Re-establish grade where settlement or erosion occurs.

C. Borrow:
1. Provide necessary amount of borrow material to construct all fill, backfill, and embankment compacted to the density required in this Section.

2. Include cost of all borrow material in Bid Price.
3. Obtain fill and backfill material necessary to produce grades required:
    a. Obtain off-site material if insufficient suitable material is available on Site.
    b. Suitability of borrow materials and source shall be recommended by Soils Engineer for approval by Engineer.
    c. Suitable excavated material approved by Engineer may also be used for fill and backfill.
4. Grade borrow areas to drain and to maintain an orderly and neat appearance.

D. Filling and Backfilling:
1. Construct embankments and fills as shown by the Contract Drawings, at locations and to lines of grade indicated.
2. Completed fill shall correspond to shape of typical cross section or contour indicated regardless of method used to show shape, size, and extent of line and grade of completed Work.
3. Provide approved Fill Material which is free from roots, organic matter, trash, frozen material, and stones having maximum dimension greater than 6 IN:
    a. Exclude rocks larger than 4 IN from the upper 2 FT of fill or embankment.
    b. Place material in layers not exceeding 8 IN loose thickness.
    c. Place layers horizontally and compact each layer prior to placing additional fill.
    d. When rocks larger than 6 IN are present, they shall be scattered and thoroughly consolidated with sufficient compacted soil to completely fill all voids between the rocks.
4. Compact fill material using sheepsfoot rollers, pneumatic rollers, vibrators, or other equipment as required to obtain specified density.

E. Rock Excavation:
1. Remove rock, if encountered, to the following limits unless shown otherwise on the Contract Drawings:
    a. For structures: 3 FT outside the exterior limits of foundations and vertically from rock surface to 6 IN below bottom of foundations.
    b. For piping and utilities: A width 18 IN wider than the outside diameter of the pipe or conduit and from rock surface to 6 IN below bottom exterior surface of the pipe or conduit.
    c. For paving: 2 FT outside the exterior limits of paving and from rock surface to 6 IN below bottom of pavement subbase.

F. Use of Explosives:
1. Blasting with any type of explosives is prohibited.

G. Dewatering:
1. Control grading around excavations to prevent surface water from flowing into excavation.
2. Review available soils information before beginning excavation and determine where groundwater is likely to be encountered during excavation.
3. Drain or pump surface and groundwater as required to continually maintain all excavations and trenches free of water or mud:
    a. Commence when water first appears and continue until Work is complete to the extent that no damage will result from the presence of water.
    b. Water control measures shall be sufficient to prevent softening and disturbance of subgrade, allow subgrade stabilization, allow base material and bedding to be placed in the dry, and to maintain stable excavation slopes or walls:
        1) Review Site conditions and subsurface data before beginning excavation and determine where groundwater could be encountered during excavation.
        2) Pumped ground water dewatering systems shall maintain groundwater at least 3 FT below the bottom of any excavation.
        3) Employ dewatering specialist for selecting and operating pumped dewatering system.

c. Keep dewatering system in operation until dead load of pipe, structure and backfill exceeds possible buoyant uplift force on pipe or structure.
d. For structures with pressure relief valves and for excavations connected to other locations by drains or gravel bedding, maintain dewatering measures until all internal and related Work is complete.

4. Use pumps of adequate capacity to ensure rapid drainage.
5. Construct and use drainage channels and subdrains as required.
6. Discharge to approved drains or channels:
   a. Contractor shall obtain State or local permits for discharge if such are required.
   b. Water discharged to streams shall be free of silt and other objectionable materials.
   c. Discharge water so that the Work in progress and other properties are not damaged.
   d. Do not interfere unduly with the use of streets, alleys, private drives, or entrances.
7. Remove unsuitable excessively wet material and replace with approved material.
8. Cost of surface water control, groundwater control, and dewatering shall be included in Lump Sum Price for Work or in Unit Prices for excavation if shown in Bid Form:
   a. Perform dewatering, if required, at no extra cost to Owner.

H. Stockpiling:
1. Avoid overloading or surcharging by placing excavated material a sufficient distance from edge of excavation.
2. Maintain and trim excavated materials to prevent inconvenience or damage to structures on-Site or on adjoining property.
3. Do not obstruct drainage patterns.

I. Excavation Support:
1. Support excavations and slopes using sheeting, bracing, or other means as necessary to:
   a. Protect life and property.
   b. Conform to Federal, State and local regulations.
   c. Avoid excessively wide cuts in unstable material.
   d. Protect existing structures and facilities from soil movement.
2. Plan layout of excavation operations to protect adjacent property and existing structures and facilities.
3. Take precautions against movement or settlement of existing structures:
   a. Establish and record elevations of existing facilities near excavations before excavating.
   b. Remove sheeting and bracing in a manner that does not create voids or induce settlement of adjacent soil.
4. If existing or adjacent structures show structural distress, or become endangered by any condition or event, cease operations immediately and notify Engineer:
   a. Do not resume operations prior to correction or modification of procedures leading to the unstable condition.
5. Remove shoring after progression of fill or backfill is sufficient to maintain stability.

3.3 FIELD QUALITY CONTROL

A. Include in Bid Price the cost of soils testing and inspection services indicated herein as being performed by the Soils Engineer.

B. An acceptable independent soils testing agency shall be selected and paid for by the Contractor to perform all laboratory and field soil testing necessary to demonstrate compliance with compaction requirements and to inspect subgrade and soil materials:
1. Moisture density relationships shall be established by the Soils Engineer for all materials to be compacted.
2. Soils Engineer shall record observations made of subgrade condition, compaction, and proofrolling.

C. The soil density testing frequency shall be as follows:

TEST LOCATION	COMPACTION DENSITY TEST FREQUENCY
Compacted subgrade:	One test representative of each 500 SQYD of subgrade.
Sitework embankments and fills:	One test representative of each 2,000 CUYD of fill.
Structural fill and backfill:	One test representative of each 100 CUYD of fill.
Trench bedding material:	One test at each 500 LF interval along the line.
Trench select backfill:	One test at each 500 LF interval along the line.
Common trench backfill within street right-of-way, or under drives or parking lots	One test representative of each 3 FT of trench depth representative of each 500 LF interval along the line. Concentrate tests at cross streets and drives.
Common trench backfill under turfed, sodded, plant seeded, and non-traffic areas:	One test representative of each 3 FT of trench depth at each 1,000 LF interval along the line.

D. Compaction of cohesionless soils with insufficient fines to perform ASTM D698 density testing:
   1. Three passes of approved vibratory compaction equipment over each 8 IN lift of cohesionless granular material may be substituted for test conforming to ASTM D4254 - Testing of Cohesionless Material if approved in writing by Engineer. All passes of compaction equipment shall be continuously observed by Soils Engineer.

E. Give minimum of 24 HR advance notice to Soils Engineer when ready for compaction or subgrade testing and inspection.

F. Should any compaction density test or subgrade inspection fail to meet Specifications requirements, perform corrective Work as necessary.

G. Pay for all costs associated with corrective Work and retesting resulting from failing compaction density tests.

3.4 COMPACTION DENSITY REQUIREMENTS

A. Obtain recommendation from Soils Engineer with regard to suitability of soils and acceptable subgrade prior to subsequent operations.

B. Control surface water and provide dewatering system necessary to successfully complete compaction and construction requirements.

C. Remove frozen, loose, wet, or soft material and replace with approved material as directed by Engineer.

D. Stabilize subgrade with granular materials as directed by Engineer.

E. Compact granular and cohesionless material with vibratory equipment. Do not use water.

F. Assure by results of testing that compaction densities comply with the following requirements:
   1. Site Work:

LOCATION	COMPACTION DENSITY
Under Paved Areas, Sidewalks and Piping:	
Cohesive soils	95 PCT per ASTM D698 with moisture content within ±3 PCT of optimum.
Cohesionless soils	75 PCT relative density per ASTM D4253 and ASTM D4254
Unpaved, Non-Traffic Areas:	
Cohesive soils	90 PCT of ASTM D698 with moisture content within ±3 PCT of optimum.
Cohesionless soils	75 PCT relative density per ASTM D4253 and ASTM D4254

2. Structural fill and backfill:

LOCATION	COMPACTION DENSITY
Inside of structures, under foundations, under equipment support pads, under slabs-on-grade and scarified existing subgrade under structural fill.	95 PCT per ASTM D698 with moisture content within ±3 PCT of optimum.
Outside structures next to walls, piers, columns and any other structural exterior member	95 PCT per ASTM D698 with moisture content within ±3 PCT of optimum.
Outside structures under equipment support foundations, piping, or paving	95 PCT per ASTM D698 with moisture content within ±3 PCT of optimum.
Under void	90 PCT per ASTM D698 with moisture content within ±3 PCT of optimum.
Granular Fill Material used for any location described in this table.	75 PCT relative density per ASTM D4253 and ASTM D4254
Granular Drainage Material under base slabs with pressure relief valves, and under building floor slabs-on-grade	75 PCT relative density per ASTM D4253 and ASTM D4254

3. Trenches:
   a. Bedding material:

LOCATION	SOIL TYPE	COMPACTION DENSITY
All locations	Granular material	75 PCT of maximum relative density by ASTM D4253 and ASTM D4254

   b. Select backfill:

LOCATION	SOIL TYPE	COMPACTION DENSITY
All applicable areas	Cohesive soils	95 PCT of maximum dry density by ASTM D698 with moisture content within ±3 PCT of optimum.
	Cohesionless soils	75 PCT of maximum relative density by ASTM D4253 and ASTM D4254

   c. Common trench backfill:

LOCATION	SOIL TYPE	COMPACTION DENSITY
Under pavements, roadways, and surfaces within highway right-of-ways	Cohesive soils	95 PCT of maximum dry density by ASTM D698 with moisture content within ±3 PCT of optimum.
	Cohesionless soils	75 PCT of relative density by ASTM D4253 and ASTM D4254
Under turfed, sodded, plant seeded, non-traffic areas	Cohesive soils	85 PCT of maximum dry density by ASTM D698 with moisture content within ±3 PCT of optimum.
	Cohesionless soils	40 PCT of relative density by ASTM D4253 and ASTM D4254

3.5 SITE EXCAVATION AND GRADING

A. Excavation and Grading:
   1. Perform as required by the Contract Drawings.
      a. Contract Drawings may indicate both existing grade and finished grade required for construction of Project:
         1) Stake all units, structures, piping, roads, parking areas and walks and establish their elevations.
         2) Perform other layout Work required.
         3) Replace property corner markers to original location if disturbed or destroyed.
   2. Protection of finish grade:
      a. During construction, shape and drain embankment and excavations.
      b. Maintain ditches and drains to provide drainage at all times.
      c. Protect graded areas against action of elements prior to acceptance of Work.
      d. Reestablish grade where settlement or erosion occurs.

B. Subgrade Preparation:
   1. Prepare ground surface for embankments or fills:
      a. Before fill is started, disc or scarify to a minimum depth of 6 IN in all embankment and fill areas. Recompact with first lift of embankment.
      b. Plow sloped surface to bench and break up surface so that fill material will bind with existing surface:
         1) Where ground surface is steeper than one vertical to four horizontal, bench with horizontal planes.
      c. Perform all wetting, drying, stabilization, shaping, and compacting required to prepare an acceptable subgrade.
      d. Extend subgrade to full width of surfaced area or surface improvement plus 1 FT.
      e. Compact top 6 IN of subgrades to meet specified compaction densities for Site Work.
   2. Frost Protection:
      a. Do not place Site Work, fill, embankments, or foundations on frozen ground.
      b. When freezing temperatures may be expected, do not excavate to full depth indicated unless fill or foundations can be placed and completed immediately after the excavation has been completed and approved.
      c. Protect subgrade from freezing if placement of fill or foundation is delayed.
   3. Subgrade Stabilization:
      a. Remove all unsuitable material, including but not limited to material in a frozen, loose, wet, soft, or disturbed condition, and replace with approved fill material as directed by Engineer.
      b. Where a stone mat of base stabilization rock or granular drainage material is indicated, or is approved by Engineer for stabilization of loose, soft, or wet materials, Work and compact stone material into subgrade so that voids in stone are filled.
      c. Do not place further construction on repaired or stabilized subgrades until subgrade compaction has been tested and subgrades have been approved by Engineer.

4. Proofrolling:
    a. Proofroll subgrade for Site Work and embankments after moisture conditioning and compaction to identify soft or disturbed areas:
        1) Use a fully loaded tandem dump truck or equipment providing an equivalent loading for proofrolling.
        2) Perform in presence of Soils Engineer.
    b. Undercut and replace soft areas identified by proofrolling with fill or granular fill material if so directed by Engineer.

C. Construct embankments and fills as required by the Contract Drawings:
1. Construct embankments and fills at locations and to lines of grade indicated:
    a. Completed fill shall correspond to shape of typical cross section or contour indicated regardless of method used to show shape, size, and extent of line and grade of completed Work.
    b. Provide approved fill material which is free from roots, organic matter, trash, frozen material, and stones having maximum dimension greater than 6 IN:
        1) Ensure that stones larger than 4 IN are not placed in upper 6 IN of fill or embankment.
        2) Do not place material in layers greater than 8 IN loose thickness.
        3) Place layers horizontally and compact each layer prior to placing additional fill.
    c. Compact by sheepsfoot, pneumatic rollers, vibrators, or by other equipment as required to obtain specified density:
        1) Control moisture for each layer necessary to meet requirements of compaction.

3.6 EXCAVATION, FILLING, AND BACKFILLING FOR STRUCTURES

A. General:
1. In general, earthwork for structures includes, but is not necessarily limited to, excavation for foundations for structures and retaining walls, removal of underground obstructions and undesirable material, backfilling, filling, and compaction:
    a. Foundations include footings, base slabs, slabs-on-grade, foundation walls, mat foundations, grade beams, piers and any other support placed directly on soil.
2. Conform to requirements in this Section for Site excavation and grading, including subgrade preparation and control of materials.

B. Excavation Requirements for Structures:
1. General:
    a. Do not commence excavation for foundations for structures until:
        1) Topsoil and other unsuitable and undesirable material have been removed from existing subgrade.
        2) Compacted density and moisture content of structural fill material under foundations meets requirements of Specifications.
2. Dimensions:
    a. Excavate to elevations and dimensions indicated or specified.
    b. Make excavations large enough for working space, forms, coating and waterproofing application, and inspection.
3. Removal of obstructions and undesirable materials in excavation includes, but is not necessarily limited to, removal of old foundations, existing construction, unsuitable subgrade soils, expansive type soils, and any other materials which may be concealed beneath present grade, as required to execute Work indicated on Contract Drawings:
    a. If undesirable material and obstructions are encountered during excavation, remove material and replace as directed by Engineer.
4. Level off bottoms of excavations to receive foundations, floor slabs, equipment support pads, or compacted fill:
    a. Remove loose materials and bring excavations into approved condition to receive concrete or fill material:
        1) Minimize construction traffic on native soils and saturated soils to avoid soil disturbance.

b. Where compacted fill material must be placed to bring subgrade elevation up to underside of construction, follow all requirements for subgrade preparation.
c. Do not carry excavations lower than shown for foundations except as directed by Engineer.
d. If any part of excavations is carried below required depth without authorization, maintain excavation and start foundation from excavated level with concrete of same strength as required for superimposed foundation without additional cost to Owner.

5. Notify Soils Engineer and Engineer as soon as excavation is completed in order that subgrades may be inspected:
   a. Do not commence further construction until subgrade under compacted fill material, under foundations, under floor slabs-on-grade, under equipment support pads, and under retaining wall footings has been inspected by the Soils Engineer and approved by Engineer as being free of undesirable material, being of compaction density required by this specification, and being capable of supporting the allowable foundation design bearing pressures and superimposed foundation, fill, and building loads to be placed thereon.
   b. Soils Engineer shall be given the opportunity to inspect subgrade below fill material both prior to and after subgrade compaction.
   c. Protect approved subgrade from becoming loose, wet, frozen, or soft due to weather, construction operations, or other reasons.
   d. Place fill material, foundations, retaining wall footings, floor slabs-on-grade, and equipment support pads as soon as weather conditions permit after excavation is completed, inspected, and approved and after forms and reinforcing are inspected and approved.
6. Subgrade stabilization:
   a. If subgrade under foundations, fill material, floor slabs-on-grade, or equipment support pads is in a frozen, loose, wet, or soft condition before construction is placed thereon, remove frozen, loose, wet, or soft material and replace with approved compacted material as recommended by Soils Engineer and directed by Engineer.
   b. Remove and replace frozen materials as recommended by Soils Engineer and directed by Engineer.
   c. Loose, wet, or soft materials may be stabilized by a compacted working mat of Base Stabilization Rock where shown on the Drawings and approved by Engineer based on materials encountered:
      1) Compact stone mat thoroughly into subgrade to avoid future migration of fines into the stone voids.
   d. Where concrete mud mat is shown on the Drawings for foundation, place concrete without damaging or disturbing subgrade.
   e. Subgrade stabilization with geogrid:
      1) Use where shown on the Drawings or as directed by Engineer.
      2) Work from edge of soft areas by installing geogrid and granular material and progressing out over undisturbed subgrade.
   f. Do not place further construction on repaired or stabilized subgrades until the subgrades have been approved by Engineer.
7. Frost protection of subgrade for foundations:
   a. Do not place foundations, slabs-on-grade, equipment support pads, or fill material on frozen ground.
   b. When freezing temperatures may be expected, do not excavate to full depth indicated, unless foundations, floor slabs, equipment support pads, or fill material can be placed immediately after excavation has been completed and approved.
   c. Protect excavation from frost if placing of concrete or fill is delayed.
   d. Protect subgrade under concrete slab-on-grade and mats from becoming frozen until approved by Engineer.
8. Geotextile filter fabric:
   a. Lap filter fabric 12 IN at splices.
   b. Cover punctures and tears with an additional layer of fabric lapped 12 IN all around.

c. Do not puncture fabric with grade stakes or other items.
d. Spread fill material over the filter fabric in the direction of the lap splices.

C. Fill and Backfill below Foundations:
1. Where fill material is required below foundations, place structural fill material, conforming to the required density and moisture content, to a horizontal distance beyond the outer edge or perimeter of foundations that are no less than:
a. 5 FT
b. Distance equal to depth of compacted fill below bottom of foundations.
c. As required to provide fill material to indicated finished grade.
d. Or as directed by Engineer.

D. Filling and Backfilling at Structures:
1. Place backfill adjacent to structures and foundations only after a sufficient portion of the structure has been completed to resist the imposed soil load:
a. Obtain approval of Engineer for backfill against any partially completed structure.
2. Fill and backfill placement:
a. Compact material with equipment of proper type and size to obtain density specified.
b. Do not place fill or backfill material when temperature is less than 40 DEGF and when subgrade to receive material is frozen, wet, loose, or soft.
c. Backfill within 1 FT of structure shall be free of gravel, rock or shale particles larger than 4 IN.
d. Where structural excavation has been through rock, backfill with compacted granular material to top of rock formation, unless indicated otherwise on the Drawings:
1) Where entire excavation is in rock, terminate granular backfill 2 FT below finished grade.
2) Place geotextile filter fabric over granular backfill and continue backfill to finish grade with suitable approved material.
3. Backfilling against walls:
a. Do not backfill around any part of structures until each part has reached specified 28-day compressive strength.
b. Do not start backfilling until concrete forms have been removed, trash removed from excavations, pointing of masonry Work, concrete finishing, dampproofing and waterproofing have been completed.
c. Do not place fills against walls until floor slabs at top, bottom, and at intermediate levels of walls are in place and have reached 28-day required compressive strength to prevent wall movement.
d. Use only equipment weighing less than 3,000 LBS for filling and backfilling within 10 FT of walls and retaining walls:
1) Use hand or remote operated equipment to avoid damage to walls.
e. Bring backfill and fill up uniformly around the structures and individual walls, piers, or columns.

E. Backfilling Outside of Structures under Piping or Paving:
1. When backfilling outside of structures requires placing backfill material under piping or paving, the material shall be placed from bottom of excavation to trench or paving subgrade at the density required for structural fill.
2. Compacted structural fill shall be placed to horizontal extents from the centerline of piping or paving to a distance each side of the exterior edges of piping or paving equal to the depth of backfill measured from bottom of excavation to underside of piping or paving.
3. Provide compacted bedding or compacted subgrade material under piping or paving as indicated.

3.7 TRENCHING, BACKFILLING, AND COMPACTING FOR UTILITIES

A. General:
1. Unclassified Excavation:
a. Excavate all materials encountered to lines and grades required for utilities.

2. Perform trenching and utility installation in accordance with general requirements for excavation, filling, backfilling, grading, and trenching.

B. Excavation for Appurtenances:
   1. 12 IN (minimum) clear distance between outer surface and embankment.

C. Trench Excavation:
   1. Excavate trenches by open cut method to depth shown on the Drawings and necessary to accommodate Work:
      a. Support existing utility lines and piping where proposed work crosses at a lower elevation:
         1) Stabilize excavation to prevent undermining of existing utility and piping.
   2. Open trench outside buildings, units, and structures:
      a. No more than the distance between two manholes, structures, units, or 300 LF, whichever is less.
      b. Reduce distance as weather conditions dictate.
      c. Conform to local codes and regulations.
   3. Trenching within buildings, units, or structures:
      a. No more than 100 LF at any one time.
   4. Any trench or portion of trench, which is opened and remains idle for seven calendar days, or longer, as determined by the Owner, may be directed to be immediately refilled, without completion of Work, at no additional cost to Owner:
      a. Said trench may not be reopened until Owner is satisfied that Work associated with trench will be prosecuted with dispatch.
   5. Observe following trenching criteria:
      a. Trench size:
         1) Excavate width to accommodate free working space.
         2) Maximum trench width at top of pipe or conduit may not exceed outside diameter of utility service by more than the following dimensions:

OVERALL DIAMETER OF UTILITY SERVICE	EXCESS DIMENSION
33 IN and less	18 IN
more than 33 IN	24 IN

         3) Cut trench walls vertically from bottom of trench to 1 FT above top of pipe, conduit, or utility service.
         4) Keep trenches free of surface water runoff:
            a) Include cost in Bid.
            b) No separate payment for surface water runoff pumping will be made.
      b. Cut trenches for electrical runs with minimum 30 IN cover, unless otherwise specified or shown on the Drawings.
   6. Erect barriers or other appropriate protection to prohibit accidental or unauthorized entry of persons into trenches.

D. Preparation of Trench Bottom:
   1. Over-Excavation:
      a. Backfill and compact to 90 PCT of maximum dry density per ASTM D698.
      b. Backfill with granular bedding material as option.
   2. Rock Excavation:
      a. Excavate minimum of 6 IN below bottom exterior surface of the pipe or conduit.
      b. Backfill to grade with suitable earth or granular material.
      c. Form bell holes in trench bottom.
   3. Subgrade Stabilization:
      a. Stabilize the subgrade when directed by the Engineer.
      b. Observe the following requirements when unstable trench bottom materials are encountered:
         1) Notify Engineer and soils engineer when unstable materials are encountered:

a) Report extent of unstable condition using station numbers.

2) Remove unstable trench bottom caused by Contractor failure to dewater, rainfall, or Contractor operations:

a) Replace with subgrade stabilization with no additional compensation.

E. Backfilling Methods:

1. Do not backfill until tests to be performed on piping system show system is in full compliance to specified requirements.
2. Carefully Compacted Backfill:
   a. Furnish where indicated on the Drawings, for all pipe bedding, and for compacted backfill up to 12 IN above top of pipe or conduit.
   b. Comply with the following:
      1) Place backfill in lifts not exceeding 8 IN (loose thickness).
      2) Hand place, shovel slice, and vibrate all carefully compacted backfill.
      3) Observe specific pipe or conduit manufacturer's recommendations regarding backfilling and compaction.
      4) Compact each lift to specified requirements.
3. Common Trench Backfill:
   a. Perform in accordance with the following:
      1) Conform to compaction density requirements for location.
      2) Avoid displacing joints and appurtenances or causing any horizontal or vertical misalignment, separation, or distortion.
4. Water flushing for consolidation is not permitted.
5. Trench checks:
   a. At intervals not to exceed 400 FT, or closer if so indicated, provide trench bedding cut-off wall 5 FT in length constructed of select impermeable material hand-placed and compacted around pipe.
   b. Construct concrete or flowable fill concrete trench checks where shown on plan:
      1) Place concrete against undisturbed trench walls and subgrade.
6. Backfilling for Electrical Installations:
   a. Place backfill in immediate vicinity of direct burial cable as shown on the Drawings.

3.8 MAINTENANCE AND REPAIR

A. Maintenance:

1. Protect newly graded areas from actions of the elements.
2. Settling or erosion shall be filled, repaired and grades reestablished to elevations and slopes indicated.

B. Correction of Settlement:

1. Settlement of embankments, backfill, or trenches occurring within 1 YR after Final Acceptance shall indicate defective Work and shall be promptly corrected if the settlement results in the following:
   a. Visible depressions, ruts, or ground slumping.
   b. Pooling of water where positive slope existed or was required.
   c. Voids beneath or beside slabs or structures.
   d. Movement of soil exposing unfinished or waterproofed structure surfaces.
   e. Movement of structures or facilities, including but not limited to foundation settlement, differential settlement, cracking, misalignment of adjacent objects, or movement of vertical elements out of plumb.
2. Contractor shall correct settlement and damages arising from or attributable to the settlement.
3. Make repairs within 10 days from and after due notification by Owner of embankment or backfill settlement and resulting damage.
4. Make own arrangements for access to the Site for purposes of correction and maintenance of corrected areas.

END OF SECTION

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SECTION 31 25 00
SOIL EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Soil erosion and sediment control.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. Erosion control standards: Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas by the United Sates Department of Agriculture (USDA), Soil Conservation Service, College Park, Maryland.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Straw bales, twine tied.

B. Pipe Riser and Barrel: 16 GA corrugated metal pipe (CMP) of size indicated.

C. Stone for Stone Filter: 2 IN graded gravel or crushed stone.

D. Grass Seed: Annual ryegrass.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to General Stripping Topsoil and Excavating:
   1. Install perimeter dikes and swales.
   2. Excavate and shape sediment basins and traps.
   3. Construct pipe spillways and install stone filter where required.
   4. Machine compact all berms, dikes and embankments for basins and traps.
   5. Install straw bales where indicated:
      a. Provide two stakes per bale.
      b. First stake angled toward previously installed bale to keep ends tight against each other.

B. Construct sediment traps where indicated on the Drawings during rough grading as grading progresses.

C. Temporarily seed basin slopes and topsoil stockpiles:
   1. Rate: 1/2 LB/1,000 SQFT.
   2. Reseed as required until good stand of grass is achieved.

3.2 DURING CONSTRUCTION PERIOD

A. Maintain Basins, Dikes, Traps, Stone Filters, Straw Bales, etc.:
   1. Inspect regularly especially after rainstorms.
   2. Repair or replace damaged or missing items.

B. After rough grading, sow temporary grass cover over all exposed earth areas not draining into sediment basin or trap.

C. Construct inlets as soon as possible:
   1. Excavate and tightly secure straw bales completely around inlets as detailed on the Drawings.

D. Provide necessary swales and dikes to direct all water towards and into sediment basins and traps.

E. Do not disturb existing vegetation (grass and trees).

F. Excavate sediment out of basins and traps when capacity has been reduced by 50 PCT:
   1. Remove sediment from behind bales to prevent overtopping.

G. Topsoil and Fine Grade Slopes and Swales, etc.: Seed and mulch as soon as areas become ready.

3.3 NEAR COMPLETION OF CONSTRUCTION

A. Eliminate basins, dikes, traps, etc.

B. Grade to finished or existing grades.

C. Fine grade all remaining earth areas, then seed and mulch.

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 11 23
GRANULAR PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Crushed rock base and surface course.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 31 23 00 - Earthwork.

1.2 QUALITY ASSURANCE

A. Reference Standards:
   1. American Society for Testing and Materials (ASTM):
      a. C117, Material Finer than 76-um (No. 200) Sieve in Mineral Aggregates by Washing.
      b. C131, Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
      c. C136, Sieve or Screen Analysis of Fine and Coarse Aggregates.
      d. D423, Liquid Limit of Soils.
      e. D424, Plastic Limit and Plasticity Index of Soils.
   2. American Association of State Highway and Transportation Officials (AASHTO):
      a. T99, The Moisture Density Relations of Soils Using a 5.5-LB (2.5 KG) Rammer and a 12-IN (305 MM) Drop.

1.3 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Test Reports:
      a. Test results from testing laboratory indicating compliance with the Specifications.
      b. Certification of conformance with the Specifications.

PART 2 - PRODUCTS

2.1 CRUSHED ROCK BASE AND SURFACE COURSE

A. Material shall be crushed stone or crushed gravel, free from lumps or balls of clay or other objectionable matter, and reasonably free from thin and elongated pieces of dirt. Material shall consist of angular fragments, durable and sound, and shall be reasonably uniform in density and quality.

B. Percentage of wear shall not exceed 50 after 500 revolutions as determined by ASTM C131.

C. Material shall contain 75 PCT by weight of pieces with two or more fractured surfaces.

D. Portion of aggregate passing No. 40 sieve shall be as follows:
   1. Liquid Limit: Not more than 25 determined by ASTM D423.
   2. Plastic Index: Not more than six determined by ASTM D424.

E. Gradation shall not vary from low limit on one sieve to high limit on adjacent sieve or vice versa. Test by ASTM C136 and C117, and conform to the following table:

	Percent by Weight Passing Square-Mesh Sieve	
Sieve Designation	**Surface Course**	**Base Course**
1 IN	100	100
1/2 IN	--	60 to 90
3/8 IN	65*	--
No. 4	--	40 to 60
No. 10	5 to 25	--
No. 40	--	15 to 35

*Indicates Maximum

2.2 EQUIPMENT FOR GRANULAR PAVING PLACEMENT

A. General Requirements:
1. Maintain all equipment, tools, machines used in the performance of the Work required by this Section in a satisfactory working condition at all times.
2. Equipment shall be subject to the approval of the Engineer.

B. Power Rollers:
1. Rollers shall be self-propelled, three-wheel, or tandem-type with wheels equipped with adjustable scrapers.
2. Weight shall not be less than eight tons.

C. Tamping Rollers:
1. Rollers shall consist of one or more units arranged to adapt to uneven ground surfaces.
2. Rolling units of multiple types shall be pivoted on the main frame.
3. When fully loaded, rollers shall exert at least 300 PSI on the combined areas of tamping feet in contact with the ground.
4. Each unit shall be equipped with a watertight cylindrical drum with length 48 IN or greater.
5. Tamping feet shall project not less than 7 IN from drum surface, with feet spaced not less than 10 IN, nor more than 10 IN measured diagonally from center to center.

D. Rubber-Tired Rollers:
1. Rollers shall consist of two axles on which are mounted not less than nine pneumatic-tired wheels, mounted so the rear group of tires do not follow in the tracks of the forward wheels but will be centered between the forward wheels.
2. The axles shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading.
3. Inflate tires uniformly.
4. May be self-propelled.
5. Tow with pneumatic-tired tractors or other pneumatic-tired equipment.

E. Blade Graders shall be self-propelled with a wheelbase of not less than 15 FT, and a blade of not less than 10 FT.

F. Sprinkling equipment shall consist of tank trucks, pressure distributors, or other similar equipment designed to apply water uniformly and in controlled quantities to variable width of surface.

G. Hauling equipment shall consist of pneumatic-tired vehicles and dump bodies suitable for dumping materials in windrows or layers on the subgrade.

H. Tampers shall be mechanical (of an approved type) and hand-operated, weight not less than 50 LBS, and have a face area of not more than 100 SQIN.

I. Miscellaneous equipment shall consist of scarifiers, tractors, spring-tooth or spike-tooth harrows, windrow equalizers, spreaders, and other equipment suitable for construction of select material.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Stockpiles:
   1. Clear and level storage sites prior to stockpiling.
   2. Place in the manner and at locations designated by Engineer, providing separate stockpiles for materials from separate sources.

B. Cold-Weather Limitations:
   1. Construction shall be prohibited when atmospheric temperature is below 35 DEGF.
   2. Do not place base course on frozen subgrade, or surface course on frozen base.
   3. Protect base course, surface course and subgrade in freezing weather and repair areas damaged by freezing by reshaping and recompacting.

C. Preparation of Subgrade:
   1. Clear all vegetable matter such as trees, brush, down timber and other objectionable materials found on or above the surface.
   2. Scalp all excavation and embankment areas removing material such as sod, grass, residue or agricultural crops and decayed vegetable matter from the surface of the ground.
   3. Grub and dispose of all vegetable matter such as stumps, roots, buried trees and brush encountered below the surface of the ground or subgrade to a minimum depth of 6 inches.
   4. When deleterious materials are encountered below ground line which may be detrimental to the proposed improvement, these shall be removed to a depth necessary to provide adequate support for the proposed improvement.
   5. The subgrade surface shall be brought to the specified lines, grades and cross-section by repeatedly adding or removing material and compacting to the specified density.
   6. The top 6 inches of subgrade for pavements shall be compacted to 95 percent of the maximum density for the material used as determined by ASTM D-698 and within a tolerance of plus 2 percent and minus 3 percent of the optimum moisture at maximum density as determined by the moisture density curve obtained.
   7. The newly finished subgrade shall be repaired from action of the elements or others. Any settlement or erosion that occurs prior to placing the pavement thereon, shall be repaired and the specific lines, grades and cross-section reestablished.
   8. Any subgrade that has become unacceptable shall be reworked as necessary to restore the subgrade to shape, tolerance, density, and moisture content range for such density, immediately prior to the placing of the pavement.

D. Grade Control: Establish and maintain by means of grade stakes placed in lanes parallel to the centerline of the area to be paved and spaced so string lines may be stretched between stakes.

3.2 MIXING AND PLACING OF MATERIALS

A. Deposit and spread material in a uniform layer and compact to the thickness indicated on the plans and as specified below:
   1. Spread material uniformly on the prepared subgrade from moving vehicles or spreader boxes:
      a. Level material to the required contour and grades with blade graders.
      b. Remove those portions of the layer which become segregated in spreading and replace with satisfactory mixture or remix as requested by Engineer.
      c. Add water to the extent necessary to prevent segregation during mixing operations.
      d. Add material to the mixture in such amounts and sizes as requested by the Engineer.

B. Shaping and Compacting Mixed Materials:
   1. Compact in layers no less than 3 IN nor more than 7 IN thick.

2. Roll to specified compaction requirements throughout full depth of layer with tamping rollers, power rollers, rubber-tired rollers or combination.
3. Shape and smooth by blading and rolling with power roller or rubber-tired roller, or both.
4. Hand-tamp in places not accessible to rolling equipment.
5. Aerate by blade graders, harrows, or other approved equipment when mixture is moistened by rain.

C. Degree of Compaction:
1. Base compaction on weight per cubic foot of material passing 3/4 IN sieve and compact to at least 100 PCT of density at optimum moisture.
2. Determine and control compaction in accordance with AASHTO T99.

D. Smoothness Test:
1. Surface shall show no deviation in excess of 3/8 IN, in any 10 FT when tested with a 10 FT straightedge applied parallel with and at right angles to the centerlines of the paved area.
2. Correct any deviation in excess of this amount by loosening, adding or removing material, reshaping, watering, and compacting as requested by the Engineer.

E. Material Thickness:
1. Excavate completed paving at locations indicated by Engineer and demonstrate that compacted thickness is no less than required.
2. Perform no less than one thickness excavation for each 1,000 SQFT of paved area.
3. Recompact excavated material.

3.3 MAINTENANCE

A. Maintain finished base course in a condition satisfactory to the Engineer until Project completion or until surface is placed upon it.

3.4 WAYBILLS AND DELIVERY TICKETS

A. Submit daily to the Engineer during progress of Work.

END OF SECTION

SECTION 32 12 16
ASPHALTIC CONCRETE VEHICULAR PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Asphaltic concrete vehicular paving.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. Federal Specifications (FS):
      a. TT-P-115F, Paint, Traffic (Highway, White and Yellow).
   2. Material and construction standards:
      a. Latest edition of the American Public Works Association's "Standard Specifications and Design Manual", Section 2200. Hereafter referred to as the "APWA Standard Specifications".

B. Miscellaneous: Should conflicts arise between standard specifications of government agencies mentioned herein and Contract Documents, Contract Documents shall govern.

1.3 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Product Technical Data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
   3. Asphalt design mix.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Asphaltic Concrete:
   1. Asphaltic concrete material shall conform to the APWA Standard Specifications, Section 2205, except as modified or supplemented herein:
      a. Tack Coat: Tack coat shall be SS-1 or RC-70 liquid asphalt in conformance with 2204 of the APWA Standard Specifications.
      b. Asphalt Cement: Bituminous material for asphalt pavement shall be penetration grade 60-70 or 85-100 in conformance with Section 2205 of APWA Standard Specifications.
      c. Composition of Mix: All mixing and proportioning shall conform to Section 2205.3 of the APWA Standard Specifications:
         1) Base course: The base course shall be Type 2.
         2) Surface course: The surface course shall be Type 3.

B. Line Paint:
   1. Nonreflective.
   2. White.

3. FS TT-P-115F.

C. Equipment: Equipment for asphalt construction shall be in conformance with APWA Standard Specifications, Section 2205.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Construct to line, grade and section as shown on Drawings and in accordance with referenced State Specifications.

B. Construct base and surface course thickness as indicated on the Drawings.

C. Construction Requirements: Construction Requirements shall conform to Section 2205.8 of the APWA Standard Specifications.

D. Tolerance of Finished Grade: + 0.10 FT from required elevations.

E. Line Painting, where indicated on Plans:
   1. Thoroughly clean surfaces which are to receive paint.
   2. Make completely dry before paint is applied.
   3. Do not paint until minimum of 5 days has elapsed from time surface is completed:
      a. A longer period may be required if directed by Engineer.
   4. Do not apply paint over wet surfaces, during wet or damp weather, or when temperature is below 40 DEGF.
   5. Lay out markings and striping in accordance with Drawings:
      a. Width of painted lines: 4 IN.

END OF SECTION

SECTION 32 13 13
CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete pavement.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 03 00 05 - Concrete.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Association of State Highway and Transportation Officials (AASHTO):
      a. M153, Standard Specifications for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction (ASTM D1752).
      b. M171, Standard Specifications for Sheet Materials for Curing Concrete (ASTM C1271).
      c. M182, Standard Specifications for Burlap Cloth Made from Jute or Kenaf and Cotton Mats.
      d. M213, Standard Specifications for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) (ASTM D1751).
      e. M224, Standard Specifications for Use of Protective Sealers for Portland Cement Concrete.
      f. M233, Standard Specifications for Boiled Linseed Oil Mixture for Treatment of Portland Cement Concrete.
   2. American Concrete Institute (ACI):
      a. 305R, Guide to Hot Weather Concreting.
      b. 306R, Guide to Cold Weather Concreting.
   3. ASTM International (ASTM):
      a. A615/A615M, Standard Specifications for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
      b. A1064/A1064M, Standard Specifications for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
      c. C33/C33M, Standard Specifications for Concrete Aggregates.
      d. C150/C150M, Standard Specifications for Portland Cement.
      e. C174/C174M, Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores.
      f. C309, Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete.
      g. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 FT-LBF/FT^3 (600 kN-M/M^3)).
      h. D1751, Standard Specifications for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
      i. D1752, Standard Specifications for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.
      j. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
      k. D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

4. Federal Specification (FS):
    a. SS-S-1614, Sealants, Joint, Jet-Fuel-Resistant, Hot-Applied for Portland Cement and Tar Concrete Pavements (Withdrawn with no replacement).
    b. Concrete installer shall have successfully completed at least three other projects of similar size and type.

1.3 SUBMITTALS

A. Shop Drawings:
1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
2. Product Technical Data including:
    a. Acknowledgement that products submitted meet requirements of standards referenced.
3. Mix design(s) in accordance with Section 03 00 05.
4. Qualifications of concrete installer.
5. Drawings detailing all reinforcing.
6. Scaled cross section detail of crown template with dimensions showing off sets from level line.
7. Concrete pavement joint pattern for paved areas.
8. Test reports:
    a. Concrete cylinder test results from field quality control.

B. Samples:
1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
2. Samples of fabricated jointing materials and devices.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or II.

B. Aggregates:
1. ASTM C33/C33M, gradation size #67, 3/4 IN to #4.
2. Clean, crushed gravel.

C. Water: Potable quality.

D. Admixtures: Comply with Section 03 00 05.

E. Reinforcing Bars: ASTM A615/A615M, Grade 60.

F. Welded Wire Reinforcement:
1. ASTM A1064/A1064M.
2. Flat.
3. Clean, free from dirt, scale, rust.

G. Preformed Joint Filler:
1. Non-extruding cork, self-expanding cork, sponge rubber or cork rubber.
2. AASHTO M153 or AASHTO M213.

H. Hot-Poured Joint Sealing Material:
1. FS SS-S-1614.

I. Membrane Curing Compound: ASTM C309.

J. Cover Materials for Curing:
1. Burlap:
    a. AASHTO M182.
    b. Minimum Class 2, 8 OZ material (1 YD x 42 IN).
2. Polyethylene film, AASHTO M171.

K. Paper Subgrade Cover: Polyethylene film, AASHTO M171.

L. Concrete Treatment:
   1. Boiled linseed oil mixture.
   2. AASHTO M233.

M. Traffic Paint: Thermoplastic FS TT-P-1952F, Type 1 - Alkyd.

N. Forms:
   1. Steel or wood.
   2. Size and strength to resist movement during concrete placement and able to retain horizontal and vertical alignment.
   3. Free of distortion and defects.
   4. Full depth.
   5. Metal side forms:
      a. Minimum 7/32 IN thick.
      b. Depth equal to edge thickness of concrete.
      c. Flat or rounded top minimum 1-3/4 IN wide.
      d. Base 8 IN wide or equal to height, whichever is less.
      e. Maximum deflection 1/8 IN under center load of 1,700 LBS.
      f. Use flexible spring steel forms or laminated boards to form radius bends.

2.2 MIXES

A. Mix design to provide 4,000 PSI 28-day compressive strength, 1-1/2 IN - 2 IN slump, 6 ±1 PCT air.

PART 3 - EXECUTION

3.1 PREPARATION

A. Subgrade Preparation:
   1. Prepare using methods, procedures, and equipment necessary to attain required compaction densities, elevation and section.
   2. Scarify and recompact top 12 IN of fills and embankments which will be under paved areas.
   3. Remove soft or spongy areas:
      a. Replace with structural backfill.
      b. Coordinate with Geotechnical Engineer.
   4. Compact to the following densities:
      a. Cohesive soils: 95 PCT per ASTM D698.
   5. Assure moisture content is within limits prescribed to achieve required compaction density.
   6. Following compaction, trim and roll to exact cross section:
      a. Check with approved grading template.
   7. Perform density tests on subgrade to determine that subgrade complies with the specification.
   8. Coordinate aggregate course with Structural Engineer and Soils/Geotechnical Engineer.

B. Aggregate Course:
   1. Place material in not more than 6 IN thick layers.
   2. Spread, shape, and compact all material deposited on the subgrade during the same day.
   3. Compact to 95 PCT relative per ASTM D4253 and ASTM D4254.

C. Loose and Foreign Material: Remove loose and foreign material immediately before application of paving.

D. Appurtenance Preparation:
   1. Block out or box out curb inlets and curb returns.
   2. Provide for joint construction as detailed and dimensioned on the Drawings.
   3. Adjust manholes, inlets, valve boxes and any other utility appurtenances to design grade:
      a. Secure to elevation with concrete.
      b. Place concrete up to 5 IN below design grade.
   4. Headers:
      a. Construct at open ends of pavements.

b. Use same concrete to construct headers as that used in the abutting structure.
c. Extend header full width of pavement and crown same as pavement.

5. Clean and oil forms.

3.2 INSTALLATION

A. Concrete Production: Comply with Section 03 00 05.

B. Forms:
1. Form support:
a. Compact soil foundation and cut to grade to support forms and superimposed machine loads.
b. Use bearing stakes driven flush with bottom of form to supplement support as necessary.
c. Do not use earth pedestals.
2. Staking forms:
a. Joint forms neatly and tightly.
b. Stake and pin securely with at least three pins for each 10 FT section.
3. Clean and oil forms prior to placement of concrete.
4. Set forms sufficiently in advance of work (minimum of 2 HRS) to permit proper inspection.
5. Previously finished concrete pavement, curb or sidewalk contiguous with new work may serve as side form when specifically approved.

C. Reinforcing:
1. Locate longitudinal edge bars between 3 and 6 IN from edge of slab.
2. Lap mats one full space.
3. Tie end transverse member of upper mat securely to prevent curving.
4. Lap nonwelded bars 12 IN minimum.
5. Support:
a. Place bars and heavy mats securely on chairs at called-for height.
b. Place other fabric on the first of a two-course pour and cover promptly with final pour, or place fabric by a fabric-placer if procedure is reviewed and approved by Engineer.

D. Joints:
1. Hold joint location and alignment to within +1/4 IN.
2. Finish concrete surface adjacent to previously placed slab to within +1/8 IN, with tooled radius of 1/4 IN.
3. Metal keyway joints:
a. Form by installing metal joint strip left in place.
b. Stake and support like side form.
c. Provide dowels or tie bars.
4. Weakened plane joints:
a. Tooled joints:
1) Form groove in freshly placed concrete with tooling device.
2) Groove dimensions shall be 3/8 IN at surface and 1/4 IN at root.
b. Sawed joints:
1) Saw 1/4 IN groove in green concrete.
2) Commence sawing as soon as concrete is hard enough to withstand operation without chipping, spalling or tearing, regardless of nighttime or weather.
3) Thoroughly wet surface to protect membrane cure and recoat afterward.
4) Complete saw cutting before shrinkage stresses cause cracking.
5. Stake in place load transfer device for expansion joints consisting of dowels:
a. Supporting and spacing means and pre-molded joint filler as per the Drawing details.
b. Provide preformed joint filler at all junctions with existing curb, sidewalk, steps, or other structures.
6. Install construction joints at end of day's work or wherever concreting must be interrupted for 30 minutes or more.
7. Thoroughly clean and fill joints with joint sealing material as specified.
8. Fill joints without overflowing onto pavement surface.
9. Upper surface of filled joint to be flush to 1/8 IN below finish surface.

E. Place Concrete:
   1. Comply with Section 03 00 05.
   2. Construct driveway openings, ramps, and other features as per Drawing details.

F. Cold and Hot Weather Concreting:
   1. Cold weather:
      a. Cease concrete placing when descending air temperature in shade falls below 40 DEGF.
      b. Do not resume until ambient temperature rises to minimum 40 DEGF.
      c. If placing below 40 DEGF is authorized by Engineer, maintain temperature of mix between 60 and 80 DEGF.
      d. Heat aggregates or water or both.
      e. Water temperature may not exceed 175 DEGF.
      f. Aggregate temperature may not exceed 150 DEGF.
      g. Remove and replace frost damaged concrete.
      h. Salt or other antifreeze is not permitted.
      i. Comply with ACI 306R.
   2. Hot weather:
      a. Cease concrete placing when plastic mix temperature cannot be maintained under 90 DEGF.
      b. Aggregates or water or both may be cooled.
      c. Cool water with crushed ice.
      d. Cool aggregates by evaporation of water spray.
      e. Never batch cement hotter than 160 DEGF.
      f. Comply with ACI 305R.

G. Finishing:
   1. As soon as placed, strike off and screed to crown and cross section, slightly above grade, so that consolidation and finishing will bring to final Drawing elevations.
   2. Maintain uniform ridge full width with first pass of first screed.
   3. Pavement and similar surfaces:
      a. Float by longitudinally reciprocating float, passing gradually from edge to edge.
      b. Assure successive advances do not exceed half the length of the float.
      c. Test level of slab with minimum 10 FT straightedge.
      d. Fill depressions with fresh material, consolidate and refinish.
      e. Cut down high areas and retest.
      f. Belt surface with two-ply canvas belt, using transverse strokes while advancing along center line.
      g. Provide final finish by full width burlap or carpet drag, drawn longitudinally.
      h. Keep drag clean to avoid build up and consequent scarring.
      i. Tool pavement edges with suitable edger.
      j. Retest with straightedge and if pavement shows deviation of more than 1/8 IN in 10 FT, remove and replace.

H. Curing:
   1. Apply membrane curing compound complying with ASTM C309, and in accordance with manufacturer's directions but at a minimum rate of 200 SQFT/GAL.
   2. Apply curing compound within 4 HRS after finishing or as soon as surface moisture has dissipated.
   3. Cure for minimum of seven days.
   4. When average daily temperature is below 50 DEGF, provide insulative protection of 12 IN minimum thickness loose dry straw, or equivalent, for 10 days.
   5. Linseed oil sealant:
      a. Seal surface with linseed oil.
      b. Apply linseed oil to clean surface as per AASHTO M224 after concrete has cured for one month.
      c. Apply first application at minimum rate of 67 SQYD per gallon.
      d. Apply second application to a dry surface at minimum rate of 40 SQYD per gallon.

I. Protection of Concrete:
   1. Protect concrete surfaces and appurtenances from traffic for minimum of 14 days.
   2. Erect and maintain warning signs, lights, watchmen to direct traffic.
   3. Repair or replace parts of concrete surfaces damaged by traffic, or other causes, occurring prior to final acceptance.
   4. Protect concrete pavement against public traffic, construction traffic and traffic caused by employees and agents.
   5. No equipment shall be driven or moved across concrete surfaces unless such equipment is rubber-tired and only if concrete is designed for and capable of sustaining loads to be imposed by the equipment.
   6. Do not drive over new or existing concrete with tracked vehicles and equipment.

J. Painting and Striping:
   1. Stripe and mark pavement per the Drawings following sufficient cure time for pavement.
   2. Lay out markings with guidelines, templates, and forms.
   3. Apply 6 IN wide stripe with self-contained striping machine to a clean and dry pavement surface.
   4. Temperature must be above 40 DEGF and precipitation should not be expected during drying period.
   5. Use thermoplastic paint; color as approved by the local reviewing authority for the specific use (i.e., white, yellow, blue) complying with FS TT-P-1952F.
   6. Apply at 1 GAL per 105 SQFT.

K. Opening to Traffic:
   1. After 14 days, pavement may, at Owner's discretion, be opened to traffic if job cured test cylinders have attained a compressive strength of 3,000 LBS per square inch when tested in accordance with ASTM standard methods.
   2. Prior to opening to traffic, clean and refill joints as required with the specified filler material.

L. Clean Up:
   1. Assure clean-up Work is completed within two weeks after pavement has been opened to traffic.
   2. No new work will begin until clean-up Work has been completed, or is maintained within two weeks after pavement has been opened to traffic.

M. Pavement Patching:
   1. Comply with material and density requirements as mentioned elsewhere in this Section except provide minimum 6 IN aggregate immediately below the patch.
   2. Place pavement patch providing a thickened edge.
   3. Assure that patch in plane of "cold" joint has a thickness 6 IN greater than that of the existing pavement.
   4. Extend patch under existing pavement for a distance of 6 IN minimum.
   5. Fill void under existing pavement with concrete.
   6. Undercut existing pavement 6 IN all around patch and to a depth of 6 IN.
   7. Prior to placing patch, sawcut edge of existing concrete to 1/4 depth and remove to provide a vertical face for a straight and true joint.

3.3 FIELD QUALITY CONTROL

A. Provide test cylinders in accordance with Section 03 00 05 for the first pour of the day and each additional 100 CUYD of concrete placed.

END OF SECTION

SECTION 32 91 13
TOPSOILING AND FINISHED GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Topsoiling and finished grading.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 31 10 00 - Site Clearing.
   4. Section 31 23 00 - Earthwork.
   5. Section 31 25 00 - Soil Erosion and Sediment Control.
   6. Section 32 92 00 - Seeding, Sodding and Landscaping.

C. Location of Work: All areas within limits of grading and all areas outside limits of grading which are disturbed in the course of the Work.

1.2 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Project Data: Test reports for furnished topsoil.

1.3 SITE CONDITIONS

A. Verify amount of topsoil stockpiled and determine amount of additional topsoil, if necessary to complete work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil:
   1. Original surface soil typical of the area.
   2. Existing topsoil stockpiled under Section 31 10 00.
   3. Friable, loamy soil capable of supporting native plant growth.

2.2 TOLERANCES

A. Finish Grading Tolerance: ±0.1 FT from required elevations.

PART 3 - EXECUTION

3.1 PREPARATION

A. Correct, adjust and/or repair rough graded areas:
   1. Cut off mounds and ridges.
   2. Fill gullies and depressions.
   3. Perform other necessary repairs.
   4. Bring all sub-grades to specified contours, even and properly compacted.

B. Loosen surface to depth of 2 IN, minimum.

C. Remove all stones and debris over 2 IN in any dimension.

3.2 ROUGH GRADE REVIEW

A. Reviewed by Engineer in Section 31 10 00.

3.3 PLACING TOPSOIL

A. Do not place when subgrade is wet or frozen enough to cause clodding.

B. Spread and lightly compact to a depth of 4 IN for all disturbed earth areas.

C. If topsoil stockpiled is less than amount required for work, furnish additional topsoil at no cost to Owner.

D. Provide finished surface free of stones, sticks, or other material 1 IN or more in any dimension.

E. Provide finished surface smooth and true to required grades.

F. Restore stockpile area to condition of rest of finished Work.

3.4 ACCEPTANCE

A. Upon completion of topsoiling, obtain Engineer's acceptance of grade and surface.

B. Make test holes where directed to verify proper placement and thickness of topsoil.

END OF SECTION

SECTION 32 92 00
SEEDING, SODDING AND LANDSCAPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Seeding, sodding and landscape planting:
      a. Soil preparation.
      b. Lawn-type seeding.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 32 91 13 - Topsoiling and Finished Grading.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Nursery and Landscape Association/American National Standards Institute (ANLA/ANSI):
      a. Z60.1, American Standard for Nursery Stock.
   2. AOAC International (AOAC).
   3. ASTM International (ASTM):
      a. D2028, Standard Specifications for Cutback Asphalt (Rapid-Curing Type).
      b. D5276, Standard Test Method for Drop Test of Loaded Containers by Free Fall.

B. Quality Control:
   1. Fertilizer:
      a. If Engineer determines fertilizer requires sampling and testing to verify quality, testing will be done at Contractor's expense, in accordance with current methods of the AOAC.
      b. Upon completion of Project, a final check of total quantities of fertilizer used will be made against total area seeded.
      c. If minimum rates of application have not been met, Contractor will be required to distribute additional quantities to make up minimum application specified.

1.3 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Product Technical Data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
      c. Signed copies of vendor's statement for seed mixture required, stating botanical and common name, place of origin, strain, percentage of purity, percentage of germination, and amount of Pure Live Seed (PLS) per bag.
   3. Certification that each container of seed delivered will be labeled in accordance with Federal and State Seed Laws and equals or exceeds Specification requirements.

B. Informational Submittals:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Copies of invoices for fertilizer used on the Project showing grade furnished, along with certification of quality and warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND SUPPLIERS

A. Subject to compliance with the Contract Documents, the manufacturers and suppliers listed in the applicable Articles below are acceptable.

B. Submit request for substitution in accordance with Section 01 25 13.

2.2 MATERIALS

A. Seed Quality:
   1. Fresh, clean, new-crop seed labeled in accordance with USDA Rules and Regulations under the Federal Seed Act in effect on date of bidding.
   2. Provide seed of species, proportions, and minimum percentages of purity, germination and maximum percentage of weed seed as specified.
   3. Approval of all seed for use shall be based on the accumulative total of PLS specified for each phase of work.

B. Lawn-Type Seed Mixture:

BOTANICAL AND COMMON NAME	PERCENT BY WEIGHT (PLS)	MINIMUM PERCENT GERMINATION	MINIMUM PERCENT PURITY
Kentucky Bluegrass (Poa pratensis)	60	85	95
Fescue, Tall, KY 31 (Festura arundiancea 'KY 31 FT)	30	85	98
Ryegrass, Perennial (Lolium perenne)	10	90	95

C. Mulch:
   1. For seeded areas:
      a. Clean, seed-free, threshed straw of oats, wheat, barley, rye, beans, peanuts, or other locally available mulch material which does not contain an excessive quantity of matured seeds of noxious weeds or other species that will grow or be detrimental to seeding, or provide a menace to surrounding land.
      b. Do not use material which is fresh or excessively brittle, or which is decomposed and will smother or retard growth of grass.

PART 3 - EXECUTION

3.1 SOIL PREPARATION

A. General:
   1. Limit preparation to areas which will be planted soon after.
   2. Provide facilities to protect and safeguard all persons on or about premises.
   3. Protect existing trees designated to remain.
   4. Verify location and existence of all underground utilities:
      a. Take necessary precaution to protect existing utilities from damage due to construction activity.
      b. Repair all damages to utility items at sole expense.
   5. Provide facilities such as protective fences and/or watchmen to protect Work from vandalism:
      a. Contractor to be responsible for vandalism until acceptance of Work in whole or in part.

B. Preparation for Lawn-Type Seeding, Sprigging, Plugging or Sodding:
   1. Loosen surface to minimum depth of 4 IN.

2. Remove stones over 1 IN in any dimension and sticks, roots, rubbish, and other extraneous matter.
3. Prior to applying fertilizer, loosen areas to be seeded with a double disc or other suitable device if the soil has become hard or compacted.
4. Correct any surface irregularities in order to prevent pocket or low areas which will allow water to stand.
5. Distribute fertilizer uniformly over areas to be seeded:
    a. For lawn-type seeding: 30 LBS per 1,000 SQFT.
    b. For pasture seeding: 200 LBS per acre.
6. Incorporate fertilizer into soil to a depth of at least 2 IN by disking, harrowing, or other approved methods.
7. Remove stones or other substances from surface which will interfere with turf development or subsequent mowing operations.
8. Grade lawn areas to a smooth, even surface with a loose, uniformly fine texture:
    a. Roll and rake, remove ridges and fill depressions, as required to meet finish grades.
    b. Limit fine grading to areas which can be planted soon after preparation.
9. Restore lawn areas to specified condition if eroded or otherwise disturbed after fine grading and before planting.

3.2 INSTALLATION

A. Lawn-Type and Pasture Seeding:
1. Do not use seed which is wet, moldy, or otherwise damaged.
2. Perform seeding work from April 20 to May 15 for spring planting, and August 1 to September 15 for fall planting, unless otherwise approved by Engineer.
3. Employ satisfactory methods of sowing using mechanical power-driven drills or seeders, or mechanical hand seeders, or other approved equipment.
4. Distribute seed evenly over entire area at rate of application not less than 4 LBS (PLS) of seed per 1,000 SQFT, 50 PCT sown in one direction, remainder at right angles to first sowing.
5. Stop Work when Work extends beyond most favorable planting season for species designated, or when satisfactory results cannot be obtained because of drought, high winds excessive moisture, or other factors:
    a. Resume Work only when favorable conditions develop.
6. Lightly rake seed into soil followed by light rolling or cultipacking.
7. Immediately protect seeded areas against erosion by mulching:
    a. Spread mulch in continuous blanket using 1-1/2 tons per acre to a depth of 4 or 5 straws.
8. Protect seeded slopes against erosion with erosion netting or other methods approved by Engineer:
    a. Protect seeded areas against traffic or other use by erecting barricades and placing warning signs.
9. Immediately following spreading mulch, anchor mulch using a rolling coulter or a wheatland land packer having wheels with V-shaped edges to force mulch into soil surface, or apply evenly distributed emulsified asphalt at rate of 10-13 GAL/1,000 SQFT:
    a. SS-1 emulsion in accordance with ASTM D5276 or RC-1 cutback asphalt in accordance with ASTM D2028 are acceptable.
    b. If mulch and asphalt are applied in one treatment, use SS-1 emulsion with penetration test range between 150-200.
    c. Use appropriate shields to protect adjacent Site improvements.
10. If hydroseeding is used, machinery must be approved, modern, properly equipped and operated by an experienced operator.
    a. Seed and fertilize at the rate specified.
    b. Use appropriate shields to protect adjacent site improvements.

3.3 MAINTENANCE AND REPLACEMENT

A. General:
   1. Begin maintenance of planted areas immediately after each portion is planted and continue until final acceptance or for a specific time period as stated below, whichever is the longer.
   2. Provide and maintain temporary piping, hoses, and watering equipment as required to convey water from water sources and to keep planted areas uniformly moist as required for proper growth.
   3. Protection of new materials:
      a. Provide barricades, coverings or other types of protection necessary to prevent damage to existing improvements indicated to remain.
      b. Repair and pay for all damaged items.
   4. Replace unacceptable materials with materials and methods identical to the original specifications unless otherwise approved by the Engineer.

B. Seeded or Sodded Lawns:
   1. Maintain seeded lawns: 90 days, minimum, after installation and review of entire project area to be planted.
   2. Maintenance period begins at completion of planting or installation of entire area to be seeded or sodded.
   3. Engineer will review seeded or sodded lawn area after installation for initial acceptance.
   4. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading, and replanting as required to establish a smooth, uniform lawn, free of weeds and eroded or bare areas.
   5. Lay out temporary lawn watering system and arrange watering schedule to avoid walking over muddy and newly seeded areas:
      a. Use equipment and water to prevent puddling and water erosion and displacement of seed or mulch.
   6. Mow lawns as soon as there is enough top growth to cut with mower set at recommended height for principal species planted:
      a. Repeat mowing as required to maintain height.
      b. Do not delay mowing until grass blades bend over and become matted.
      c. Do not mow when grass is wet.
      d. Time initial and subsequent mowings as required to maintain a height of 1-1/2 to 2 IN.
      e. Do not mow lower than 1-1/2 IN.
   7. Remulch with new mulch in areas where mulch has been disturbed by wind or maintenance operations sufficiently to nullify its purpose:
      a. Anchor as required to prevent displacement.
   8. Unacceptable plantings are those areas that do not meet the quality of the specified material, produce the specified results, or were not installed to the specified methods.
   9. Replant bare areas using same materials specified.
   10. Engineer will review final acceptability of installed areas at end of maintenance period.
   11. Maintain repaired areas until remainder of maintenance period or approved by Engineer, whichever is the longer period.

END OF SECTION

DIVISION 33

UTILITIES

SECTION 33 05 23
PIPELINE UNDERCROSSINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Construction of pipe undercrossings.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 31 23 00 – Earthwork.

1.2 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
      c. Compliance with submittal requirements of authority or agency having jurisdiction over undercrossing.

B. Operation and Maintenance Manuals:
   1. Comply with Section 01 33 04 for requirements for:
      a. The mechanics and administration of the submittal process.
      b. The content of Operation and Maintenance Manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Casing Pipe:
   1. Structural grade steel: Minimum yield strength of 35,000 PSI or greater as required by the permits.
   2. Wall thickness: Minimum 0.250 IN or greater as required by the permits.
   3. Diameter: Minimum of 4 IN larger than outside diameter of carrier pipe's jointing system.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:
   1. Install undercrossing to meet requirements of authority or agency having jurisdiction over undercrossing.
   2. Observe work requirements stipulated in any permit condition.
   3. Consult Contract Drawings for limitation of construction right-of-way.

B. If installation of crossing is by jacking or dry boring, the following will be required unless more rigid requirements are specified by the authority or agency having jurisdiction over the crossing:
   1. Diameter of the hole: Not exceeding diameter of casing by more than 1-1/2 IN.
   2. Undercrossing casing:
      a. Full lengths.
      b. Weld pressure tight.

3. After casing is installed, install a minimum of 3 casing spacers 5-6 feet apart on each length of carrier pipe to prevent displacement and pull pipe into place.
   a. Pipe must be straight and centered in casing when in place.
4. Coordinate connections to system with authority or agency having jurisdiction over the crossing.

END OF SECTION

SECTION 33 12 19
FIRE HYDRANT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Dry-barrel fire hydrant.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Water Works Association (AWWA):
      a. C502, Standard for Dry-Barrel Fire Hydrants.
      b. M17, Installation, Operation and Maintenance of Fire Hydrants.

1.3 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Product Technical Data:
      a. Acknowledgement that products submitted meet the requirements of the standards referenced.
      b. Manufacturer's installation instructions.
      c. Acknowledge and verify dimensions and provide list of integral parts and materials.

B. Contract Closeout Information:
   1. Operation and Maintenance Data:
      a. Comply with Section 01 33 04 for requirements for the mechanics, administration, and the content of Operation and Maintenance Manual submittals.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   1. Mueller.
   2. American Flow Control.
   3. Waterous.
   4. Kennedy

B. Submit request for substitution in accordance with Section 01 25 13.

2.2 FIRE HYDRANT

A. Design and Fabrication:
   1. Conform to AWWA C502.
   2. Provide with either compression or gate design.
   3. Provide with a 5 IN valve opening, nozzle section consisting of two, 2-1/2 IN hose nozzles and one, 4-1/2 IN steamer.
   4. Provide with water passages to permit full flow of water to minimize friction loss.

5. Furnish with multiple weep holes for positive draining to allow water to escape readily from standpipe when hydrant valve is closed.
6. Designed to throttle flow when partially opened.
7. Designed to allow removal of valve and valve stem without digging up hydrant.
8. Suitable for 5 FT of bury.
9. Furnish with mechanical (gland type) joint inlet connections.
10. Design to break off at ground line when struck by a vehicle.
11. Furnish with O-ring packing only.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install hydrants at locations indicated in accordance with AWWA M17 and the following:
   1. Remove foreign material from barrel of hydrant before placement.
   2. Install plumb and at same elevation as connecting pipe and main.
   3. Place each hydrant on a slab of concrete not less than 6 IN thick and 18 SQIN.
   4. Block backside of hydrant, opposite pipe connection, with concrete firmly wedged between hydrant and vertical face of undisturbed trench.
   5. Place granular bedding material around base of hydrant to the dimensions shown in the Drawings.
   6. Firmly tamp carefully compacted backfill around hydrant to surface of ground and to a distance of 5 FT in front of hydrant.

3.2 COATINGS AND FINISHES

A. Provide hydrant with below grade and above grade coatings as per manufacturer standard:
   1. Paint above grade shall be red conforming to the requirements of the local Fire Department.

END OF SECTION

SECTION 33 34 10
WATER AND SEWER MAIN CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

A. Specifications Section Includes:
   1. Coordination and interface with existing facilities and utilities.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.
   4. Section 40 05 51 - Valves - Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Water Work Association (AWWA).

1.3 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Product Technical Data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.

B. Contract Closeout Information:
   1. Operation and Maintenance Data:
      a. Comply with Section 01 33 04 for requirements for the mechanics, administration, and the content of Operation and Maintenance Manual submittals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pipe: Refer to Section 40 05 00.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install water main to the line and grade on the Drawings. Water mains to be staked at a minimum 100 FT interval with depth of cuts monitored.

B. Field verify depth of utilities that will be crossed:
   1. Adjust water main elevation as required during construction.
   2. No separate payment will be made for field verification or adjustment of main depths as required.

C. Contractor will restore all existing structures or services damaged by Contractor's operations at no cost to Owner.

3.2 INTERRUPTION OF SERVICE

A. Interruption of service to water users shall not exceed 4 HRS.

B. Notify property owners of interruption a minimum of 24 HRS in advance.

3.3 UNDERGROUND SERVICES

A. Notify utility representative prior to construction to obtain available information on location of existing utilities. Contractor shall be responsible for locating all utilities.

B. Existing water services are to be connected to the new water mains in some cases. Damage to existing water service to be repaired, using copper pipe and union the same size as existing service.

3.4 DRIVEWAY REMOVAL AND REPLACEMENT

A. All Portland cement concrete and asphalt noted for removal and replacement shall be cut prior to removal:
   1. Cut by sawing, vertical cut to be 1 IN minimum.
   2. The remaining depth of section may be broken out in a manner subject to Engineers approval.
   3. Width of section removed to be either a width not greater than the outside diameter of the water main plus 4 FT-0 IN for asphalt driveways and broken out to the nearest joint for concrete driveways.

B. Replace Portland cement concrete and asphalt equal to or better than original paving plus 2 IN.

C. Debris resulting from the above operations shall be removed and hauled as directed by the Engineer.

3.5 GRAVEL SURFACED DRIVES AND ROADWAYS

A. Contractor shall restore all damaged gravel surfaced drives and roadways to a condition equal to or better than original:
   1. Payment to be at Bid Unit Price for this item.
   2. Replacement gravel gradation.

3.6 PROTECTION OF EXISTING UTILITIES

A. Contractor to verify the location of all underground utilities. Omission from, or the inclusion of utility locations on the plans is not to be considered as the nonexistence of or a definite location of existing underground utilities.

B. A representative of the underground utilities shall be notified 24 HRS in advance of crossings.

3.7 SEPERATION OF WATER MAINS FROM SANITARY SEWERS, STORM SEWERS AND OTHER NON-POTABLE FLUIDS

A. Parallel installation:
   1. The water main shall be located at a minimum of ten feet horizontally from any existing or proposed line carrying non-potable fluids such as, but not limited to:
      a. Drains.
      b. Storm sewers.
      c. Sanitary sewers.
      d. Combined sewers,
      e. Sewer service connections.
      f. Process waste or product lines.
      g. The distance shall be measured edge to edge.
   2. In areas where the recommended separations cannot be obtained:
      a. Either the waterline or the non-potable line shall be constructed of:
         1) Mechanical or manufactured restrained joint pipe.
         2) Fusion welded pipe.
         3) Or cased in a continuous casing.
            a) Casing pipe must be a material that is approved for use as water main.
            b) Conventional poured concrete is not an acceptable encasement.

B. Crossings:
   1. Water mains crossing sewers, or any other lines carrying non-potable fluids shall be laid to provide a minimum vertical clear distance of 18 inches between the outside of the water main and the outside of the non-potable pipeline:
      a. This shall be the case where the water main is either above or below the non-potable pipeline.
   2. 18-inch separation is a structural protection measure to prevent the sewer or water main from settling and breaking the other pipe.

3. The full length of water pipe shall be located so both joints will be as far from the non-potable pipeline as possible but in no case less than ten feet or centered on a 20-foot pipe.
4. In areas where the recommended separations cannot be obtained, either the waterline or the non-potable pipeline shall be constructed of:
    a. Mechanical or manufactured restrained joint pipe.
    b. Or fusion welded pipe.
    c. Or cased in a continuous casing that extends no less than ten feet on both sides of the crossing.
5. Special structural support for the water and sewer pipes may be required:
    a. Casing pipe must be a material that is approved for use as water main.
    b. Conventional poured concrete is not an acceptable encasement.

C. Force mains:
1. Minimum of ten-foot horizontal separation between water mains and sanitary sewer force mains or other force mains carrying non-potable fluids and they shall be in separate trenches.
2. In areas where the recommended separations cannot be obtained, either the waterline or the non-potable line shall be constructed of:
    a. Mechanical joint pipe,
    b. Or cased in a continuous casing.
    c. Or be jointless or fusion -welded pipe.
3. Waterline shall be at an elevation that the bottom of the water main is a minimum of 18 IN above the top of the non-potable line whenever possible.
4. Casing pipe must be a material that is approved for use as water main:
    a. Conventional poured concrete is not an acceptable encasement.

D. Sewer Manholes:
1. No waterline shall be located closer than 10 feet to any part of a sanitary or combined sewer manhole:
    a. Where the separation cannot be obtained, the waterline shall be constructed of
        1) mechanical or manufactured restrained joint pipe,
        2) Or fusion welded pipe,
        3) Or cased in a continuous casing.
    b. Casing pipe must be a material that is approved for use as water main.
    c. The full length of water pipe shall be located so both joints will be as far from the manhole as possible:
    d. A minimum of ten feet or centered on a 20-foot pipe.
    e. No waterpipe shall pass through or come into contact with any part of a sanitary or combined sewer manhole.

E. Payment for crossings shall be included in the bid unit price of the water main.

3.8 TREES

A. Do not remove trees without written instructions from the Engineer unless tree removal is shown on drawings:
1. No separate payment will be made for tree removal and the cost shall be included in the bid.

3.9 FENCES, SIGNS, MAILBOXES, ETC.

A. Restore all damaged fences, signs, mailboxes, etc., to their original conditions.
1. No separate payment will be made for these items.

END OF SECTION

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DIVISION 40

PROCESS INTERCONNECTIONS

SECTION 40 05 00
PIPE AND PIPE FITTINGS - BASIC REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Process piping systems.
   2. Utility piping systems.
   3. Plumbing piping systems.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 31 23 00 - Earthwork.
   4. Section 40 05 51 - Valves - Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Association of State Highway and Transportation Officials (AASHTO):
      a. M36, Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains (Equivalent ASTM A760).
      b. M190, Standard Specifications for Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches.
      c. M252, Standard Specifications for Corrugated Polyethylene Drainage Tubing.
      d. M294, Interim Specifications for Corrugated Polyethylene Pipe 12 to 24 IN DIA.
   2. American Iron and Steel Institute (AISI).
   3. American Society of Mechanical Engineers (ASME):
      a. B16.3, Malleable Iron Threaded Fittings.
      b. B16.5, Pipe Flanges and Flanged Fittings.
      c. B16.9, Factory-Made Wrought Steel Butt-Welding Fittings.
      d. B16.22, Wrought Copper and Bronze Solder - Joint Pressure Fittings.
      e. B16.26, Cast Copper Alloy Fittings for Flared Copper Tubes.
      f. B36.19, Stainless Steel Pipe.
      g. B40.100, Pressure Gauges and Gauge Attachments.
   4. ASTM International (ASTM):
      a. A53, Standard Specifications for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
      b. A74, Standard Specifications for Cast Iron Soil Pipe and Fittings.
      c. A106, Standard Specifications for Seamless Carbon Steel Pipe for High-Temperature Service.
      d. A126, Standard Specifications for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
      e. A182, Standard Specifications for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service.
      f. A197, Standard Specifications for Cupola Malleable Iron.
      g. A234, Standard Specifications for Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
      h. A269, Standard Specifications for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
      i. A312, Standard Specifications for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
      j. A518, Standard Specifications for Corrosion-Resistant High-Silicon Iron Castings.
      k. A536, Standard Specifications for Ductile Iron Castings.

l. A587, Standard Specifications for Electric-Resistance-Welded Low-Carbon Steel Pipe for the Chemical Industry.
m. A760, Standard Specifications for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains.
n. A774, Standard Specifications for As-Welded Wrought Austenitic Stainless Steel Fittings for General Corrosive Service at Low and Moderate Temperatures.
o. A778, Standard Specifications for Welded, Unannealed Austenitic Stainless Steel Tubular Products.
p. B88, Standard Specifications for Seamless Copper Water Tube.
q. C14, Standard Specifications for Concrete Sewer, Storm Drain, and Culvert Pipe.
r. C76, Standard Specifications for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
s. C425, Standard Specifications for Compression Joints for Vitrified Clay Pipe and Fittings.
t. C443, Standard Specifications for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
u. C564, Standard Specifications for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
v. C700, Standard Specifications for Vitrified Clay Pipe, Extra Strength, Standard Strength and Perforated.
w. D1785, Standard Specifications for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
x. D2466, Standard Specifications for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
y. D2467, Standard Specifications for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
z. D4101, Standard Specifications for Polypropylene Plastic Injection and Extrusion Materials.
aa. F439, Standard Specifications for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
bb. F441, Standard Specifications for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.
cc. F491, Standard Specifications for Poly(Vinylidene Fluoride)(PVDF) Plastic-Lined Ferrous Metal Pipe and Fittings.

5. American Water Works Association (AWWA):
   a. B300, Standard for Hypochlorites.
   b. C200, Standard for Steel Water Pipe - 6 IN and Larger.
   c. C207, Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 IN through 144 IN.
   d. C208, Standard for Dimensions for Fabricated Steel Water Pipe Fittings.
   e. C606, Standard for Grooved and Shouldered Joints.
   f. C651, Standard for Disinfecting Water Mains.
   g. C800, Standard for Underground Service Line Valves and Fittings.
6. American Water Works Association/American National Standards Institute (AWWA/ANSI):
   a. C110/A21.10, Standard for Ductile-Iron and Gray-Iron Fittings.
   b. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
   c. C115/A21.15, Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
   d. C151/A21.51, Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.
   e. C153/A21.53, Standard for Ductile-Iron Compact Fittings for Water Service.
7. Chlorine Institute, Inc. (CI):
   a. Pamphlet 6, Piping Systems for Dry Chlorine.
8. Cast Iron Soil Pipe Institute (CISPI):
   a. 301, Standard Specifications for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.

9. International Plumbing Code (IPC).
10. National Fire Protection Association (NFPA):
    a. 54, National Fuel Gas Code.
    b. 69, Standard on Explosion Prevention Systems.
11. Underwriters Laboratories, Inc. (UL).

B. Coordinate flange dimensions and drillings between piping, valves, and equipment.

1.3 DEFINITIONS

A. Hazardous Gas Systems: Digester gas, chlorine gas, sulfur dioxide gas, carbon dioxide gas, lab gases.

B. PVDF: Polyvinylidene fluoride.

1.4 SYSTEM DESCRIPTION

A. Piping Systems Organization and Definition:
1. Piping services are grouped into designated systems according to the chemical and physical properties of the fluid conveyed, system pressure, piping size and system materials of construction.
2. See PIPING SPECIFICATION SCHEDULES in PART 3 of this Section.

1.5 SUBMITTALS

A. Shop Drawings:
1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
2. Product Technical Data including:
    a. Acknowledgement that products submitted meet requirements of standards referenced.
    b. Copies of manufacturer's written directions regarding material handling, delivery, storage and installation.
    c. Separate schedule sheet for each piping system scheduled in this Section showing compliance with all system components:
        1) Attach technical product data on gaskets, pipe, fittings, and other components.

B. Informational Submittals:
1. Qualifications of lab performing disinfection analysis on water systems.
2. Test reports:
    a. Copies of pressure test results on all piping systems.
    b. Reports defining results of dielectric testing and corrective action taken.
    c. Disinfection test report.
    d. Notification of time and date of piping pressure tests.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect pipe coating during handling using methods recommended by manufacturer. Use of bare cables, chains, hooks, metal bars or narrow skids in contact with coated pipe is not permitted.

B. Prevent damage to pipe during transit:
1. Repair abrasions, scars, and blemishes.
2. If repair of satisfactory quality cannot be achieved, replace damaged material immediately.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. Insulating unions:
    a. "Dielectric" by Epco.
    b. Or approved equal.

2. Dirt strainers (Y type):
    a. Mueller (#351).
    b. Sarco.
    c. Armstrong.
    d. Or approved equal.
3. Chemical strainers (Y type):
    a. Chemtrol.
    b. Asahi.
    c. Or approved equal.
4. Dry disconnect couplings:
    a. Kamlock.
    b. Or approved equal.
5. Dielectric flange kit:
    a. PSI.
    b. Maloney.
    c. Central Plastics.
    d. Or approved equal.
6. Pipe saddles (for gage installation):
    a. Dresser Style 91 (steel and ductile iron systems).
    b. Dresser Style 194 (nonmetallic systems).
    c. Or approved equal.
7. Expansion joint at FRP and poly tanks:
    a. PROCO.
    b. Or approved equal.

B. Submit request for substitution in accordance with Section 01 25 13.

2.2 PIPING SPECIFICATION SCHEDULES

A. Piping system materials, fittings and appurtenances are subject to requirements of specific PIPING SPECIFICATIONS SCHEDULES in PART 3 of this Section.

2.3 COMPONENTS AND ACCESSORIES

A. Insulating Components:
1. Dielectric flange kits:
    a. Flat faced.
    b. 1/8 IN thick dielectric gasket, phenolic, non-asbestos.
    c. Suitable for 175 PSI, 210 DEGF.
    d. 1/32 IN wall thickness bolt sleeves.
    e. 1/8 IN thick phenolic insulating washers.
2. Dielectric unions:
    a. Screwed end connections.
    b. Rated at 175 PSI, 210 DEGF.
    c. Provide dielectric gaskets suitable for continuous operation at union rated temperature and pressure.

B. Reducers:
1. Furnish appropriate size reducers and reducing fittings to mate pipe to equipment connections.
2. Connection size requirements may change from those shown on the Drawings depending on equipment furnished.

C. Protective Coating and Lining:
1. Include pipe, fittings, and appurtenances where coatings, linings, paint, tests and other items are specified.
2. Field paint pipe in accordance with manufacturer's recommendations.

D. Dry Disconnect Couplings:
   1. Adapters:
      a. Male adapters: Size shown on the Drawings.
      b. Adapters:
         1) Female NPT end connection for sludge and flush applications.
         2) Male NPT end connection for chemical applications.
      c. Construct adapters for sludge applications from cast iron or steel.
      d. Construct adapters for chemical and PVC system applications 3 IN and below from polypropylene. Above 3 IN size, provide stainless steel units.
   2. Couplers:
      a. Built-in valve and spring loaded poppet which close automatically when disconnected.
      b. Designed to remain with only one arm locked in closed position.
      c. Construct couplers for sludge applications fabricated from material utilized for adapters.
      d. Construct couplers for chemical and PVC system applications 3 IN and less from polypropylene with stainless steel arms and pins. Above 3 IN, provide stainless steel units.
      e. Gasket: Compatible with conveyed liquid.
   3. Dust caps: For all adapters.

E. Valves:
   1. See schematics and details for definition of manual valves used in each system under 4 IN in size. See Drawings schedule for valve types 4 IN and above and for automatic valves used in each system.
   2. Comply with Section 40 05 51.

PART 3 - EXECUTION

3.1 EXTERIOR BURIED PIPING INSTALLATION

A. Unless otherwise shown on the Drawings, provide a minimum of 3.5 FT and maximum of 8 FT earth cover over exterior buried piping systems and appurtenances conveying water, fluids, or solutions subject to freezing.

B. Install expansion devices as necessary to allow expansion and contraction movement.

C. Laying Pipe In Trench:
   1. Excavate and backfill trench in accordance with Section 31 23 00.
   2. Clean each pipe length thoroughly and inspect for compliance with Specifications.
   3. Grade trench bottom and excavate for pipe bell and lay pipe on trench bottom.
   4. Install gasket or joint material according to manufacturer's directions after joints have been thoroughly cleaned and examined.
   5. Except for first two joints, before making final connections of joints, install two full sections of pipe with earth tamped along side of pipe or final with bedding material placed.
   6. Lay pipe in only suitable weather with good trench conditions. Never lay pipe in water except where approved by Engineer.
   7. Seal open end of line with watertight plug if pipe laying stopped.
   8. Remove water in trench before removal of plug.

D. Lining Up Push-On Joint Piping:
   1. Lay piping on route lines shown on the Drawings.
   2. Deflect from straight alignments or grades by vertical or horizontal curves or offsets.
   3. Observe maximum deflection values stated in manufacturer's written literature.
   4. Provide special bends when specified or where required alignment exceeds allowable deflections stipulated.
   5. Install shorter lengths of pipe in such length and number that angular deflection of any joint, as represented by specified maximum deflection, is not exceeded.

E. Anchorage and Blocking:
   1. Provide reaction blocking, anchors, joint harnesses, or other acceptable means for preventing movement of piping caused by forces in or on buried piping tees, wye branches, plugs, or bends.
   2. Place concrete blocking so that it extends from fitting into solid undisturbed earth wall. Concrete blocks shall not cover pipe joints.
   3. Provide bearing area of concrete in accordance with the Drawing detail.

F. Install insulating components where dissimilar metals are joined together.

3.2 CONNECTIONS WITH EXISTING PIPING

A. Where connection between new Work and existing Work is made, use suitable and proper fittings to suit conditions encountered.

B. Perform connections with existing piping at time and under conditions which will least interfere with service to customers affected by such operation.

C. Undertake connections in fashion which will disturb system as little as possible.

D. Provide suitable equipment and facilities to dewater, drain, and dispose of liquid removed without damage to adjacent property.

E. Where connections to existing systems necessitate employment of past installation methods not currently part of trade practice, utilize necessary special piping components.

F. Where connection involves potable water systems, provide disinfection methods as prescribed in this Section.

G. Once tie-in to each existing system is initiated, continue Work continuously until tie-in is made and tested.

3.3 FIELD QUALITY CONTROL

A. Pipe Testing - General:
   1. Test piping systems as follows:
      a. Test exposed, non-insulated piping systems upon completion of system.
      b. Test exposed, insulated piping systems upon completion of system but prior to application of insulation.
      c. Test concealed interior piping systems prior to concealment and, if system is insulated, prior to application of insulation.
      d. Test buried piping (insulated and non-insulated) prior to backfilling and, if insulated, prior to application of insulation.
   2. Utilize pressures, media and pressure test durations as specified in the PIPING SPECIFICATION SCHEDULES in PART 3 of this Section.
   3. Isolate equipment which may be damaged by the specified pressure test conditions.
   4. Perform pressure test using calibrated pressure gages and calibrated volumetric measuring equipment to determine leakage rates:
      a. Select each gage so that the specified test pressure falls within the upper half of the gage's range.
      b. Notify the Engineer 24 HRS prior to each test.
   5. Completely assemble and test new piping systems prior to connection to existing pipe systems.
   6. Acknowledge satisfactory performance of tests and inspections in writing to Engineer prior to final acceptance.
   7. Bear the cost of all testing and inspecting, locating and remedying of leaks and any necessary retesting and re-examination.

B. Pressure Testing:
1. Testing medium: Unless otherwise specified in the PIPING SPECIFICATIONS SCHEDULES in PART 3 of this Section, utilize the following test media.
a. Liquid systems:

PIPE LINE SIZE	SPECIFIED TEST PRESSURE	TESTING MEDIUM
All sizes	1.5 times normal operating pressure but not less than 150 psig	water

2. Allowable leakage rates:
a. After air removal, water shall be pumped in to bring the pipe to the specified pressure.
b. After 2 HRS, additional water shall be drawn from a container of known volume.
c. For ductile iron pipe, the amount of water required to return the system to the specified pressure shall not exceed the amount determined by the following formula:

$$Q = SD(P)^{1/2}/133000$$

Where Q - Total allowable leakage in 2 HRS, GAL.
S - Length of section tested, FT.
D - Nominal pipe DIA, IN.
P - Test pressure, PSI.

3. Hydrostatic pressure testing methodology:
a. General:
1) All joints, including welds, are to be left exposed for examination during the test.
2) Provide temporary restraints for expansion joints for additional pressure load under test.
3) Isolate equipment in piping system with rated pressure lower than pipe test pressure.
4) Do not paint or insulate exposed piping until successful performance of pressure test.
5) All exposed pipe, fittings, valves, blow-offs and joints shall be inspected and all evidence of moisture appearing on the surface of the ground during the test shall be investigated by the Contractor by excavation where the pipe has been covered with backfill.
6) Should the leakage test results exceed allowable leakage, the test pressure shall be maintained for an additional period of time as directed by the Engineer to facilitate location of leaks.
7) All pipe, fittings, valves, pipe joints, hydrants, and other materials which are found to be defective when the pipe line is tested shall be removed from the line immediately and replaced with new and acceptable material by and at the expense of the Contractor.
8) The pressure test shall be repeated after repairing leaks and other defective Work until the pipe line installation conforms to specified requirements and is accepted by the Engineer.

3.4 CLEANING, DISINFECTION AND PURGING

A. Cleaning:
1. Clean interior of piping systems thoroughly before installing.
2. Maintain pipe in clean condition during installation.
3. Before jointing piping, thoroughly clean and wipe joint contact surfaces and then properly dress and make joint.
4. Immediately prior to pressure testing, clean and remove grease, metal cuttings, dirt, or other foreign materials which may have entered the system.

B. Disinfection of Potable Water Systems:
   1. After favorable performance of pressure test and prior to Final Acceptance, thoroughly flush entire potable water piping system including supply, source and any appurtenant devices and perform disinfection as prescribed.
   2. Perform Work, including preventative measures during construction, in full compliance with AWWA C651.
   3. Perform disinfection using sodium hypochlorite complying with AWWA B300.
   4. Flush each segment of system to provide flushing velocity of not less than 2.5 FT per second.
   5. Drain flushing water to either:
      a. The sanitary sewer:
         1) Only with the permission of the sanitary sewer system owner, and
         2) Only with the sanitary sewer system owner approval of the proposed flushing discharge rate clearly defined.
      b. A public storm sewer or public drainage way which has capacity to receive the proposed flushing discharge rate:
         1) Flushing water shall be dechlorinated to provide a free chlorine and chloramine residual on non detectable level (less than 0.001 PPM).
         2) Use equipment intended by the manufacturer for the purpose of dechlorinating flushing water from water mains:
            a) Provide written guarantee from the dechlorinating equipment manufacturer that the proper use of the dechlorinating equipment by the detailed written instructions provided with the guarantee will dechlorinate the water flushed from the water main with the following conditions:
               (1) A free chlorine residual value (PPM) to be stated in the guarantee.
               (2) A chloramine residual value (PPM) to be stated in the guarantee.
               (3) A flow rate of 3 FT/sec velocity in the water main size to be flushed (for 12-IN water main that is 1,100 to 1,150 GPM).
   6. Use continuous feed method of application. Tag system during disinfection procedure to prevent use.
   7. After required contact period, flush system to remove traces of heavily chlorinated water.
   8. After final flushing and before placing water in service, obtain an independent laboratory approved by the Owner to collect samples and test for bacteriological quality. Repeat entire disinfection procedures until satisfactory results are obtained.
   9. Secure and deliver to Owner, satisfactory bacteriological reports on samples taken from system. Ensure sampling and testing procedures are in full compliance with AWWA C651, local water purveyor and applicable requirements of State of Missouri.

3.5 LOCATION OF BURIED OBSTACLES

A. Furnish exact location and description of buried utilities encountered and thrust block placement.

B. Reference items to definitive reference point locations such as found property corners, entrances to buildings, existing structure lines, fire hydrants and related fixed structures.

C. Include such information as location, elevation, coverage, supports and additional pertinent information.

D. Incorporate information on "As-Recorded" Drawings.

3.6 SCHEDULES

A. SPECIFICATION SCHEDULE - SYSTEM 10
   1. General:
      a. Piping symbol and service: Piping service.
      b. Test requirements:
         1) Test medium: Water.
         2) Pressure: 150 PSIG.
         3) Duration: 2 HRS.

c. Gaskets and O-rings:
    1) O-rings: Neoprene or rubber.
    2) Push-on, integral bell (restrained PVC).

2. System components:
    a. Pipe size to 3 IN:
        1) Exposed Service:
            a) Materials: Copper tubing, Type L.
            b) Reference: ASTM B88.
            c) Lining: None.
            d) Coating: Paint.
            e) Fittings: Wrought copper or bronze fitting meeting ASME B16.22.
            f) Joints: Soldered or brazed with unions at valves and equipment.
        2) Buried Service:
            a) Materials: Copper tubing, Type K.
            b) Reference: ASTM B88.
            c) Lining: None.
            d) Coating: None.
            e) Fittings: AWWA C800.
            f) Joints: Flared.
    b. Pipe size 3 IN through 24 IN:
        1) Buried Service:
            a) Materials: PVC DR18 or Restrained Joint PVC DR18.
            b) Reference: AWWA C-900.
            c) Lining: None.
            d) Coating: None.
            e) Fittings:
                (1) Either AWWA/ANSI C110/A21.10 ductile or gray iron with retainer gland for restraint joint.
                (2) Optional: AWWA/ANSI C153/A21.53 ductile iron compact fittings for sizes 3 IN to 16 IN with retainer gland for restraint joint.
            f) Joints: Push-on or integral bell for restrained pipe.
        2) Buried Service:
            a) Materials: Ductile iron, Class 50.
            b) Reference: AWWA/ANSI C151/A21.51.
            c) Lining: Cement.
            d) Coating: Arc applied zinc primer per 40 05 19 and bituminous top coat with polyethylene encasement.
            e) Fittings:
                (1) Either AWWA/ANSI C110/A21.10 ductile or gray iron.
                (2) Optional: AWWA/ANSI C153/A21.53 ductile iron compact fittings for sizes 3 to 12 IN.
            f) Joints: Push-on with mechanical (stuffing box type) joints at fittings and valves.

END OF SECTION

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SECTION 40 05 17
PIPE - COPPER

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Copper piping, fittings, and appurtenances.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 31 23 00 - Earthwork.
   4. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.

C. Referenced Standards:
   1. American Society of Mechanical Engineers (ASME):
      a. B16.22, Wrought Copper and Bronze Solder - Joint Pressure Fittings.
      b. B16.23, Cast Bronze Solder Joint Drainage Fittings - DWV.
      c. B16.26, Cast Bronze Alloy Fittings for Flared Copper Tubes.
   2. ASTM International (ASTM):
      a. B32, Standard Specifications for Solder Metal.
      b. B42, Standard Specifications for Seamless Copper Pipe, Standard Sizes.
      c. B88, Standard Specifications for Seamless Copper Water Tube.
      d. B306, Standard Specifications for Copper Drainage Tube (DWV).
   3. American Welding Society (AWS):
      a. A5.8M/A5.8, Specifications for Filler Metals for Brazing and Braze Welding.

1.2 SUBMITTALS

A. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.

B. Comply with Section 40 05 00.

1.3 MATERIALS

A. Copper Tubing:
   1. Pressure non-buried: ASTM B88, Type L hard.
   2. Pressure buried: ASTM B88, Type K.
   3. Non-pressure: ASTM B306.

B. Copper Pipe: ASTM B42, regular strength.

C. Fittings:
   1. Pressure non-buried: ASME B16.22.
   2. Pressure buried: ASME B16.22 or ASME B16.26.
   3. Non-pressure: ASME B16.23

D. Soldering and Brazing:
   1. Non-buried:
      a. ASTM B32 solder with a tin/antimony ratio of 95/5 and non-corrosive flux up to 180 DEGF water temperature.
      b. At 180 DEGF and above, use brazing alloy with melting temperature above 1,000 DEGF and suitable flux.
   2. Buried: Silver solder per AWS A5.8M/A5.8.

E. Comply with Piping Schedules in Section 40 05 00.

F. Unions:
   1. Pipe sizes 2 IN and smaller: Copper, ground joint.
   2. Pipe sizes 2-1/2 IN and larger: Brass flanged unions.

PART 2 - EXECUTION

2.1 INSTALLATION

A. Comply with Section 40 05 00.

2.2 FIELD QUALITY CONTROL

A. Test piping systems in accordance with Section 40 05 00.

B. Utilize only annealed (soft) type tubing where flared joints are used and drawn temper (hard) type tubing where soldered or brazed joints are used.

C. Support exposed piping in accordance with Section 40 05 00.

D. Install buried piping in accordance with Section 31 23 00 and Section 40 05 00.

END OF SECTION

SECTION 40 05 19
PIPE - DUCTILE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Ductile iron piping, fittings, and appurtenances.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Society of Mechanical Engineers (ASME):
      a. B1.1, Unified Inch Screw Threads (UN and UNR Thread Form).
      b. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
   2. ASTM International (ASTM):
      a. B695, Standard Specifications for Coatings of Zinc Mechanically Deposited on Iron and Steel.
   3. American Water Works Association (AWWA):
      a. C203, Standard for Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot Applied.
      b. C606, Standard for Grooved and Shouldered Joints.
   4. American Water Works Association/American National Standards Institute (AWWA/ANSI):
      a. C105/A21.5, Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
      b. C110/A21.10, Standard for Ductile-Iron and Gray-Iron Fittings.
      c. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
      d. C115/A21.15, Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
      e. C150/A21.50, Standard for Thickness Design of Ductile-Iron Pipe.
      f. C151/A21.51, Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.
   5. Society of Automotive Engineers (SAE):
      a. AMS-QQ-P-416, Cadmium Plating - Electro-deposited.

1.3 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Comply with Section 40 05 00.
   3. Certification of factory hydrostatic testing.
   4. If mechanical coupling system is used, submit piping, fittings, and appurtenant items which will be utilized to meet system requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Flanged adaptors:
    a. Rockwell (Style 912 (cast)).
    b. Dresser (Style 127 (cast)).
    c. Or approved equal.
2. Compression sleeve coupling:
    a. Rockwell (Style 431 (cast)).
    b. Dresser (Style 153 (cast)).
    c. Or approved equal.
3. Mechanical coupling:
    a. Victaulic (Style 31).
    b. Tyler.
    c. Victaulic Glass lining.
    d. Ceramic Coating (Non-Stick Glass Lining).
    e. Permutit (SG-14 Glass Lining).
    f. Or approved equal.
4. Insulating couplings:
    a. Rockwell (Style 416).
    b. Dresser (Style 39).
    c. Or approved equal.
5. Reducing couplings:
    a. Rockwell (Style 415).
    b. Dresser (Style 62).
    c. Or approved equal.
6. Transition coupling:
    a. Rockwell (Style 413).
    b. Dresser (Style 62).
    c. Or approved equal.
7. Polyethylene encasement tape:
    a. Chase (Chasekote 750).
    b. Kendall (Polyken 900).
    c. 3 M (Scotchrap 50).
    d. Or approved equal.
8. Restrained joints:
    a. American (Fast Grip and Flex Ring) - 12 IN and below.
    b. U.S. Pipe (Field Lok and TR-Flex) - 4 IN to 12 IN.
    c. Or approved equal.

B. Submit request for substitution in accordance with Section 01 25 13.

2.2 MATERIALS

A. Ductile Iron Pipe:
1. AWWA/ANSI C115/A21.15.
2. AWWA/ANSI C150/A21.50.
3. AWWA/ANSI C151/A21.51.

B. Fittings and Flanges:
1. AWWA/ANSI C110/A21.10.
2. AWWA/ANSI C115/A21.15.
3. Flanges drilled and faced per ASME B16.1 for both 125 and 250 PSI applications.

C. Nuts and Bolts:
1. Buried: Cadmium-plated meeting SAE AMS-QQ-P-416, Type 1, Class 2 (Cor-Ten) for buried application.
2. Exposed: Mechanical galvanized ASTM B695, Class 40.
3. Heads and dimensions per ASME B1.1.
4. Threaded per ASME B1.1.
5. Project ends 1/4 to 1/2 IN beyond nuts.

D. Gaskets: Comply with individual piping system requirements in Section 40 05 00.

E. If mechanical coupling system is used, utilize pipe thickness and grade in accordance with AWWA C606.

F. Polyethylene Encasement: Comply with AWWA/ANSI C105/A21.5.

G. Comply with Piping Schedules in Section 40 05 00.

2.3 MANUFACTURED UNITS

A. Couplings:
   1. Flanged adaptors:
      a. Unit consisting of steel or carbon steel body sleeve, flange, followers, Grade 30 rubber gaskets.
      b. Provide units specified in the MANUFACTURERS Article of this Section.
      c. Supply flanges meeting standards of adjoining flanges.
      d. Rate entire assembly for test pressure specified on piping schedule for each respective application.
   2. Compression sleeve coupling:
      a. Unit consisting of steel sleeve, followers, Grade 30 rubber gaskets.
      b. Provide units specified in the MANUFACTURERS Article of this Section.
      c. Supply flanges meeting standards of adjoining flanges.
      d. The working pressure rating of the entire assembly shall be greater than or equal to the test pressure specified on piping schedule for each respective piping application.
      e. Provide field coating for buried couplings per AWWA C203.
   3. Mechanical couplings:
      a. Use of mechanical couplings and fittings in lieu of flanged joints is acceptable where specifically specified in Section 40 05 00.
      b. Utilize units defined in the MANUFACTURERS Article of this Section.

2.4 FABRICATION

A. Furnish and install without outside coatings of bituminous material any exposed pipe scheduled to be painted.

B. Furnish cast parts with lacquer finish compatible with finish coat.

C. The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of the zinc applied shall be 200 g/m^2 of pipe surface area.
   1. A finishing layer topcoat shall be applied to the zinc.
   2. The coating system shall conform in every respect to ISO 8179-1 “Ductile iron pipes – External zinc-based coating – Part 1: Metallic zinc with finishing layer. Second edition 2004-06-01.

2.5 LININGS AND COATINGS

A. Where specified in piping schedule, provide linings to a minimum thickness of 40 MILS.

2.6 SOURCE QUALITY CONTROL

A. Factory Test:
   1. Subject pipe to hydrostatic test of not less than 500 PSI with the pipe under the full test pressure for at least 10 seconds.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Joining Method - Push-On Mechanical (Gland-Type) Joints:
   1. Install in accordance with AWWA/ANSI C111/A21.11.
   2. Assemble mechanical joints carefully according to manufacturer's recommendations.

3. If effective sealing is not obtained, disassemble, thoroughly clean, and reassemble the joint.
4. Do not overstress bolts.
5. Where piping utilizes mechanical joints with tie rods, align joint holes to permit installation of harness bolts.

B. Joining Method - Push-On Joints:
1. Install in accordance with AWWA/ANSI C151/A21.51.
2. Assemble push-on joints in accordance with manufacturer's directions.
3. Bevel and lubricate spigot end of pipe to facilitate assembly without damage to gasket:
   a. Use lubricant that is non-toxic, does not support the growth of bacteria, has no deteriorating effects on the gasket material, and imparts no taste or odor to water in pipe.
4. Assure the gasket groove is thoroughly clean.
5. For cold weather installation, warm gasket prior to placement in bell.
6. Taper of bevel shall be approximately 30 DEG with centerline of pipe and approximately 1/4 IN back.

C. Joining Method - Flanged Joints:
1. Install in accordance with AWWA/ANSI C115/A21.15.
2. Extend pipe completely through screwed-on flanged and machine flange face and pipe in single operation.
3. Make flange faces flat and perpendicular to pipe centerline.
4. When bolting flange joints, exercise extreme care to ensure that there is no restraint on opposite end of pipe or fitting which would prevent uniform gasket compression or would cause unnecessary stress, bending or torsional strains to be applied to cast flanges or flanged fittings.
5. Allow one flange free movement in any direction while bolts are being tightened.
6. Do not assemble adjoining flexible joints until flanged joints in piping system have been tightened.
7. Gradually tighten flange bolts uniformly to permit even gasket compression.

D. Joining Method - Mechanical Coupling Joint:
1. Arrange piping so that pipe ends are in full contact.
2. Groove and shoulder ends of piping in accordance with manufacturer's recommendations.
3. Provide coupling and grooving technique assuring a connection which passes pressure testing requirements.

E. Flange Adaptors 12 IN and Less:
1. Locate and drill holes for anchor studs after pipe is in place and bolted tight.
2. Drill holes not more than 1/8 IN larger than diameter of stud projection.

F. Cutting:
1. Do not damage interior lining material during cutting.
2. Use abrasive wheel cutters or saws.
3. Make square cuts.
4. Bevel and free cut ends of sharp edges after cutting.

G. Support exposed pipe in accordance with Section 40 05 00.

H. Install buried piping in accordance with Section 40 05 00.

I. Install restrained joint systems where specified in Section 40 05 00 under specific piping system.

3.2 FIELD QUALITY CONTROL

A. Test piping systems in accordance with Section 40 05 00.

END OF SECTION

SECTION 40 05 31
PIPE - PLASTIC

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Plastic pipe.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.

1.2 QUALITY ASSURANCE

A. Comply with Section 40 05 00.

B. Referenced Standards:
   1. ASTM International (ASTM):
      a. PVC (poly vinyl chloride) materials:
         1) D1784, Standard Specifications for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
         2) D1785, Standard Specifications for Poly (Vinyl Chloride) PVC Plastic Pipe, Schedules 40, 80 and 120.
         3) D2467, Standard Specifications for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
         4) D3034, Standard Specifications for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
         5) D3139, Standard Specifications for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
         6) D3212, Standard Specifications for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
         7) F593, Standard Specifications for Stainless Steel Bolts, Hex Cap Screws, and Studs.
         8) F679, Standard Specifications for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
         9) F794, Standard Specifications for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
         10) F949, Standard Specifications for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings.
      b. Installation:
         1) D2321, Standard Practice for Underground Installation of Thermosplastic Pipe for Sewers and Other Gravity-Flow Applications.
   2. American Water Works Association (AWWA):
      a. PVC (polyvinyl chloride) materials:
         1) C900, Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 IN Through 12 IN, for Water Distribution.
         2) C905, Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 IN through 48 IN, for Water Transmission and Distribution.
      b. Polyethylene (PE) materials:
         1) C901, Standard for Polyethylene (PE) Pressure Pipe and Tubing, 1/2 IN through 3 IN, for Water Service.
   3. NSF International (NSF).

1.3 SUBMITTALS

A. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.

B. Comply with Section 40 05 00.

PART 2 - PRODUCTS

2.1 PRESSURE PIPING (UNDERGROUND)

A. Materials: Furnish materials in full compliance with following requirements:
   1. 4-12 IN: AWWA C900 PVC with Pressure Class of 235, DR18 PSI per Table 2, AWWA C900.
   2. Joints for PVC pipe shall be the elastomeric-gasket type with a pressure rating not less than pipe pressure rating meeting performance requirements of ASTM D3139.

B. Installation:
   1. Field threading of PVC pipe will not be permitted.
   2. Perform installation procedures, handling, thrust blocking, connections, and other appurtenant operations in full compliance with the manufacturer's printed recommendations and in full observance to plan details when more stringent.

PART 3 - EXECUTION

3.1 IDENTIFICATION

A. Identify each length of pipe clearly at intervals of 5 FT or less:
   1. Include manufacturer's name and trademark.
   2. Nominal size of pipe, appurtenant information regarding polymer cell classification and critical identifications regarding performance specifications and NSF approvals when applicable.

3.2 PRESSURE PIPING (UNDERGROUND)

A. Installation:
   1. Field threading of PVC pipe will not be permitted.
   2. Perform installation procedures, handling, thrust blocking, connections, and other appurtenant operations in full compliance with the manufacturer's printed recommendations and in full observance to plan details when more stringent.

END OF SECTION

SECTION 40 05 51
VALVES - BASIC REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Valving, actuators, and valving appurtenances.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Society of Mechanical Engineers (ASME):
      a. B1.20.1, Pipe Threads, General Purpose.
      b. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
      c. B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
   2. ASTM International (ASTM):
      a. A126, Standard Specifications for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
      b. D256, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
      c. D638, Standard Test Method for Tensile Properties of Plastics.
      d. D648, Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.
      e. D695, Standard Test Method for Compressive Properties of Rigid Plastics.
      f. D2240, Standard Test Method for Rubber Property-Durometer Hardness.
   3. American Water Works Association (AWWA):
      a. C207, Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 IN through 144 IN.
      b. C500, Standard for Metal-Seated Gate Valves for Water Supply Service.
      c. C504, Standard for Rubber-Seated Butterfly Valves.
      d. C507, Standard for Ball Valves, 6 IN through 48 IN (150 MM through 1,200 MM).
      e. C509, Standard for Resilient-Seated Gate Valves for Water Supply Service.
      f. C550, Standard for Protective Coatings for Valves and Hydrants.
      g. C606, Standard for Grooved and Shouldered Joints.
   4. American Water Works Association/American National Standards Institute (AWWA/ANSI):
      a. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
   5. National Electrical Manufacturers Association (NEMA):
      a. 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).
      b. MG 1, Motors and Generators.

1.3 DEFINITIONS

A. The following are definitions of abbreviations used in this Section or one of the individual valve sections:
   1. CWP: Cold water working pressure.
   2. SWP: Steam working pressure.

3. WOG: Water, oil, gas working pressure.
4. WWP: Water working pressure.

1.4 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Product Technical Data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
      c. Valve pressure and temperature rating.
      d. Valve material of construction.
      e. Special linings.
      f. Valve dimensions and weight.
      g. Valve flow coefficient.
      h. Wiring and control diagrams for electric or cylinder actuators.
   3. Test reports.

B. Informational Submittals:
   1. Verification from valve actuator manufacturer that actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted, and that the valve actuator responds correctly to the valve position command.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, refer to individual valve Specifications Sections for acceptable manufacturers.

2.2 MATERIALS

A. Refer to individual valve Specifications Sections.

2.3 VALVE ACTUATORS

A. Valve Actuators - General:
   1. Provide actuators as shown on the Drawings or specified.
   2. Counter clockwise opening as viewed from the top.
   3. Direction of opening and the word OPEN to be cast in handwheel or valve bonnet.
   4. Size actuator to produce required torque with a maximum pull of 80 LB at the maximum pressure rating of the valve provided and withstand without damage a pull of 200 LB on handwheel or chainwheel or 300 FT-LBS torque on the operating nut.
   5. Unless otherwise specified, actuators for valves to be buried, submerged or installed in vaults or manholes shall be sealed to withstand at least 20 FT of submergence.
   6. Extension stem:
      a. Install where shown or specified.
      b. Solid steel with actuator key and nut, diameter not less than stem of valve actuator shaft.
      c. Pin all stem connections.
      d. Center in valve box or grating opening band with guide bushing.

B. Buried Valve Actuators:
   1. Provide screw or slide type adjustable cast iron valve box, 5 IN minimum diameter, 3/16 IN minimum thickness, and identifying cast iron cover rated for traffic load.
   2. Box base to enclose buried valve gear box or bonnet.
   3. Provide 2 IN standard actuator nuts complying with AWWA C500, Section 3.16.

4. Provide at least two tee handle keys for actuator nuts, with 5 FT extension between key and handle.
5. Extension stem:
    a. Provide for buried valves greater than 4 FT below finish grade.
    b. Extend to within 6 IN of finish grade.
6. Provide concrete pad encasement of valve box as shown for all buried valves unless shown otherwise.

C. Plastic Valve Vault:
1. Provide in non-traffic areas only on valve applications 3-1/2 IN and less.
2. Nominal 7-1/2 IN DIA top section.
3. Design unit for screw type extension section having nominal 9 IN DIA bell.
4. Cast iron ring and lid.
5. Constructed of injection molded polyolefin compound with fibrous inorganic component reinforcing and UV stabilization.
6. Armor Access Boxes.

D. Exposed Valve Manual Actuators:
1. Provide for all exposed valves not having electric or cylinder actuators.
2. Provide handwheels for gate and globe valves:
    a. Size handwheels for valves in accordance with AWWA C500.
3. Provide lever actuators for plug valves, butterfly valves and ball valves 3 IN DIA and smaller:
    a. Lever actuators for butterfly valves shall have a minimum of five intermediate lock positions between full open and full close.
    b. Provide at least two levers for each type and size of valve furnished.
4. Gear actuators required for plug valves, butterfly valves, and ball valves 4 IN DIA and larger.
5. Provide gearing for gate valves 20 IN and larger in accordance with AWWA C500.
6. Gear actuators to be totally enclosed, permanently lubricated and with sealed bearings.
7. Provide chain actuators for valves 6 FT or higher from finish floor to valve centerline:
    a. Cadmium-plated chain looped to within 3 FT of finish floor.
    b. Equip chain wheels with chain guides to permit rapid operation with reasonable side pull without "gagging" the wheel.
    c. For smaller valves with lever or handle operators, provide offset tee handles with attached chain for operation from the operating floor.
8. Provide cast iron floor stands where shown on the Drawings:
    a. Stands to be furnished by valve manufacturer with actuator.
    b. Stands or actuator to include thrust bearings for valve operation and weight of accessories.

E. Submerged Actuators:
1. Mount the valve actuator on top of an extension bonnet 3 FT above any adjacent personnel access.
2. The valve and bonnet connection shall be flanged and watertight.
3. Provide a top brace support for the bonnet:
    a. Mount the brace 6 IN below the top of the wall as shown.
4. Materials:
    a. Extension bonnet: Cast iron ASTM A126 or steel.
    b. Brace and anchor bolts: Type 304 stainless steel

2.4 FABRICATION

A. End Connections:
1. Provide the type of end connections for valves as required in the Piping Schedules presented in Section 40 05 00 or as shown on the Drawings.
2. Comply with the following standards:
    a. Threaded: ASME B1.20.1.

b. Flanged: ASME B16.1, Class 125 unless otherwise noted or AWWA C207.
c. Bell and spigot or mechanical (gland) type: AWWA/ANSI C111/A21.11.
d. Soldered: ASME B16.18.
e. Grooved: Rigid joints per Table 5 of AWWA C606.

B. Refer to individual valve Specifications Sections for specifications of each type of valve used on Project.

C. Nuts, Bolts, and Washers:
1. Wetted or internal to be bronze or stainless steel.
2. Exposed to be high strength, low alloy steel per AWWA C111 with ceramic filled, baked on fluorocarbon resin coating (Cor-Blue), fluoropolymer coating (FluoroKote #1), or approved equal, with factory applied lubricant for ease of installation.

D. On Insulated Piping: Provide valves with extended stems to permit proper insulation application without interference from handle.

E. Epoxy Interior Coating: Provide epoxy interior coating for all ferrous surfaces in accordance with AWWA C550.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Setting Buried Valves:
1. Locate valves installed in pipe trenches where buried pipe indicated on the Drawings.
2. Set valves and valve boxes plumb.
3. Place valve boxes directly over valves with top of box being brought to surface of finished grade.
4. Install in closed position.
5. Place valve on firm footing in trench to prevent settling and excessive strain on connection to pipe.
6. After installation, backfill up to top of box for a minimum distance of 4 FT on each side of box.

C. Support exposed valves and piping adjacent to valves independently to eliminate pipe loads being transferred to valve and valve loads being transferred to the piping.

D. For grooved coupling valves, install rigid type couplings.

E. Install electric or cylinder actuators above or horizontally adjacent to valve and gear box to optimize access to controls and external handwheel.

F. For threaded valves, provide union on one side within 2 FT of valve to allow valve removal.

G. Install valves accessible for operation, inspection, and maintenance.

3.2 ADJUSTMENT

A. Operate valve, open and close at system pressures.

END OF SECTION

SECTION 40 05 61
GATE VALVES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Gate valves.

B. Related Specifications Sections include but are not necessarily limited to:
   1. Division 00 - Procurement and Contracting Requirements.
   2. Division 01 - General Requirements.
   3. Section 40 05 51 - Valves - Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. A126, Standard Specifications for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
   2. American Water Works Association (AWWA):
      a. C500, Standard for Metal-Seated Gate Valves for Water Supply Service.
      b. C504, Standard for Rubber-Seated Butterfly Valves.
      c. C509, Standard for Resilient-Seated Gate Valves for Water Supply Service.
      d. C515, Standards for Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Systems.
      e. C550, Standard for Protective Epoxy Interior Coatings for Valves and Hydrants.
   3. Manufacturers Standardization Society of the Valve and Fittings Industry Inc. (MSS):
      a. SP-9, Spot Facing for Bronze, Iron and Steel Flanges.
      b. SP-70, Cast Iron Gate Valves, Flanged and Threaded Ends.
      c. SP-80, Bronze Gate, Globe, Angle and Check Valves.

1.3 DEFINITIONS

A. OS&Y: Outside Screw and Yoke.

B. NRS: Non-rising Stem.

C. RS: Rising Stem.

1.4 SUBMITTALS

A. Shop Drawings:
   1. Comply with Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
   2. Comply with Section 40 05 51.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable Articles below are acceptable.

B. Submit request for substitution in accordance with Section 01 25 13.

2.2 VALVES: WATER, POTABLE

A. Resilient Wedge Gate Valves, 2 to 48 IN (Water):
   1. Comply with AWWA C515.
   2. Materials:
      a. Stem and stem nut: Bronze:
         1) Wetted bronze parts in low zinc bronze.
         2) Aluminum bronze components: Heat treated per AWWA C504.
      b. Body, gate: Ductile iron.
      c. Resilient wedge: Fully encapsulated rubber wedge.
   3. Design requirements:
      a. Minimum 200 PSI working pressure.
      b. Buried: NRS, O-ring stem seal, 2 IN square operating nut.
      c. Exposed: OS&Y, stuffing box stem seal, handwheel.
      d. Counter clockwise open rotation.
      e. Fusion bonded epoxy coating interior and exterior except stainless steel and bearing surfaces:
         1) Comply with AWWA C550.
         2) Wetted bronze parts in low zinc bronze.
         3) Aluminum bronze components: Heat treated per AWWA C504.
   4. Acceptable manufacturers:
      a. Clow.
      b. Mueller.
      c. American Flow Control.
      d. M & H.
      e. Or approved equal.

2.3 ACCESSORIES

A. Refer to Drawings and valve schedule for type of actuators. Furnish actuator integral with valve.

B. Refer to Section 40 05 51 for actuator requirements.

2.4 FABRICATION

A. General: Provide valves with clear waterways the full diameter of the valve.

B. Spot valves in accordance with MSS SP-9.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with Section 40 05 51.

B. Where larger buried valves utilize smaller bypass valves, provide a second valve box installed over the bypass valve operating nut.

C. Do not install gate valves inverted or with the stems sloped more than 45 DEG from the upright unless the valve was ordered and manufactured specifically for this orientation.

END OF SECTION

12th Street Extension

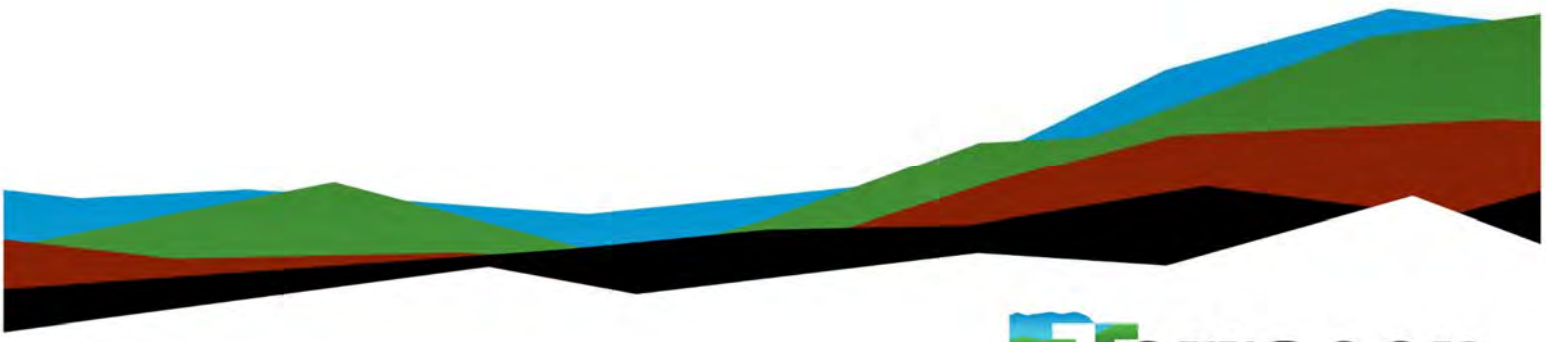
Geotechnical Engineering Report

Blue Springs, Missouri

April 21, 2025 | Terracon Project No. 02245405

Prepared for:

Wilson & Company Inc Engineers & Architects
Kansas City, Missouri 64131



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April 21, 2025

Wilson & Company Inc Engineers & Architects
800 East 101st Terrace Suite 200
Kansas City, Missouri 64131

Attn: Darren Meyer
P: (816) 556-3628
E: Darren.Meyer@wilsonco.com

Re: Geotechnical Engineering Report
12th Street Extension
12th Street north of Wyatt Road
Blue Springs, Missouri
Terracon Project No. 02245405

Dear Mr. Meyer:

We have completed a subsurface exploration and geotechnical engineering evaluation for the referenced project in general accordance with Terracon Proposal No. P02245405 dated December 20, 2024. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of pavements for the project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

Stacey L. Bonderer

Stacey L. Bonderer, E.I.T.
Staff Engineer

Kevin D. Friedrichs, P.E.
Senior Engineer
Missouri: PE2013010325



04/21/2025

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Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the Terracon logo will bring you

back to this page. For more interactive features, please view your project online at **client.terracon.com**.

Refer to each individual Attachment for a listing of contents.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed roadway extension to be located at 12th Street north of Wyatt Road in Blue Springs, Missouri. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil and rock conditions
- Groundwater conditions
- AASHTO seismic site class
- Site preparation and earthwork
- Dewatering considerations
- Lateral earth pressure parameters
- Pavements

Drawings showing the site and boring locations are shown on the attached **Site Location Plan** and **Exploration Plan**. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs and/or as separate graphs in **Exploration Results**.

Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Project Description	We understand that 12th Street will be extended from an existing residential neighborhood south to SW Wyatt Road in Blue Springs, Missouri.
Proposed Structure	Two culvert crossings are planned along the alignment. Specific details regarding the length and width of the planned box culverts were not available at the time this report was prepared.
Grading/Slopes	A site grading plan was not provided. We have considered no more than 5 feet of cut and 5 feet of fill will be required to develop final grades. Final slopes with an inclination of 3H:1V (Horizontal: Vertical) or flatter, are planned.

Item	Description
Below-Grade Structures	The culverts may include cast-in-place wing walls.
Free-Standing Retaining Walls	No free-standing retaining walls are planned.
Pavements	No information regarding anticipated vehicle types, axle loads, or traffic volumes was provided. We anticipate the pavements will be designed to the City of Blue Springs standards for minimum pavement thickness based on roadway classification. We will review the minimum section with respect to the subgrade conditions and provide additional recommendations as required.

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located south of the existing 12th Street north of Wyatt Road in Blue Springs, Missouri. See **Site Location**
Existing Improvements	The site is presently an agricultural field with densely wooded areas around the streams.
Existing Topography	Approximate site elevations, obtained using Google Earth, range from 904 to 955 feet.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based on the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical evaluation. Conditions observed at each boring location are indicated on the individual logs. The individual logs are in the **Exploration Results** and the GeoModel is in the **Figures** attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	Fill	Lean clay with gravel
2	Native Clay	Fat clay (CH), soft to very stiff
3	Limestone	Completely to highly weathered limestone

The borings were observed during drilling and shortly after completion of drilling for the presence and level of water. Groundwater was not encountered in the borings during our field exploration. A longer period of time may be required for groundwater to develop and stabilize in a borehole. Longer term observations in piezometers or observation wells, sealed from the influence of surface water, are often required to define groundwater levels.

Groundwater levels may fluctuate due to seasonal variations in creek water levels, amount of rainfall, runoff, and other factors not evident at the time the borings were performed. "Perched" water could occur above lower permeability soil layers and/or near the soil/bedrock interface, and "trapped" water could be present within existing fill materials. Therefore, groundwater conditions at other times may be different than the conditions encountered in our exploratory borings. The potential for water level fluctuations and perched water should be considered when developing design and construction plans and specifications for the project.

Seismic Site Class

The seismic design requirements for buildings and other structures are based on Seismic Design Category. The Site Class is required to determine the Seismic Design Category for a structure. The Site Class is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 3.4.2.1 of AASHTO Guide Specifications for LRFD Seismic Bridge Design. Based on the soil and bedrock encountered in our subsurface exploration, **Seismic Site Class C** can be considered for design of the project. The subsurface exploration at this site extended to a maximum depth of 10 feet into medium stiff to stiff native clay. Borings B-1, B-2 and B-5 terminated in limestone bedrock at depths ranging from 3 to 6 feet. The site properties below the maximum boring depth were estimated based on our experience and knowledge of geologic conditions of the general area. Upon request, we could perform deeper borings or geophysical testing to confirm the conditions below the current maximum boring depth.

Geotechnical Overview

With seasonal water level fluctuations within the site's creeks, it is difficult to predict the water elevation of the creeks during construction. Due to the proximity of the construction site to the creeks, the contractor should be prepared to design, implement, and maintain temporary dewatering systems to facilitate construction of the culverts.

Existing fill consisting of clay soil with gravel was observed at boring B-1 to a depth of 3 feet below existing grade. No documentation concerning when or how the fill was placed was provided. Fill materials that are not placed uniformly with moisture and density control may not perform predictably. In our opinion, existing fill materials encountered within the proposed pavement construction areas should be observed and tested during construction to ensure for a uniform base below the street section. Any loose, soft, or otherwise unsuitable materials should be removed and replaced with engineered fill placed according to the recommended compaction requirements in **Earthwork**.

We understand that the new culverts will be reinforced concrete box (RCB) culverts. The box culverts can be supported on a layer of crushed aggregate (such as MoDOT Type 5). Based on the subsurface conditions encountered at the boring locations, we recommend that footing foundations for the box culvert wing walls be supported on limestone or native clay.

The potential for erosion and undermining of culvert or wing wall support materials could exist at this location. Placement of riprap or other slope reinforcement on the stream bank slopes should be considered to help reduce the potential for erosion.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

Earthwork

Site preparation, excavation, subgrade preparation, and placement of engineered fill should follow the recommendations presented in this section. The recommendations presented for design and construction of earth-supported elements including foundations and pavements are contingent upon the recommendations outlined in this section being followed. We recommend earthwork on this project be observed and evaluated by the Geotechnical Engineer. The evaluation of earthwork should include observation and testing of subgrade preparation, engineered fill, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

Site Preparation

Vegetation, topsoil, and any loose, soft, or otherwise unsuitable soils present within the proposed construction areas should be stripped. Based on information obtained at the boring locations, stripping depths on the order of 8 inches should be anticipated to remove the root zone materials. However, greater stripping depths may be required in areas not explored by the borings. Existing trees within proposed construction areas should be thoroughly grubbed to remove all stumps, root balls, and roots larger than ½-inch in diameter. Organic soils removed during site preparation should not be used as fill beneath the proposed new pavement areas.

Following initial stripping and any necessary undercutting, the exposed soils should be proofrolled. A Terracon representative should observe the proofrolling. Proofrolling can be accomplished using a loaded tandem-axle dump truck with a gross weight of at least 20 tons, or similarly loaded equipment. Areas that display excessive deflection (pumping) or rutting during proofroll operations should be improved by scarification/compaction or by removal and replacement with engineered fill.

Excavation

We anticipate that excavations for the proposed roadway construction can be accomplished with conventional earthmoving equipment. The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

We believe heavy-duty construction equipment, such as a hoe ram, a heavy dozer equipped with a ripper, a rock saw or jack hammer or with rock trenching equipment, is likely suitable for shallow excavations for culvert construction.

Fill Material Types

Fill required to achieve design grade should be classified as engineered fill and general fill. Engineered fill is material used below, or within 10 feet of structures, pavements, or constructed slopes. General fill is material used to achieve grade outside of these areas.

Reuse of On-Site Soil: Excavated on-site soil may be selectively reused as fill below pavement and landscaping areas. Excavated on-site soil is not suitable for reuse as engineered fill and should not be placed beneath settlement sensitive structures and within foundation bearing zones. Portions of the on-site soil have an elevated fines content and will be sensitive to moisture conditions (particularly during seasonally wet periods) and may not be suitable for reuse when above optimum moisture content.

Material property requirements for on-site soil for use as engineered fill are noted in the table below:

Fill Type	USCS Classification	Acceptable Location for Placement
Native Fat Clays	CH	Pavement areas
Existing Fill	CH	Existing fill should be observed, tested and approved by Terracon if left in place. Organics, rock/rubble fragments larger than 3 inches, debris, or other unsuitable materials should be removed prior to re-use of the existing fill in engineered fill sections.

Imported Fill Materials: Imported fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.

Fill Type [1]	USCS Classification	Acceptable Location for Placement
Densely Graded Granular	GM [2]	All locations and elevations, except where free-draining material is required
Free Draining Granular [3]	GW, GP, SW, SP	Where free-draining material is required

1. Engineered fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.
2. MoDOT Type 5 or an approved alternate gradation of crushed limestone aggregate
3. Granular materials with less than 5 percent fines (material passing the #200 sieve), such as ASTM C33 Size No. 57 aggregate or an approved alternate gradation

Fill Placement and Compaction Requirements

Engineered fill and general fill should meet the following compaction requirements.

Item	Engineered Fill	General Fill
Maximum Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e., a jumping jack or plate compactor) is used	Same as engineered fill
Minimum Compaction Requirements [1,2,3]	95% of max. below and above foundations, below pavements	92% of max.
Water Content Range [1]	Low plasticity cohesive: -2% to +3% of optimum High plasticity cohesive: 0 to +4% of optimum Granular: -3% to +3% of optimum	As required to achieve min. compaction requirements

1. Maximum density and optimum water content as determined by the standard Proctor test (ASTM D698).
2. High plasticity cohesive fill should not be compacted to more than 100% of standard Proctor maximum dry density.
3. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D4253 and D4254). Materials not amenable to density testing should be placed and compacted to a stable condition observed by the Geotechnical Engineer or representative.

Utility Trench Backfill

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with engineered fill or bedding material in accordance with public works specifications for the utility being supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility. Trench excavation should not be conducted below a downward 1:1 projection from existing foundations without engineering review of shoring requirements and geotechnical observation during construction.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Flooding or jetting for placement and compaction of backfill is not recommended.

Grading and Drainage

The site should be graded to provide effective drainage away from the roadway and culverts during and after construction, and these conditions should be maintained throughout the life of the structures. Accumulation of water adjacent to the structures could contribute to significant moisture increases in the subgrade soils and subsequent softening/settlement or expansion/heave, which could result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential foundation movements.

After construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structures should also be periodically inspected and adjusted, as necessary, as part of the structures' maintenance programs.

Earthwork Construction Considerations

The Geotechnical Engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proofrolling, placement and compaction of engineered fill, backfilling of excavations into completed subgrades, and just prior to construction of foundations and pavements.

Care should be taken to avoid disturbance of prepared subgrades. Unstable subgrade conditions can develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. If unstable subgrade conditions develop, stabilization measures will need to be employed. Construction traffic over the completed subgrade should be avoided to the extent practical. If the subgrade becomes frozen, desiccated, saturated, or disturbed, the affected materials should be removed or these materials should be scarified, moisture conditioned, and compacted prior to construction of culverts or pavements.

With seasonal water level fluctuations within the site's creeks, it is difficult to predict the water elevation of the creeks during construction. Due to the proximity of the construction site to the creeks, the contractor should be prepared to design, implement, and maintain temporary dewatering systems to facilitate construction of the culverts.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, state, and federal safety regulations. The contractor should be aware that slope height, slope inclination, and excavation depth should in no instance exceed those specified by these safety regulations. Flatter slopes than those dictated by these regulations may be required depending upon the soil conditions encountered and other external factors. These regulations are strictly enforced and if they are not followed, the

owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties. Under no circumstances should the information provided in this report be interpreted to mean that Terracon is responsible for construction site safety or the contractor's activities. Construction site safety is the sole responsibility of the contractor who shall also be solely responsible for the means, methods, and sequencing of the construction operations.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation and topsoil), evaluation and remediation of existing fill materials, as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 5,000 square feet in pavement areas. Where not specified by local ordinance, one density and water content test should be performed for every 100 linear feet of compacted utility trench backfill and a minimum of one test performed for every 12 vertical inches of compacted backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Reinforced Concrete Box Culverts

Based on subsurface conditions encountered at our exploratory borings, the new reinforced concrete box (RCB) culverts can be supported on a minimum 6-inch-thick layer of crushed aggregate (such as MoDOT Type 5). This section provides design recommendations and construction considerations for the foundations to support the box culvert wing walls. We recommend that footing foundations bear directly on limestone, stiff native clay, and/or engineered fill extending to limestone or stiff native clay.

Wing Wall Foundation Design Parameters

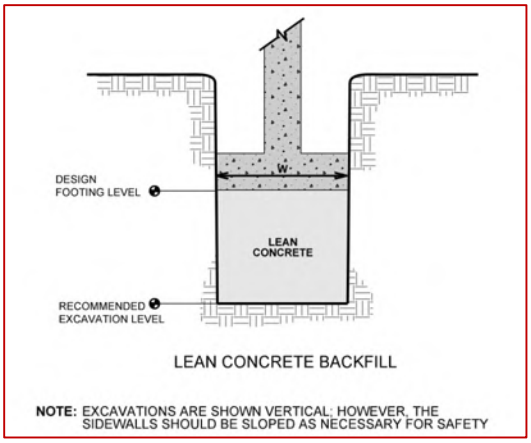
Item	Description
Maximum Net Allowable Bearing Pressure [1, 3]	2,000 psf
Minimum Foundation Dimensions	Per IBC 1809.7
Minimum Embedment below Finished Grade [4]	3 feet
Estimated Total Settlement from Structural Loads [2]	On the order of 1 inch
Estimated Differential Settlement [2, 5]	About 1/2 to 2/3 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation.
2. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, and the quality of the earthwork operations and footing construction.
3. Unsuitable or soft soils should be overexcavated and replaced per the recommendations presented in **Earthwork**.
4. Embedment necessary to minimize the effects of frost and/or seasonal water content variations
5. Differential settlements are noted for equivalent-loaded foundations and bearing elevation as measured over a span of 50 feet.

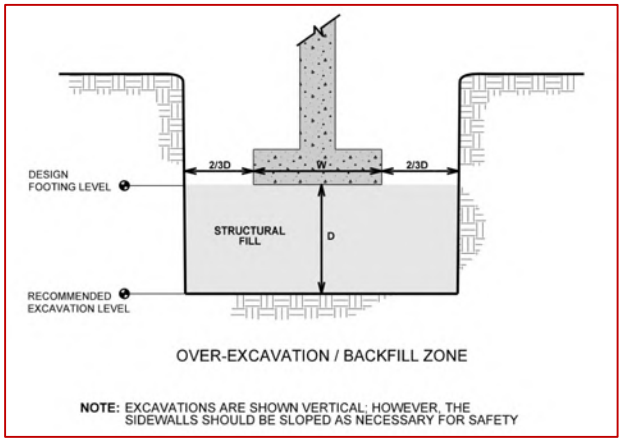
Wing Wall Foundation Construction Considerations

The base of all foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. If the soils at the bearing level become excessively dry, disturbed, saturated, or frozen, the affected soil should be removed prior to placing concrete. If the excavations must remain open overnight or for an extended period of time, placement of a lean concrete mud-mat over the bearing soils should be considered.

The bearing materials at the base of each footing excavation should be evaluated by a representative of the Geotechnical Engineer. If unsuitable bearing materials are observed, the excavation should be extended deeper to suitable soils. The footings could bear directly on suitable soils at the lower level or on lean concrete backfill as shown on the following figure.



The footings could also bear on properly compacted engineered fill extending down to suitable soils as shown in the following figure. Overexcavation for compacted engineered fill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing elevation. The overexcavation should then be backfilled up to the footing base elevation with well graded granular material (e.g., MoDOT Type 5 aggregate or an approved alternate gradation) placed and compacted as recommended in the **Earthwork** section.

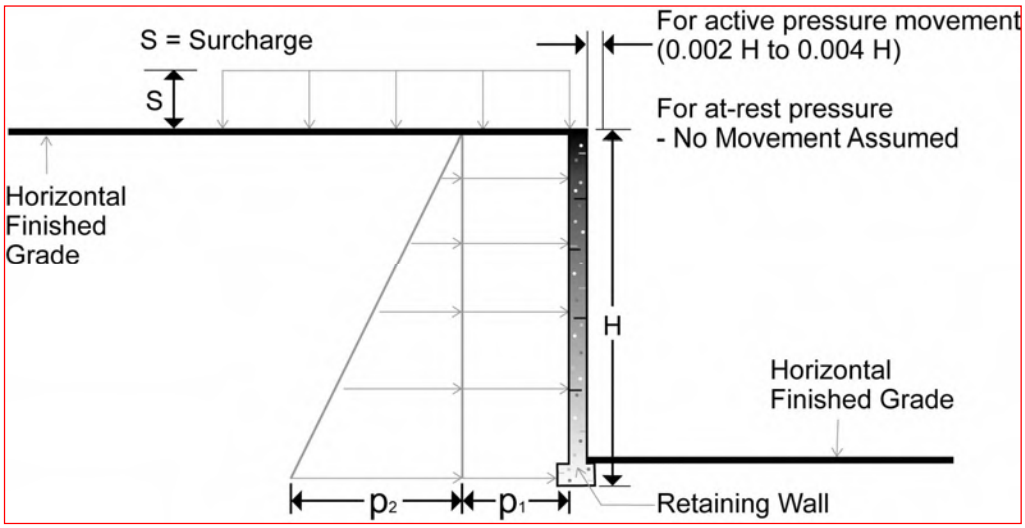


The potential for erosion and undermining of culvert support materials could exist at this location. Placement of riprap or other slope reinforcement on the stream bank slopes should be considered to help reduce the potential for erosion

Lateral Earth Pressure Design Parameters for Wing Walls

Reinforced concrete wing walls with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction, methods and degree of compaction, and the strength of the materials being restrained. Two wall restraint conditions are shown in the diagram

below. Active earth pressure is commonly used for design of free-standing cantilever retaining walls where wall movement is acceptable. The "at-rest" condition assumes no wall movement and is commonly used for design of walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety. The drained parameters do not provide for possible hydrostatic pressure on the walls.



Lateral Earth Pressure Design Parameters

Earth Pressure Condition [1]	Coefficient for Backfill Type [2,3]	Surcharge Pressure [4] p_1 (psf)	Equivalent Fluid Unit Weight (pcf) [2,5]
			Undrained [5]
Active (Ka)	Granular - 0.3 Clay - 0.42	(0.31)S (0.42)S	80 85
At-Rest (Ko)	Granular - 0.47 Clay - 0.58	(0.47)S (0.58)S	90 95
Passive (Kp)	Granular - 3.3 Clay - 2.4	--- ---	290 200

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance.
2. Uniform, horizontal backfill, with a maximum unit weight of 120 pcf for clay soils and 130 pcf for granular soils.
3. Granular material backfill phi = 32 degrees (minimum); Clay soil phi = 24 degrees (minimum)
4. Uniform surcharge, where S is surcharge pressure.
5. Loading from heavy compaction equipment is not included.
6. "Undrained" conditions are recommended when drainage behind walls is not practical or incorporated into the design.

Backfill placed against structures should consist of granular soils or low plasticity cohesive soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 degrees from vertical for the active and at-rest cases, and at an angle of 60 degrees from vertical for the passive case. To calculate the resistance to sliding, a value of 0.3 should be used as the ultimate coefficient of friction where the footing bears on native clay soils or engineered fill.

Loads bearing on backfill behind walls may have a significant influence on the lateral earth pressure. Placing footings within wall backfill and in the zone of active soil influence on the wall should be avoided unless structural analyses indicate the wall can safely withstand the increased pressure.

If drainage is not possible, as is likely the case for structures that will extend below the water level in the creek, then the below-grade walls should be designed to resist the combined hydrostatic and lateral earth pressures. In our opinion, walls backfilled using clay soils should be designed using an equivalent fluid weighing 95 pcf for at-rest conditions. For granular backfill, an equivalent fluid weighing 90 pcf should be used for at-rest conditions. These pressures do not include the influence of surcharge or equipment loading, which should be added. Heavy equipment should not operate within a distance closer than the exposed height of retaining walls to prevent lateral pressures more than those provided.

Clay soils are easily eroded by flowing water. Placement of riprap or other erosion protection should be considered along those portions of creek bank slopes where erosion is a concern.

The lateral earth pressure recommendations given in this section are applicable to the design of rigid retaining walls subject to slight rotation. These recommendations are not applicable to the design of modular block - geogrid reinforced backfill walls (also termed MSE walls). Recommendations covering these types of wall systems are beyond the scope of services for this assignment. However, we would be pleased to develop a proposal for evaluation and design of such wall systems upon request.

Pavements

Pavement Subgrade Preparation

Pavement subgrades are expected to consist of on-site native clay soils. The pavement subgrades should be proofrolled as recommended in **Earthwork**. If soft or otherwise unsuitable areas are observed, additional overexcavation and replacement will be needed.

Grading and paving are commonly performed by separate contractors and there is often a time lapse between the end of grading operations and the commencement of paving.

Subgrades prepared early in the construction process may become disturbed by construction traffic. Non-uniform subgrades often result in poor pavement performance and local failures relatively soon after pavements are constructed. Depending on the paving equipment used by the contractor, measures may be required to improve subgrade strength to greater depths for support of heavily loaded concrete/asphalt trucks.

We recommend the moisture content and density of the subgrade be evaluated and the pavement subgrades be proofrolled (using a loaded tandem-axle dump truck with a minimum gross weight of 20 tons or similarly loaded rubber-tire equipment) within two days prior to commencement of actual paving operations. Areas not in compliance with the required ranges of moisture or density should be scarified, moisture conditioned, and compacted. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills. The subgrade should be in its finished form at the time of the final review.

Support characteristics of subgrade for pavement design do not account for shrink/swell movements of an expansive clay subgrade, such as soils observed on this project. Thus, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell related movement of the subgrade.

Opinions of Minimum Pavement Thicknesses

The pavement sections provided here should be considered for cost estimating purposes only. These thicknesses are based on City of Blue Springs Standard Details, the project assumptions (summarized below), and information available at the time this report was prepared. Development of a more specific pavement thickness design would require specific information about the anticipated traffic volumes, vehicle types, axle loads, and design period for each pavement area and pavement surfacing type.

Pavement thickness depends upon many factors including but not limited to:

- applied wheel/axle loads and number of repetitions
- subgrade and pavement material characteristics
- climate conditions
- site and pavement drainage

Specific information regarding anticipated vehicle types, axle loads, and traffic volumes was not provided at the time of this report. We assume that 12th Street will be classified as a Residential Collector Street and have presented the typical section for the City of Blue Springs in the table below. Based on the subgrade conditions at the site and the classification of the roadway as a residential collector, we have no recommended

adjustments to the typical section. We would be pleased to evaluate the pavement section with anticipated traffic information at your request.

Pavement Type	Residential Collector Street – Typical Section
ACC (Asphaltic Cement Concrete)	2 inches ACC surface 8 inches ACC base 6 inches aggregate base (MoDOT Type 5 or similar)
PCC (Portland Cement Concrete)	8 inches PCC 6 inches aggregate base (MoDOT Type 5 or similar) 6 inches compacted subgrade

Base Bid

Bid Alternate

PCC pavements will perform better than ACC in areas where short radius turning and braking are expected due to better resistance to rutting and shoving. In addition, PCC pavement will perform better in areas subject to heavy static loads.

Construction traffic on the pavements was not considered in developing our opinions of minimum pavement thickness. If the pavements will be subject to construction equipment/vehicles, the pavement sections should be revised to consider the additional loading.

Pavements and subgrades will be subject to freeze-thaw cycles and seasonal fluctuations in moisture content. Pavement thickness design methods are intended to provide adequate thickness of structural materials over a particular subgrade such that wheel loads are reduced to a level that the subgrade can support. The subgrade support parameters for pavement thickness design do not account for shrink/swell movements of a subgrade constructed of expansive clay soils. Therefore, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell related movement of the subgrade.

The pavement sections provided above consider that the subgrade soils will not experience significant increases in moisture content. Paved areas should be sloped to provide rapid drainage of surface water and to drain water away from the pavement edges. Pavements should be designed so water does not accumulate on or adjacent to the pavement, since this could saturate and soften the subgrade soils and subsequently accelerate pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses, and periodic maintenance and repairs should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack sealing, joint sealing, and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by the pavement's surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between boring locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Support of pavements above existing fill is discussed in this report. Even with the construction observation/testing recommended in this report, the owner must accept the risk that unsuitable materials within or buried by the fill will not be discovered. This may

result in larger than normal settlement and damage to pavements supported above existing fill, requiring additional maintenance. This risk cannot be eliminated without removing the existing fill from below the pavement areas, but it can be reduced by thorough observation and testing as discussed herein.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, cost estimating, excavation support, and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

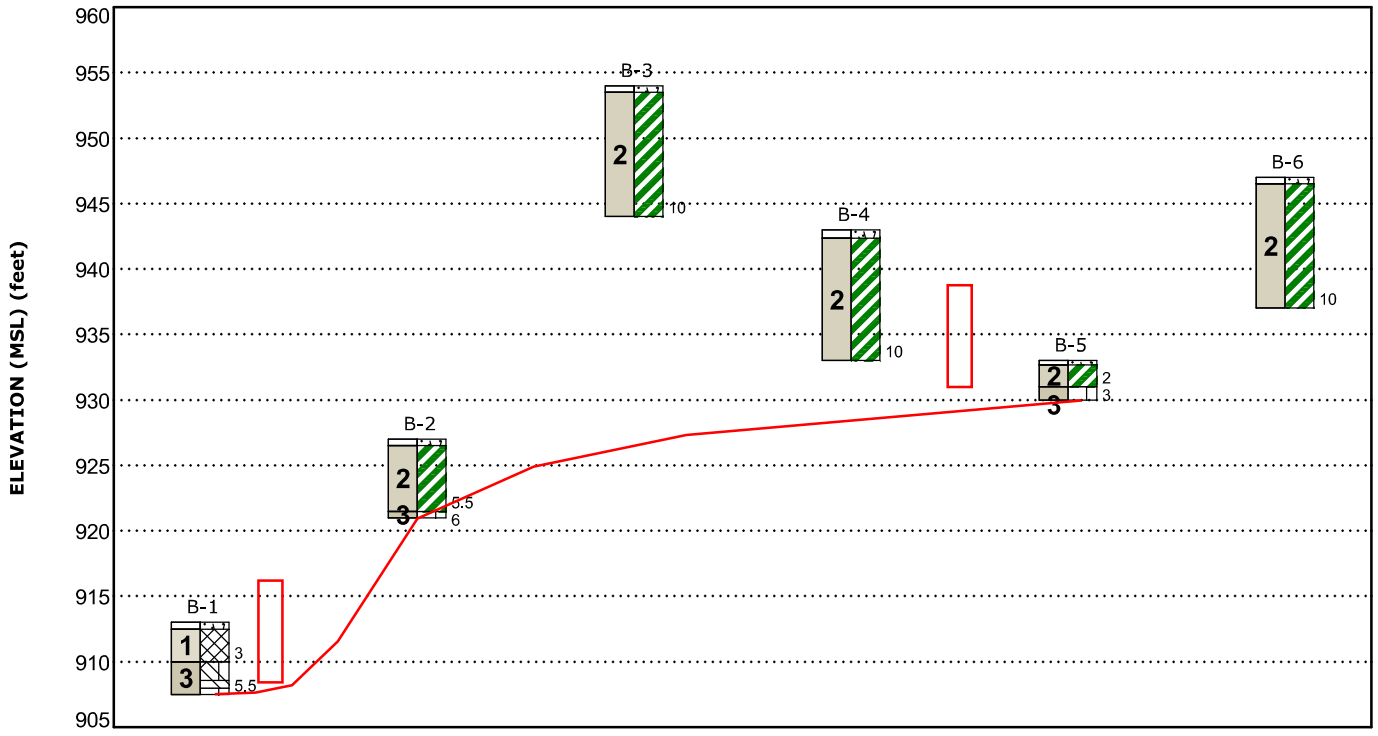
Contents:

GeoModel

12th Street Extension - Blue Springs
12th Street North of Wyatt Road | Blue Springs, MO
Terracon Project No. 02245405

15620 W 113th St
Lenexa, KS

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Fill**	Lean clay with gravel
2	**Native Clay**	Fat clay (CH), soft to very stiff
3	**Limestone**	Completely to highly weathered limestone

Legend

Topsoil
Fill
Weathered Limestone
Limestone
Fat Clay

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

Attachments

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
6	10 or auger refusal	Roadway alignment

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal precision of about ±10 feet) and referencing existing site features. Approximate ground surface elevations were estimated using Google Earth.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted rotary drill rig using continuous flight augers. Samples were obtained from the borings using split-barrel sampling procedures. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. The borings were backfilled with auger cuttings after their completion.

We also observed the boreholes while drilling and at the completion of drilling for the presence of groundwater. Groundwater was not observed in the boreholes during our field exploration.

Our exploration team prepared field boring logs to record the sampling depths, penetration distances, other sampling information, visual classifications of the materials observed during drilling, and our interpretation of the subsurface conditions between samples. The samples were placed in appropriate containers and taken to our laboratory for testing and classification. The final boring logs provided with this report include modifications based on the results of the laboratory tests and observations of the recovered samples.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following tests on selected samples:

- Moisture Content
- Atterberg Limits
- Moisture-Density (Standard Proctor)

- California Bearing Ratio (CBR) of Laboratory-Compacted Soils

Based on the results of our field and laboratory programs, we described and classified the soil samples in general accordance with the Unified Soil Classification System.

Rock classification was conducted using locally accepted practices for engineering purposes; core samples and petrographic analysis may indicate other rock types. The rock classifications on the boring logs were determined using the attached Rock Classification Notes.

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

Site Location



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan

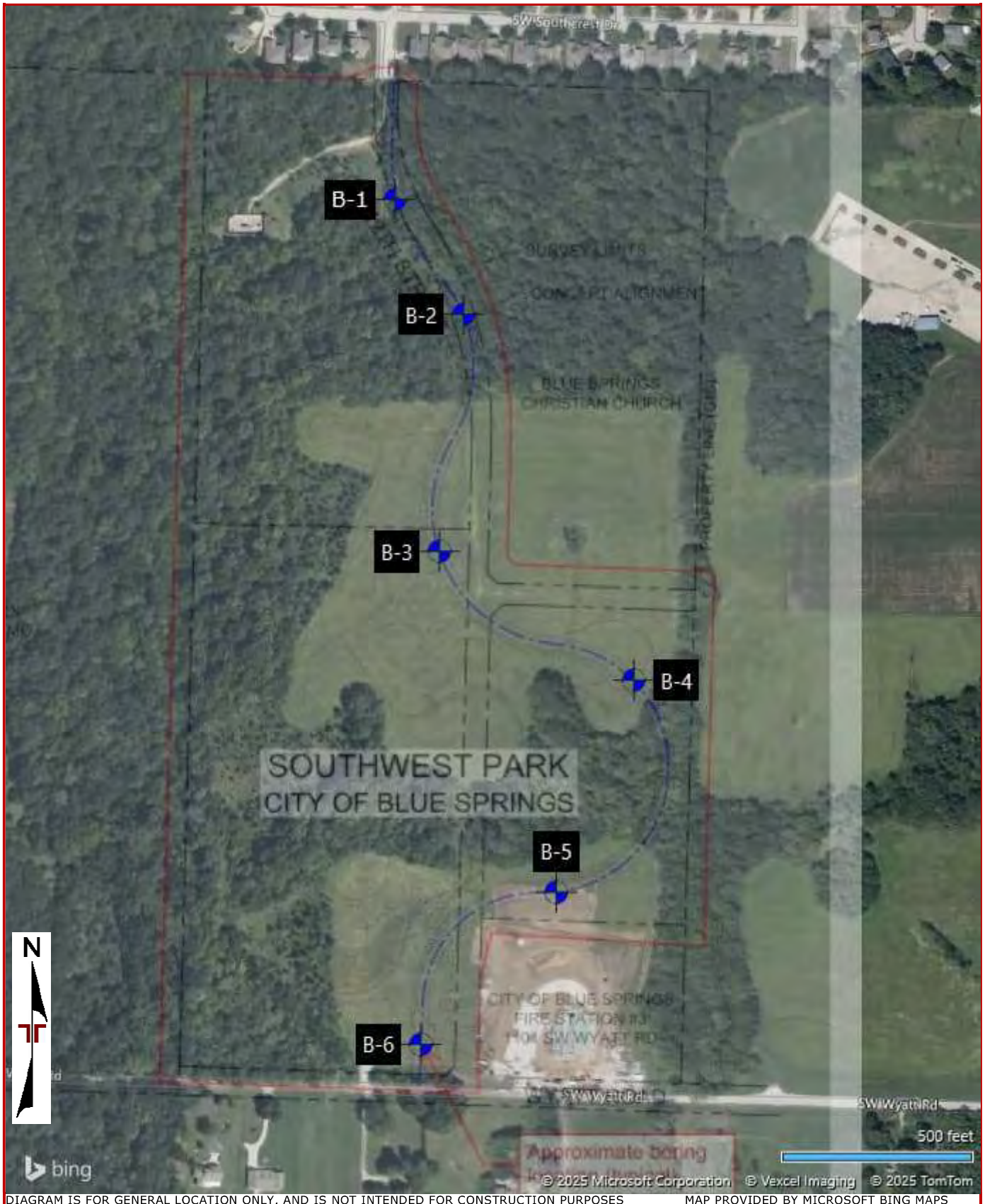


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Boring Logs (B-1 through B-6)
Atterberg Limits
Moisture-Density Relationship
CBR Test Data

Note: All attachments are one page unless noted above.

12th Street Extension - Blue Springs
12th Street North of Wyatt Road | Blue Springs, MO
Terracon Project No. 02245405

Terracon
15620 W 113th St
Lenexa, KS

Boring Log No. B-1

Location: See Exploration Plan

Latitude: 38.9723° Longitude: -94.2819°

Depth (Ft.) | Approximate Elevation: 913 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
		6" TOPSOIL 0.5 / 912.5					
1		**FILL – LEAN CLAY WITH GRAVEL**, dark brown					
					23-9-50/1"	10.4	
		3.0 / 910					
3		**LIMESTONE**, light brown and gray, completely to highly weathered					
					36-50/1"		
		5.0 / 908					
		LIMESTONE, light brown and gray, highly weathered 5.5 / 907.5					
		Auger Refusal at 5.5 Feet					

5

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations obtained using Google Earth.

Water Level Observations
Groundwater not encountered during drilling.

Drill Rig
CME 550X

Hammer Type
Automatic

Driller
CJ

Notes

Advancement Method
PA

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Logged by
TC

Boring Started
03-14-2025

Boring Completed
03-14-2025

12th Street Extension - Blue Springs
12th Street North of Wyatt Road | Blue Springs, MO
Terracon Project No. 02245405

Terracon
15620 W 113th St
Lenexa, KS

Boring Log No. B-2

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.9715° Longitude: -94.2813° Depth (Ft.) / Approximate Elevation: 927 (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
		6" TOPSOIL 0.5 / 926.5						
2		**FAT CLAY (CH)**, light brown and gray, stiff				3-6-9 N=15	32.5	
		soft below 3.5 feet	5			1-1-2 N=3	47.0	
3		5.5 / 921.5 **LIMESTONE**, light brown and gray, highly weathered 6.0 / 921						
		Auger Refusal at 6 Feet						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations obtained using Google Earth.

Water Level Observations
Groundwater not encountered during drilling.

Drill Rig
CME 55 LC

Hammer Type
Automatic

Driller
LN

Notes

Advancement Method
PA

Logged by
MR

Boring Started
03-12-2025

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Boring Completed
03-12-2025

12th Street Extension - Blue Springs
12th Street North of Wyatt Road | Blue Springs, MO
Terracon Project No. 02245405

Terracon
15620 W 113th St
Lenexa, KS

Boring Log No. B-3

Location: See Exploration Plan

Latitude: 38.9698° Longitude: -94.2815°

Depth (Ft.) Approximate Elevation: 954 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
		0.5 953.5 **6" TOPSOIL**					
2		**FAT CLAY (CH)**, brown and gray, stiff to very stiff					60-24-36
					4-7-10 N=17	27.8	
					3-4-6 N=10	26.5	53-21-32
		5					
					3-4-7 N=11	29.6	
		medium stiff below 8.5 feet					
					2-3-4 N=7	33.3	
		10.0 944					
		10					
		Boring Terminated at 10 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations obtained using Google Earth.

Water Level Observations
Groundwater not encountered during drilling.

Drill Rig
CME 55 LC

Hammer Type
Automatic

Driller
LN

Logged by
MR

Boring Started
03-12-2025

Boring Completed
03-12-2025

Notes

Advancement Method
PA

Abandonment Method
Boring backfilled with auger cuttings upon completion.

12th Street Extension - Blue Springs
12th Street North of Wyatt Road | Blue Springs, MO
Terracon Project No. 02245405

Terracon
15620 W 113th St
Lenexa, KS

Boring Log No. B-4

Location: See Exploration Plan

Latitude: 38.9689° Longitude: -94.2798°

Depth (Ft.) Approximate Elevation: 943 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
		8" TOPSOIL 0.7 / 942.33					
2		**FAT CLAY (CH)**, brown and gray, stiff			4-5-8 N=13	25.7	59-24-35
					4-3-6 N=9	22.9	
		5					
					4-4-8 N=12	22.2	
					4-3-5 N=8	29.5	
		10.0 / 933					
		Boring Terminated at 10 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations obtained using Google Earth.

Water Level Observations
Groundwater not encountered during drilling.

Drill Rig
CME 55 LC

Hammer Type
Automatic

Driller
LN

Logged by
MR

Boring Started
03-12-2025

Boring Completed
03-12-2025

Notes

Advancement Method
PA

Abandonment Method
Boring backfilled with auger cuttings upon completion.

12th Street Extension - Blue Springs
12th Street North of Wyatt Road | Blue Springs, MO
Terracon Project No. 02245405

Terracon
15620 W 113th St
Lenexa, KS

Boring Log No. B-5

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.9673° Longitude: -94.2805° Depth (Ft.) — Approximate Elevation: 933 (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
		0.3 **4" TOPSOIL** 932.67						
2		**FAT CLAY (CH)**, brown and gray, medium stiff						
		2.0 931				4-50/2"	30.0	
3		**LIMESTONE**, light brown and gray, completely to highly weathered						
		3.0 930						
		Auger Refusal at 3 Feet						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).
See Supporting Information for explanation of symbols and abbreviations.
Elevation Reference: Elevations obtained using Google Earth.

Water Level Observations
Groundwater not encountered during drilling.

Drill Rig
CME 55 LC

Hammer Type
Automatic

Driller
LN

Notes

Advancement Method
PA

Logged by
MR

Boring Started
03-12-2025

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Boring Completed
03-12-2025

12th Street Extension - Blue Springs
12th Street North of Wyatt Road | Blue Springs, MO
Terracon Project No. 02245405

Terracon
15620 W 113th St
Lenexa, KS

Boring Log No. B-6

Location: See Exploration Plan

Latitude: 38.9663° Longitude: -94.2817°

Depth (Ft.) | Approximate Elevation: 947 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
		0.5					
		6" TOPSOIL 946.5					
2		**FAT CLAY (CH)**, brown and gray, stiff to very stiff			4-7-9 N=16	24.8	62-22-40
					6-9-11 N=20	22.2	
		5			4-4-9 N=13	27.1	
					4-4-6 N=10	25.8	
		10.0 937					
		10 ***Boring Terminated at 10 Feet***					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations obtained using Google Earth.

Water Level Observations
Groundwater not encountered during drilling.

Drill Rig
CME 55 LC

Hammer Type
Automatic

Driller
LN

Logged by
MR

Boring Started
03-12-2025

Boring Completed
03-12-2025

Notes

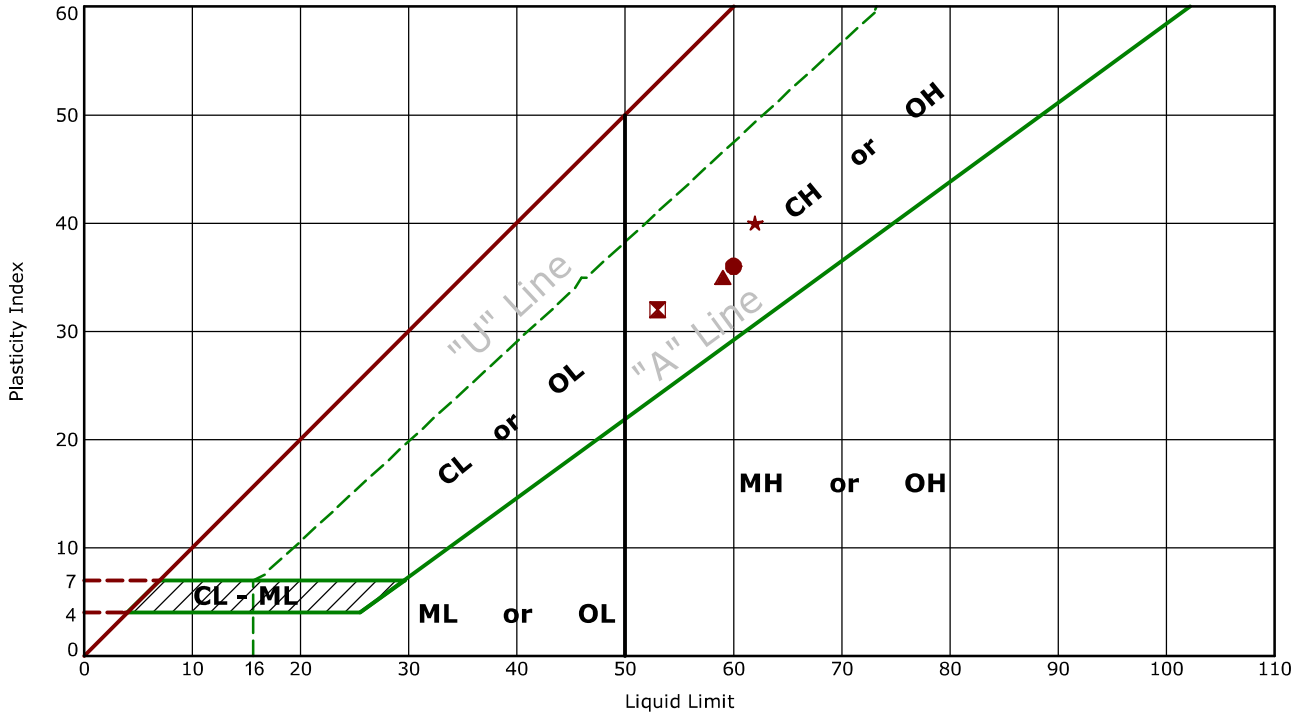
Advancement Method
PA

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Terracon
15620 W 113th St
Lenexa, KS

Atterberg Limit Results

ASTM D4318

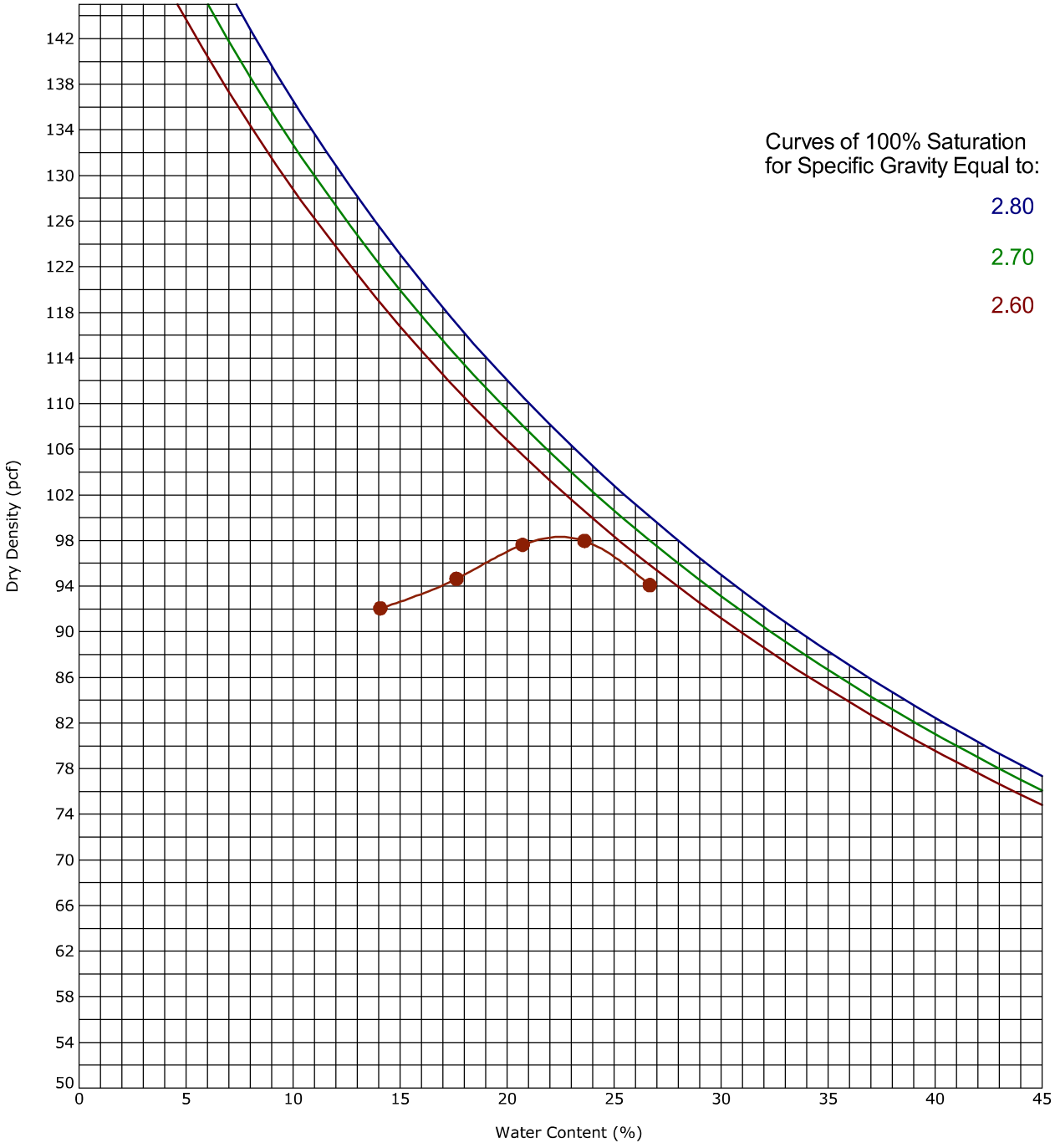


	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-3	0 - 1	60	24	36			Mixed bulk sample from B-2 to B-6
⊠	B-3	3.5 - 5	53	21	32			
▲	B-4	1.5 - 3	59	24	35			
★	B-6	1.5 - 3	62	22	40			

15620 W 113th St
Lenexa, KS

Moisture-Density Relationship

ASTM D698-Method A



Boring ID	Depth (Ft)	Description of Materials
B-3	0 - 1	Mixed bulk sample from B-2 to B-6

Fines (%)	Fraction > mm size	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0	60	24	36	ASTM D698-Method A	98.3	22.5

California Bearing Ratio of Laboratory-Compacted Soils

Report Number: 02245405
Service Date: 03/28/25
Report Date: 04/02/25
Task:

15620 W.113th Street
Lenexa, Kansas 66219
Ph. 913.492.7777; Fx 913.492.7443

Client

Wilson & Company Inc Engineers & Architects
Kansas City, Missouri

Project

12th Street Extension - Blue Springs
12th Street North of Wyatt Road
Blue Springs, Missouri

Project No. 02245405

SAMPLE INFORMATION

Sample Number:		Proctor Method:	ASTM D698 - Method C
Boring Number:	B-2 to B-6	Maximum Dry Density (pcf):	97.9
Sample Location:	Mixed Bulk	Optimum Moisture:	22.5
Depth:	0.0'-1.0'	Liquid Limit:	60
Material Description:	Fat Clay, CH, Dark Brown	Plasticity Index:	36

CBR TEST DATA

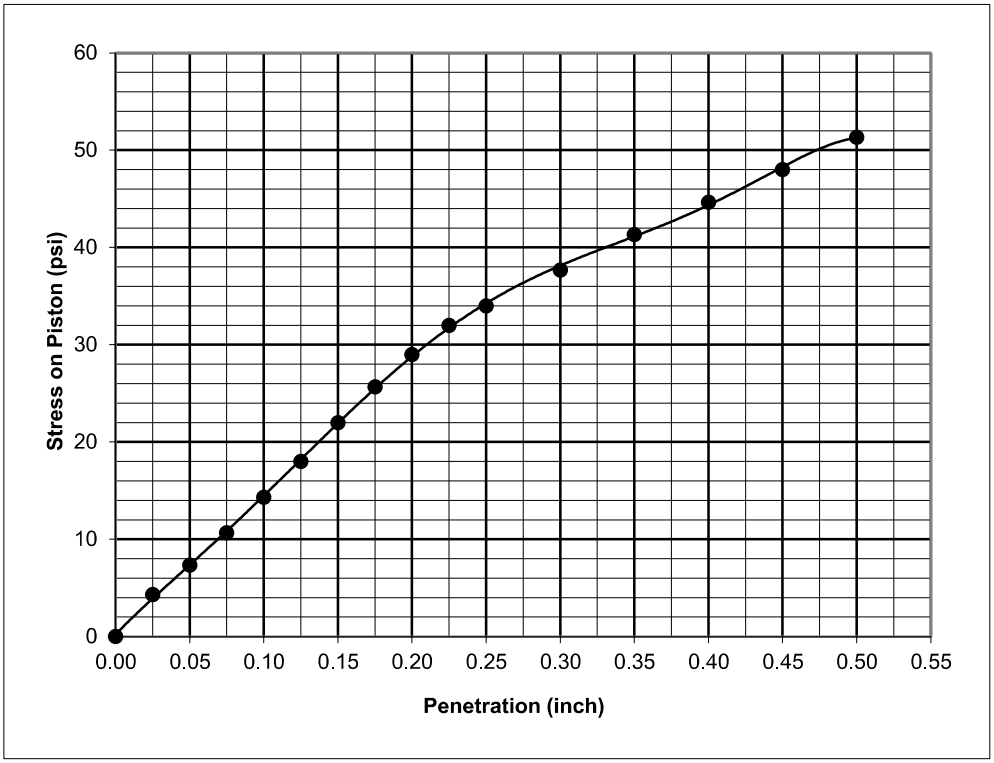
CBR Value at 0.100 inch	**NA**
CBR Value at 0.200 inch	**1.9**
Surcharge Weight (lbs)	10
Soaking Condition	Soaked
Length of Soaking (hours)	96
Swell (%)	2.7

DENSITY DATA

Dry Density Before Soaking (pcf)	93.5
Compaction of Proctor (%)	95.5

MOISTURE DATA

Before Compaction (%)	21.8
After Compaction (%)	21.8
Top 1" After Soaking (%)	26.3
Average After Soaking (%)	26.5



Comments:
Test Methods: ASTM D1883

Services:
Terracon Rep: JDM
Reported To: SLB
Contractor:

Started: 3/28/25
Finished: 4/2/25

Supporting Information

Contents:

General Notes
Unified Soil Classification System
Rock Classification Notes

Note: All attachments are one page unless noted above.

15620 W 113th St
Lenexa, KS

General Notes

Sampling	Water Level	Field Tests
	 Water Initially Encountered Water Level After a Specified Period of Time Water Level After a Specified Period of Time Cave In Encountered Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Relative Density	**Standard Penetration or N-Value (Blows/Ft.)**	**Consistency**	**Unconfined Compressive Strength Qu (tsf)**	**Standard Penetration or N-Value (Blows/Ft.)**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	5 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	9 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	16 - 30
		Hard	> 4.00	> 30

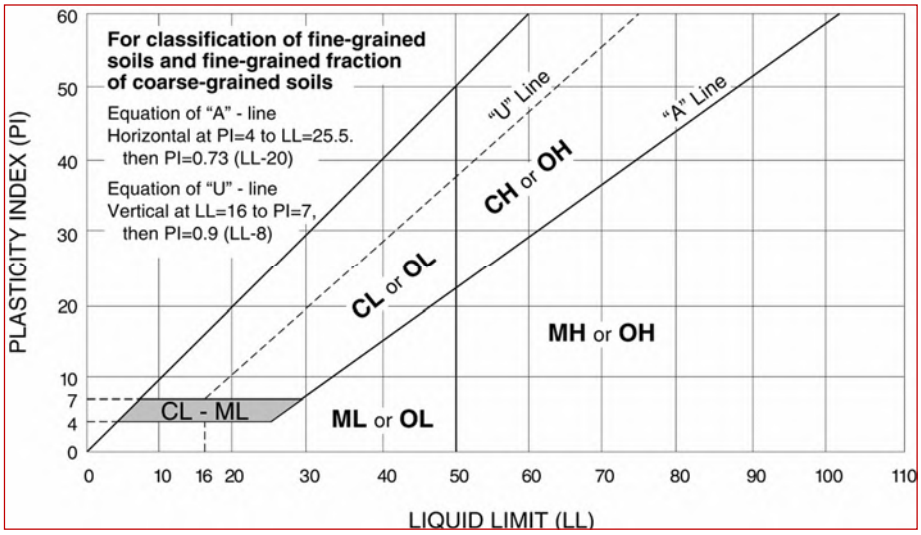
Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



Rock Classification Notes

WEATHERING	
Term	**Description**
Fresh	Mineral crystals appear bright; show no discoloration. Features show little or no staining on surfaces. Discoloration does not extend into intact rock.
Slightly weathered	Rock generally fresh except along fractures. Some fractures stained and discoloration may extend <0.5 inches into rock.
Moderately weathered	Significant portions of rock are dull and discolored. Rock may be significantly weaker than in fresh state near fractures. Soil zones of limited extent may occur along some fractures.
Highly weathered	Rock dull and discolored throughout. Majority of rock mass is significantly weaker and has decomposed and/or disintegrated; isolated zones of stronger rock and/or soil may occur throughout.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The rock mass or fabric is still evident and largely intact. Isolated zones of stronger rock may occur locally.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi**
Extremely strong	Can only be chipped with geological hammer. Rock rings on hammer blows. Cannot be scratched with a sharp pick. Hand specimens require several hard hammer blows to break.	>36,000
Very strong	Several blows of a geological hammer to fracture. Cannot be scratched with a 20d common steel nail. Can be scratched with a geologist's pick only with difficulty.	15,000-36,000
Strong	More than one blow of a geological hammer needed to fracture. Can be scratched with a 20d nail or geologist's pick. Gouges or grooves to ¼ inch deep can be excavated by a hard blow of a geologist's pick. Hand specimens can be detached by a moderate blow.	7,500-15,000
Medium strong	One blow of geological hammer needed to fracture. Can be distinctly scratched with 20d nail. Can be grooved or gouged 1/16 in. deep by firm pressure with a geologist's pick point. Can be fractured with single firm blow of geological hammer. Can be excavated in small chips (about 1-in. maximum size) by hard blows of the point of a geologist's pick;	3,500-7,500
Weak	Shallow indent by firm blow with geological hammer point. Can be gouged or grooved readily with geologist's pick point. Can be excavated in pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.	700-3,500
Very weak	Crumbles under firm blow with geological hammer point. Can be excavated readily with the point of a geologist's pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.	150-700

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Intensely fractured	< 2.5 inches	**Laminated**	< ½-inch
Highly fractured	2.5 – 8 inches	**Very thin**	½ – 2 inches
Moderately fractured	8 inches to 2 feet	**Thin**	2 inches – 1 foot
Slightly fractured	2 to 6.5 feet	**Medium**	1 – 3 feet
Very slightly fractured	> 6.5 feet	**Thick**	3 – 10 feet
		Massive	> 10 feet

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

15620 W 113th Street
Lenexa, KS 66219
(913) 492-7777
Terracon.com

January 14, 2026

Wilson & Company Inc Engineers & Architects
800 East 101st Terrace Suite 200
Kansas City, Missouri 64131

Attn: Darren Meyer
P: (816) 556-3628
E: Darren.Meyer@wilsonco.com

Re: Global Stability Addendum
12th Street Extension
12th Street north of Wyatt Road
Blue Springs, Missouri
Terracon Project No. 02245405.01

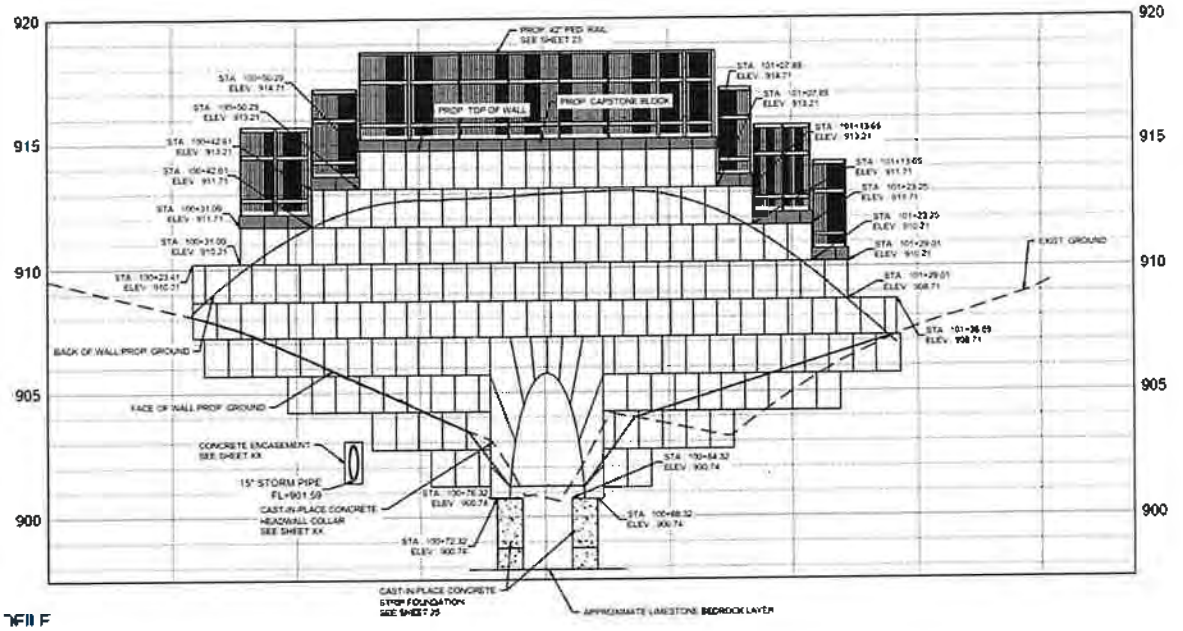
Dear Mr. Meyer:

We have completed global stability analyses of the retaining walls planned for the 12th Street extension project in Blue Springs, Missouri. This engineering service was performed in general accordance with Change Order No. 1 to Terracon Proposal No. P02245405 dated December 20, 2024. This letter is an addendum to our Geotechnical Engineering Report, Terracon Project No. 02245405.R1, report dated April 23, 2025.

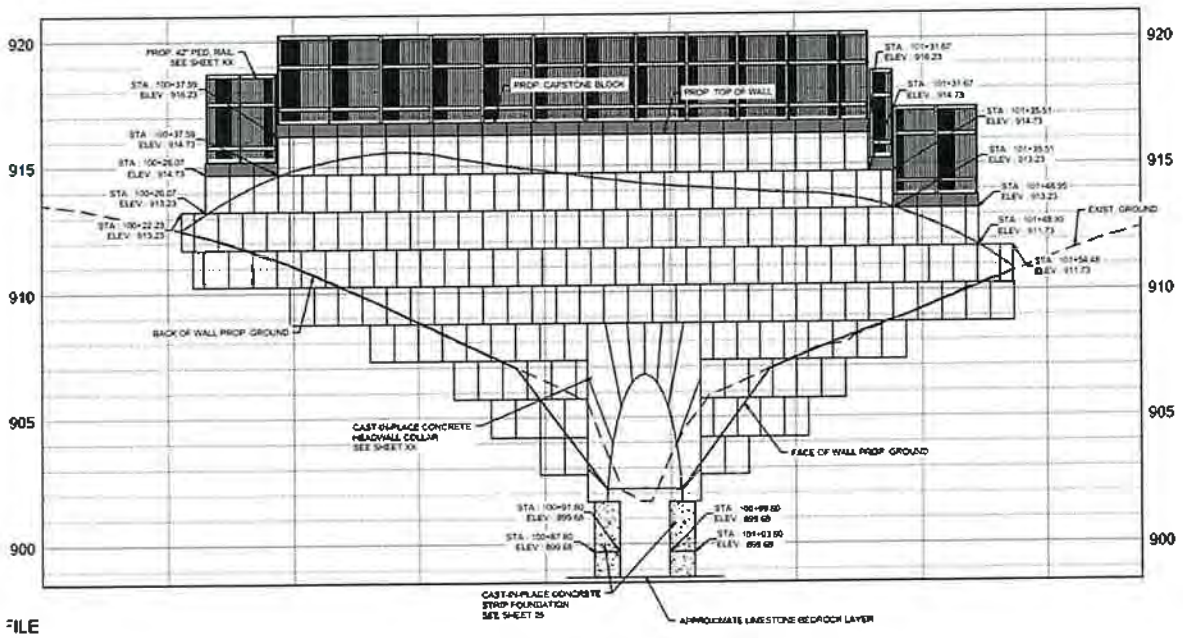
Project Information

Terracon previously completed subsurface exploration and geotechnical engineering evaluation for the planned 12th Street extension. The results of that exploration were summarized in our Geotechnical Engineering Report dated April 23, 2025. Six borings were performed to evaluate the subsurface conditions at the project site. Global stability analyses for the retaining walls were not part of our initial project scope and were therefore not included in our geotechnical report.

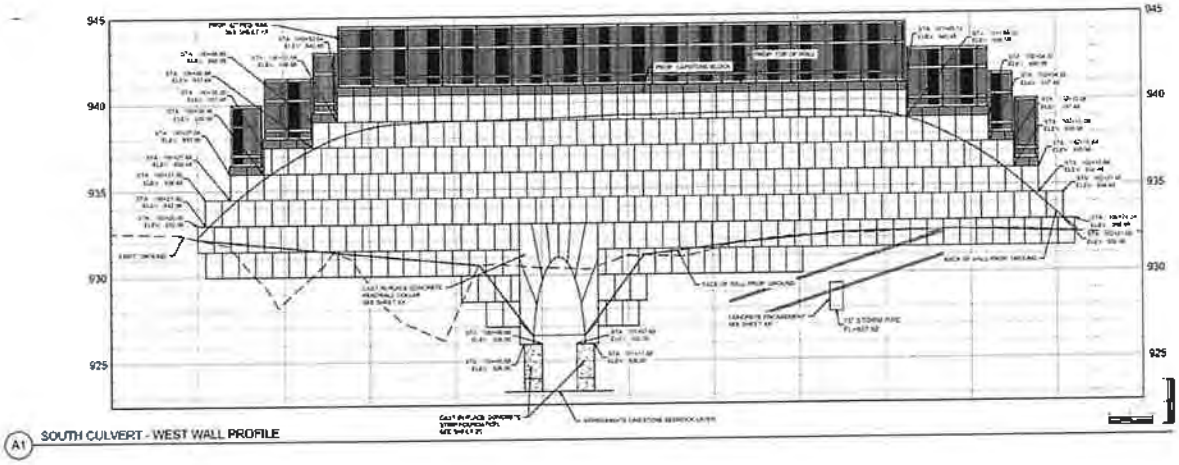
Retaining wall plan and elevation drawings dated October 1, 2025, were provided by Wilson & Co. Information from these plans was used to develop our models for the global stability analyses. The internal and external stability analyses and design of the retaining wall was completed by others.



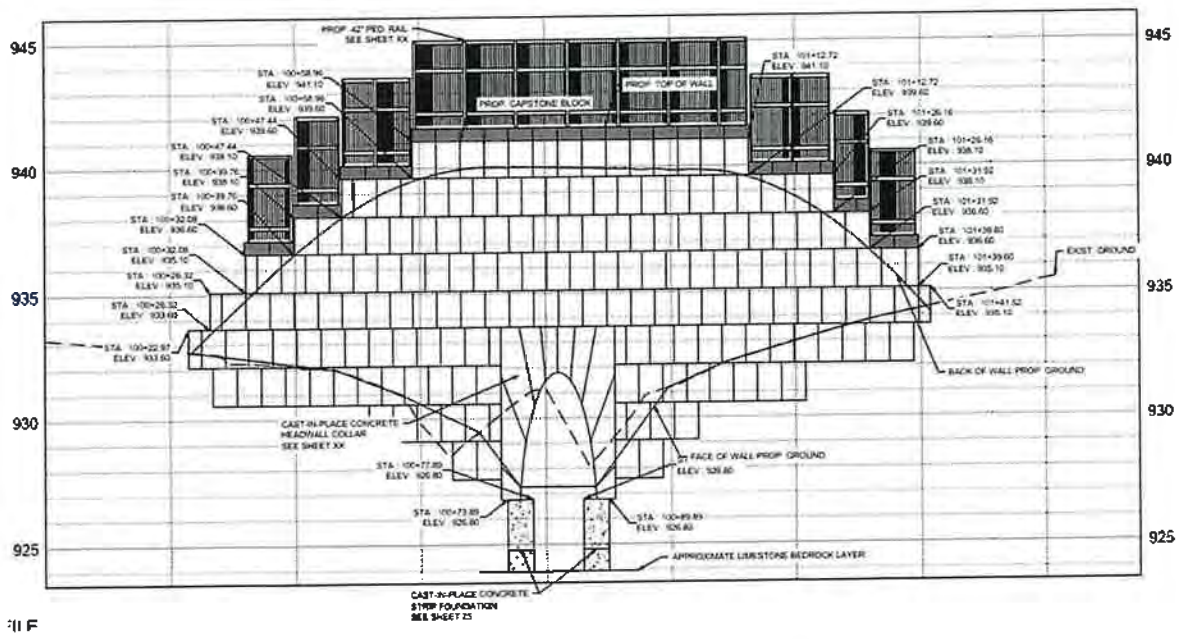
North Culvert – West Wall Profile



North Culvert – East Wall Profile



South Culvert – West Wall Profile



South Culvert – East Wall Profile

Global Stability Analyses

Parameters

Based on laboratory tests performed for this project, our experience with similar soils, and drained shear strength correlations in the published literature[1,2,3,4,5], we developed the following geotechnical design parameters for use in the analyses of the retaining walls.

Material Type	Total Unit Weight (pcf)	Effective Stress (Drained) Shear Strength Parameters	
		c′, psf	ϕ′, degrees
New Fill (CH)	120	75	25
Native Clay (CH)	120	75	25
Retaining Wall Blocks	140	High Strength - Impenetrable	
Limestone	-	Bedrock (Impenetrable)	

Analyses

Wilson & Co. provided a set of retaining wall plans. We conducted global stability analyses on the tallest portions of the north and south culverts' east and west retaining walls. A total of four sections were analyzed. Our global stability analyses included the following criteria and considerations:

- Global stability analyses were performed using the computer program SLOPE/W 2022 by Geo-Slope International. The analyses were conducted using the

[1] Kulhawy, F. H., & Mayne, P. W. (1990). Manual on Estimating Soil Properties for Foundation Design, Final Report EL-6800. Cornell University, Ithaca, New York. Palo Alto, CA: EPRI.

[2] Stark, T. D., & Eid, H. T. (1994). Drained Residual Strength of Cohesive Soils. J. Geotech. Eng., 120 (5), 856-871.

[3] Stark, T. D., & Eid, H. T. (1997). Slope Stability Analyses in Stiff Fissured Clays. J. Geotech. Geoenviron. Eng., 123 (4), 335-343.

[4] Stark, T.D., Choi, H., & McCone, S. (2005). Drained Shear Strength Parameters for Analysis of Landslides. J. Geotech. Geoenviron. Eng., 131 (5), 575-588.

[5] Stark, T. D., & Hussain, M. (2013). Empirical Correlations: Drained Shear Strength for Slope Stability Analyses. J. Geotech. Geoenviron. Eng. , 139 (6), 853-862.

Morgenstern-Price methodology using the entry-exit method to identify critical failure surfaces of select cross sections.

- The wall was analyzed using drained parameters.
- A uniform surcharge load of 150 pounds per cubic foot was applied along the top of the slope to model the load from the cars on the roadway

Four wall cross sections were modeled, and a minimum acceptable factor of safety of 1.5 was achieved for each modeled location/wall height. The following table provides a summary of our results:

Location	Maximum Exposed Height (feet)	Factor of Safety
North Culvert – West Wall	14	1.5
North Culvert – East Wall	14.5	2.4
South Culvert – West Wall	14.5	1.7
South Culvert – East Wall	14.5	2.4

Global stability exhibits depicting these analyses are in the attachments of this memorandum.

Clay soils are easily eroded by flowing water. Placement of riprap or other erosion protection is recommended along the base of the wall to reduce the risk of undermining from scour.

Closing

The recommendations and opinions in this addendum letter are intended only to supplement those in our referenced geotechnical report, and this letter should be considered part of that report. The recommendations in our original report remain valid. The qualifications and limitations stated in our geotechnical report apply to this addendum letter.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

Stacey L. Bonderer

Stacey L. Bonderer, E.I.T.
Staff Engineer

Kole C. Berg

Kole C. Berg, P.E.
Senior Consultant
Missouri: PE-2002016417



Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration and Planned Culvert Locations

Note: All attachments are one page unless noted above.

Site Location



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Planned Culvert Locations

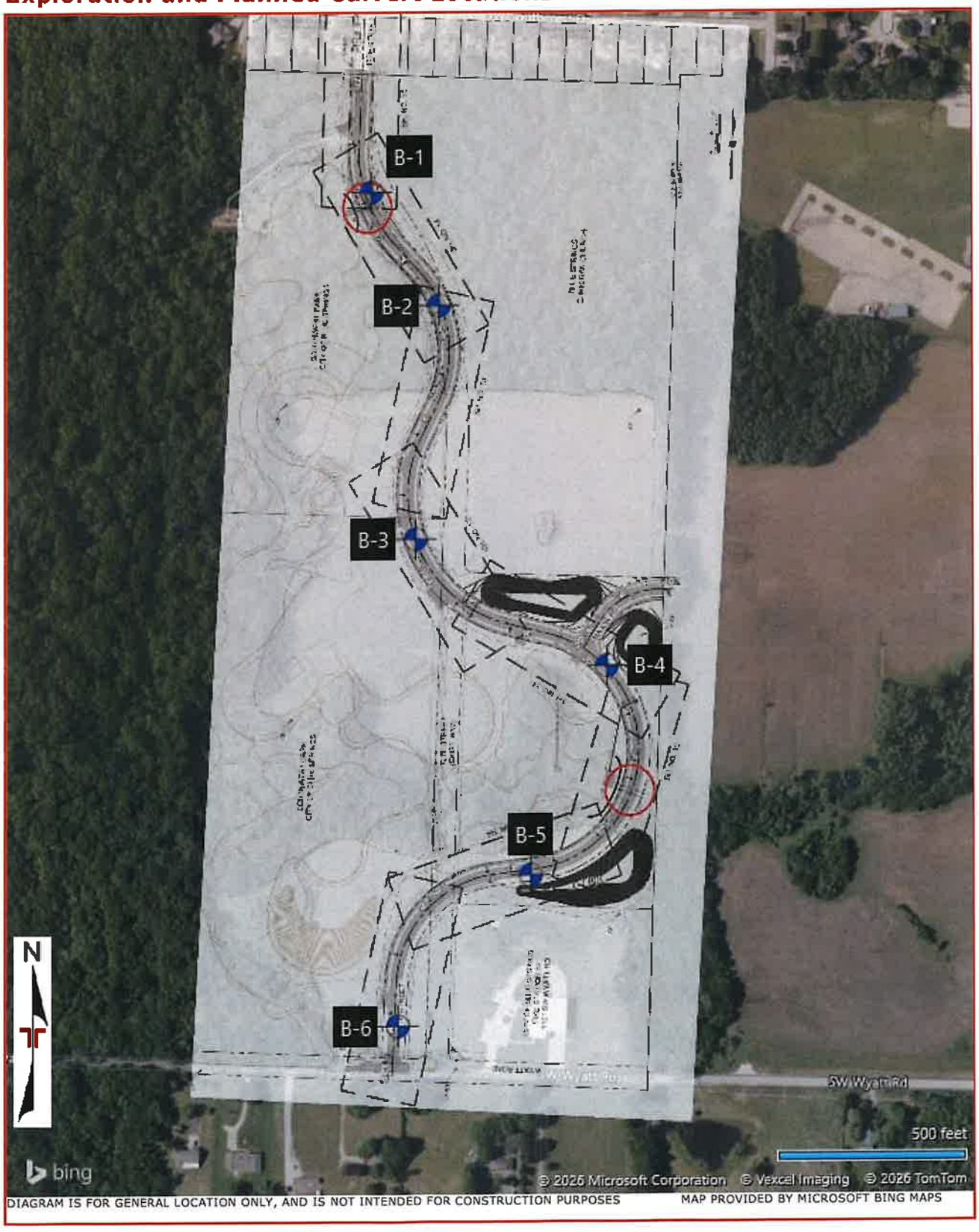


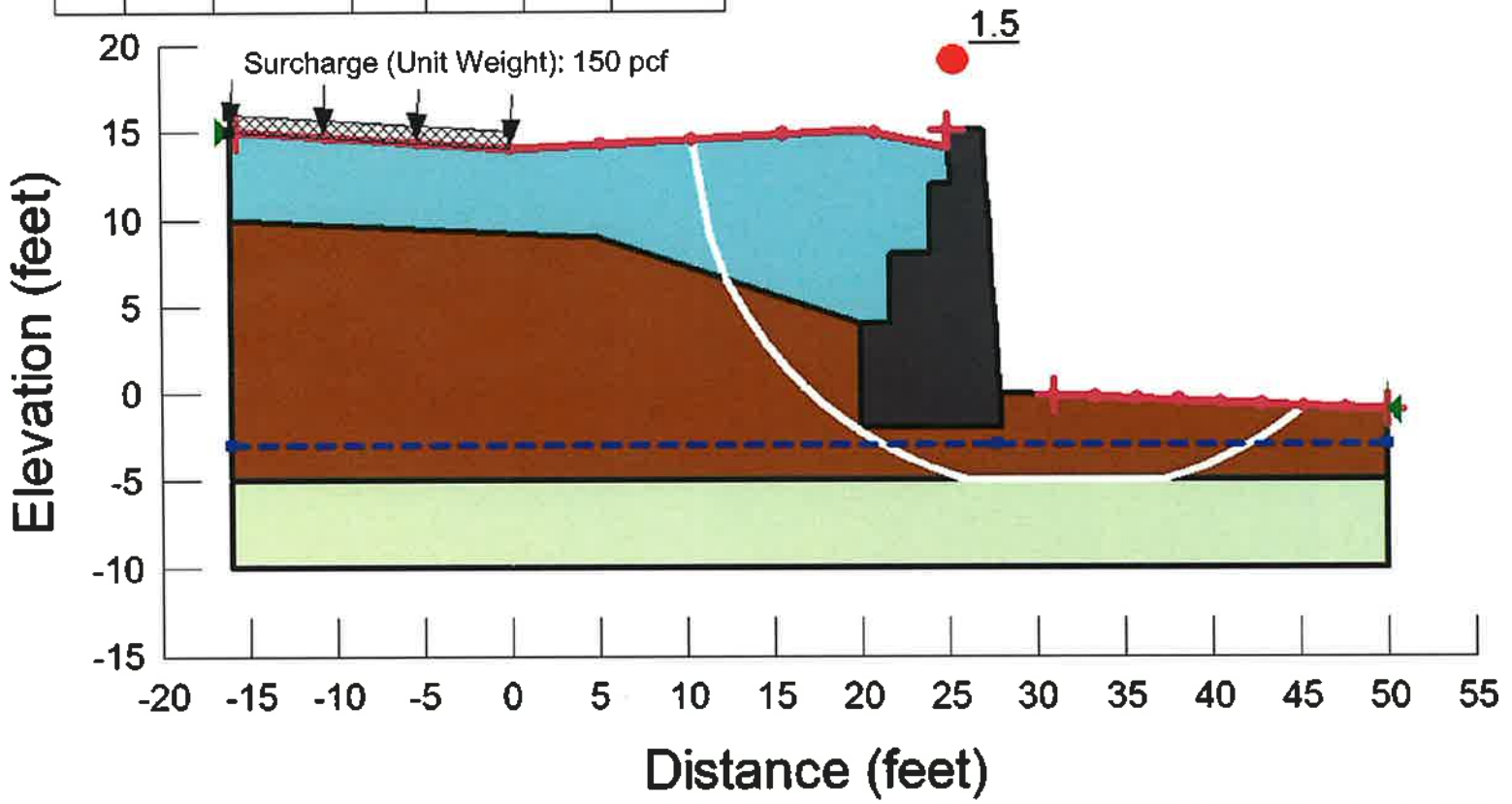
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Figures

Contents:

Global Stability Exhibits

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)	Piezometric Surface
	CH	Mohr-Coulomb	120	75	25	1
	FILL - Clay	Mohr-Coulomb	120	75	25	1
	Limestone	Bedrock (Impenetrable)				1
	Retaining Block	High Strength	140			1



Project Manager:	SLB
Drawn by:	FCJ
Checked by:	KCB
Approved by:	KCB
Project No.	02245405
Scale:	AS SHOWN
File Name:	N/A
Date:	01/08/2026

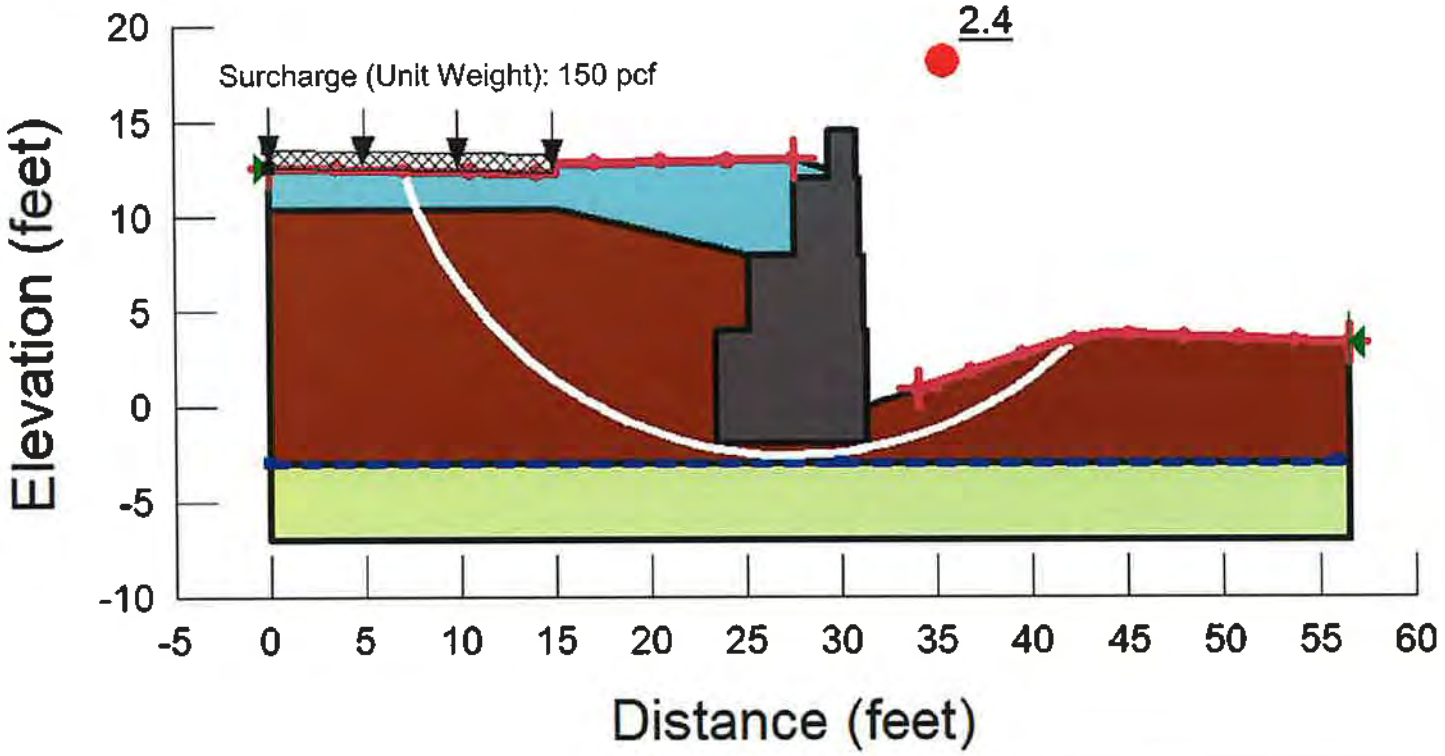
Terracon
15820 W 113th Street Lenexa, Kansas 66219
PH. (913) 492-7777

GLOBAL STABILITY EXHIBIT 1

North Culvert – West Wall

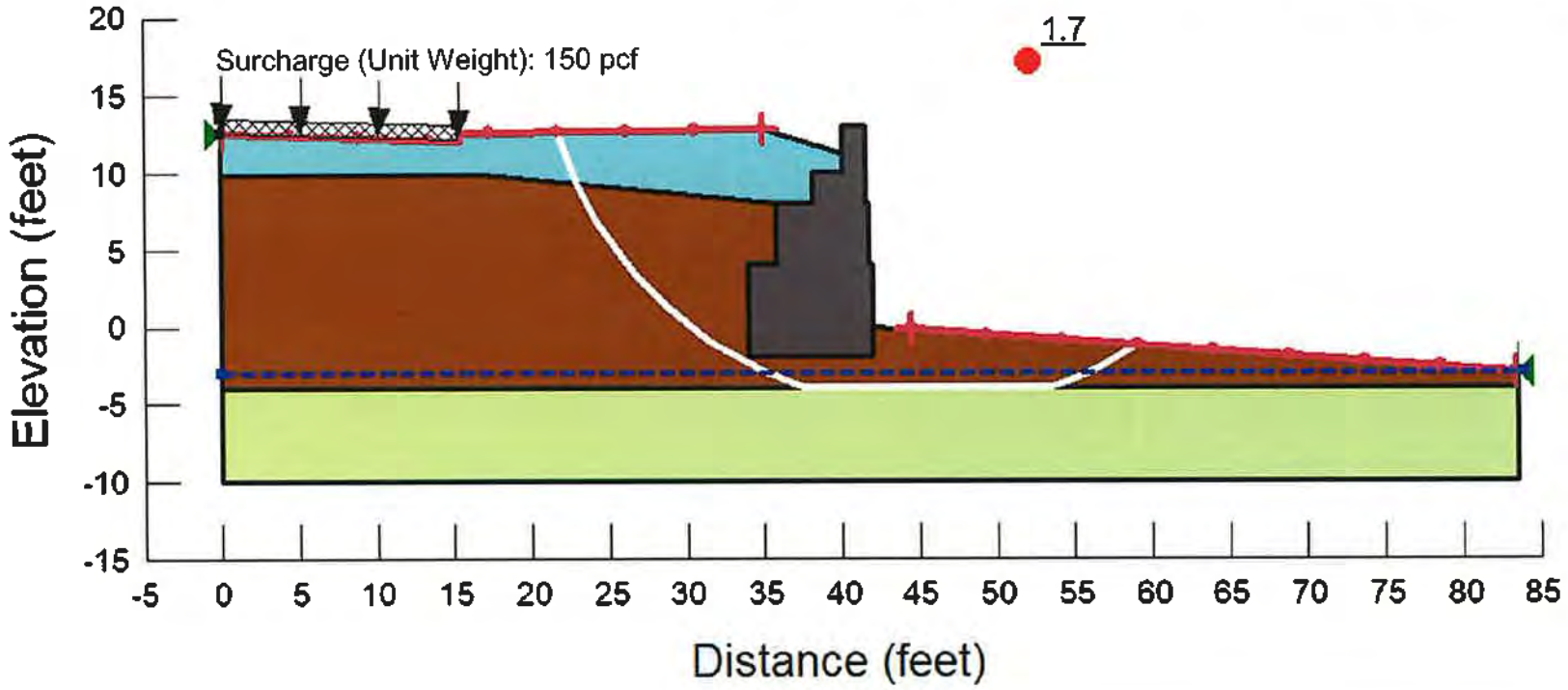
12th Street Extension
Blue Springs, Missouri

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)	Piezometric Surface
	CH	Mohr-Coulomb	120	75	25	1
	FILL-Clay	Mohr-Coulomb	120	75	25	1
	Limestone	Bedrock(Impenetrable)				1
	Retaining Blocks	High Strength	140			1



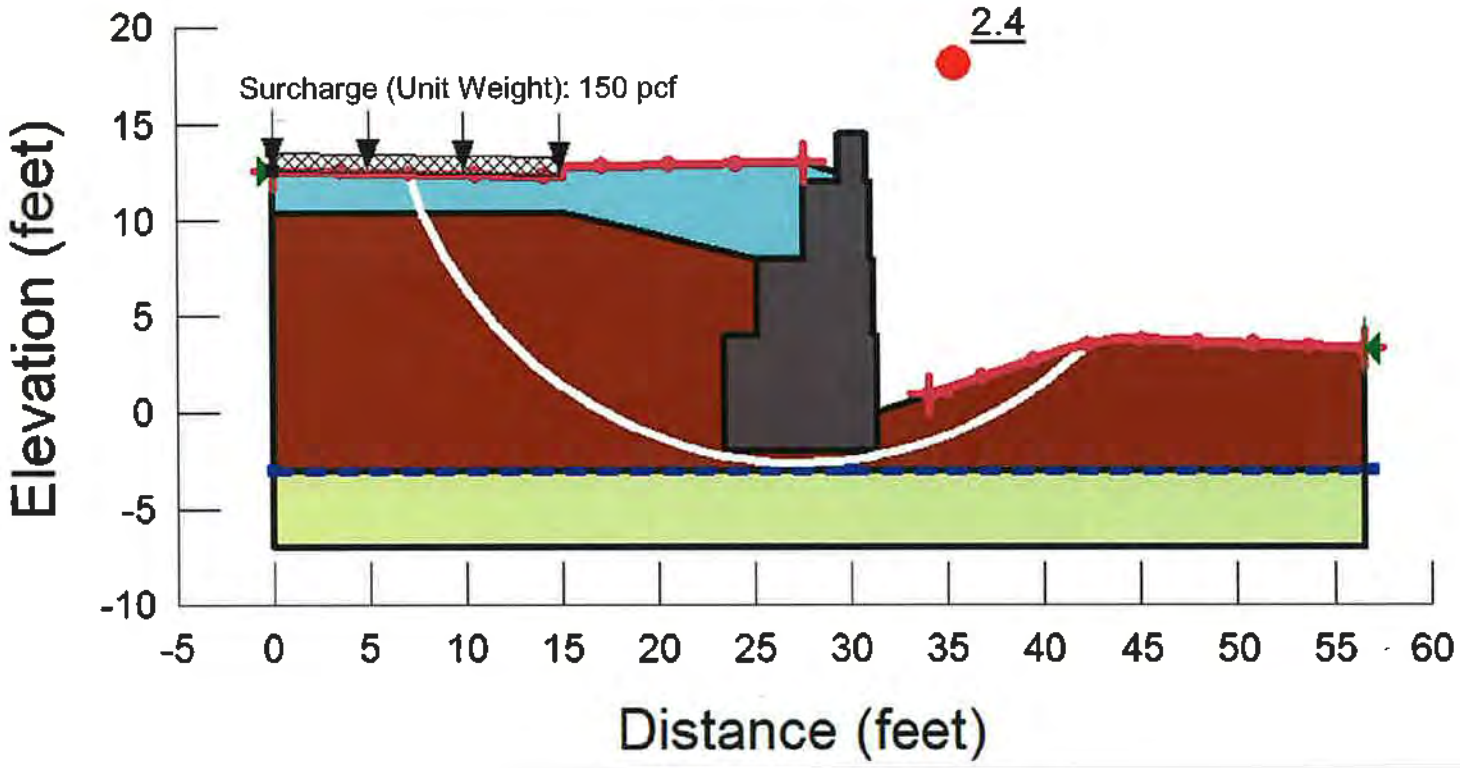
Project Manager: SLB	Project No. 02245405	Terracon	GLOBAL STABILITY EXHIBIT 2
Drawn by: FCJ	Scale: AS SHOWN	15620 W 113th Street Lenexa, Kansas 66219	North Culvert – East Wall
Checked by: KCB	File Name: N/A	PH: (913) 492-7777	12th Street Extension
Approved by: KCB	Date: 01/08/2026		Blue Springs, Missouri

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)	Piezometric Surface
	CH	Mohr-Coulomb	120	75	25	1
	FILL- Clay	Mohr-Coulomb	120	75	25	1
	Limestone	Bedrock (Impenetrable)				1
	Retaining Blocks	High Strength	140			1



Project Manager: SLB	Project No. 02245405	Terracon	GLOBAL STABILITY EXHIBIT 3
Drawn by: FCJ	Scale: AS SHOWN	15620 W 113th Street Lenexa, Kansas 66219	South Culvert – West Wall
Checked by: KCB	File Name: N/A	PH: (913) 492-7777	12th Street Extension
Approved by: KCB	Date: 01/08/2026		Blue Springs, Missouri

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)	Piezometric Surface
	CH	Mohr-Coulomb	120	75	25	1
	FILL-Clay	Mohr-Coulomb	120	75	25	1
	Limestone	Bedrock (Impenetrable)				1
	Retaining Blocks	High Strength	140			1



Project Manager: SLB	Project No. 02245405	Terracon	GLOBAL STABILITY EXHIBIT 4
Drawn by: FCJ	Scale: AS SHOWN	15620 W 113th Street Lenexa, Kansas 66219	South Culvert – East Wall
Checked by: KCB	File Name: N/A	PH (913) 492-7777	12th Street Extension
Approved by: KCB	Date: 01/08/2026		Blue Springs, Missouri

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DESIGN DESIGNATIONS

DESIGN SPEED: 30 MPH

POSTED SPEED LIMIT: 25 MPH

FUNCTIONAL CLASSIFICATION: RESIDENTIAL COLLECTOR

ABBREVIATIONS

AVE	AVENUE
BK	BOOK
CL	CONCRETE LINE
DI	DUCTILE IRON
ELEC	ELECTRIC
ESMT	EASEMENT
EXIST	EXISTING
FES	FLARED END SECTION
LT	LEFT
N	NORTH
PERM	PERMANENT
PG	PAGE
PROP	PROPOSED
PROPTY	PROPERTY
R/W	RIGHT-OF-WAY
RJ	RESTRAINED JOINT
RT	RIGHT
SSWR	SANITARY SEWER
TEMP	TEMPORARY
U/E	UTILITY EASEMENT
UTIL	UTILITY

LEGEND

- SECTION LINE
- EXISTING PROPERTY LINE
- CENTER LINE
- PROPOSED ROW LINE
- EXISTING ROW LINE
- EXISTING OVERHEAD ELECTRIC (OHE)
- EXISTING WOOD PRIVACY FENCE
- CONSTRUCTION LIMITS
- EXISTING EASEMENT
- EXISTING SANITARY LINE (SS)
- EXISTING TELEPHONE LINE (TEL–OH)
- EXISTING CHAIN LINK FENCE
- EXISTING STORM SEWER PIPE (SD)
- EXISTING GAS LINE (G)
- EXISTING TREELINE
- PERMANENT EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT

Blue Springs Missouri

CITY OF BLUE SPRINGS, MO

JACKSON COUNTY

12TH STREET EXTENSION



LOCATION MAP

N

0 250' 500'

UTILITY CONTACTS

POWER AND LIGHTS	EVERGY 930 N OLIVE ST KANSAS CITY, MO 64120 STEPHEN JEFFERS STEPHEN.JEFFERS@EVERGY.COM O: 816-363-9437
FIBER	AT&T 500 EAST 8TH STREET KANSAS CITY, MO 64106 TIM BUSHART O: 816-803-2608
GAS	SPIRE INC. 3025 SE CLOVER DRIVE LEE'S SUMMIT, MO 64082 CHRIS COLLINS CHRIS.COLLINS@SPIREENGENERGY.COM O: 816-472-3489
GAS	SPIRE INC. 3025 SE CLOVER DRIVE LEE'S SUMMIT, MO 64082 DEANNA BRANTLEY DEANNA.BRANTLEY@SPIREENERGY.COM O: 816-360-5038
CABLE TV	COMCAST 4700 LITTLE BLUE PARKWAY NOTH KANSAS CITY, MO 64057 MICHAEL ALBERTSON O: 816-332-7010
SEWER/STORM SEWER	B.S PUBLIC UTILITIES O: 816-228-0195
WATER	WATER DISTRICT 13 DENNIS BOLING 816-564-6591

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 10+00.00
END OF PROJECT	STA. 44+25.50
APPARENT LENGTH	3,425.50 FEET
TOTAL CORRECTIONS	0.00 FEET
NET LENGTH OF PROJECT	3,425.50 FEET
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	10.72 ACs.

APPROVED - DATE

BLUE SPRINGS, MISSOURI

Utility Note:
Existing utilities shown are based on Engineer's contact with utility agencies and are believed to be reasonably represented. However, the Engineer and the Owner make no guarantee as to the accuracy or completeness of the information shown. The Contractor shall notify all utility agencies before beginning work and shall cooperate with them in locating existing utilities.

811

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-941-4100
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
TITLE SHEET

SHEET NO:
1 of 126

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1/20/2026

GENERAL NOTES

1. THE STANDARD SPECIFICATIONS AND DESIGN CRITERIA OF THE CITY OF BLUE SPRINGS, KANSAS CITY METROPOLITAN CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION (RECENT VERSION), AND JACKSON COUNTY PWSD 13 STANDARD SPECIFICATIONS SHALL GOVERN THE CONSTRUCTION OF ALL PUBLIC IMPROVEMENTS FOR THIS PROJECT. WHERE CONFLICTING INFORMATION EXISTS, THE MOST STRINGENT SHALL PREVAIL
2. THE CONTRACTOR SHALL NOT WORK ON SATURDAYS, SUNDAYS, OR HOLIDAYS ON PORTIONS OF WORK UNLESS REQUESTED AT LEAST FORTY EIGHT(48) HOURS IN ADVANCE AND WHEN APPROVED BY THE CITY ENGINEER.
3. ALL EXISTING UTILITIES INDICATED ON THESE IMPROVEMENT PLANS ARE ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE DESIGN ENGINEER; HOWEVER, ALL EXISTING UTILITIES MAY NOT BE SHOWN. UTILITIES DAMAGED BY THE CONTRACTOR WHILE LOCATING OR DURING CONSTRUCTION SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR. THE CONTRACTOR, PRIOR TO CONSTRUCTION, SHALL VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES. THE REPAIR OF ANY DAMAGE TO SAID UTILITIES SHALL BE AT THE COST OF THE CONTRACTOR. ANY UTILITIES FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED. ENCROACHMENTS SUCH AS TELEPHONE, POWER, AND CABLE T.V. POLES SHALL BE MOVED BY THE UTILITY OWNER AND COORDINATED BY THE CONTRACTOR AFTER WRITTEN APPROVAL FROM THE OWNER, UNLESS OTHERWISE NOTED.
4. ALL BACKFILL SHALL BE TAMPED OR COMPACTED AS SPECIFIED PER THE CONTRACT SPECTIFICATIONS.
5. ALL SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED ON THE PLANS SHALL BE IN PLACE PRIOR TO COMMENCING ANY LAND DISTURBANCE ACTIVITIES ON THE SITE. CONTRACTOR SHALL BE REQUIRED TO SIGN AND ABIDE BY STORMWATER POLLUTION PREVENTION PLAN (SWPPP). CONTRACTOR SHALL ABIDE BY THE MISSOURI CLEAN WATER LAW, INCLUDING ALL RULES, REGULATIONS, ORDERS AND DECISIONS.
6. CONTRACTOR SHALL CLEAR AND GRUB ALL TREES WITHIN THE GRADING LIMITS UNLESS OTHERWISE NOTED. REMOVAL OF A TREE INCLUDES REMOVAL OF ALL BRANCHES, ROOTS, AND BRUSH WITHIN THE CANOPY LIMITS OF THE TREE. THE CONTRACTOR IS REQUIRED TO EXERCISE PARTICULAR CARE DURING EXCAVATION TO PREVENT UNNECESSARY DAMAGE TO TREES, RETAINING WALLS, STRUCTURES, UTILITIES, ETC. IN THE VICINITY OF CONSTRUCTION. ONLY THOSE TREES IN DIRECT CONFLICT WITH CONSTRUCTION OPERATIONS SHALL BE REMOVED, AS AGREED UPON BETWEEN THE CONTRACTOR AND CITY REPRESENTATIVE. ALL TREES THAT ARE TO BE SAVED SHALL BE MARKED BY THE CONTRACTOR AND SHALL BE FENCED AT THE DRIP LINE WITH T POSTS AND ORANGE CONSTRUCTION FENCING.
7. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS, CODES AND ORDINANCES. OPEN BURNING OF DEBRIS SHALL NOT BE PERMITTED.
8. CONTRACTOR SHALL STRIP TOPSOIL AND VEGETATION A MINIMUM OF 6" AND STOCKPILE FOR USE AS TOPSOIL WHERE VEGETATION IS TO BE REESTABLISHED. ALL TOPSOIL WORK SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.
9. ALL EXISTING CONCRETE PAVEMENT, CURB & GUTTER, DRIVEWAYS, SIDEWALKS OR BITUMINOUS SURFACING TO BE REMOVED SHALL BE SAW CUT TO THE NEAT LINES SHOWN ON THE PLANS OR TO THE NEAREST JOINT AS DIRECTED BY THE CITY. ADDITIONAL REMOVAL MAY BE ORDERED BY THE CITY. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO "REMOVAL OF EXISTING STRUCTURES".
10. EXCESS SOIL OR ROCK MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF SITE BY THE CONTRACTOR. THIS WORK IS INCIDENTAL AND NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.
11. THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND ELEVATIONS SHALL BE CONFIRMED BY THE CONTRACTOR AT THE JOB SITE. IF THE CONTRACTOR FINDS ANY DIMENSIONS TO BE IN ERROR OR IN QUESTION, THE ENGINEER SHALL BE PROMPTLY CONTACTED FOR CLARIFICATION PRIOR TO THE CONTINUATION OF THE WORK.
12. ALL PORTLAND CEMENT CONCRETE EXPOSED TO AMBIENT AIR SHALL BE KCMMB 4K MIX, INCLUDING INVERTS OF STORM STRUCTURES.
13. ALL EXISTING DRAINAGE TILES, FOUNDATION DRAINS, SUMP PUMP DRAINS, AND / OR ROOF DRAINS ENCOUNTERED OR DAMAGED DURING CONSTRUCTION ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION, PROPERLY REROUTED AND/OR CONNECTED TO THE STORM SEWER SYSTEM. THE EXTENSION, RESTORATION OR REROUTING OF THESE TILES OR DRAINS SHALL BE CONSIDERED SUBSIDIARY TO THE CONSTRUCTION OF THE PROPOSED STORM SEWERS.
14. ALL STORM SEWER PIPE LENGTHS SHOWN ON THE PLANS ARE MEASURED FROM INSIDE FACE OF DOWNSTREAM STRUCTURE TO INSIDE FACE OF UPSTREAM STRUCTURES, (FOR BIDDING AND PAYMENT PURPOSE ONLY).
15. ALL SIGNS IN CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED AND REPLACED, AND SHALL BE CONSIDERED SUBSIDIARY TO "PERMANENT SIGNAGE".
16. DRIVEWAYS, SIDEWALKS, STREETS AND OTHER AREAS DAMAGED BY THE CONTRACTOR SHALL BE RESTORED, AT THE CONTRACTORS EXPENSE, TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING BEFORE DAMAGE OCCURRED.
17. THE CONTRACTORS IS RESPONSIBLE FOR THE PROTECTION OF ALL PROPERTY CORNERS AND SECTION CORNERS. ANY PROPERTY CORNERS OR SECTION CORNERS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A REGISTERED LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
18. ALL STORM SEWER STRUCTURES USED FOR THE PROJECT SHALL BE PRECAST. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CASTING OF STRUCTURES.
19. ALL EXISTING FENCING, WALKS, ETC. THAT ARE DISTURBED BY THE CONTRACTOR'S OPERATION SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL CONDITION. CONTRACTOR SHALL SATISFY HIMSELF BY SITE VISIT AS TO THE EXTENT AND NATURE OF SUCH WORK IN PREPARING HIS BID. THIS WORK SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
20. ALL DISTURBED AREAS SHALL BE RESTORED WITH TOPSOIL, SEED (DRILLED) & MULCH. ANY AREAS DISTURBED OUTSIDE OF THE LIMITS SHOWN ON THE PLANS SHALL BE SEEDED AT NO ADDITIONAL COST.
21. ACCESS TO PROPERTIES SHALL BE MAINTAINED AT ALL TIMES. IF CONSTRUCTION ACROSS A DRIVEWAY IS TO TAKE MORE THAN 24 HOURS, ONE HALF OF THE DRIVE SHALL REMAIN IN SERVICE UNTIL THE OTHER HALF IS RECONSTRUCTED AND IN SERVICE OR ALTERNATE ACCESS PROVIDED.
22. ALL FENCING WITHIN THE WORK LIMITS SHALL BE PROTECTED OR RESTORED TO PRIOR CONDITIONS UPON COMPLETION OF THE WORK, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE PLANS. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING FOR ANY RESIDENTS WHO OWN PETS OR WHO OTHERWISE REQUEST TEMPORARY FENCING. CONTRACTOR SHALL COORDINATE THE TEMPORARY FENCING LOCATION WITH THE RESIDENT, CITY, AND ENGINEER. TEMPORARY FENCING SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
23. THE CONTRACTOR SHALL MAINTAIN DRAINAGE DURING CONSTRUCTION.
24. ALL EQUIPMENT USED BY THE CONTRACTOR HAVING METAL TRACKS SHALL NOT BE DRIVEN OVER CITY STREETS OTHER THAN THOSE BEING DISRUPTED BY STORM SEWER TRENCHING. SUCH EQUIPMENT MUST BE TRANSPORTED.
25. CONTRACTOR SHALL NOTIFY EACH IMPACTED PROPERTY OWNER OF THE ANTICIPATED CONSTRUCTION ACTIVITY 48 HOURS PRIOR TO BEGINNING WORK. THE NOTIFACTION METHOD SHALL BE OF SUITABLE MEANS, AND APPROVED BY THE CITY ENGINEER.
26. THE LOCATION POINT FOR ALL STORM SEWER STRUCTURES SHALL BE CENTER OF STRUCTURE AS INDICATED ON PLAN SHEETS.
27. ALL WORK REQUIRED TO COMPLETE THE PROJECT BUT WHICH IS NOT SPECIFICALLY CALLED OUT IN A PAY ITEM SHALL BE SUBSIDIARY TO OTHER PAY ITEMS.
28. ANY REMOVAL OF TREES THAT ARE 3" OR LARGER IN DIAMETER SHALL OCCUR DURING WINTER INACTIVE SEASON, (NOV.15TH TO MARCH 31ST OR THE MOST UP TO DATE RANGE PUBLISHED BY THE U.S. FISH AND WILDLIFE) AS TO LIMIT ANY POTENTIAL IMPACT TO ENDANGERED BAT ROOSTING HABITAT.
29. IF CONTRACTOR ENCOUNTERS EVIDENCE OF DEPOSITS OF HISTORICAL OR ARCHAEOLOGICAL CONDITIONS, CONTRACTOR SHALL IMMEDIATELY: (i) SECURE OR OTHERWISE ISOLATE SUCH CONDITION; (ii) STOP ALL WORK IN CONNECTION WITH SUCH CONDITION AND IN ANY AREA AFFECTED THEREBY (EXCEPT IN AN EMERGENCY); AND (iii) NOTIFY OWNER AND ENGINEER (AND PROMPTLY THEREAFTER CONFIRM SUCH NOTICE IN WRITING). OWNER SHALL NOTIFY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AND THE MISSOURI STATE HISTORIC PRESERVATION OFFICE. NO FURTHER DISTURBANCE OF THE DEPOSITS SHALL ENSUE UNTIL THE CONTRACTOR HAS BEEN NOTIFIED BY THE OWNER THAT HE MAY PROCEED. THE OWNER WILL ISSUE A NOTICE TO PROCEED ONLY AFTER THE STATE OFFICIAL HAS SURVEYED THE FIND AND MADE A DETERMINATION TO THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AND THE OWNER. COMPENSATION TO THE CONTRACTOR, IF ANY, FOR LOST TIME OR CHANGES IN CONSTRUCTION TO AVOID THE FIND, SHALL BE DETERMINED IN ACCORDANCE WITH CHANGED CONDITIONS OR CHANGE ORDER PROVISIONS OF THE CONTRACT DOCUMENTS. IF OWNER AND CONTRACTOR CANNOT AGREE AS TO ENTITLEMENT TO OR ON THE AMOUNT OR EXTENT, IF ANY, OF ANY ADJUSTMENT IN CONTRACT PRICE OR CONTRACT TIMES, OR BOTH, AS A RESULT OF SUCH WORK STOPPAGE OR SUCH SPECIAL.
30. IF WATER SEEPAGE IS ENCOUNTERED DURING EXCAVATION, USE OF TEMPORARY DEWATERING TECHNIQUES MAY BE NECESSARY AT NO ADDITIONAL COST TO THE CITY.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
BASE BID			
1	Mobilization	1	LS
2	Removal of Existing Structures	1	LS
3	Clearing and Grubbing	1	LS
4	Contractor Furnished Staking	1	LS
5	Unclassified Excavation	20,235	CY
6	Embankment	21,830	CY
7	12' x 5' Single Radius Aluminum Arch (w/ Reinforced Conc. Strip Foundations)	2	EA
8	Reinforced Concrete Headwall (w/ Form Liner)	4	EA
9	Modular Block Retaining Wall (w/ Stain)	5,168	FSF
10	Connection to Existing Water Main (STA: 10+00)	1	LS
11	12" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	3,415	LF
12	8" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	101	LF
13	4" PVC Water Service Line (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	21	LF
14	2" PVC Water Service Line (w/ Temporary Blowoff Assembly)	175	LF
15	Gate Valve	11	EA
16	Fire Hydrant Assembly	3	EA
17	Backflow Preventor Assembly & Manhole	1	LS
18	Remove & Reset Existing 15" Flared End Section (w/ Toe Wall)	1	LS
19	15" Storm Pipe (N-12 HDPE)	1,041	LF
20	18" Storm Pipe (N-12 HDPE)	228	LF
21	24" Storm Pipe (N-12 HDPE)	707	LF
22	36" Storm Pipe (N-12 HDPE)	166	LF
23	4' x 4' Junction Box	1	EA
24	4.5' x 4' Junction Box	1	EA
25	5.5' x 4' Junction Box	2	EA
26	4' x 4' Curb Inlet	15	EA
27	5' x 3' Curb Inlet	1	EA
28	4.5' x 4' Curb Inlet	1	EA
29	6' x 4' Curb Inlet	1	EA
30	7' x 4' Curb Inlet	1	EA
31	5' x 5' Detention Pond Outlet Structure	2	EA
32	15" RC Flared End Section (w/ Toe Wall)	4	EA
33	24" RC Flared End Section (w/ Toe Wall)	3	EA
34	36" RC Flared End Section (w/ Toe Wall)	1	EA
35	Concrete Arch	39	LF
36	Riprap (D50 = 9") (TH = 18")	256	SY
37	Riprap (D50 = 18") (TH = 27")	354	SY
38	Riprap (D50 = 24") (TH = 36")	212	SY
39	Compaction of Subgrade	34	STA
40	MoDOT Type 5 Aggregate Base (6")	14,174	SY
41	MoDOT Type 5 Aggregate Base (4")	5,102	SY
42	Concrete Curb & Gutter (Combined)	6,971	LF
43	ADA Curb Ramp (w/ Landing)	13	EA
44	Concrete Flume	1	EA
45	Asphaltic Concrete Surface (Type 5-01) (2") (Roadway)	11,850	SY
46	Asphaltic Concrete Base (Type 3-01) (8") (Roadway)	11,850	SY
47	Asphaltic Concrete Surface (Type 5-01) (4") (Shared-Use Path)	2,774	SY
48	Concrete Driveway (8" Uniform) (AE)	655	SY
49	Sidewalk Construction (4") (AE)	1,425	SY
50	Electrical Service Connection (Includes Electrical Rack)	1	LS
51	Street Light (Includes Foundation, Pole, & Fixture)	24	EA
52	Underground Conduit (1-1/2" SCH80 PVC)	4,500	LF
53	Electrical Pull Box	26	EA
54	Electrical Wire	4,500	LF
55	Permanent Restoration	7	AC
56	Erosion Control	1	LS
57	Permanent Pavement Markings	1	LS
58	Permanent Signage	1	LS
59	Wall Mounted Pedestrian Fence	512	LF
BID ALTERNATE NO. 1 (REPLACE BASE BID ITEMS 47-49)			
60	Concrete Pavement (8" Uniform) (AE) (Roadway)	11,850	SY
61	Concrete Pavement (5" Uniform) (AE) (Shared-Use Path)	2,774	SY

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Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
SUMMARY OF QUANTITIES

SHEET NO:
2 of 126

1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\1_Sheets - general\2400101800-GENNOTES-QUAN.dwg

CONTROL POINTS

CP-100	CP-101
SET ORANGE PLASTIC CAP	SET ORANGE PLASTIC CAP
N. 172638.2008	N. 169992.1936
E. 97647.2219	E. 97940.4407
EL. 934.011'	EL. 959.552'

SURVEY NOTES

DTM AND PLANIMETRY COMPILED BY A COMBINATION OF AERIAL PHOTOGRAMMETRIC MAPPING AND A LIDAR SURFACE MODEL.
AERIAL LIDAR/PHOTOGRAPHY WAS ACQUIRED WITH A DJI MATRICE 350 RTK DJI L2 LIDAR PAYLOAD, A ONE INCH - 20-MEGAPIXEL CMOS SENSOR ON 2/04/2025 AT 250FT ABOVE MEAN TERRAIN.
LIDAR POINT DENSITY 1080 POINTS PER SQUARE METER.
IMAGERY NOMINAL GROUND SAMPLE DISTANCE OF 0.591 INCH (1.40CM).

FIELD SURVEY OF GROUND CONTROL FEBRUARY 2025.

HORIZONTAL DATUM: NORTH AMERICAN DATUM 83
VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM 88
COORDINATE SYSTEM: BASED ON STATE PLANE MISSOURI WEST
SCALED TO GROUND AROUND (0,0)
COMBINED GRID TO GROUND SCALE FACTOR: 1.0000957
GEOID: 2018
UNITS: US SURVEY FEET

DTM DATA WILL MEET 1990 ASPRS TOPOGRAPHIC ELEVATION ACCURACY FOR CONTOUR INTERVAL 1, CLASS 1. PLANIMETRIC AND ORTHOPHOTO DATA WILL MEET ASPRS PLANIMETRIC FEATURE COORDINATE ACCURACY FOR TARGET MAP SCALE 1" = 50' CLASS 1; FOR WELL-DEFINED POINTS WHEN COMPARED TO THE GROUND CONTROL USED FOR THE PHOTOGRAMMETRIC MAPPING AND SURFACE MODEL.

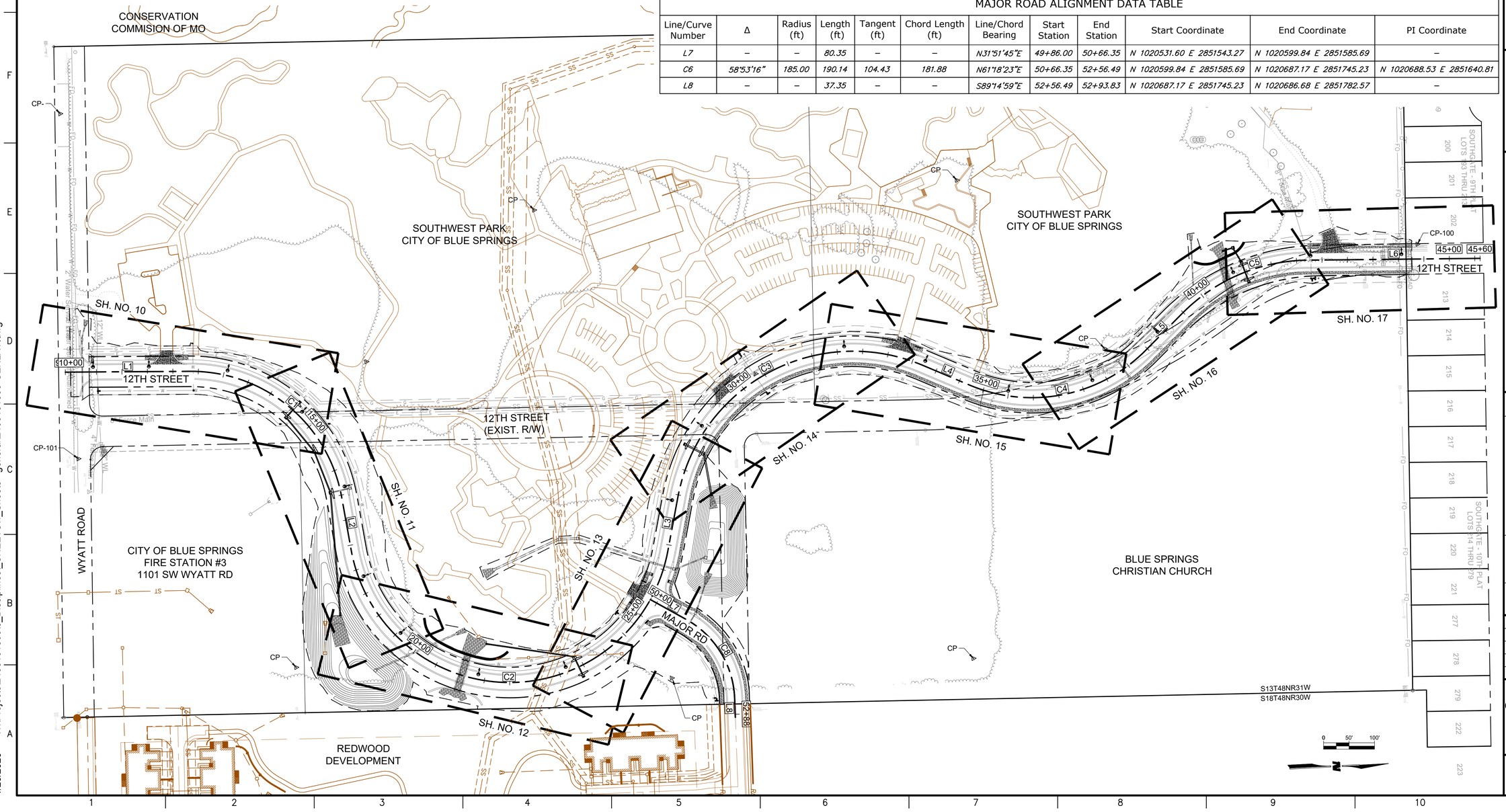
SURVEY AND MAPPING PERFORMED BY:
WILSON & COMPANY, ENGINEERS & ARCHITECTS, INC

12TH STREET ALIGNMENT DATA TABLE

Line/Curve Number	Δ	Radius (ft)	Length (ft)	Tangent (ft)	Chord Length (ft)	Line/Chord Bearing	Start Station	End Station	Start Coordinate	End Coordinate	PI Coordinate
L1	–	–	245.28	–	–	N02°29'10"E	9+88.86	12+34.14	N 1019406.80 E 2851039.97	N 1019651.85 E 2851050.61	–
C1	80°12'51"	300.00	420.00	252.69	386.53	N42°35'35"E	12+34.14	16+54.14	N 1019651.85 E 2851050.61	N 1019936.41 E 2851312.21	N 1019904.30 E 2851061.57
L2	–	–	105.26	–	–	N82°42'01"E	16+54.14	17+59.40	N 1019936.41 E 2851312.21	N 1019949.78 E 2851416.61	–
C2	159°16'50"	316.00	878.47	1728.58	621.70	N03°03'36"E	17+59.40	26+37.87	N 1019949.78 E 2851416.61	N 1020570.59 E 2851449.80	N 1020169.42 E 2853131.18
L3	–	–	108.30	–	–	N76°34'49"W	26+37.87	27+46.16	N 1020570.59 E 2851449.80	N 1020595.72 E 2851344.46	–
C3	102°18'50"	350.00	625.00	434.64	545.21	N25°25'24"W	27+46.16	33+71.16	N 1020595.72 E 2851344.46	N 1021088.13 E 2851110.40	N 1020696.60 E 2850921.68
L4	–	–	100.17	–	–	N25°44'01"E	33+71.16	34+71.33	N 1021088.13 E 2851110.40	N 1021178.37 E 2851153.89	–
C4	68°09'27"	315.00	374.72	213.10	353.01	N08°20'43"W	34+71.33	38+46.05	N 1021178.37 E 2851153.89	N 1021527.64 E 2851102.66	N 1021370.33 E 2851246.42
L5	–	–	102.49	–	–	N42°25'26"W	38+46.05	39+48.54	N 1021527.64 E 2851102.66	N 1021603.29 E 2851033.51	–
C5	44°41'27"	350.00	273.00	143.87	266.13	N20°04'43"W	39+48.54	42+21.54	N 1021603.29 E 2851033.51	N 1021853.25 E 2850942.15	N 1021709.49 E 2850936.46
L6	–	–	338.87	–	–	N02°16'00"E	42+21.54	45+60.41	N 1021853.25 E 2850942.15	N 1022191.86 E 2850955.55	–

MAJOR ROAD ALIGNMENT DATA TABLE

Line/Curve Number	Δ	Radius (ft)	Length (ft)	Tangent (ft)	Chord Length (ft)	Line/Chord Bearing	Start Station	End Station	Start Coordinate	End Coordinate	PI Coordinate
L7	–	–	80.35	–	–	N31°51'45"E	49+86.00	50+66.35	N 1020531.60 E 2851543.27	N 1020599.84 E 2851585.69	–
C6	58°53'16"	185.00	190.14	104.43	181.88	N61°18'23"E	50+66.35	52+56.49	N 1020599.84 E 2851585.69	N 1020687.17 E 2851745.23	N 1020688.53 E 2851640.81
L8	–	–	37.35	–	–	S89°14'59"E	52+56.49	52+93.83	N 1020687.17 E 2851745.23	N 1020686.68 E 2851782.57	–



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CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

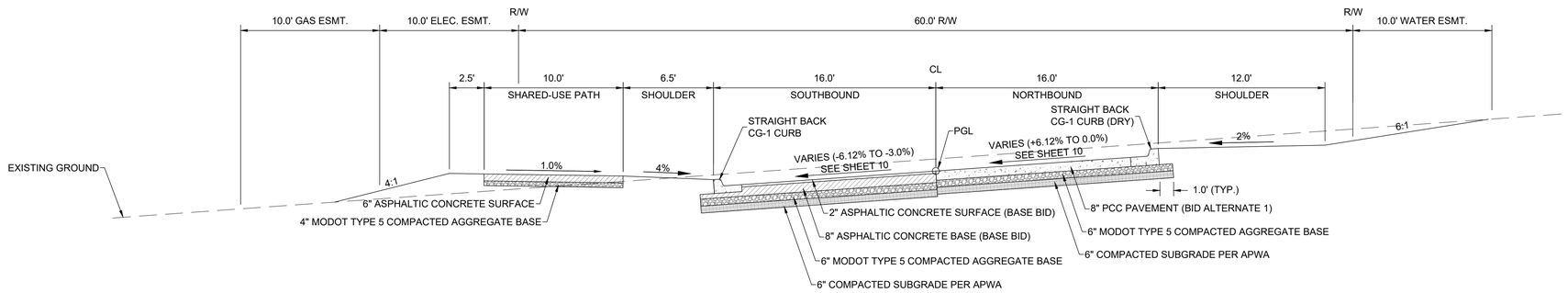
SHEET TITLE
GENERAL LAYOUT & SURVEY CONTROL

SHEET NO:
3 of 126

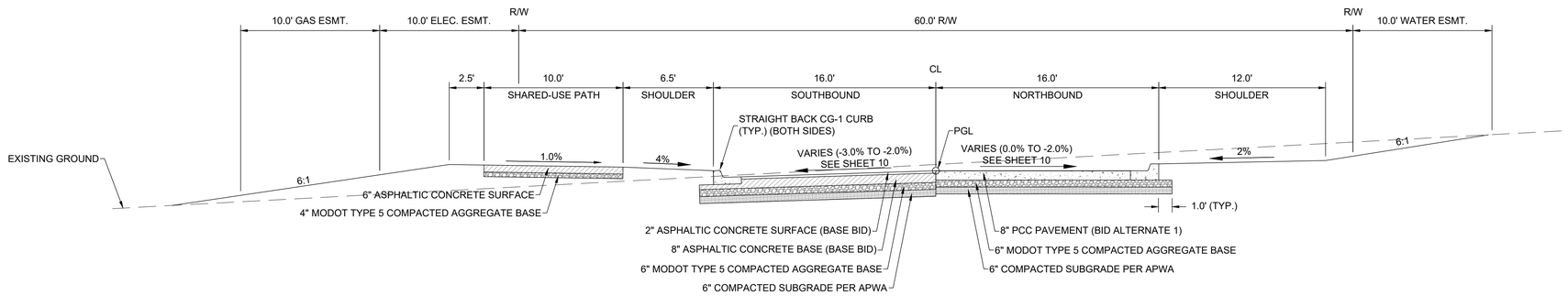
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1/20/2026

NOTES:

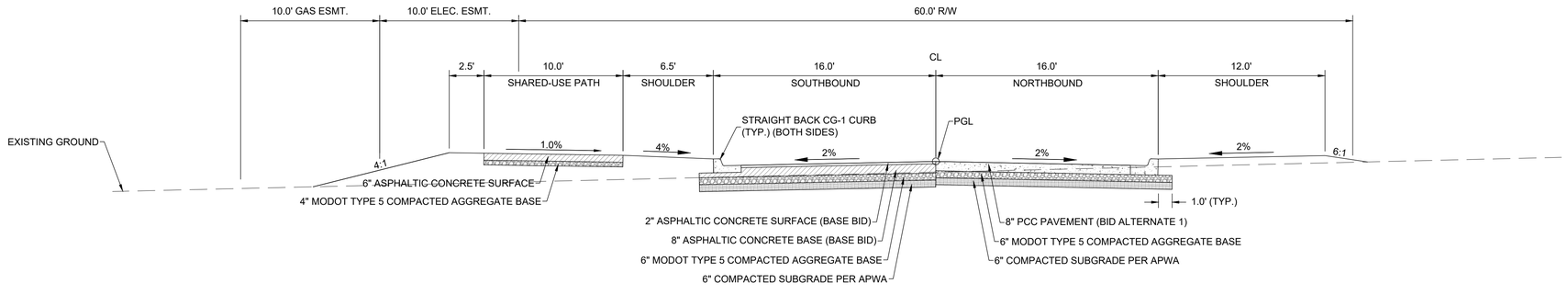
1. ALL PCC CONCRETE SHALL BE KCMMB 4K MIX.
2. AC MIXES SHALL CONFORM TO APWA. RECYCLED ASPHALT PAVEMENT (RAP) ALLOWED IN BASE AC ONLY. NO SHINGLES ALLOWED IN MIX DESIGN.
3. SIDEWALKS SHALL BE PLACED ON 6" OF COMPACTED SUBGRADE PER APWA SPECIFICATIONS
4. FOR DRIVEWAY DETAIL SEE SHT. NO. 19



F2 12TH STREET TYPICAL SECTION
STA: 10+49.51TO 11+49.01



D2 12TH STREET TYPICAL SECTION
STA: 11+88.01 TO 12+20.51'



A2 12TH STREET TYPICAL SECTION
STA: 12+20.51' TO 16+66.06

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STATE OF MISSOURI
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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

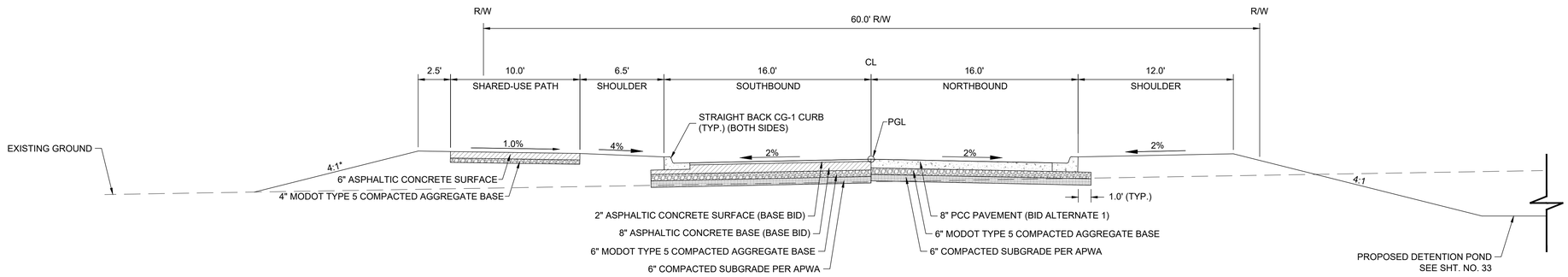
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

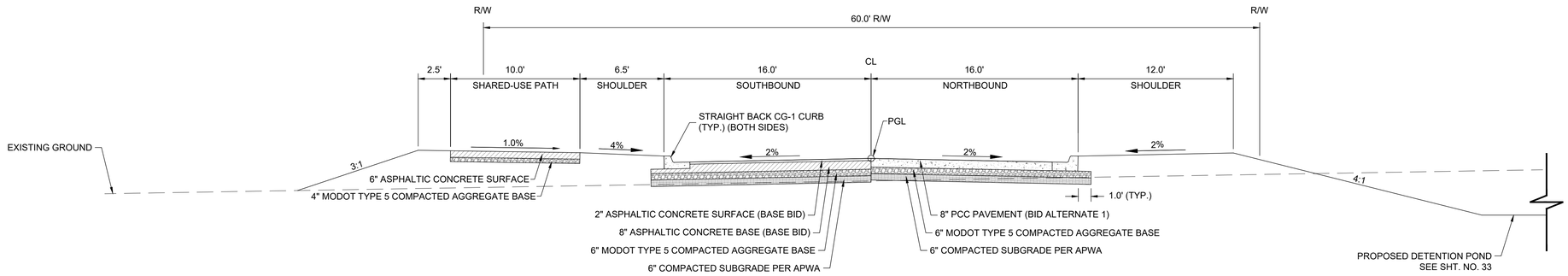
SHEET TITLE
TYPICAL SECTIONS

SHEET NO:
4 of 126

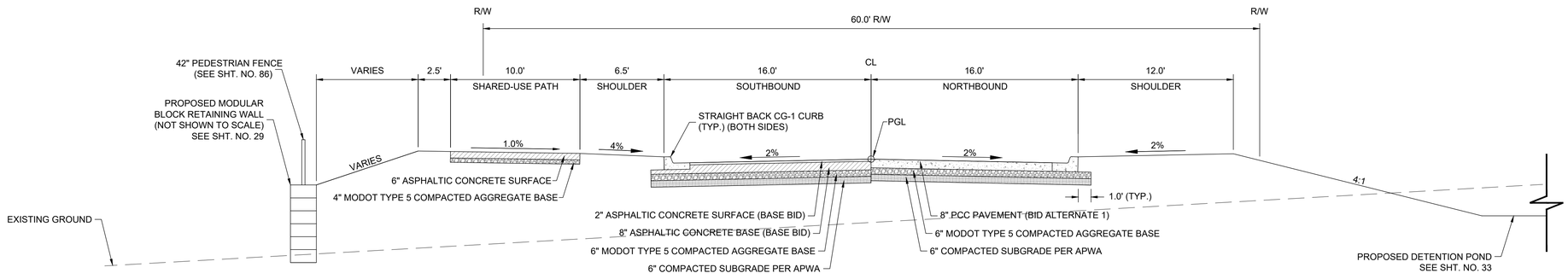
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1/20/2026



F2 12TH STREET TYPICAL SECTION
STA: 16+66.06 TO 18+50.00
*FROM 16+66.06 TO 18+50.00 LEFT TIE IN TO EXIST. GROUND TRANSITIONS FROM 4:1 TO 3:1



D2 12TH STREET TYPICAL SECTION
STA: 18+50.00 TO 19+70.99



A2 12TH STREET TYPICAL SECTION
STA: 19+70.99 TO 20+58.58

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NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

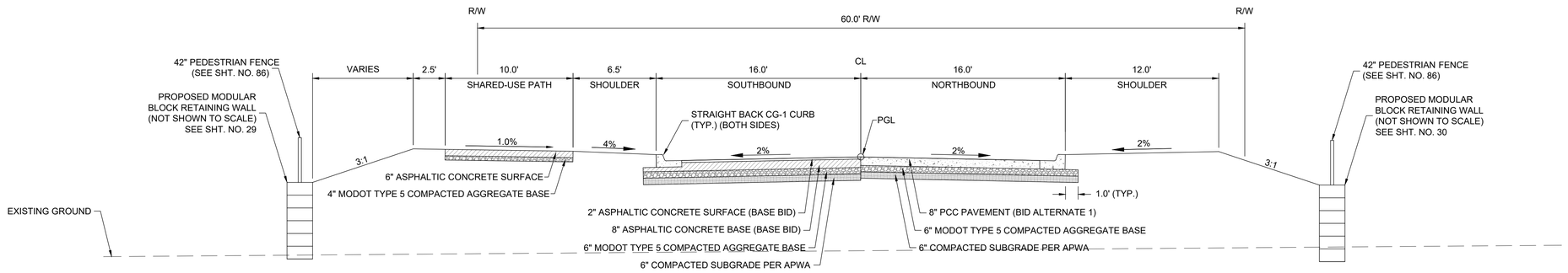
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

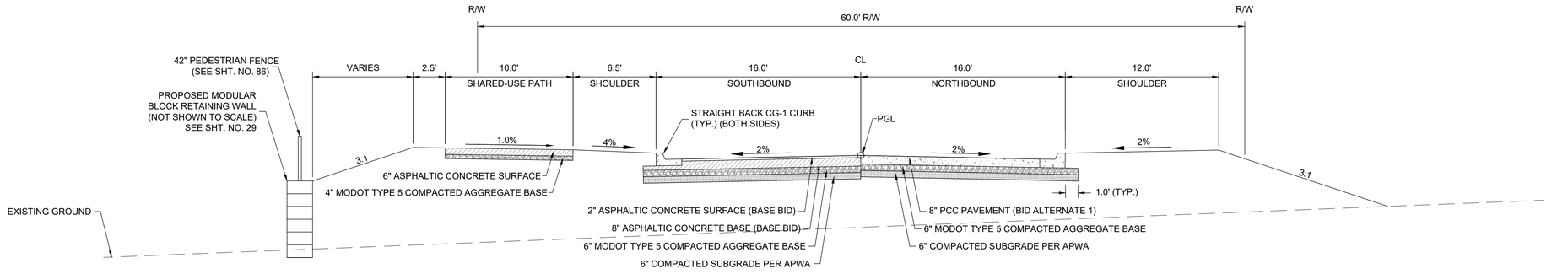
SHEET TITLE
TYPICAL SECTIONS

SHEET NO:
5 of 126

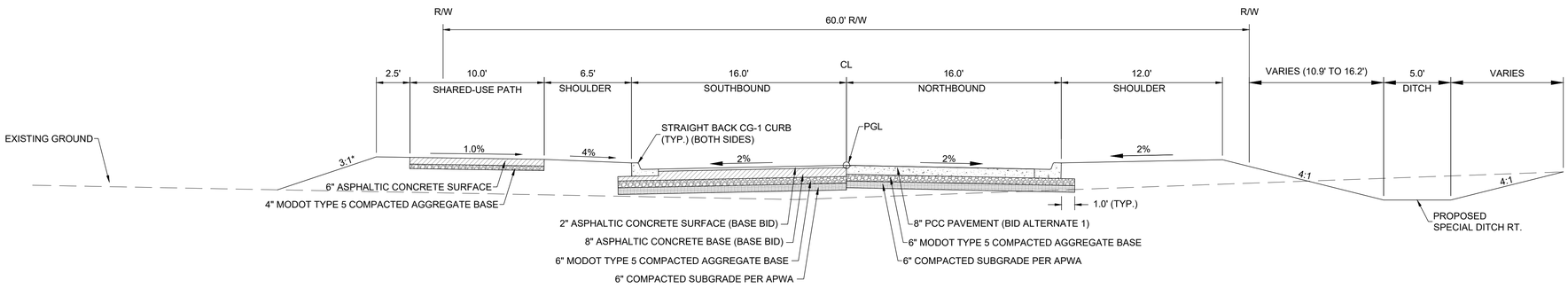
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1/20/2026



F2 12TH STREET TYPICAL SECTION
STA: 20+58.58 TO 21+53.35



D2 12TH STREET TYPICAL SECTION
STA: 21+53.35 TO 21+95.85



B2 12TH STREET TYPICAL SECTION
STA: 21+95.85 TO 24+91.15
*FROM 23+50.00 TO 24+00.00 LEFT TIE IN TO EXIST. GROUND TRANSITIONS FROM 3:1 TO 6:1

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DARREN JOHN MEYER
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1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

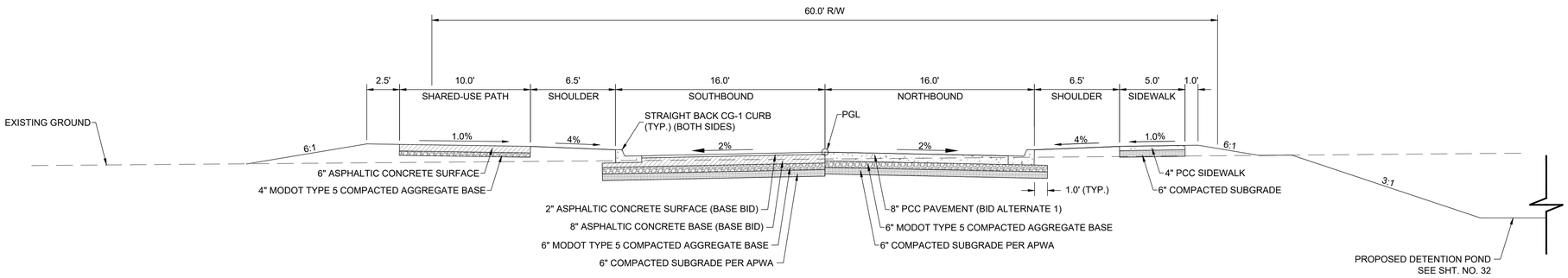
BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

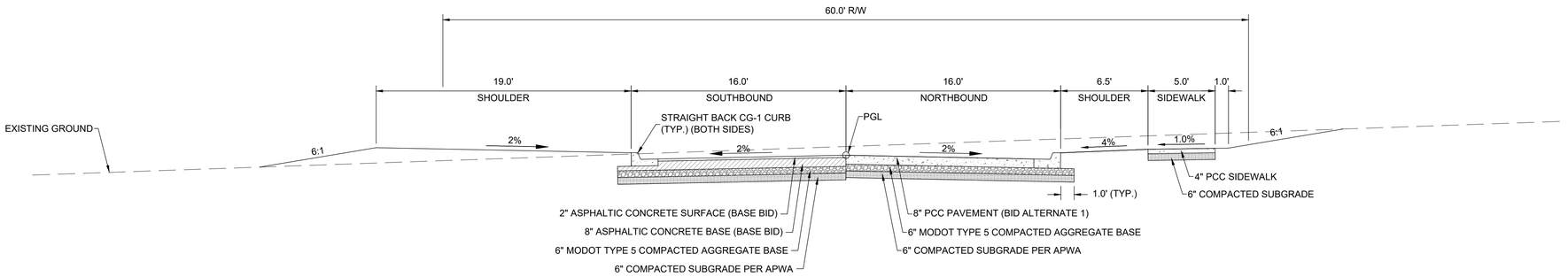
SHEET TITLE
TYPICAL SECTIONS

SHEET NO:
6 of 126

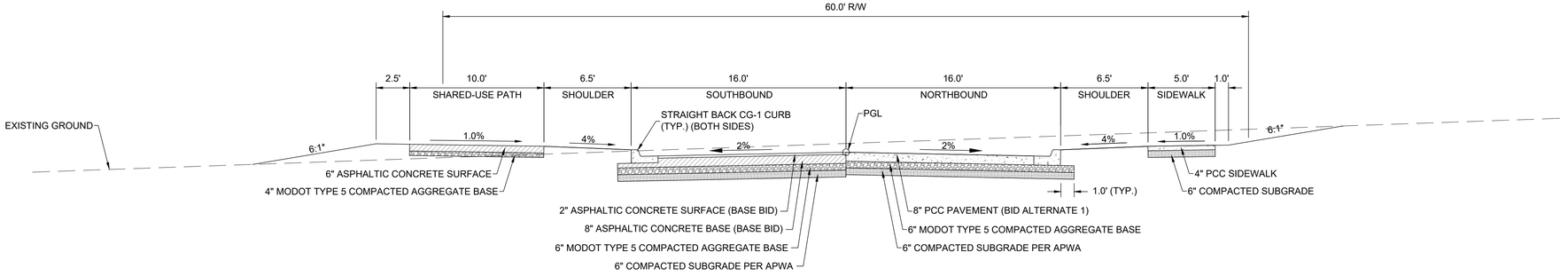
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1/20/2026



D2 12TH STREET TYPICAL SECTION
STA: 25+81.10 TO STA 27+50.00



B2 12TH STREET TYPICAL SECTION
STA: 27+50.00 TO 31+36.37



F2 12TH STREET TYPICAL SECTION
STA: 31+36.37 TO 36+75.00
STA: 41+12.65 TO 42+22.37
*FROM 36+25.00 TO 36+75.00 TIE-INS TO EXIST. GROUND TRANSITIONS FROM 6:1 TO 3:1
*FROM 41+14.37 TO 41+75.00 TIE-INS TO EXIST. GROUND TRANSITIONS FROM 3:1 TO 6:1

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1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

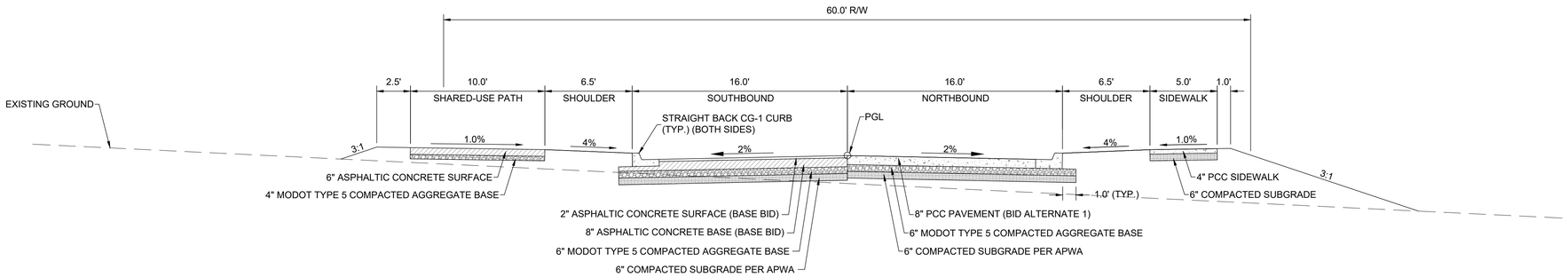
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

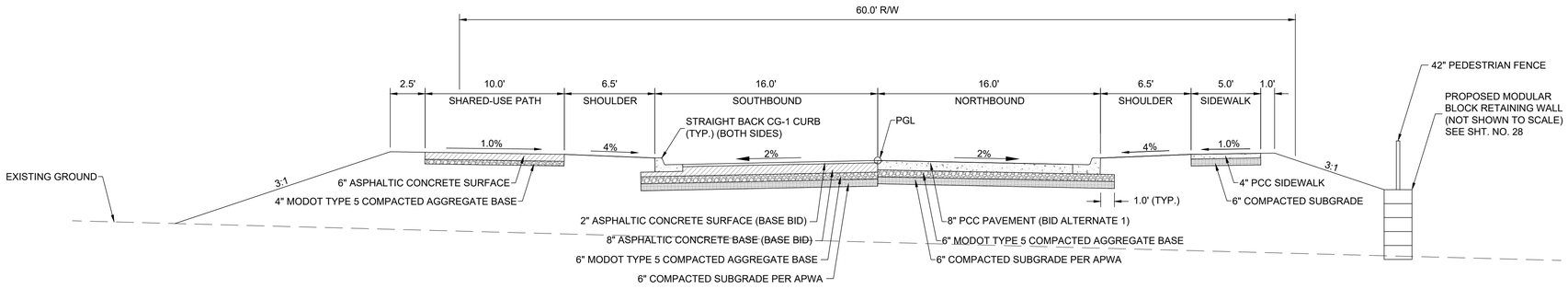
SHEET TITLE
TYPICAL SECTIONS

SHEET NO:
7 of 126

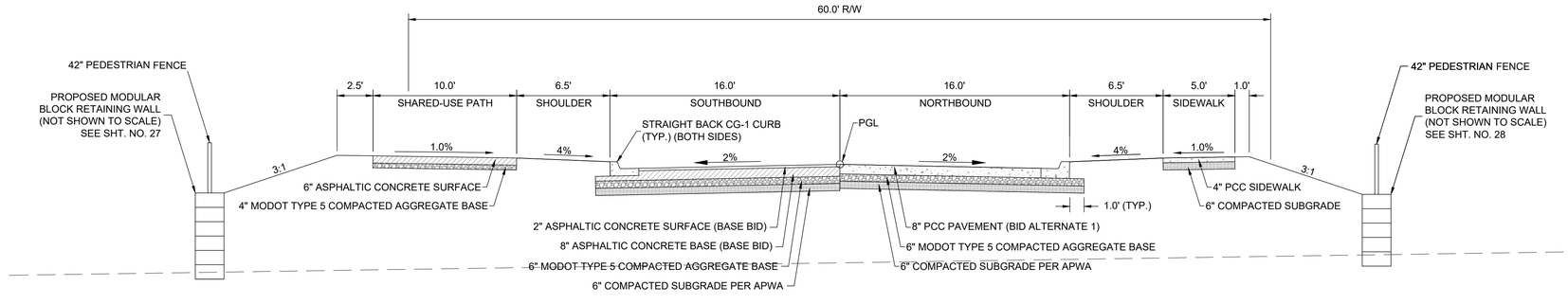
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1/20/2026



D2 12TH STREET TYPICAL SECTION
STA: 36+75.00 TO 39+72.49



F2 12TH STREET TYPICAL SECTION
STA: 39+72.49 TO 40+21.83



F2 12TH STREET TYPICAL SECTION
STA: 40+21.83 TO 41+12.65

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STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

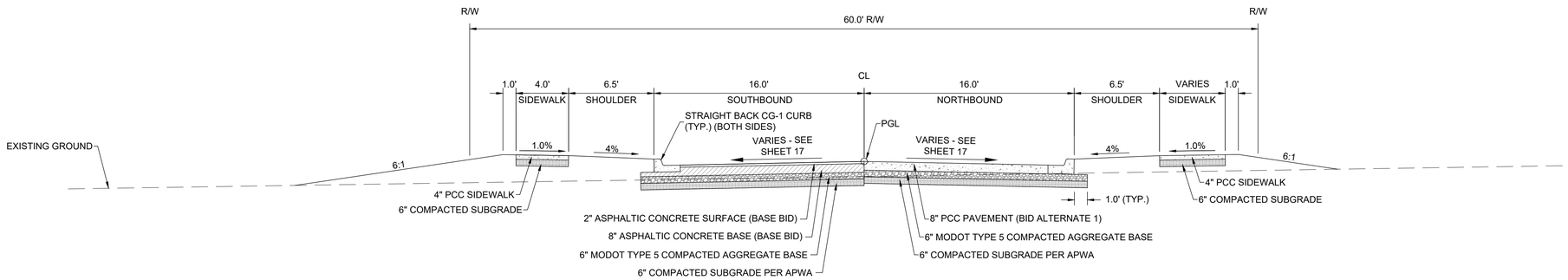
BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

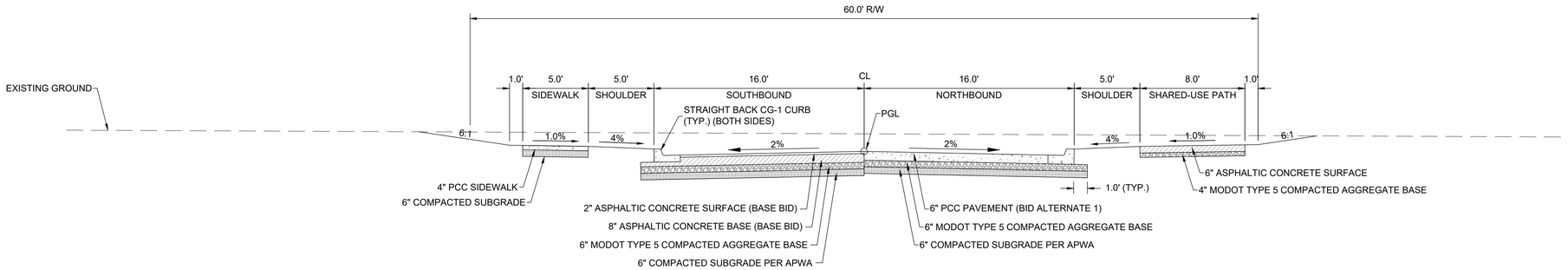
SHEET TITLE
TYPICAL SECTIONS

SHEET NO:
8 of 126

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1/20/2026



D2 12TH STREET TYPICAL SECTION
STA: 43+13.65 TO 44+25.49



B2 MAJOR ROAD TYPICAL SECTION
STA: 50+33.44 TO 52+67.60
*FROM STA 50+67.79 TO 50+86.51 SHOULDER TRANSITIONS FROM 5.0' TO 6.5'.

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DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

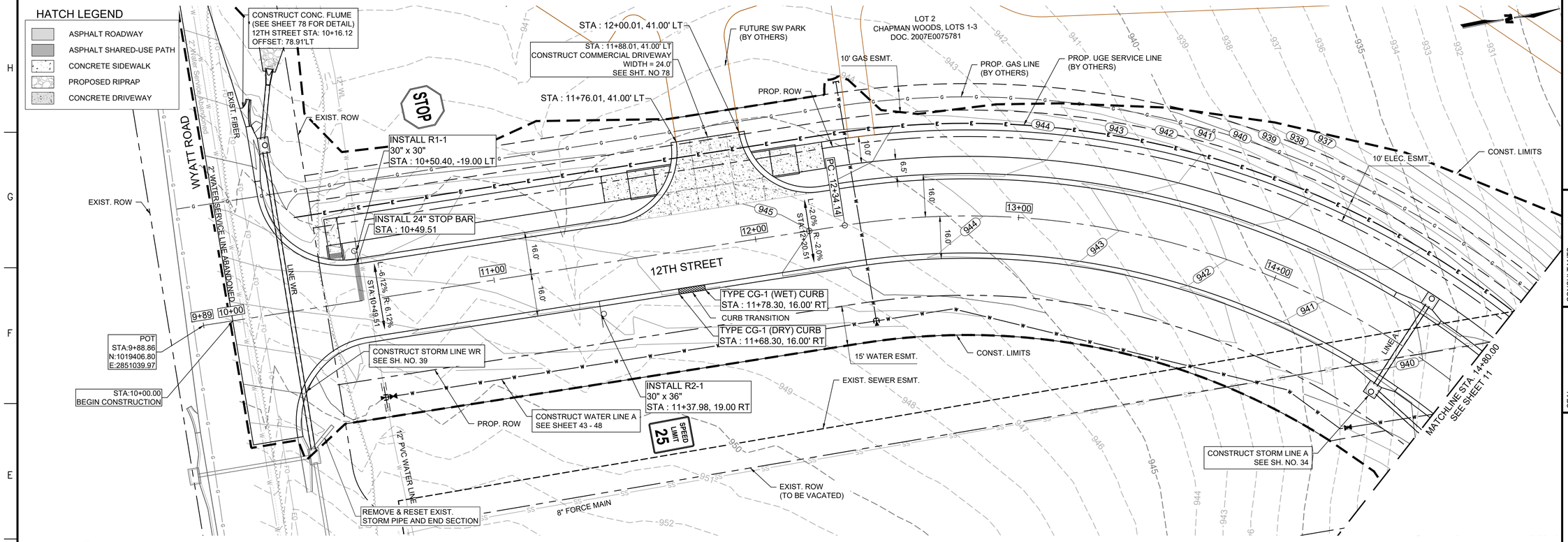
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
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DATE:	1/20/2026

SHEET TITLE
TYPICAL SECTIONS

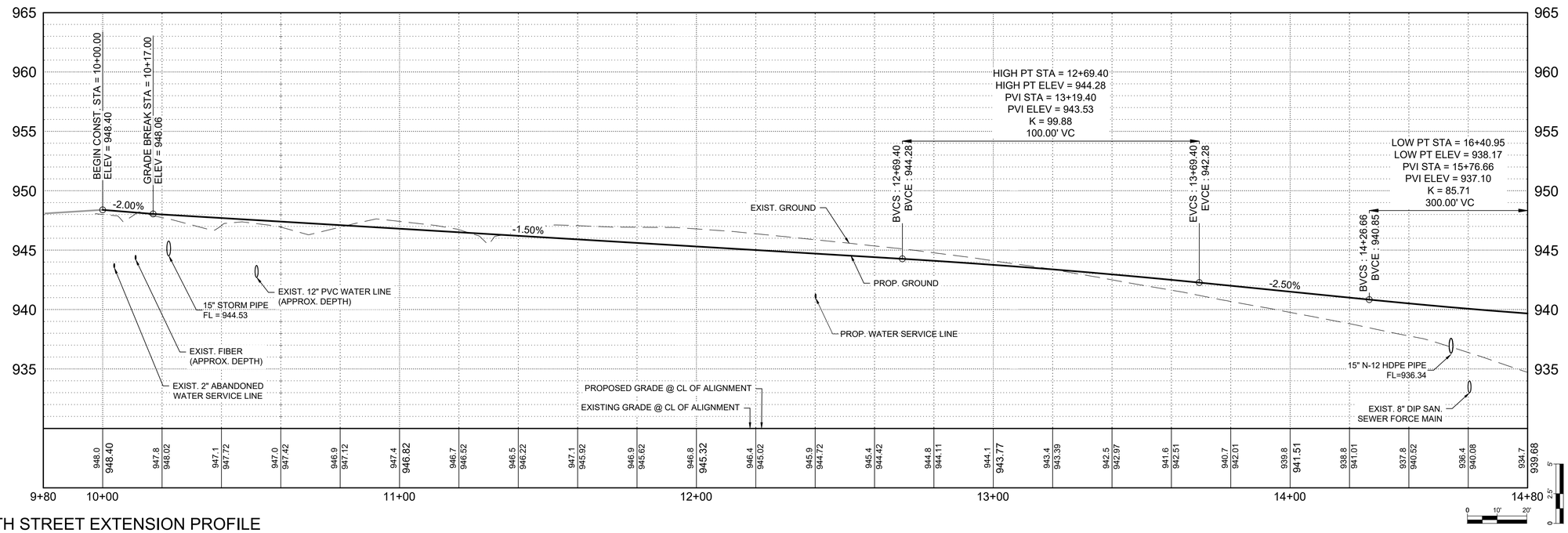
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1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\1_Sheets - general\2400101800_TYPSECT.dwg



D1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

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STATE OF MISSOURI
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1/20/2026
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PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

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CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE

12TH STREET PLAN AND PROFILE

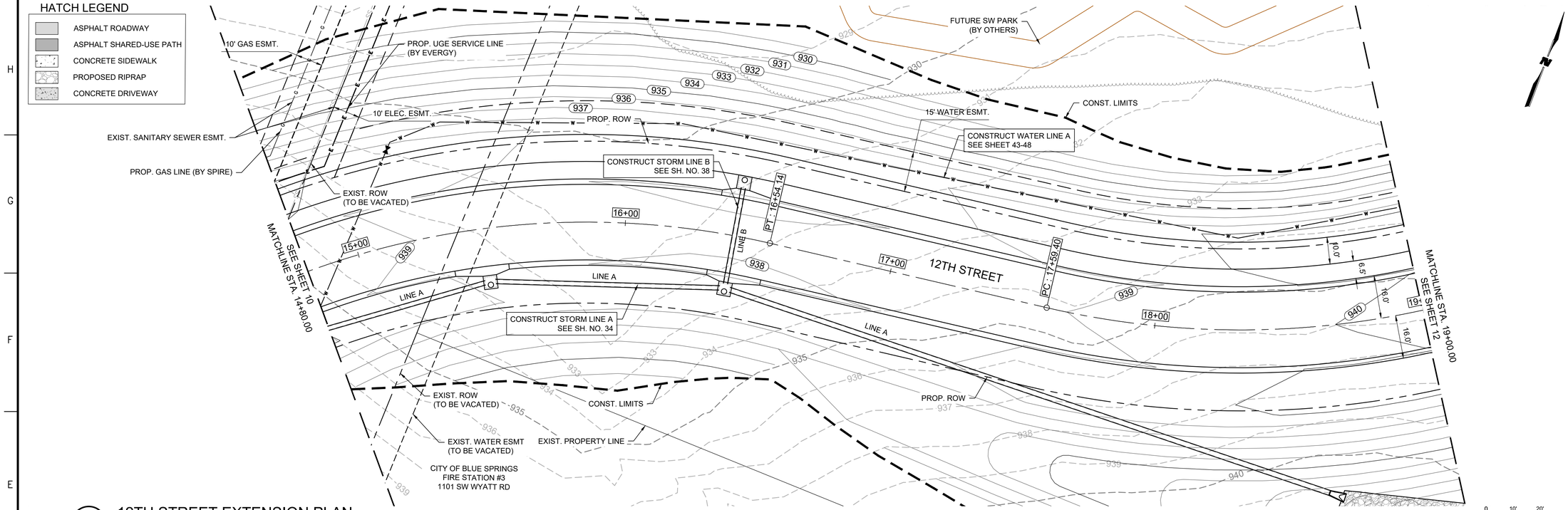
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1/20/2026

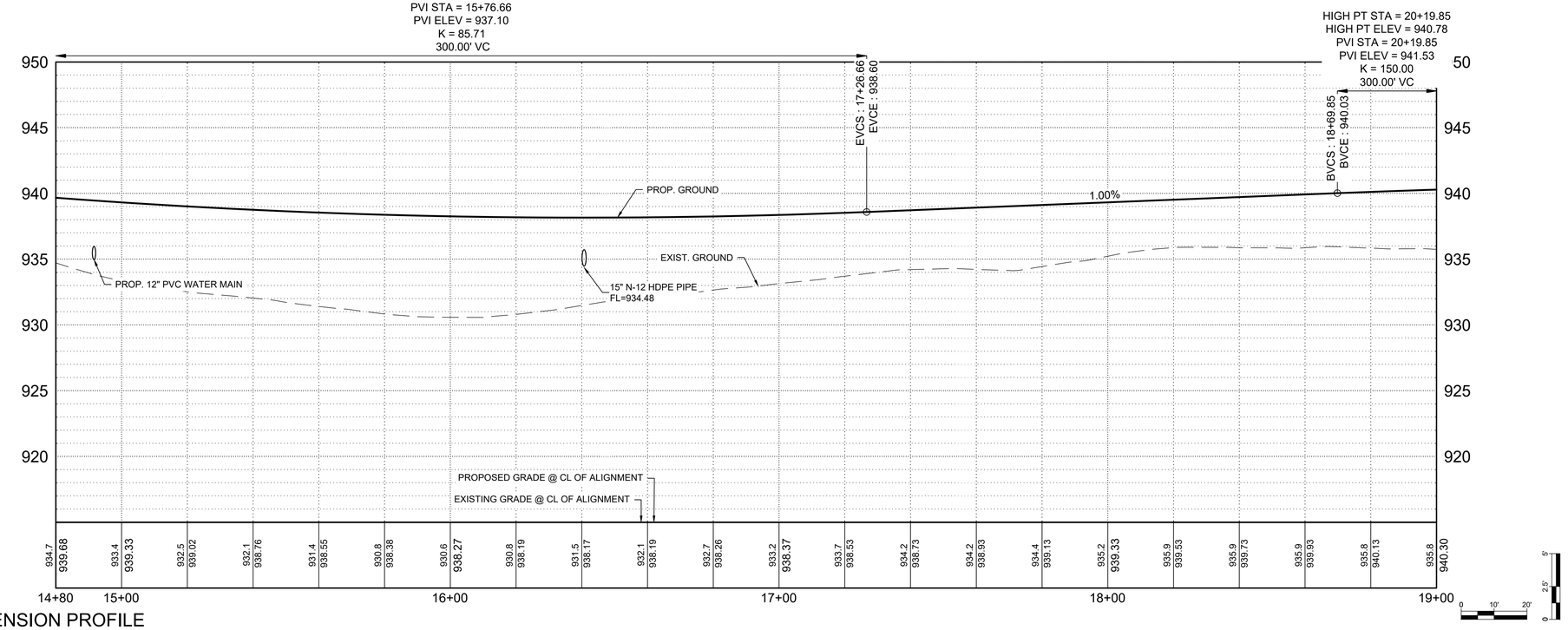
HATCH LEGEND

- ASPHALT ROADWAY
- ASPHALT SHARED-USE PATH
- CONCRETE SIDEWALK
- PROPOSED RIPRAP
- CONCRETE DRIVEWAY



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

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CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

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SHEET TITLE

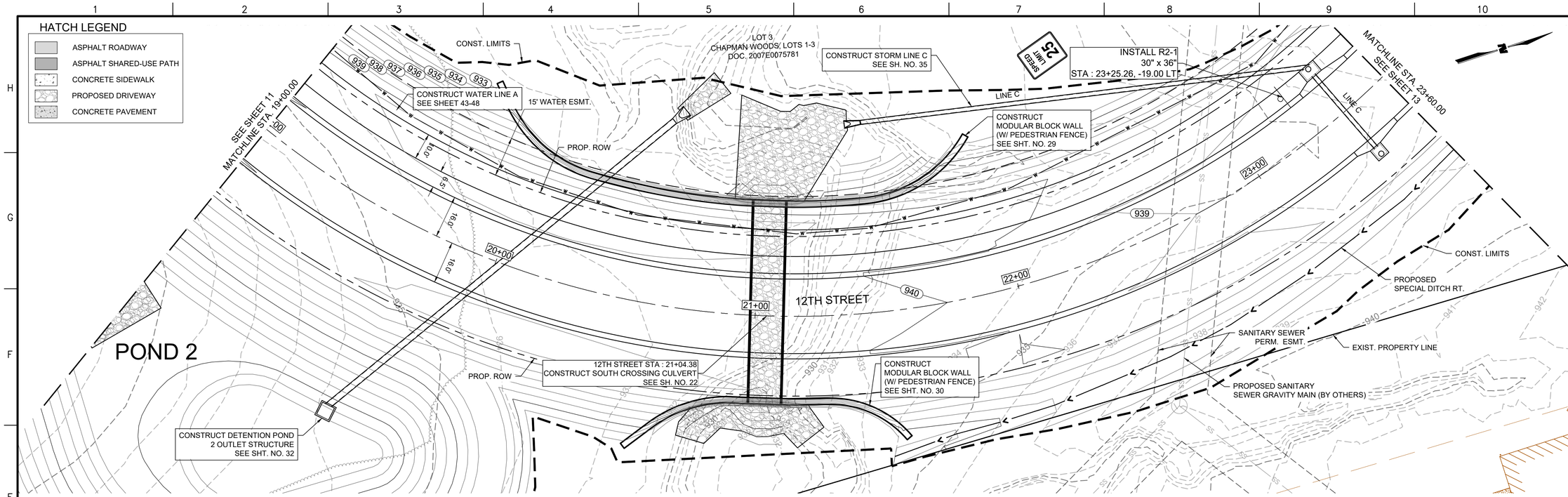
12TH STREET PLAN AND PROFILE

SHEET NO:

11 of 126

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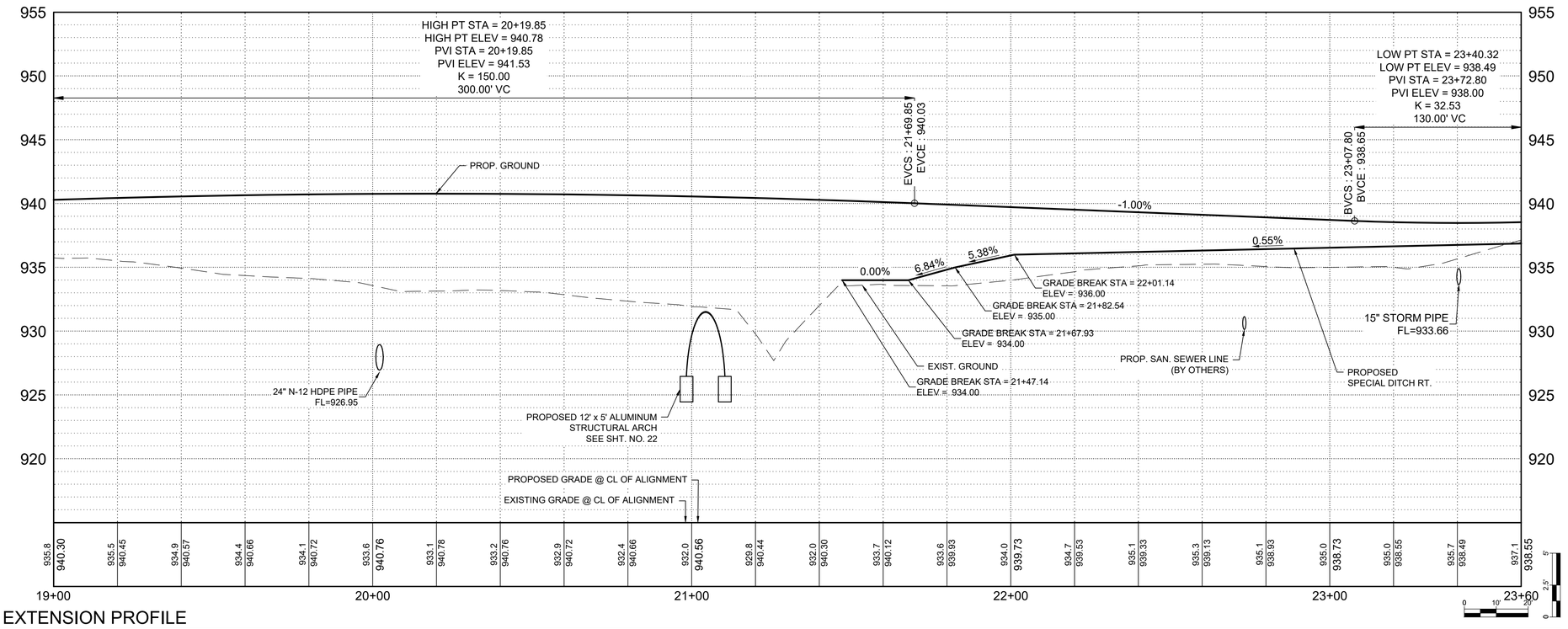
1/20/2026



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

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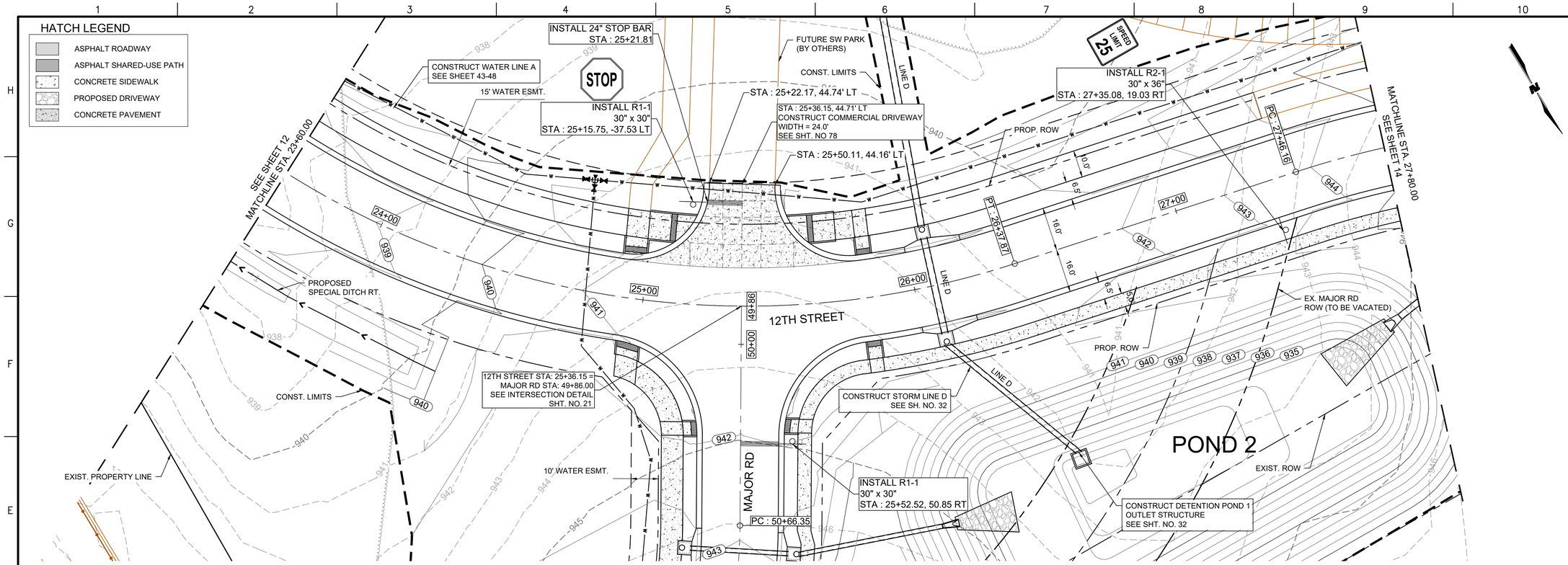
12TH STREET PLAN AND PROFILE

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12 of 126

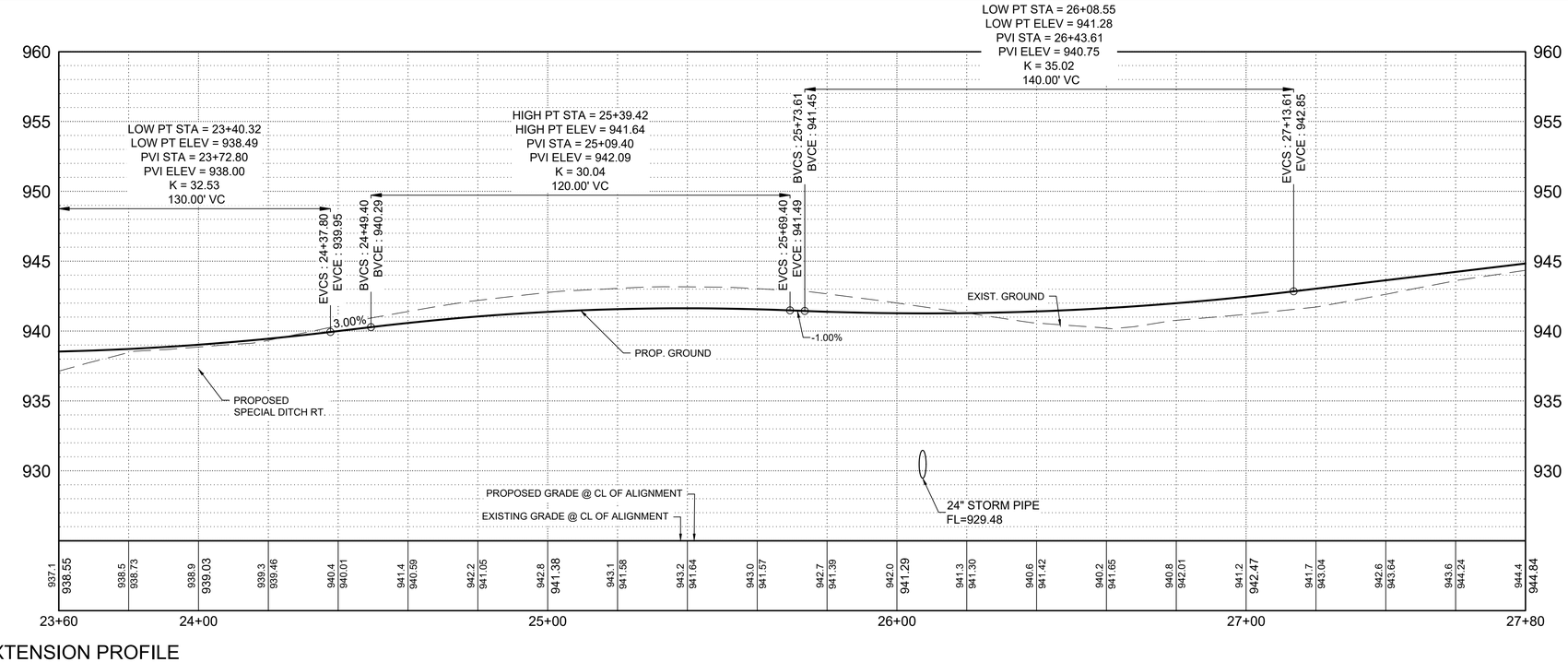
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1/20/2026



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

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12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

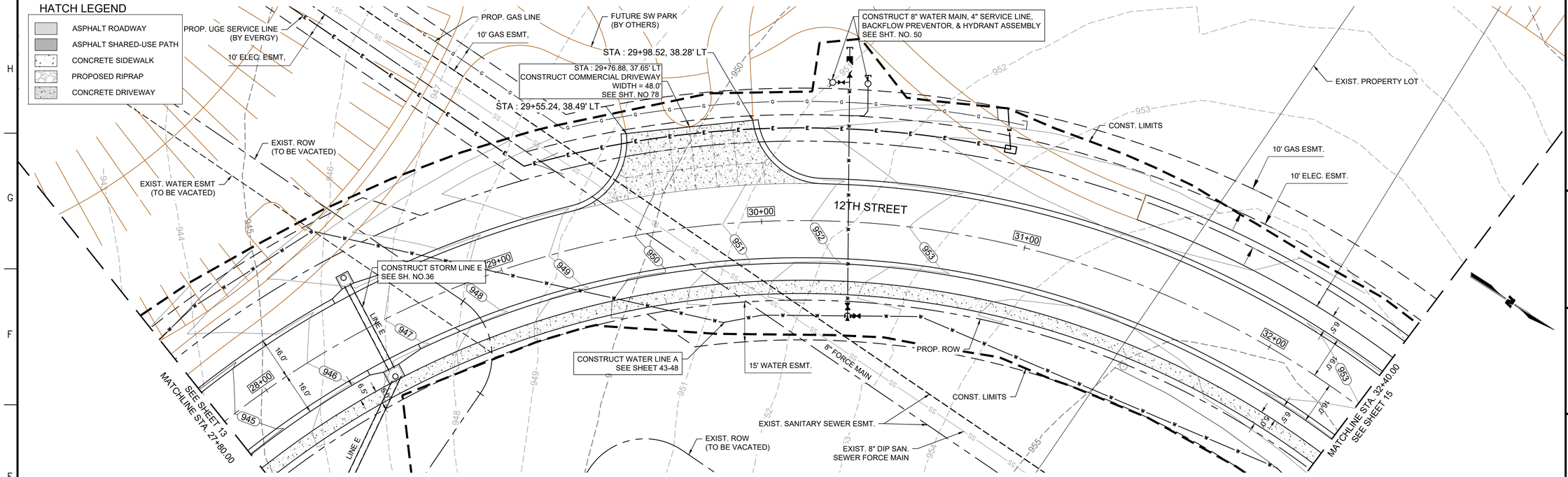
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
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DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET PLAN AND PROFILE

SHEET NO:
13 of 126

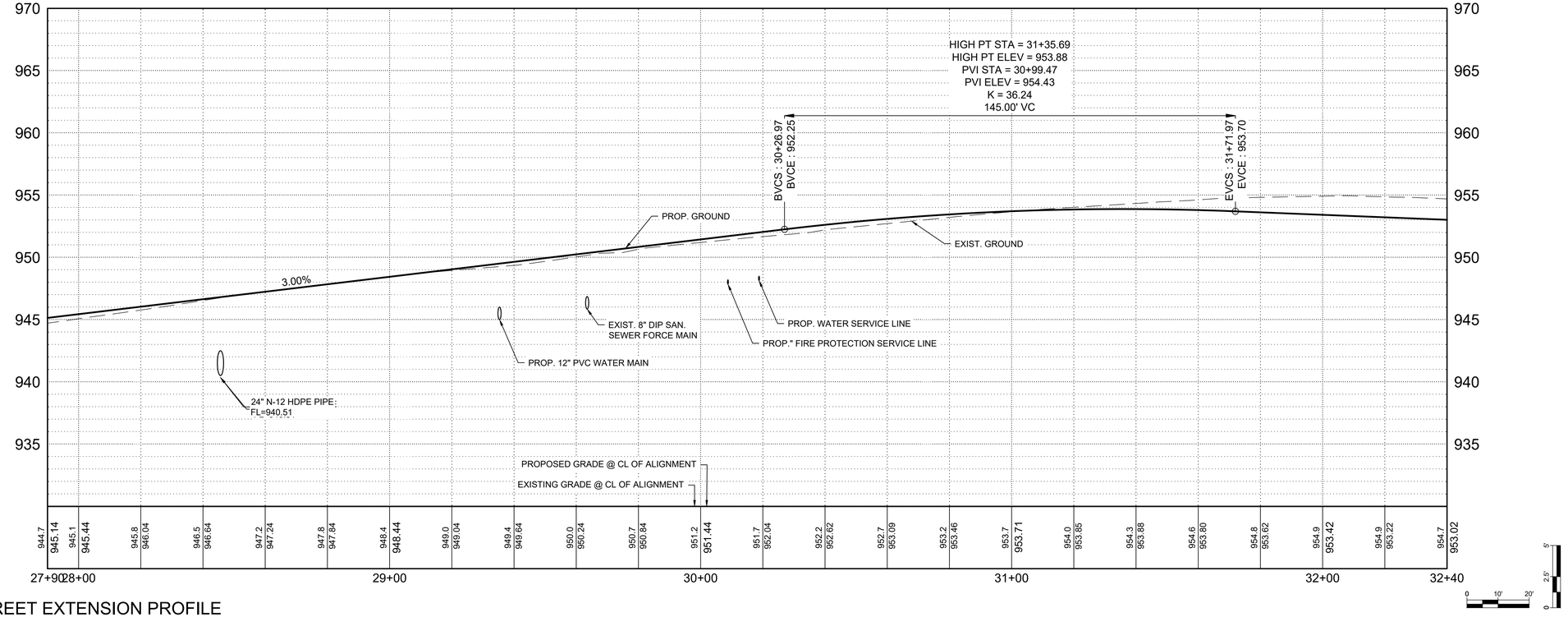
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1/20/2026



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

WILSON &COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE 816-942-1300
FAX 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS

Stantec

SEAL

STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE

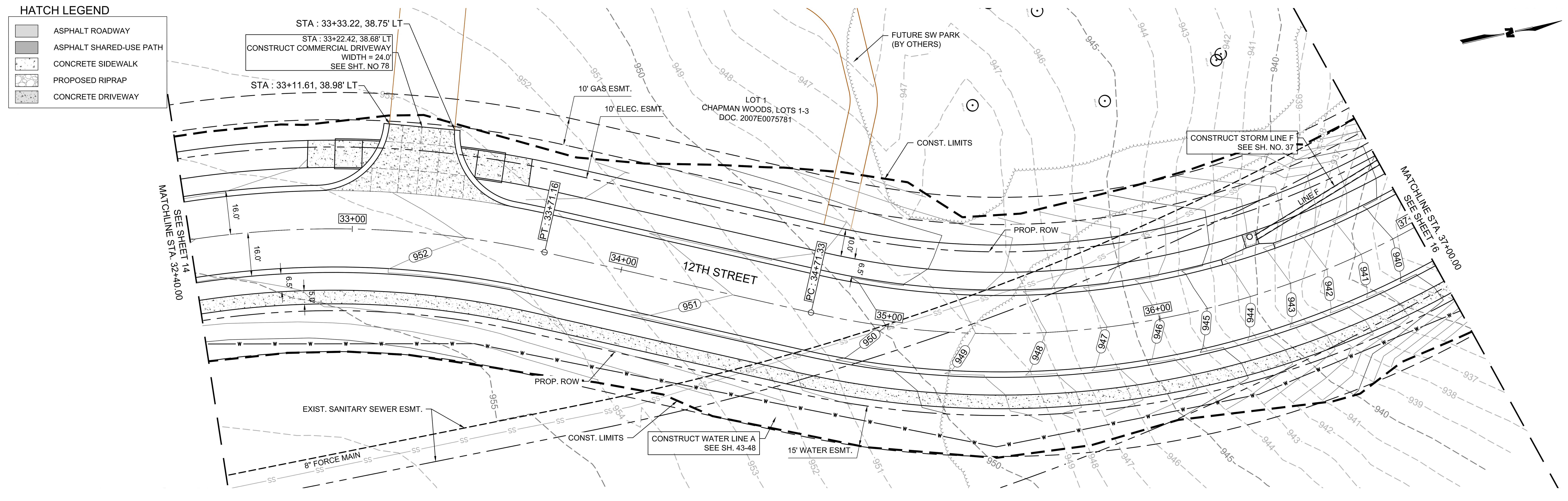
12TH STREET PLAN AND PROFILE

SHEET NO:

14 of 126

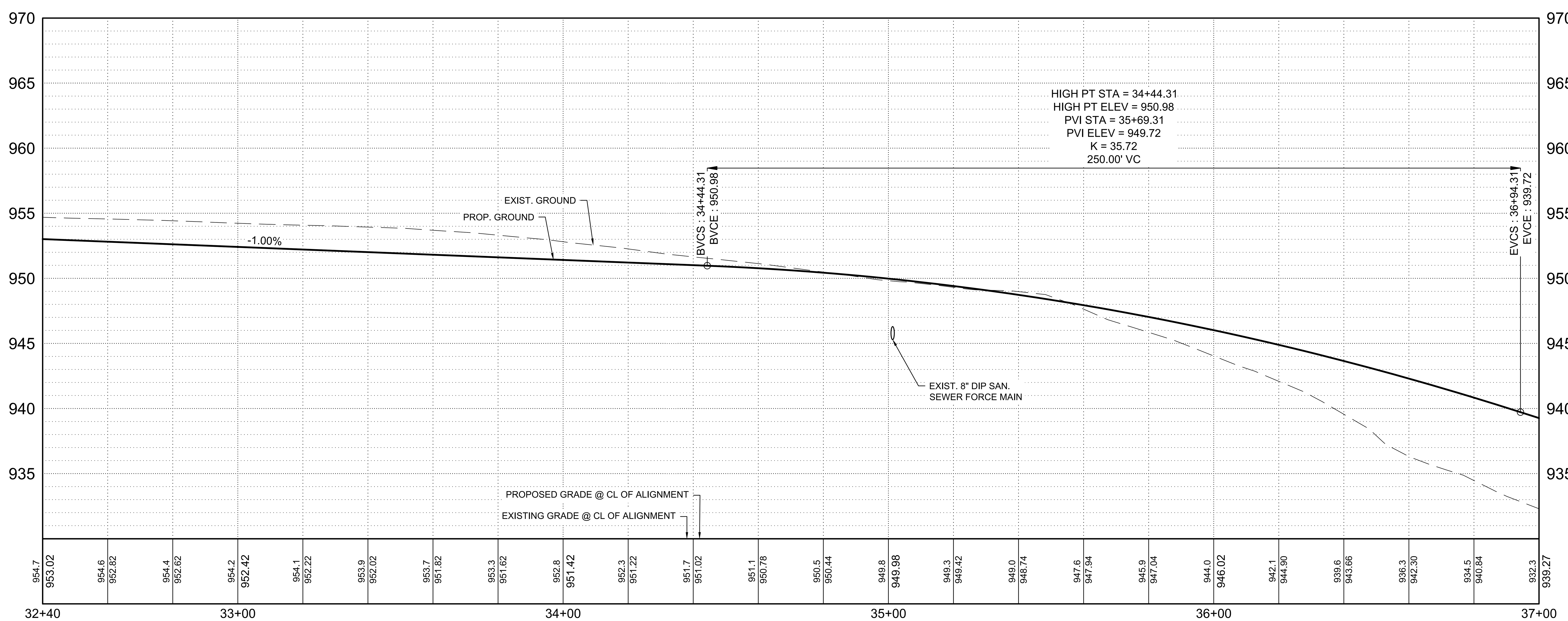
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1/20/2026



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

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1/20/2026

WILSON & COMPANY

800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-701-3100
FAX: 816-942-3013
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Cert. of Authority # 2003007599

CONSULTANTS: Stantec

SEAL: STATE OF MISSOURI — DARREN JOHN MEYER — NUMBER PE-2024000077 — PROFESSIONAL ENGINEER — 1/20/2026

PROJECT NAME: 12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

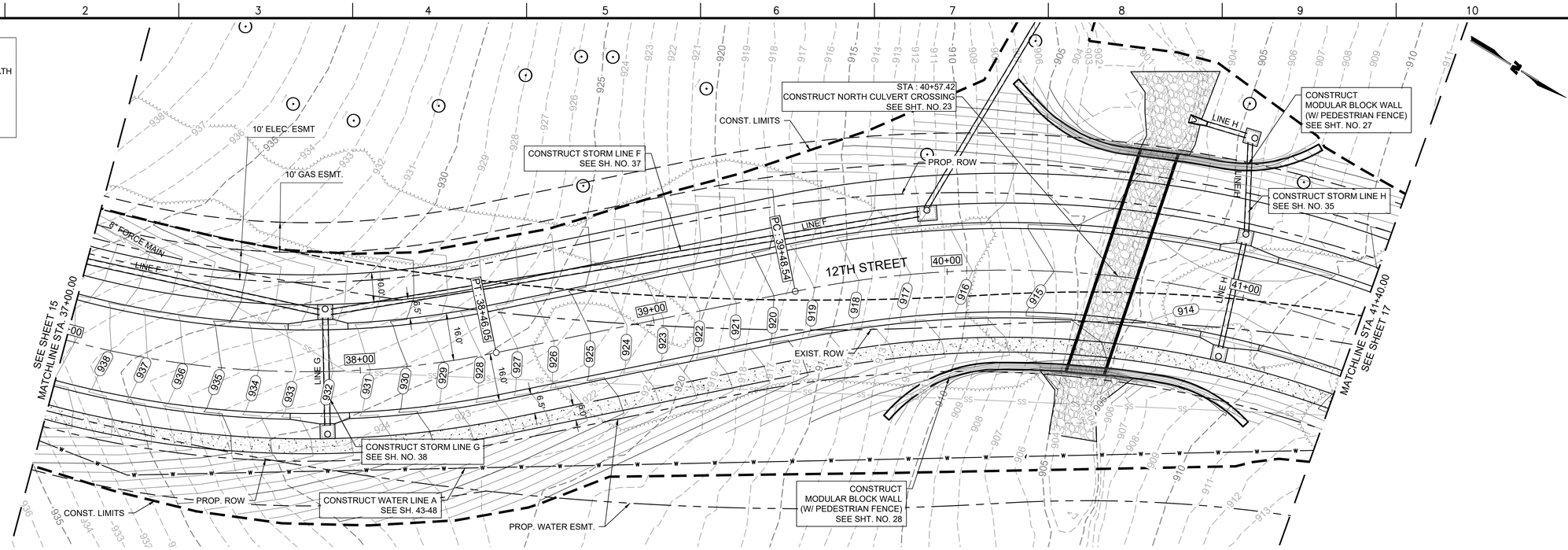
SHEET TITLE

12TH STREET PLAN AND PROFILE

SHEET NO:

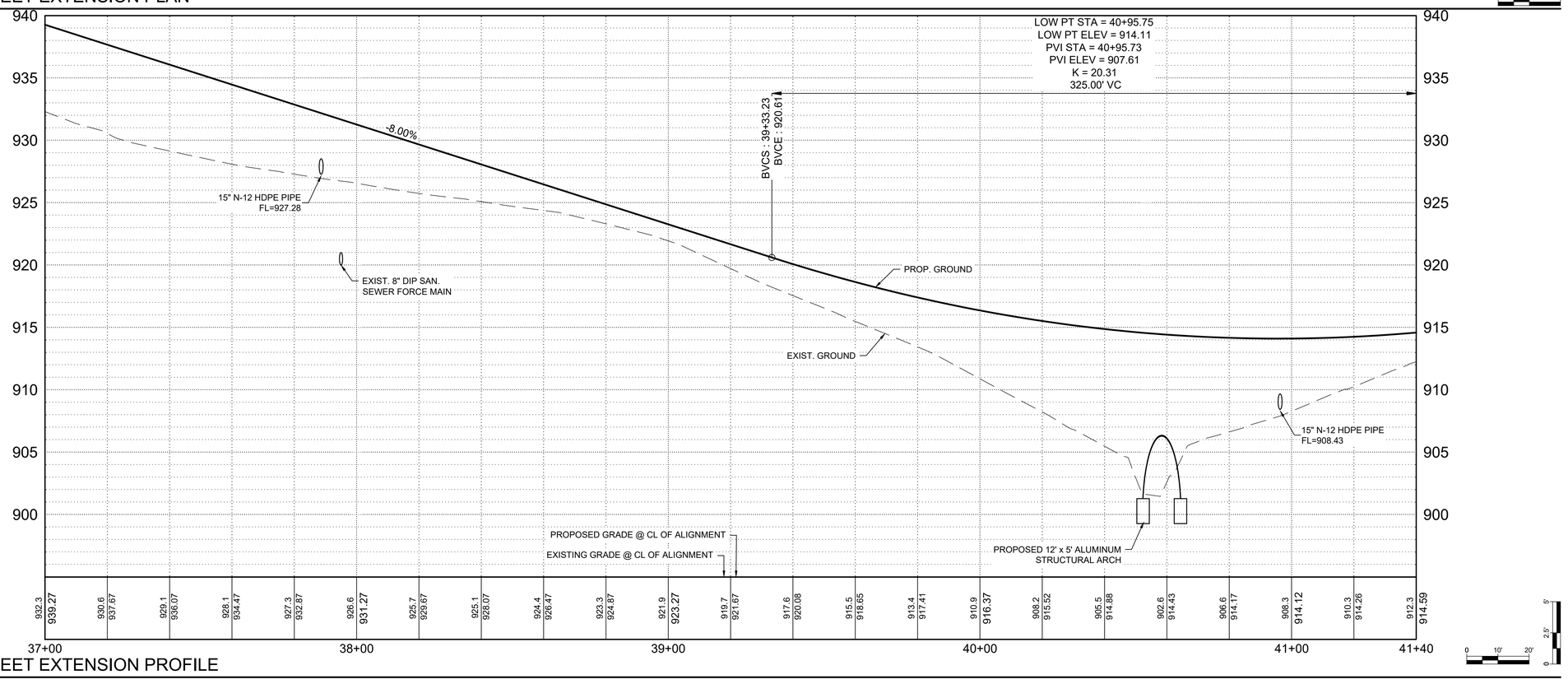
HATCH LEGEND

- ASPHALT ROADWAY
- ASPHALT SHARED-USE PATH
- CONCRETE SIDEWALK
- PROPOSED RIPRAP
- CONCRETE DRIVEWAY



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
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CONSULTANTS
Stantec

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DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
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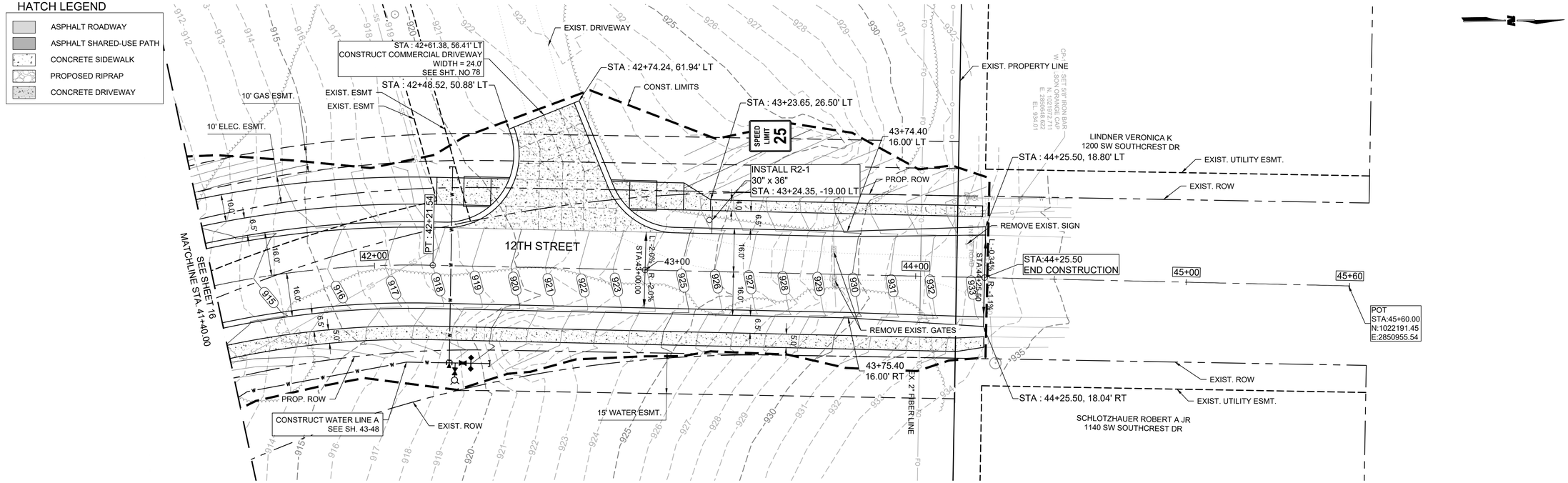
SHEET TITLE
12TH STREET PLAN AND PROFILE

SHEET NO:
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1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-12th Street P&P.dwg

HATCH LEGEND

- ASPHALT ROADWAY
- ASPHALT SHARED-USE PATH
- CONCRETE SIDEWALK
- PROPOSED RIPRAP
- CONCRETE DRIVEWAY



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

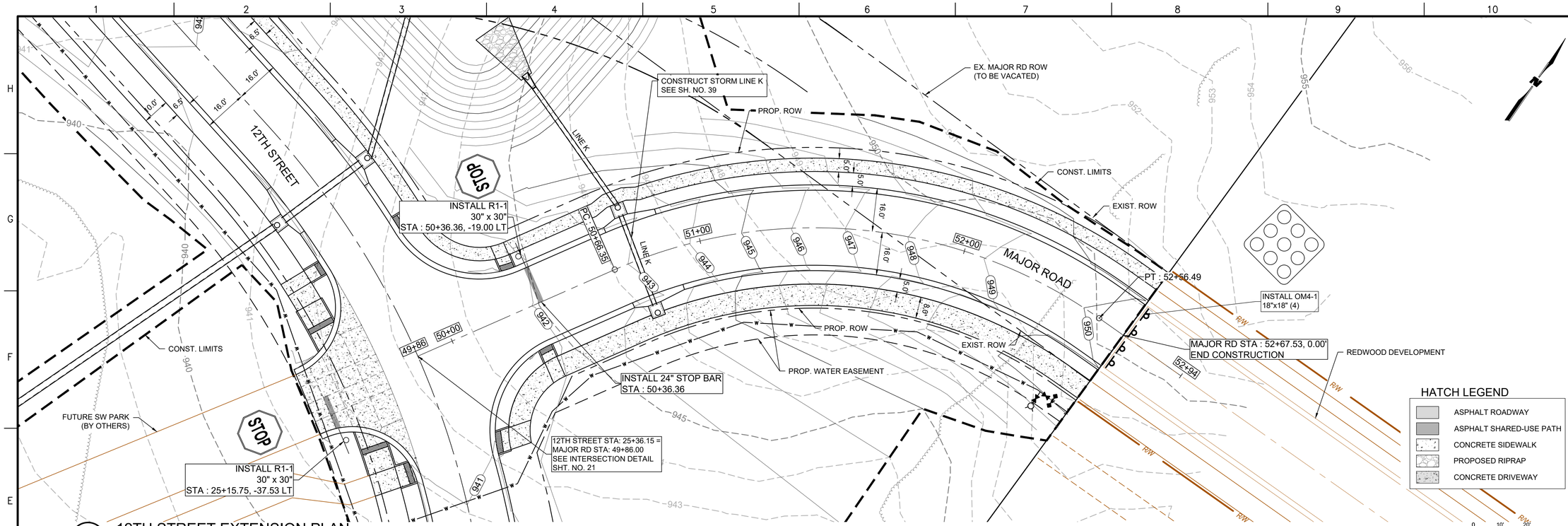
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET PLAN AND PROFILE

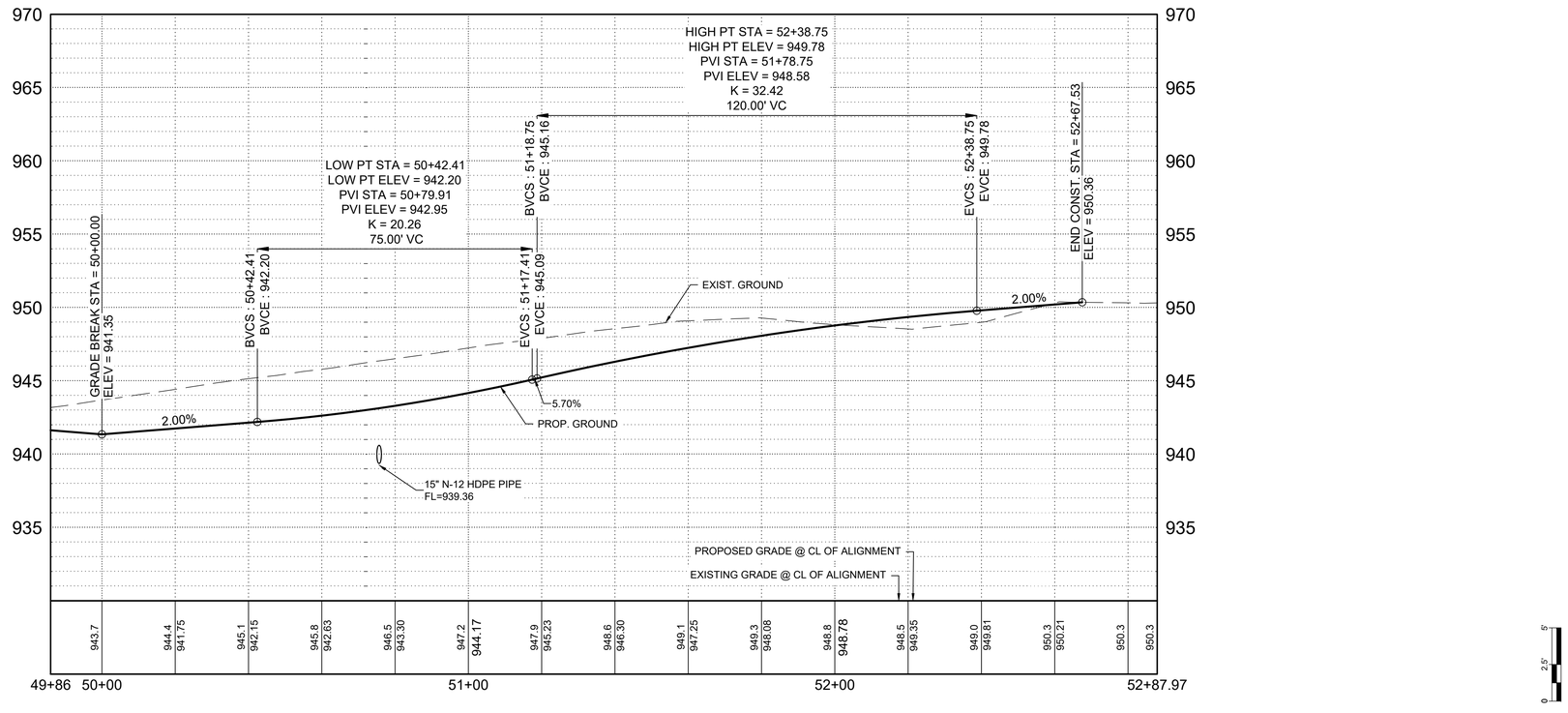
SHEET NO:
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E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PROFILE

SCALE: 1" = 20'

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800 EAST 101ST TERRACE, SUITE 200
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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

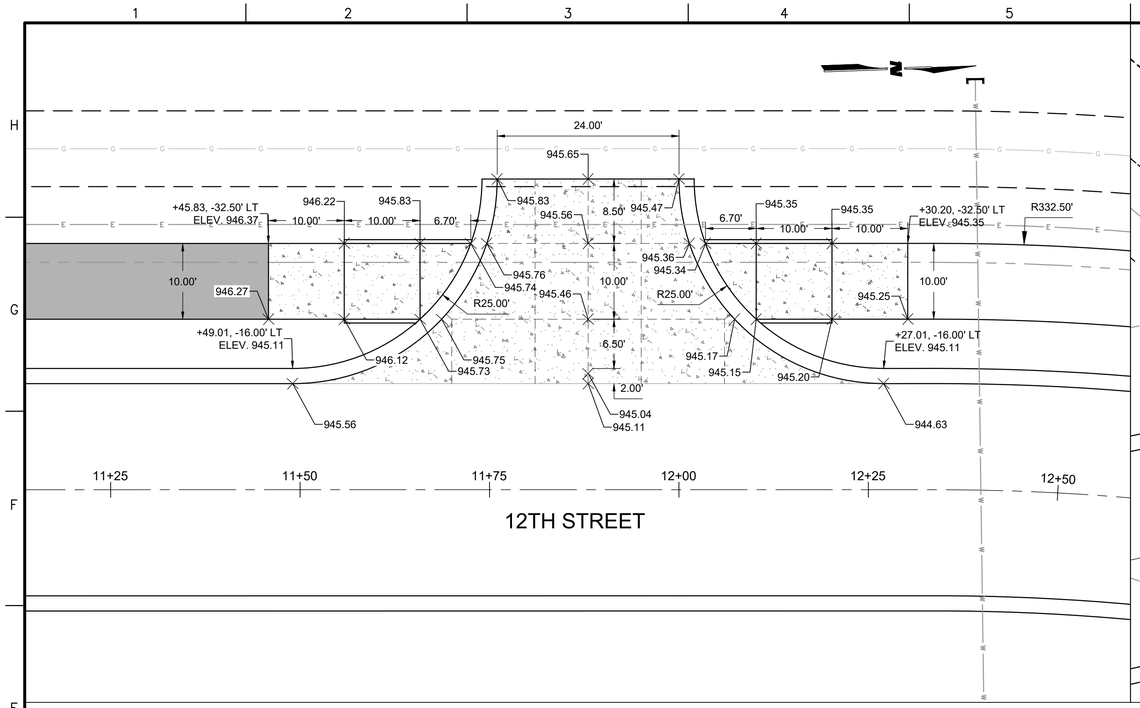
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
MAJOR ROAD PLAN AND PROFILE

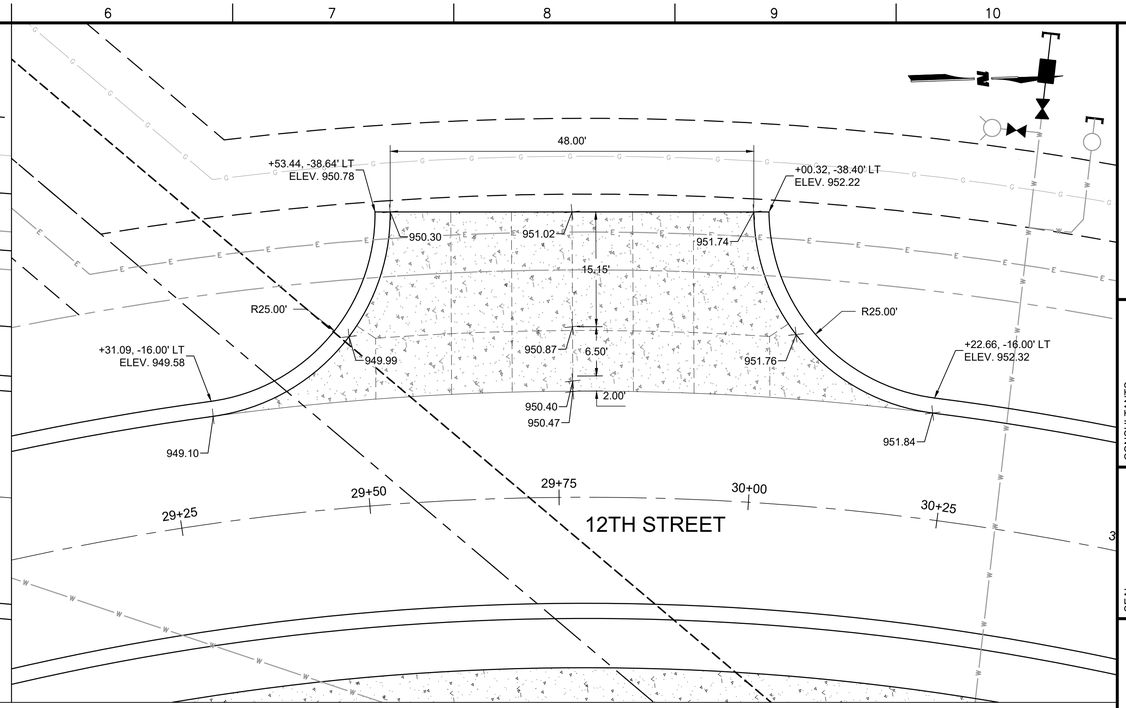
SHEET NO:
18 of 126

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1/20/2026



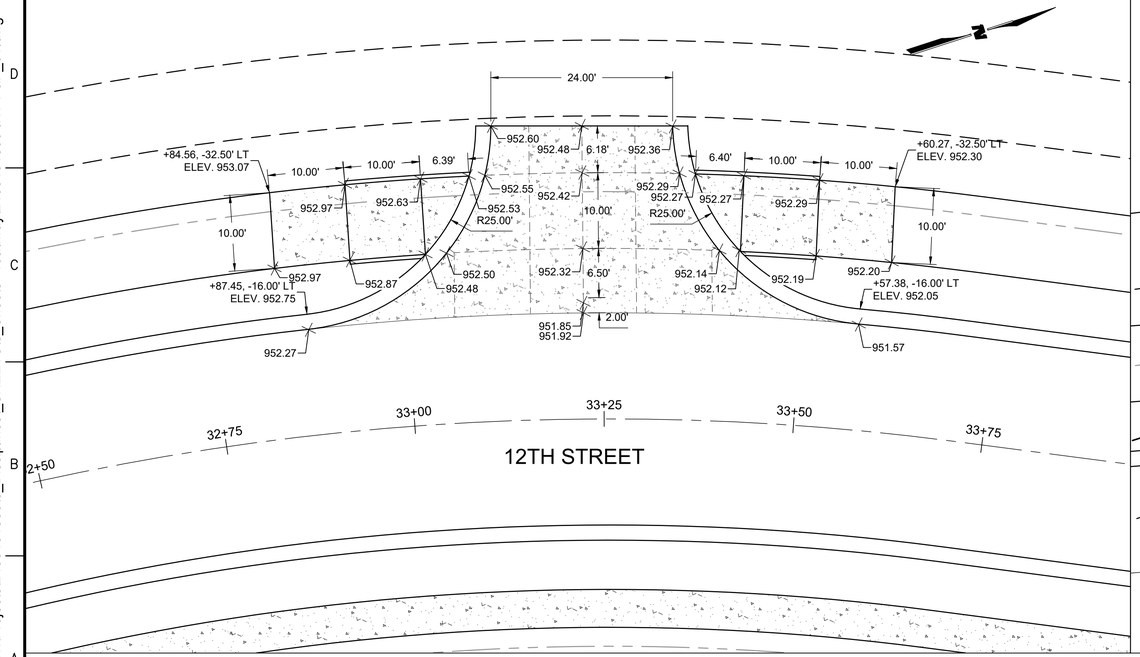
DRIVEWAY DETAIL: STA. 11+88.01, 41.00' LT

HORIZ. SCALE = 1" = 10'



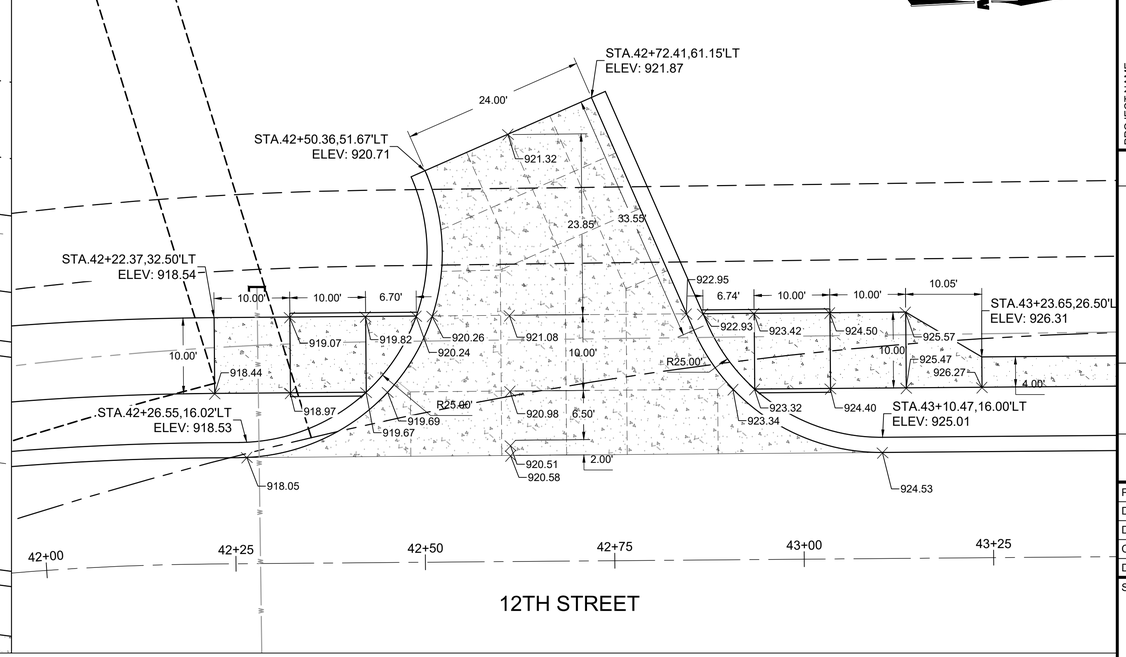
DRIVEWAY DETAIL: STA. 29+76.88, 37.65' LT

HORIZ. SCALE = 1" = 10'



DRIVEWAY DETAIL: STA. 33+22.42, 38.68' LT

HORIZ. SCALE = 1" = 10'



DRIVEWAY DETAIL: STA. 42+61.38, 56.41' LT

HORIZ. SCALE = 1" = 10'

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CONSULTANTS

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STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
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DATE:	1/20/2026

SHEET TITLE

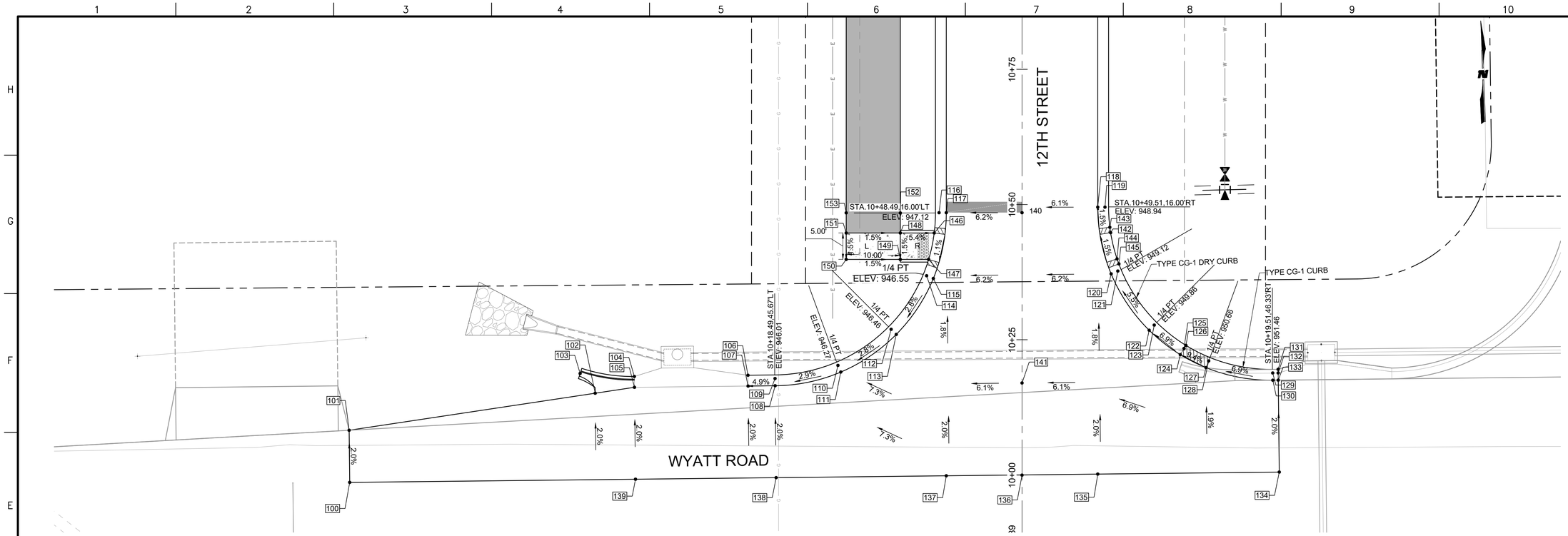
DRIVEWAY DETAILS

SHEET NO:

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1/20/2026



E1 WYATT ROAD INTERSECTION PLAN

Point Table				
Point #	Elevation	Northing	Easting	Description
101	942.30	1019431.58	2850916.54	EOP
102	943.99	1019436.45	2850962.28	EOP
103	943.26	1019440.21	2850959.66	FL
104	944.74	1019439.22	2850969.64	TC
105	944.26	1019437.22	2850969.58	EOP
106	945.77	1019438.55	2850990.63	TC
107	945.29	1019436.55	2850990.57	EOP
108	945.53	1019436.39	2850995.57	EOP
109	945.46	1019437.72	2850995.61	FL
110	945.81	1019439.64	2851007.33	FL
111	945.89	1019438.39	2851007.80	EOP
112	946.16	1019445.88	2851017.45	FL
113	946.23	1019444.90	2851018.35	EOP
114	946.51	1019455.49	2851024.43	FL
115	946.58	1019454.93	2851025.64	EOP
116	946.64	1019467.04	2851027.24	FL
117	946.71	1019466.98	2851028.57	EOP
118	948.43	1019466.79	2851056.59	EOP
119	948.50	1019466.73	2851057.92	FL
120	948.62	1019454.37	2851058.52	EOP
121	948.68	1019454.83	2851059.77	FL

Point Table				
Point #	Elevation	Northing	Easting	Description
122	949.31	1019443.65	2851065.09	EOP
123	949.38	1019444.55	2851066.07	FL
124	949.81	1019438.89	2851070.63	EOP
125	949.88	1019439.99	2851071.38	FL
126	950.46	1019440.55	2851071.75	TC
127	950.31	1019436.28	2851075.28	EOP
128	950.24	1019437.50	2851075.83	FL
129	951.11	1019434.75	2851087.57	FL
130	951.17	1019433.42	2851087.52	EOP
131	0.00	1019435.38	2851088.59	TC
132	0.00	1019434.72	2851088.57	FL
133	951.24	1019433.39	2851088.52	EOP
134	951.58	1019416.40	2851087.97	EOP
135	949.31	1019417.48	2851054.44	EOP
136	0.00	1019417.89	2851040.45	EOP
137	947.59	1019418.38	2851026.46	EOP
138	945.87	1019419.40	2850995.02	EOP
139	944.60	1019420.24	2850969.03	EOP
140	947.58	1019466.37	2851042.55	TOP
141	948.12	1019434.91	2851041.19	TOP
100	942.49	1019421.94	2850916.23	EOP

Point Table				
Point #	Elevation	Northing	Easting	Description
142	948.62	1019461.98	2851058.75	TC
143	949.14	1019462.97	2851058.65	TC
144	948.70	1019457.08	2851059.73	TC
145	948.31	1019456.13	2851060.03	TC
146	946.74	1019463.33	2851026.17	TC/SW
147	946.68	1019458.49	2851024.93	TC/SW
148	947.08	1019463.60	2851019.91	SW
149	947.00	1019458.71	2851019.70	SW
150	947.15	1019459.16	2851009.71	SW
151	947.23	1019464.04	2851009.92	SW
152	947.30	1019467.30	2851020.07	SW
153	947.42	1019467.75	2851010.08	SW

LEGEND

EOP = EDGE OF PAVEMENT
FL = FLOW LINE
TC = TOP OF CURB
TOP = TOP OF PAVEMENT
1/4 PT = TOP OF CURB QUARTER POINT

CURB TRANSITION

TRUNCATED DOMES

NOTE: ALL TOP OF CURB QUARTER POINT ELEVATIONS ARE PROJECTED THROUGH CURB RAMP AND CURB INLETS.

A1 WYATT ROAD INTERSECTION POINT TABLE

WILSON &COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE 816-942-3150
FAX 816-942-3013
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CONSULTANTS
Stantec

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PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

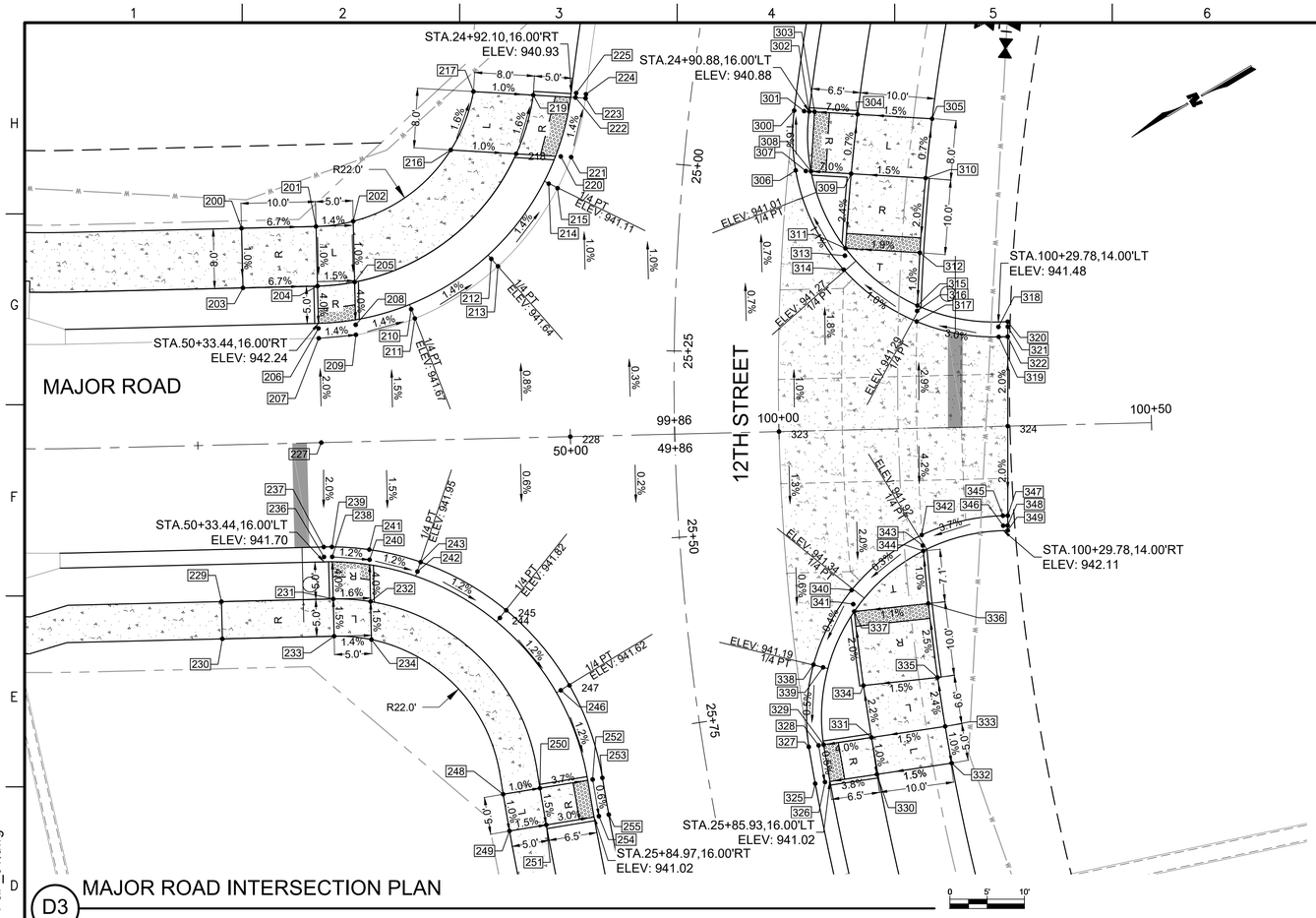
BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
WYATT ROAD INTERSECTION DETAIL

SHEET NO:
20 of 126

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1/20/2026



D3 MAJOR ROAD INTERSECTION PLAN

LEGEND

EOP = EDGE OF PAVEMENT
FL = FLOW LINE
TC = TOP OF CURB
TOP = TOP OF PAVEMENT
1/4 PT = TOP OF CURB QUARTER POINT

TRUNCATED DOMES

NOTE: ALL TOP OF CURB QUARTER POINT ELEVATIONS ARE PROJECTED THROUGH CURB RAMP AND CURB INLET.

Point Table				
Point #	Elevation	Northing	Easting	Description
200	942.63	1020565.08	2851598.22	TR
201	941.96	1020556.59	2851592.95	L
202	941.89	1020552.03	2851590.79	L
203	942.55	1020569.30	2851591.43	TR
204	941.88	1020560.81	2851586.15	L/TR
205	941.81	1020556.34	2851583.87	L/TR
206	941.67	1020563.80	2851581.34	BR
207	941.74	1020564.50	2851580.21	EOP
208	941.60	1020559.37	2851579.00	BR
209	941.67	1020560.08	2851577.85	EOP
210	941.48	1020552.00	2851576.66	FL
211	941.55	1020552.26	2851575.35	EOP
212	941.29	1020539.30	2851576.42	FL
213	941.36	1020539.09	2851575.10	EOP
214	941.14	1020527.33	2851580.63	FL
215	941.17	1020526.67	2851579.47	EOP
216	941.35	1020535.84	2851591.62	L
217	941.21	1020529.00	2851596.50	L
218	941.26	1020528.78	2851586.37	L/TR

Point Table				
Point #	Elevation	Northing	Easting	Description
219	941.13	1020522.55	2851591.70	L/TR
220	941.04	1020523.98	2851582.80	BR
221	941.11	1020522.86	2851581.97	EOP
222	940.92	1020517.98	2851588.31	BR
223	940.99	1020516.91	2851587.51	EOP
224	940.98	1020516.57	2851587.92	EOP
225	940.91	1020517.59	2851588.78	FL
227	942.02	1020571.89	2851568.31	TOP
228	941.35	1020543.49	2851550.66	TOP
229	942.64	1020594.78	2851557.81	TR
230	942.69	1020597.42	2851553.57	TR
231	941.86	1020582.04	2851549.90	L/TR
232	941.80	1020578.04	2851546.86	L/TR
233	941.91	1020584.68	2851545.65	L
234	941.85	1020580.74	2851542.52	L
236	941.67	1020579.99	2851555.29	FL
237	941.74	1020579.28	2851556.42	EOP

Point Table				
Point #	Elevation	Northing	Easting	Description
238	941.65	1020579.06	2851554.69	BR
239	941.72	1020578.35	2851555.83	EOP
240	941.59	1020575.08	2851551.62	BR
241	941.66	1020574.37	2851552.77	EOP
242	941.50	1020570.57	2851546.78	FL
243	941.57	1020569.51	2851547.59	EOP
244	941.34	1020564.73	2851535.51	FL
245	941.41	1020563.46	2851535.90	EOP
246	941.18	1020563.21	2851522.90	FL
247	941.25	1020561.88	2851522.82	EOP
248	941.34	1020577.33	2851515.49	L
249	941.33	1020579.32	2851510.90	L
250	941.29	1020572.75	2851513.46	L/TR
251	941.28	1020574.74	2851508.88	L/TR
252	941.02	1020566.20	2851510.56	BR
253	941.09	1020564.98	2851510.02	EOP
254	941.01	1020568.19	2851505.99	BR
255	941.08	1020566.97	2851505.44	EOP

Point Table				
Point #	Elevation	Northing	Easting	Description
300	940.96	1020494.40	2851570.78	EOP
301	940.89	1020493.33	2851569.98	FL
302	940.90	1020492.79	2851569.58	BT
303	940.95	1020492.21	2851569.15	BR
304	941.36	1020487.57	2851565.70	L/TR
305	941.47	1020479.53	2851559.72	L
306	941.08	1020498.63	2851563.96	EOP
307	941.02	1020497.53	2851563.14	FL
308	941.03	1020496.98	2851562.73	BR
309	941.41	1020492.65	2851559.50	L/TR
310	941.55	1020484.62	2851553.53	L/TR
311	941.24	1020498.77	2851551.55	BR
314	941.32	1020500.53	2851549.27	EOP
313	941.23	1020499.38	2851550.77	FL
312	941.45	1020490.75	2851545.59	BR
315	941.44	1020494.91	2851539.84	TC
316	941.43	1020495.33	2851539.26	FL
317	941.51	1020496.16	2851538.11	EOP
318	941.62	1020487.38	2851531.49	FL
319	941.69	1020488.09	2851530.35	EOP
320	942.12	1020485.95	2851531.38	TC
321	941.64	1020486.32	2851530.82	FL
322	941.71	1020487.05	2851529.71	EOP
323	941.36	1020519.71	2851535.88	TOP
324	941.95	1020493.63	2851519.67	TOP

Point Table				
Point #	Elevation	Northing	Easting	Description
325	941.08	1020541.52	2851493.73	EOP
326	941.01	1020540.31	2851493.17	FL
327	941.11	1020539.54	2851498.32	EOP
328	941.04	1020538.33	2851497.76	FL
329	941.05	1020537.72	2851497.49	BR
330	941.47	1020533.91	2851490.23	L/TR
331	941.47	1020531.82	2851494.77	L/TR
332	941.62	1020524.70	2851486.00	L
333	941.61	1020522.73	2851490.59	L
334	941.44	1020528.90	2851501.19	L/TR
335	941.60	1020519.99	2851496.63	L/TR
336	941.50	1020515.59	2851505.61	BR
337	941.32	1020524.49	2851510.17	TC
339	941.22	1020532.09	2851506.19	FL
338	941.23	1020532.97	2851507.20	EOP
340	941.40	1020523.22	2851512.76	EOP
341	941.31	1020524.06	2851511.06	FL
344	941.49	1020512.28	2851511.89	BT
343	941.48	1020511.95	2851512.52	FL
342	941.55	1020511.28	2851513.78	EOP
345	941.70	1020500.75	2851509.97	EOP
346	941.63	1020501.46	2851508.84	FL
347	941.71	1020500.21	2851509.63	EOP
348	941.64	1020500.95	2851508.52	FL
349	942.12	1020501.30	2851507.96	TC

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CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

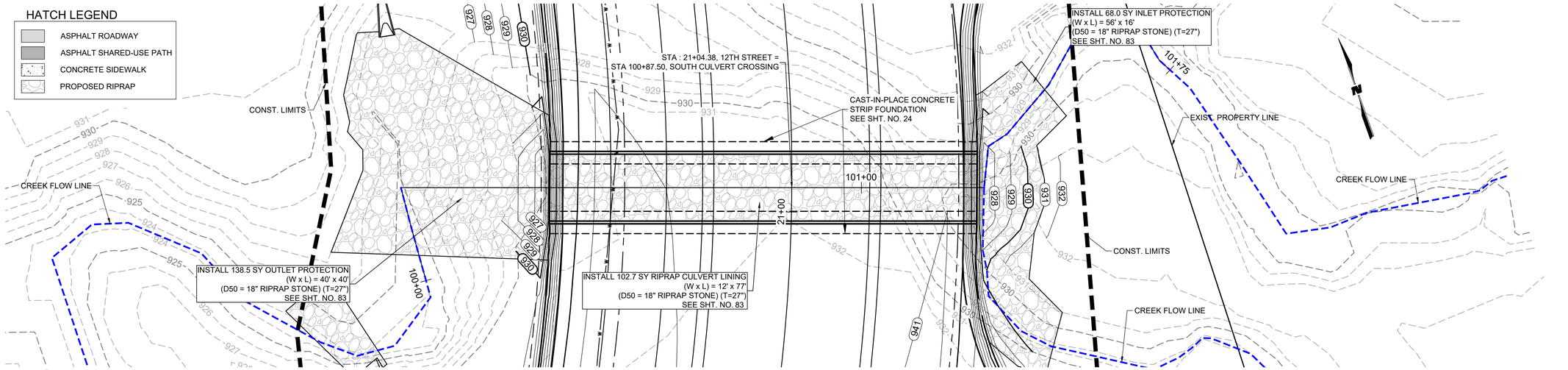
SHEET TITLE
MAJOR ROAD INTERSECTION DETAIL

SHEET NO:
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1/20/2026

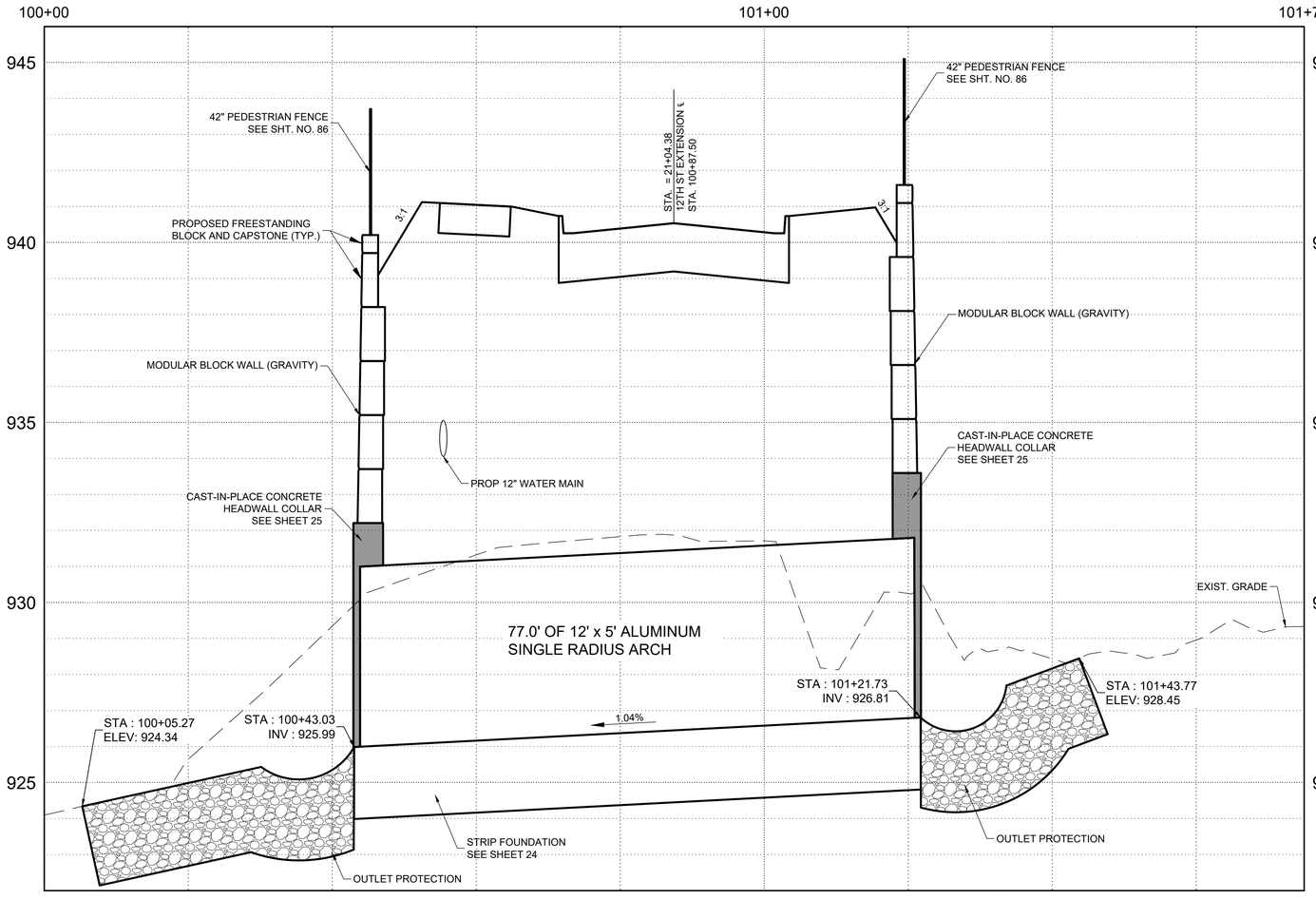
HATCH LEGEND

- ASPHALT ROADWAY
- ASPHALT SHARED-USE PATH
- CONCRETE SIDEWALK
- PROPOSED RIPRAP



E1 SOUTH CULVERT CROSSING PLAN

0 5' 10'



A1 SOUTH CULVERT CROSSING PROFILE

0 5' 10'

2.5' 1' 0

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PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
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DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE

SOUTH CULVERT PLAN & PROFILE

SHEET NO:

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1/20/2026

HATCH LEGEND

- ASPHALT ROADWAY
- ASPHALT SHARED-USE PATH
- CONCRETE SIDEWALK
- PROPOSED RIPRAP

INSTALL 62.1 SY OUTLET PROTECTION
(W x L) = 30' x 30'
(D50 = 24" RIPRAP STONE) (T=36")
SEE SHT. NO. 83

STA : 40+57.30, 12TH STREET =
STA 150+87.72, NORTH CULVERT CROSSING

CAST-IN-PLACE CONCRETE
STRIP FOUNDATION
SEE SHT. NO. 24

INSTALL 104.7 SY RIPRAP CULVERT LINING
(W x L) = 12' x 78.5'
(D50 = 24" RIPRAP STONE) (T=36")
SEE SHT. NO. 83

INSTALL 44.7 SY INLET PROTECTION
(W x L) = 32' x 22'
(D50 = 24" RIPRAP STONE) (T=36")
SEE SHT. NO. 83

CONST. LIMITS

EXIST. PROPERTY LINE

CREEK FLOW LINE

CREEK FLOW LINE

150+00

151+00

151+75

102°

E1 NORTH CULVERT CROSSING PLAN

0 5' 10'

42" PEDESTRIAN FENCE
SEE SHT. NO 86

42" PEDESTRIAN FENCE
SEE SHT. NO 86

PROPOSED FREESTANDING
BLOCK AND CAPSTONE (TYP.)

STA. 150+87.50 =
12TH ST. EXTENSION
STA. 40+57.30

MODULAR BLOCK WALL (GRAVITY)

MODULAR BLOCK WALL (GRAVITY)

CAST-IN-PLACE CONCRETE
HEADWALL COLLAR
SEE SHEET 25

CAST-IN-PLACE CONCRETE
HEADWALL COLLAR
SEE SHEET 25

78.5' OF 12' x 5' ALUMINUM
SINGLE RADIUS ARCH

STA : 151+22.83
INV : 901.69

EXIST. GRADE

STA : 150+14.58
ELEV: 900.33

STA : 150+42.29
INV : 900.73

1.20%

STA : 151+52.83
ELEV: 903.11

OUTLET PROTECTION

STRIP FOUNDATION
SEE SHEET 24

INLET PROTECTION

A1 NORTH CULVERT CROSSING PROFILE

0 5' 10'

2.5'
1'
0

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CITY OF BLUE SPRINGS, MO.

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PROJECT NO:	2400101800
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SHEET TITLE

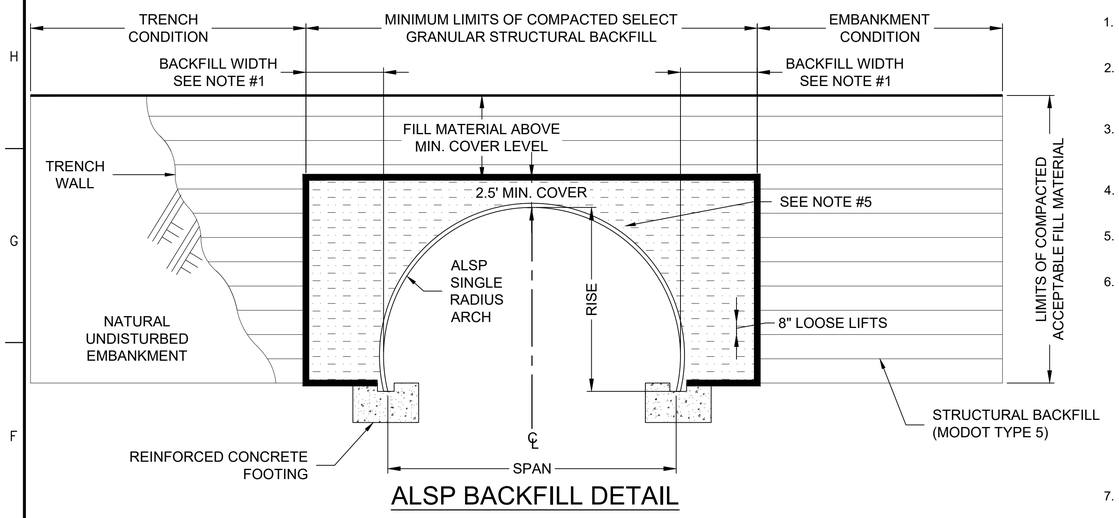
NORTH CULVERT PLAN & PROFILE

SHEET NO:

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1/20/2026



ALSP BACKFILL DETAIL

SELECT GRANULAR STRUCTURAL BACKFILL LIMITS.
(MODOT TYPE 5 AGGREGATE)

INITIAL LIFTS OVER THE CROWN OF STRUCTURE AS INDICATED BY SHADED AREA TO BE COMPACTED TO REQUIRED DENSITY WITH HAND OPERATED EQUIPMENT OR WITH SMALL LIGHTWEIGHT (D-4 OR LIGHTER) EQUIPMENT.

GENERAL NOTES

1. TYPICAL BACKFILL WIDTH SHALL BE 4 FEET MINIMUM FROM OUTSIDE OF ALUMINUM ARCH (BOTH SIDES).
2. ALL SELECT GRANULAR BACKFILL TO BE PLACED IN A BALANCED FASHION IN THIN LIFTS (8" LOOSE TYPICALLY) AND COMPACTED TO 90 PERCENT DENSITY PER AASHTO T-180.
3. COMPLETE AND REGULAR MONITORING OF THE SINGLE RADIUS ARCH STRUCTURE IS NECESSARY DURING THE BACKFILL PROCESS TO AT LEAST THE MINIMUM COVER LEVEL.
4. PREVENT DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT.
5. PLACE SELECT GRANULAR BACKFILL IN RADIAL LIFTS AT APPROXIMATELY 75% OF THE RISE OF THE SINGLE RADIUS ARCH STRUCTURE.
6. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL AND EQUIPMENT AND PERFORM ALL WORK AND SERVICES EXCEPT THOSE SET OUT AND FURNISHED BY THE OWNER, NECESSARY TO COMPLETE IN A SATISFACTORY MANNER THE SITE PREPARATION, EXCAVATION, FILLING, COMPACTION, GRADING AS SHOWN ON THE PLANS AND AS DESCRIBED THEREIN. THIS WORK SHALL CONSIST OF ALL MOBILIZATION CLEARING AND GRADING, GRUBBING, STRIPPING, REMOVAL OF EXISTING MATERIAL UNLESS OTHERWISE STATED, PREPARATION OF THE LAND TO BE FILLED, FILLING OF THE LAND, SPREADING AND COMPACTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES, SLOPES, AND SPECIFICATIONS. THIS WORK IS TO BE ACCOMPLISHED UNDER THE OBSERVATION OF THE OWNER OR HIS DESIGNATED REPRESENTATIVE.
7. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL EXAMINE, INVESTIGATE AND INSPECT THE CONSTRUCTION SITE AS TO THE NATURE AND LOCATION OF THE WORK, AND THE GENERAL AND LOCAL CONDITIONS AT THE CONSTRUCTION SITE, INCLUDING WITHOUT LIMITATION, THE CHARACTER OF SURFACE OR SUBSURFACE CONDITIONS AND OBSTACLES TO BE ENCOUNTERED ON AND AROUND THE CONSTRUCTION SITE AND SHALL MAKE SUCH ADDITIONAL INVESTIGATION AS HE MAY DEEM NECESSARY FOR THE PLANNING AND PROPER EXECUTION OF THE WORK. IF CONDITIONS OTHER THAN THOSE INDICATED ARE DISCOVERED BY THE CONTRACTOR, THE OWNER SHALL BE NOTIFIED IMMEDIATELY. THE MATERIAL WHICH THE CONTRACTOR BELIEVES TO BE A CHANGED CONDITION SHALL NOT BE DISTURBED SO THAT THE OWNER CAN INVESTIGATE THE CONDITION.

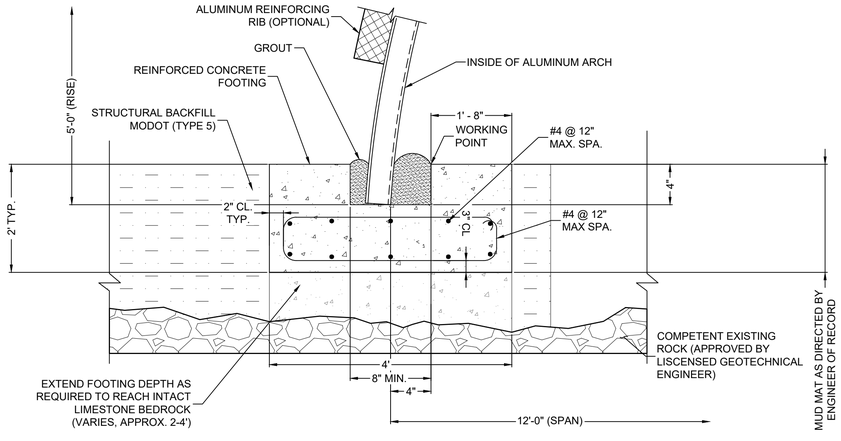
ASSEMBLY AND INSTALLATION

1. BOLTS AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND/OR ASTM A449. THE SINGLE RADIUS ARCH STRUCTURE SHALL BE ASSEMBLED IN ACCORDANCE WITH THE PLATE LAYOUT DRAWINGS PROVIDED BY THE MANUFACTURER AND PER THE MANUFACTURER'S RECOMMENDATIONS.

   BOLTS SHALL BE TIGHTENED USING AN APPLIED TORQUE OF BETWEEN 100 AND 150 FT.-LBS.
2. THE SINGLE RADIUS ARCH STRUCTURE SHALL BE INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, THE MANUFACTURER'S RECOMMENDATIONS, AND AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES - SECTION 26 DIVISION II - CONSTRUCTION/AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS - SECTION 26.
3. TRENCH EXCAVATION SHALL BE MADE IN EMBANKMENT MATERIAL THAT IS STRUCTURALLY ADEQUATE. THE TRENCH WIDTH SHALL BE SHOWN ON THE PLANS. POOR QUALITY IN SITU EMBANKMENT MATERIAL MUST BE REMOVED AND REPLACED WITH SUITABLE BACKFILL AS DIRECTED BY THE ENGINEER.
4. BEDDING PREPARATION IS CRITICAL TO BOTH STRUCTURE PERFORMANCE AND SERVICE LIFE. THE BED SHOULD BE CONSTRUCTED TO UNIFORM LINE AND GRADE TO AVOID DISTORTIONS THAT MAY CREATE UNDESIRABLE STRESSES IN THE STRUCTURE AND/OR RAPID DETERIORATION OF THE ROADWAY. THE BED SHOULD BE FREE OF ROCK FORMATIONS, PROTRUDING STONES, FROZEN LUMPS, ROOTS, AND OTHER FOREIGN MATTER THAT MAY CAUSE UNEQUAL SETTLEMENT.
5. THE STRUCTURE SHALL BE ASSEMBLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL PLATES SHALL BE UNLOADED AND HANDLED WITH REASONABLE CARE. PLATES SHALL NOT BE ROLLED OR DRAGGED OVER GRAVEL ROCK AND SHALL BE PREVENTED FROM STRIKING ROCK OR OTHER HARD OBJECTS DURING PLACEMENT IN TRENCH OR ON BEDDING.
6. THE STRUCTURE SHALL BE BACKFILLED USING CLEAN WELL GRADED GRANULAR MATERIAL THAT MEETS THE REQUIREMENTS MODOT TYPE 5 AGGREGATE.

   BACKFILL MUST BE PLACED SYMMETRICALLY ON EACH SIDE OF THE STRUCTURE IN 8 INCH LOOSE LIFTS. EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 90 PERCENT DENSITY PER AASHTO T-180.
7. IF TEMPORARY CONSTRUCTION VEHICLES ARE REQUIRED TO CROSS THE STRUCTURE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE ENGINEER TO DETERMINE THE AMOUNT OF ADDITIONAL MINIMUM COVER NECESSARY TO HANDLE THE SPECIFIC LOADING CONDITION.

   NORMAL TRAFFIC IS NOT ALLOWED TO CROSS THE STRUCTURE UNTIL THE STRUCTURE HAS BEEN BACKFILLED AND PAVED.

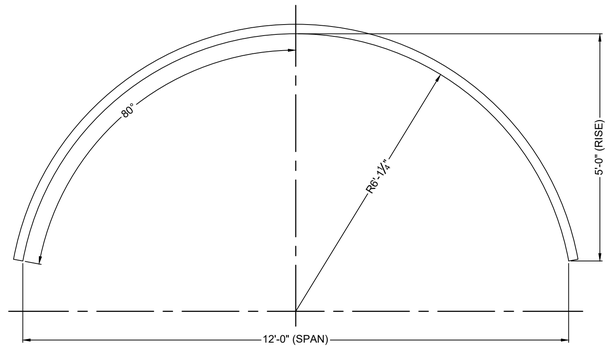


ALSP STRIP FOOTING DETAIL

NOT TO SCALE

NOTES:

1. BLOCKING OR SHIMMING SIDE PLATES TO ACHIEVE AND MAINTAIN PROPER BOTTOM SPAN AND SIDE RETURN ANGLE MAY BE REQUIRED.
2. GROUT SHOULD BE NON-METALLIC, NON-SHRINK MATERIAL, WITH A MINIMUM 4,000 PSI COMPRESSIVE STRENGTH.
3. GROUT AND SHIMMING MATERIAL SHOULD NOT CONTAIN ANY CORROSION-PROMOTING AGENTS.
4. CAST-IN-PLACE FOOTING SHALL BE CLASS B CONCRETE, f'c = 4,000 PSI.
5. REINFORCING STEEL SHALL BE GRADE 60, Fy = 60,000 PSI.



APPROX. AREA= 45.0 SQ. FT.
PLATE MAKE UP: 1 @ 11N & 1 @ 10N
TOTAL= 21N

NOTES:
1. ALL DIMENSIONS ARE TO THE INSIDE CORRUGATION, UNLESS NOTED.
2. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.

ALUMINUM STRUCTURAL PLATE ARCH SIZE

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CONSULTANTS
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SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

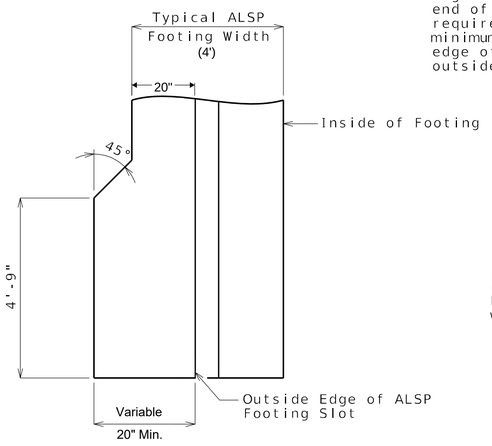
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
ALUMINUM STRUCTURAL ARCH DETAILS

SHEET NO:
24 of 126

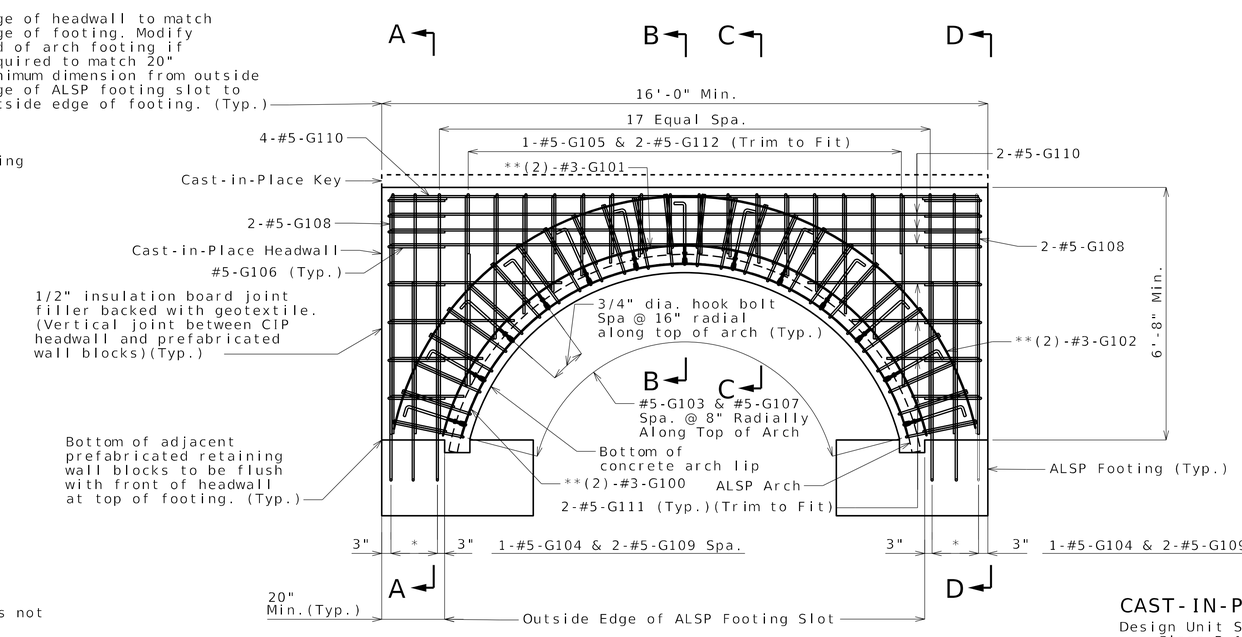
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1/20/2026



PLAN VIEW OF ARCH FOOTING MODIFICATION DETAIL (IF REQUIRED)

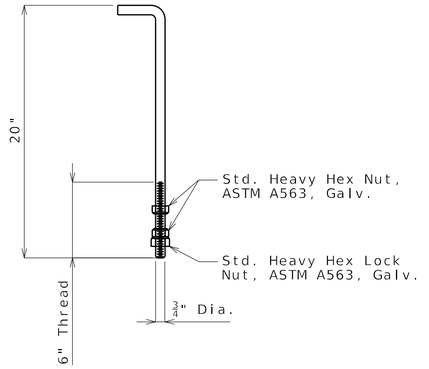
Incorporate this detail if the 20" minimum dimension is not satisfied with the "Typical ALSP Footing Width"

Edge of headwall to match edge of footing. Modify end of arch footing if required to match 20" minimum dimension from outside edge of ALSP footing slot to outside edge of footing. (Typ.)



* 2 Eq. Spa. (11" Max.)
** Field bend as shown.

ELEVATION



HOOK BOLT DETAIL

ASTM F1554 Gr. 55
Galvanize after fabrication

CAST-IN-PLACE HEADWALL NOTES:

Design Unit Stresses:

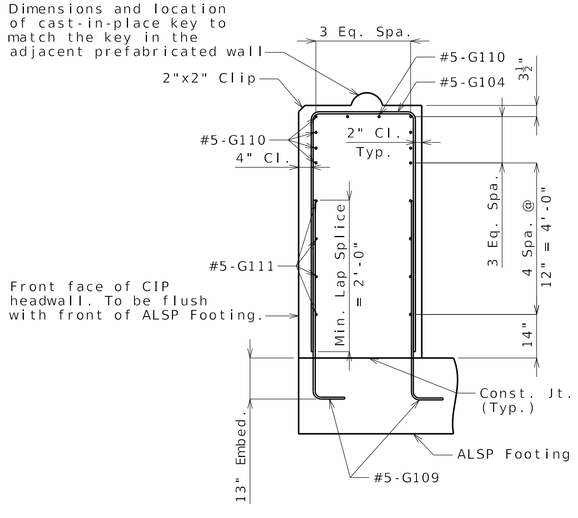
Class B-1 Concrete	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi

Estimated Quantities:

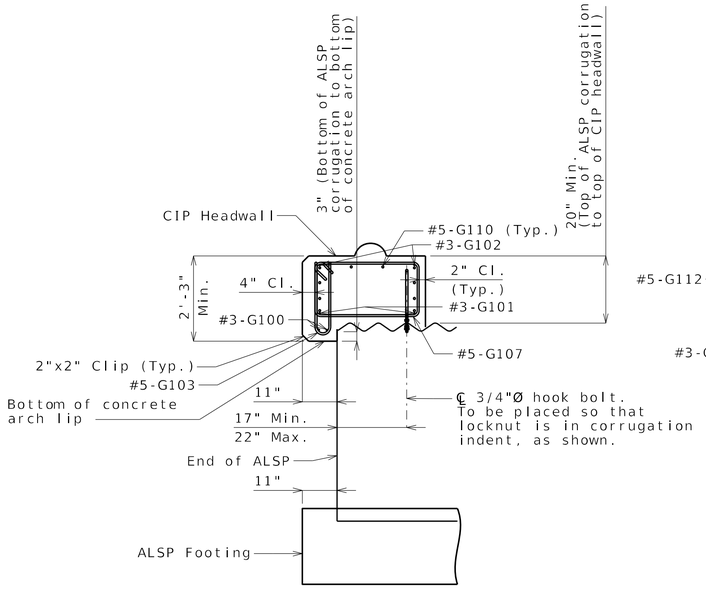
Class B-1 Concrete (Min.)	8.1 (Cu. Yd.)
Reinforcing Steel	1,067 (Pounds)
Hook Bolt w/Heavy Hex Nuts	13 (Each)

Design Loading:

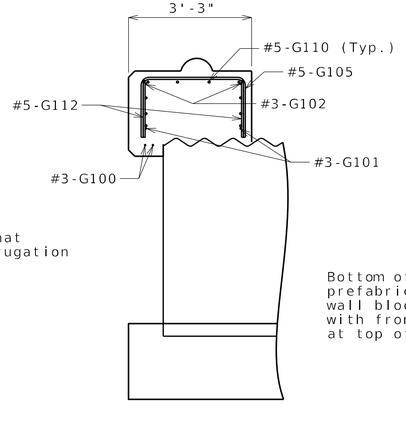
Live Load Surcharge	2 ft
Earth Weight	120 pcf
Internal Friction Angle	32 deg
Retained Height	15ft



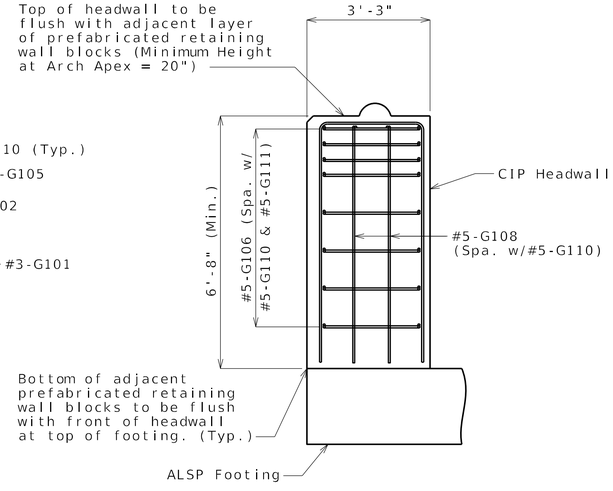
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

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ANDREW B. BERNICK
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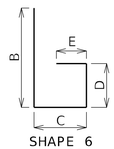
PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

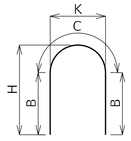
PROJECT NO:	2400101800
DESIGNED BY:	ABB
DRAWN BY:	ABB
CHECKED BY:	AMC
DATE:	1/20/2026

SHEET TITLE
HEADWALL DETAIL

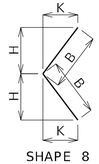
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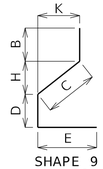
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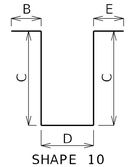
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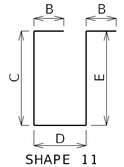
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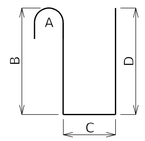
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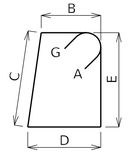
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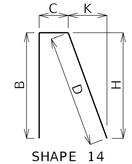
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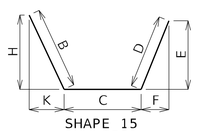
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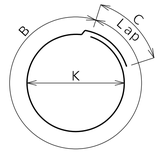
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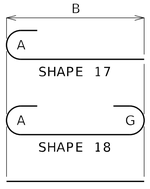
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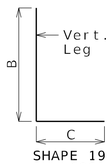
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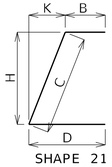
SHAPE 16



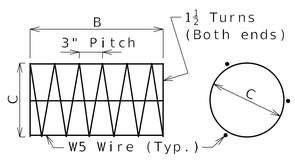
SHAPE 17
SHAPE 18
SHAPE 20



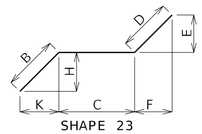
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or 19S



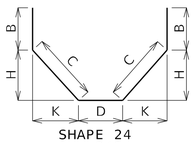
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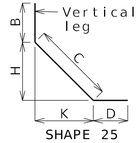
SHAPE 22



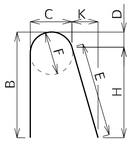
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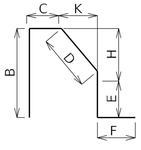
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or 24S



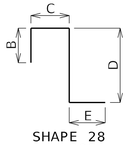
SHAPE 25
or 25S



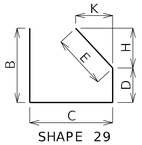
SHAPE 26



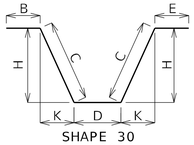
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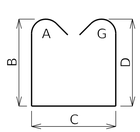
SHAPE 28
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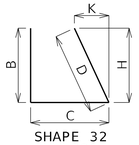
SHAPE 29
or 29S



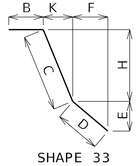
SHAPE 30
or 30S



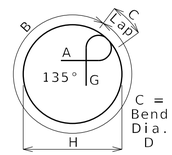
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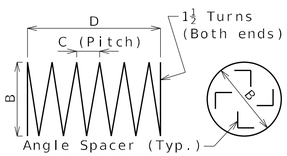
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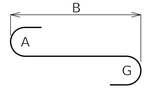
SHAPE 33
or 33S



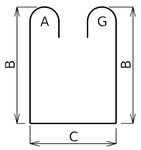
SHAPE 34S



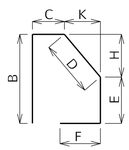
SHAPE 35 (1)



SHAPE 36



SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

Shapes ending with an S shall be bent in accordance with stirrup pin bend shapes.

Unless otherwise noted, finished bending diameter D is the same for all bends of a shape.

(1) Shall be a deformed or plain spiral bar or wire.

Four angle or channel spacers are required for each column spiral. Spacers are to be placed on inside of spirals. Length and weight of column spirals do not include splices or spacers.

Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed to the nearest inch for fabricator's use. Actual lengths are measured along centerline bar to the nearest inch. Weights are based on actual lengths.

All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

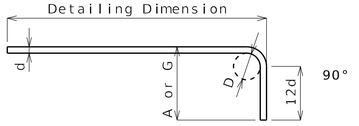
SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¼"	28½"

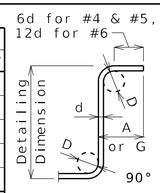


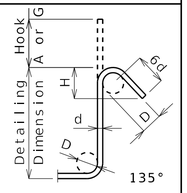
Stirrup Pin Bend Shapes (S)

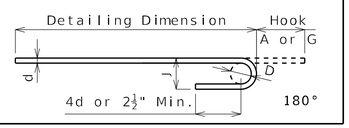
Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅞"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

Applicable for all grades of steel.

Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.







Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
2	3 G100	HEADWALL		20		16 0.00							16 0	16 0	12
2	3 G101	HEADWALL		20		17 6.00							17 6	17 6	13
2	3 G102	HEADWALL		20		21 3.00							21 3	21 3	16
26	5 G103	HEADWALL		7		1 8.50	0 7.88				1 11.00	0 5.00	4 1	4 0	108
6	5 G104	HEADWALL		10			6 4.00	2 9.00					15 5	15 2	95
16	5 G105	HEADWALL		10			1 7.00	2 9.00					5 11	5 8	95
16	5 G106	HEADWALL		10			1 6.00	2 7.00					5 7	5 4	89
26	5 G107	HEADWALL		13S		2 9.00	1 5.00	2 9.00	1 5.00				9 4	9 0	244
4	5 G108	HEADWALL		19		6 3.00	1 6.00						7 9	7 7	32
12	5 G109	HEADWALL		19		5 3.00	0 10.00						6 1	5 11	74
8	5 G110	HEADWALL		20		15 6.00							15 6	15 6	129
16	5 G111	HEADWALL		20	V	4 6.00							4 6	4 6	
		INCR = 0'-11"				1 9.00							1 9	1 9	52
32	5 G112	HEADWALL		20	V	5 0.00							5 0	5 0	
		INCR = 0'-6"				1 6.00							1 6	1 6	108

BILL OF REINFORCING STEEL

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO. 64131
PHONE: 816-941-3100
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
ANDREW B. BERNARD
NUMBER PE-2022013831
Date: 1/16/2026
PROFESSIONAL ENGINEER

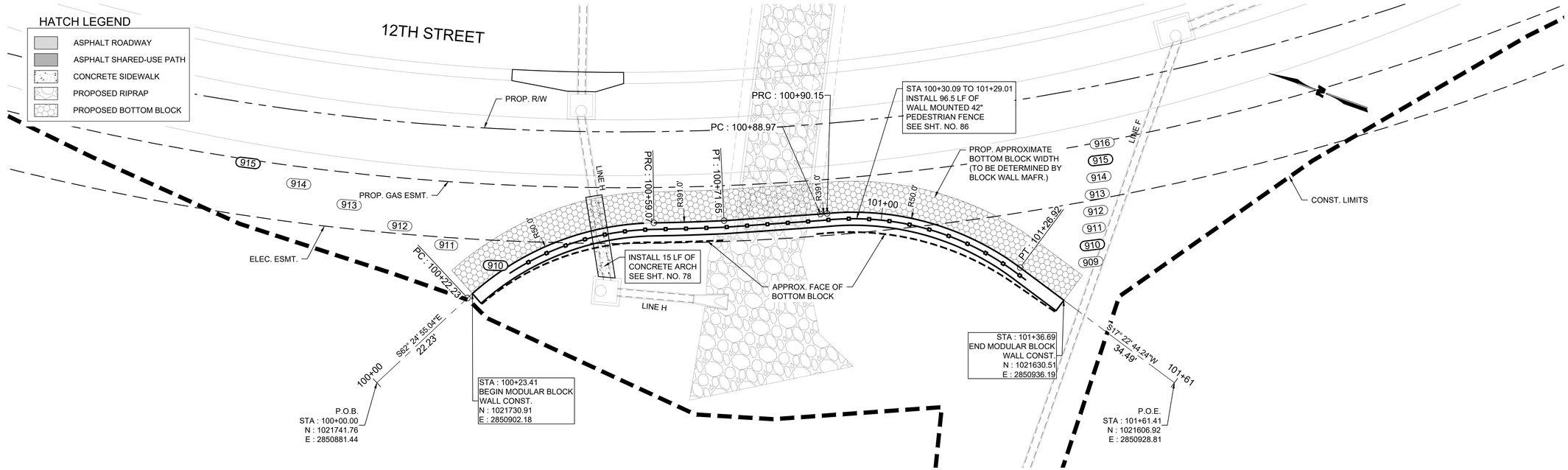
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12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

BY	DESCRIPTION	DATE	REV.

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DESIGNED BY:	ABB
DRAWN BY:	ABB
CHECKED BY:	AMC
DATE:	1/20/2026

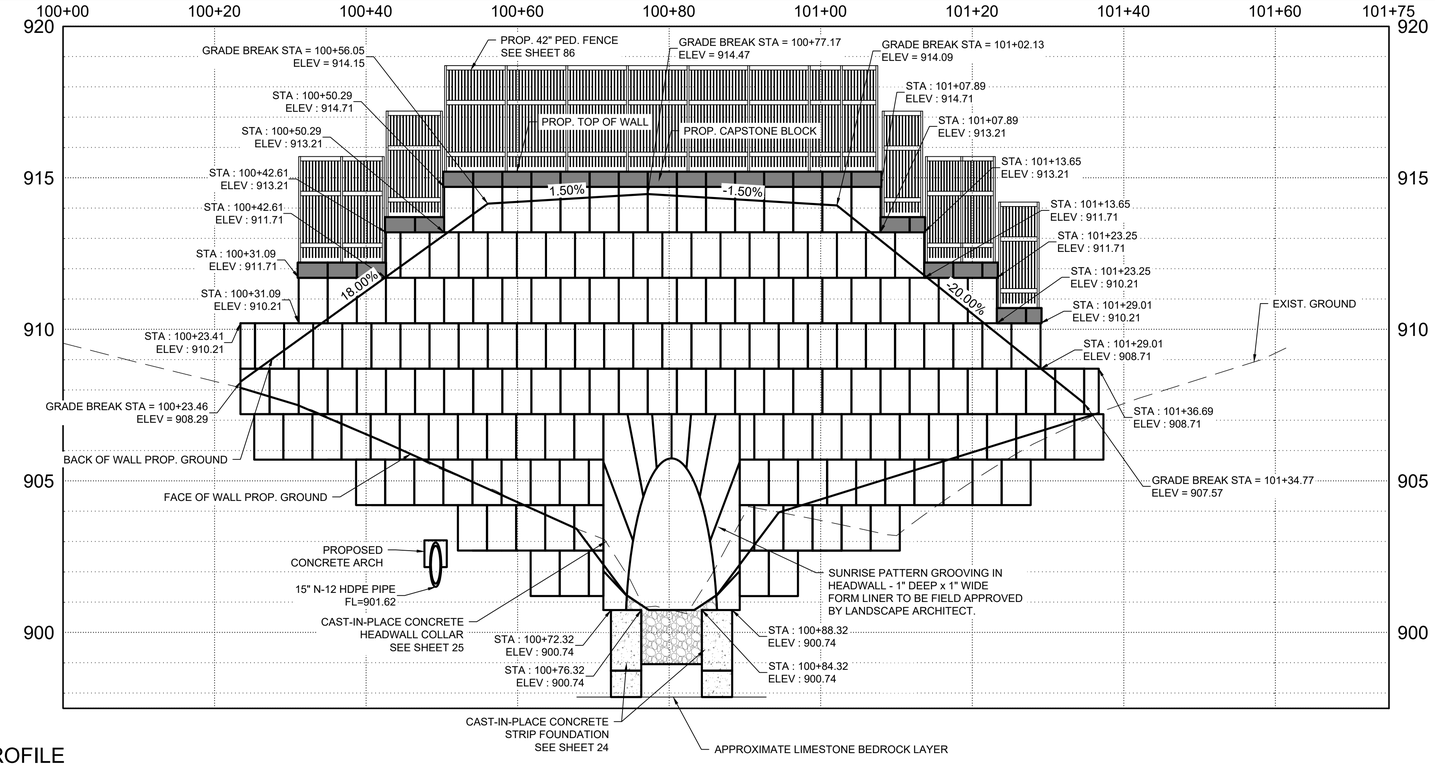
SHEET TITLE
HEADWALL BILL OF REINFORCING

SHEET NO:
26 of 126



E1 NORTH CULVERT - WEST WALL PLAN

SCALE: 1" = 20'



A1 NORTH CULVERT - WEST WALL PROFILE

SCALE: 1" = 20'

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800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
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FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS

Stantec

SEAL

STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

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DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

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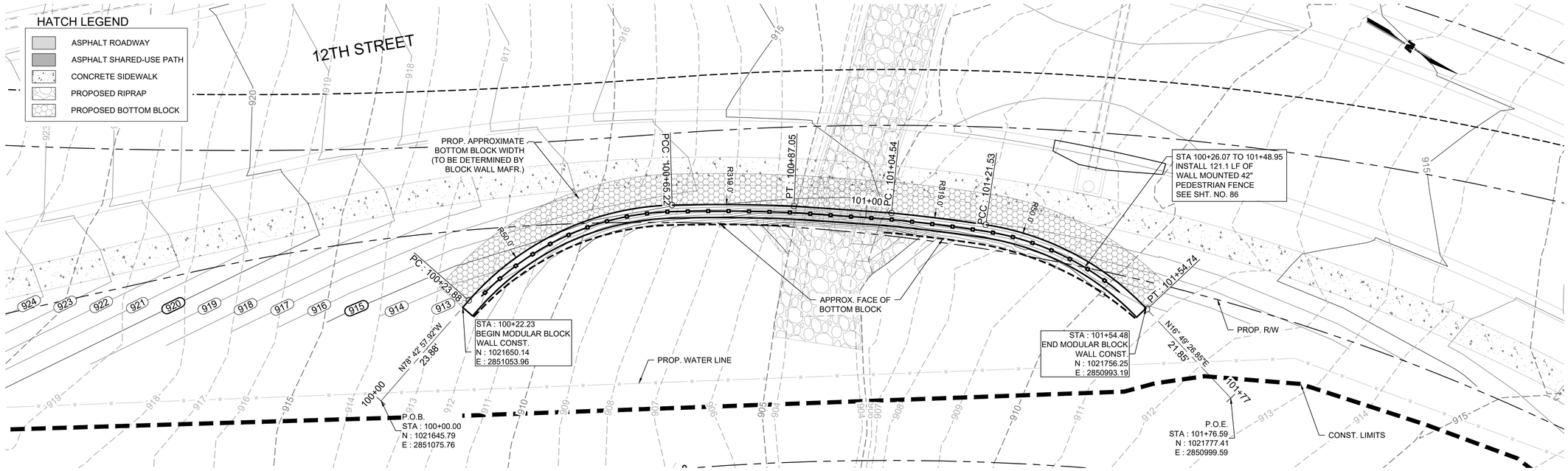
NORTH CULVERT NW RETAINING WALL

SHEET NO:

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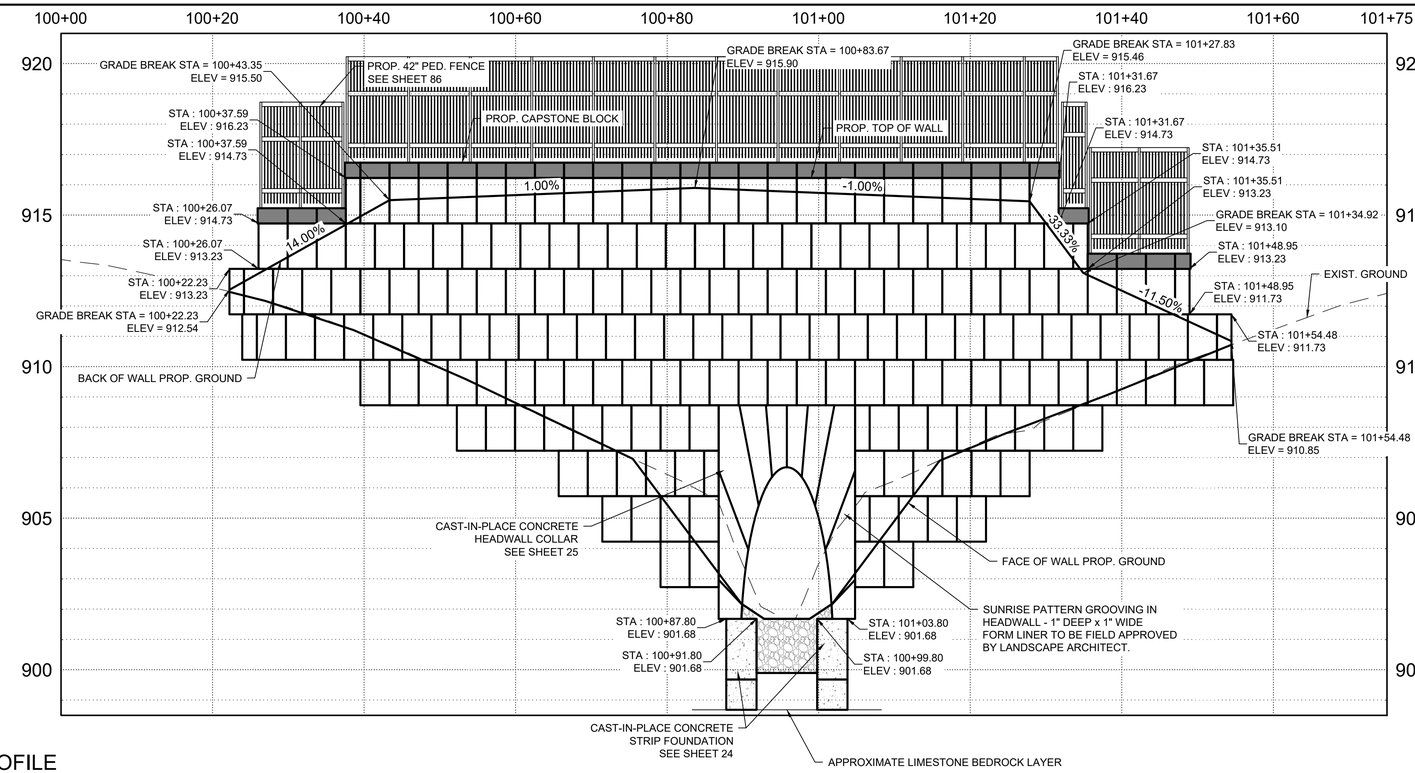
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1/20/2026



E1 NORTH CULVERT - EAST WALL PLAN

SCALE: 1" = 20'



A1 NORTH CULVERT - EAST WALL PROFILE

SCALE: 1" = 20'

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800 EAST 101ST TERRACE, SUITE 200
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NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

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DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE

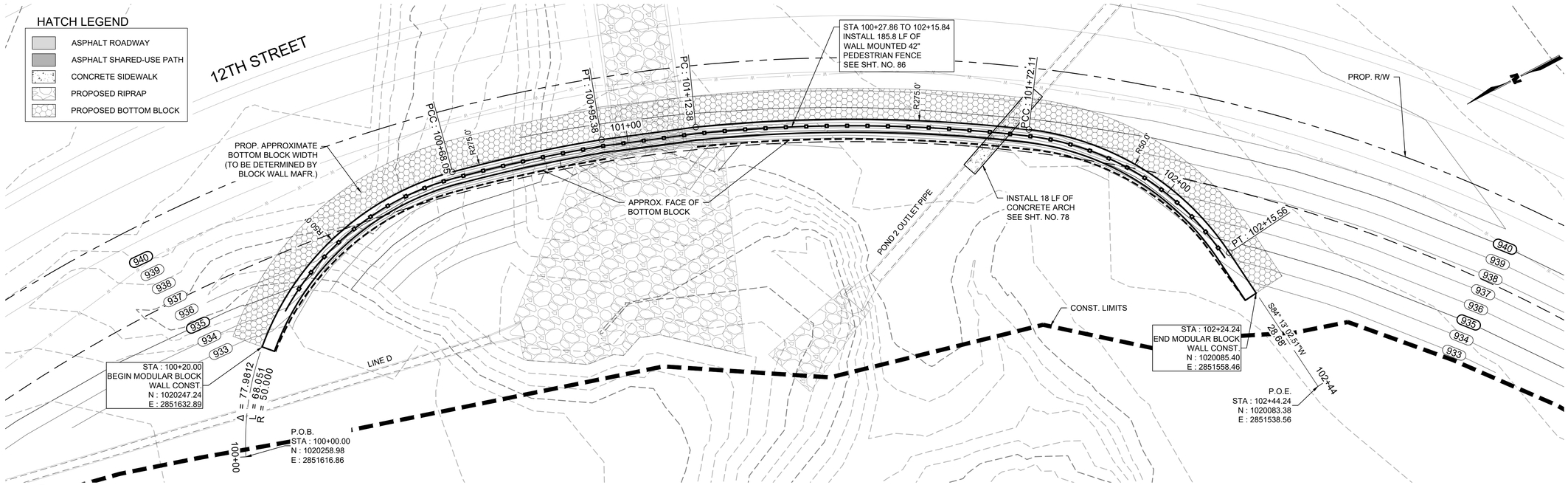
NORTH CULVERT NE RETAINING WALL

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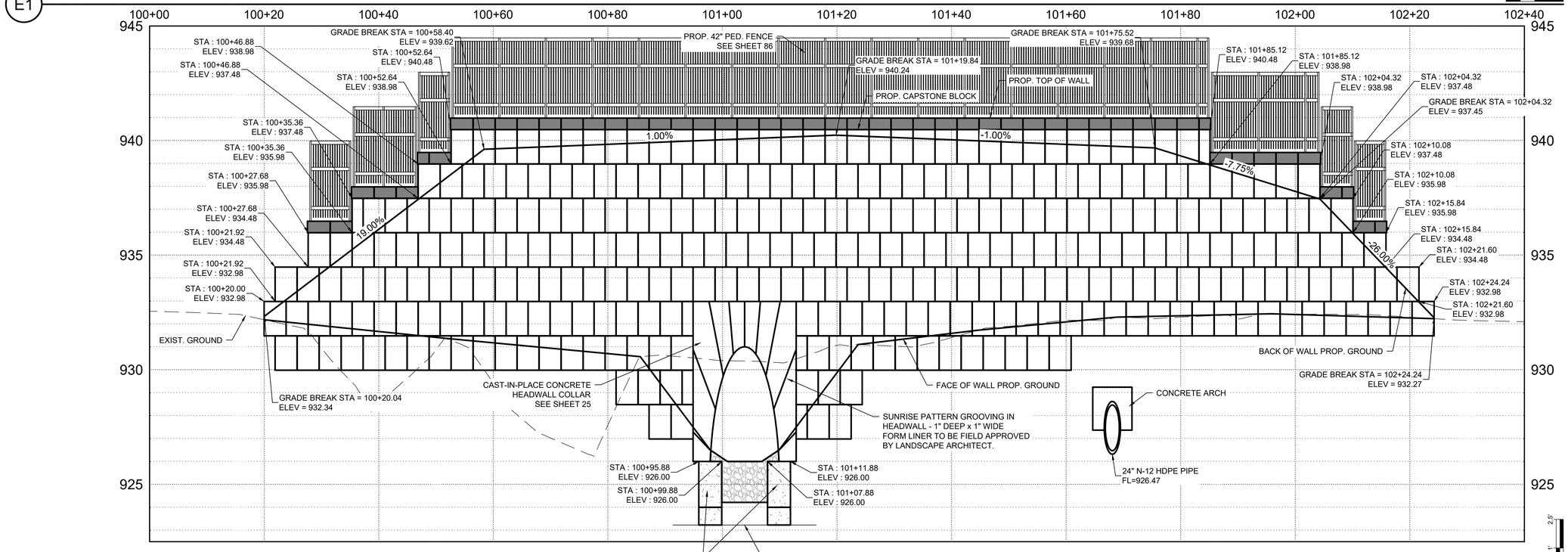
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1/20/2026



E1 SOUTH CULVERT - WEST WALL PLAN



A1 SOUTH CULVERT - WEST WALL PROFILE

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KANSAS CITY, MO 64131
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NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

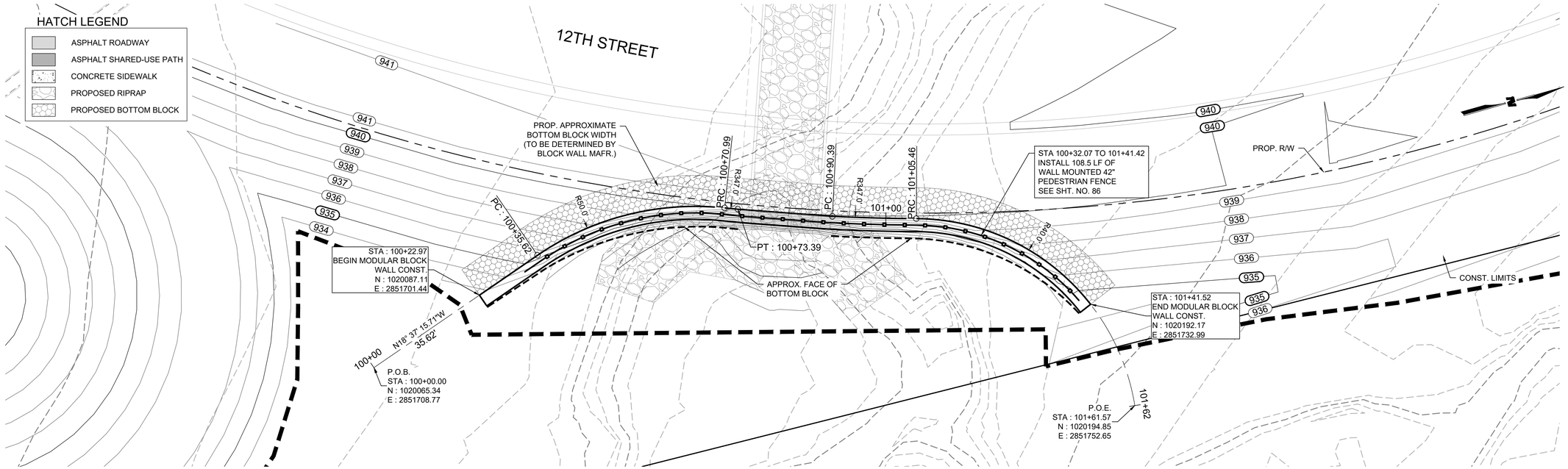
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DATE:	1/20/2026

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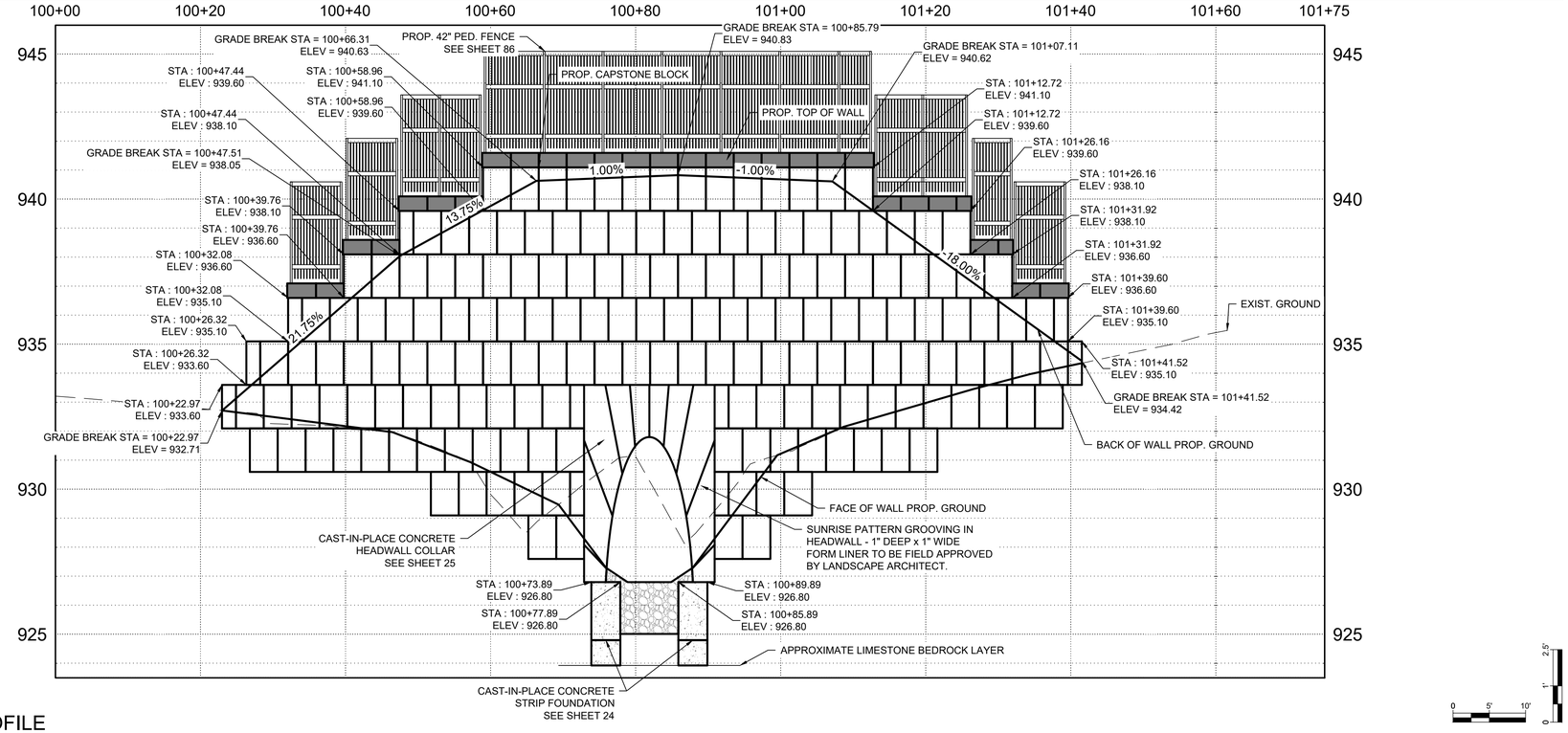
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1/20/2026



E1 SOUTH CULVERT - EAST WALL PLAN

SCALE: 1" = 20'



A1 SOUTH CULVERT - EAST WALL PROFILE

SCALE: 1" = 20'

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KANSAS CITY, MO 64131
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DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
SOUTH CULVERT SE RETAINING WALL

SHEET NO:
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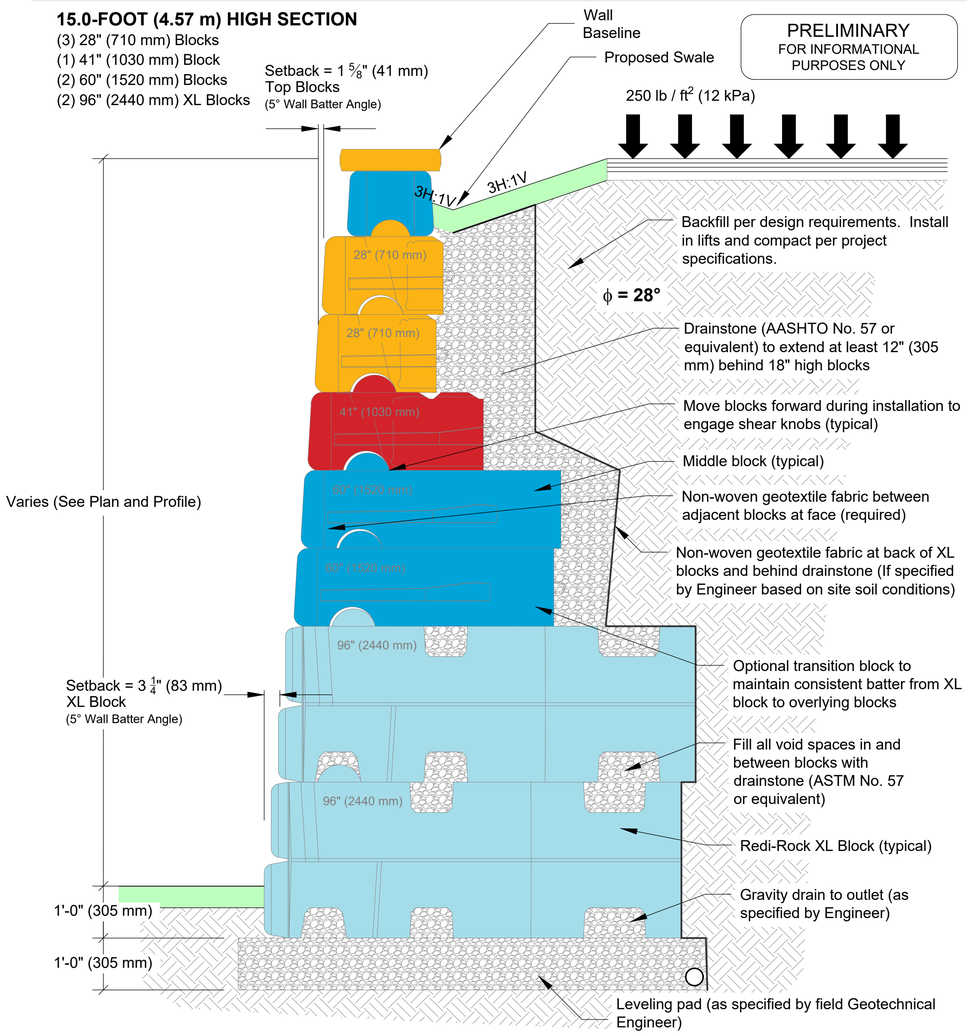
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1/20/2026

ϕ = 28° | SILTY SAND or CLAYEY SAND

LOAD CONDITION B | 250 lb/ft^2 (12 kPa) LIVE LOAD SURCHARGE, NO BACK SLOPE, NO TOE SLOPE

15.0-FOOT (4.57 m) HIGH SECTION
(3) 28" (710 mm) Blocks
(1) 41" (1030 mm) Block
(2) 60" (1520 mm) Blocks
(2) 96" (2440 mm) XL Blocks

PRELIMINARY
FOR INFORMATIONAL PURPOSES ONLY



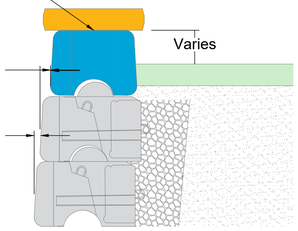
This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site. Final wall design must address both internal and external drainage and all modes of wall stability.

Preliminary Wall Section

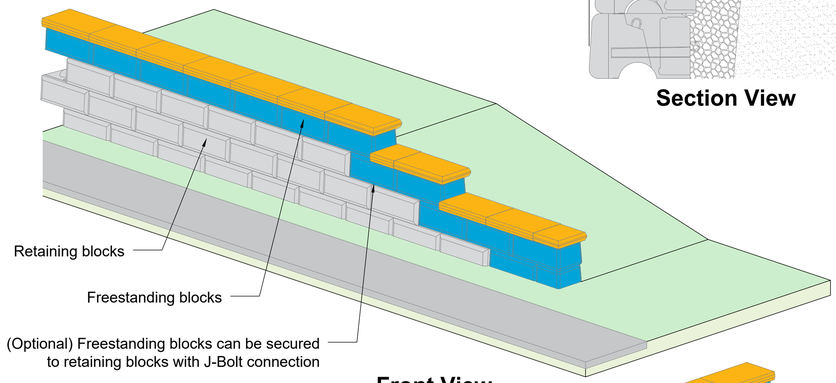
REDI-ROCK®
05481 US 31 SOUTH, CHARLEVOIX, MI 49720
(866) 222-8400 ext 3010 • engineering@redi-rock.com
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Freestanding Blocks with Cap at Top of Wall

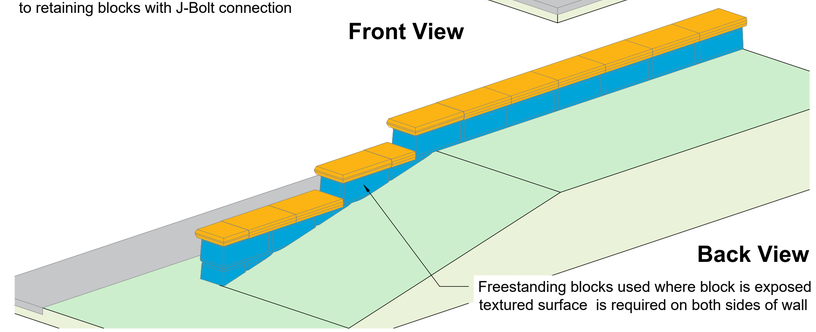
Secure cap block to freestanding block with polyurethane sealant. Optional shear lugs cast into cap block or rebar ties that can be embedded in site-cast concrete (with garden block) are also available.



Section View



Front View



Back View

One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round "hersey kiss" shaped dollops located in two rows at the top of the Freestanding blocks at 8" (203 mm) on center.

This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.

Freestanding Blocks with Cap at Top of Wall

REDI-ROCK®
05481 US 31 SOUTH, CHARLEVOIX, MI 49720
(866) 222-8400 ext 3010 • engineering@redi-rock.com
www.redi-rock.com

NOTE: THE PROPOSED MODULAR BLOCK WALL SECTION SHOWN HEREIN WAS DESIGNED USING THE STANDARD REDI-ROCK BLOCK LIBRARY AND REDI-ROCK'S PROPRIETARY ONLINE BLOCK WALL DESIGN TOOL. THIS WAS PERFORMED FOR INFORMATIONAL PURPOSES ONLY FOR DESIGN OF SURROUNDING WALL CAST-IN-PLACE HEADWALL, GRADES, AND COORDINATION OF WALL GLOBAL STABILITY CALCULATIONS. CONTRACTOR SHALL SUBMIT WALL SHOP DRAWINGS AND DESIGN CALCULATIONS IN COORDINATION WITH MODULAR BLOCK SUPPLIER FOR ENGINEER APPROVAL. REDI-ROCK KINGSTONE BLOCKS (OR APPROVED EQUAL) SHALL BE USED AND STAINED IN EITHER OZARK BLUFFS BEIGE, SORREL CANYON ROSE, OR SAN CLEMENTE CLIFFS BY EXACT MATCH MASONRY STAINING LLC. CONTRACTOR SHALL PROVIDE FIELD MOCK-UP OF THESE 3 STAIN COLORS FOR APPROVAL BY CITY AND LANDSCAPE ARCHITECT. TOP BLOCK ROW SHALL BE FREE STANDING BLOCKS WHERE EXPOSED AT BACK OF WALL WITH DECORATIVE CAPSTONE ADHERED TO FREE STANDING BLOCK AS DESCRIBED IN DETAIL ABOVE.

SUBMITTAL REQUIREMENTS:
RETAINING WALL CONSTRUCTION SHALL CONFORM TO DETAIL DRAWINGS AS SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. SUBMIT ELECTRONIC SHOP DRAWINGS OF DETAIL DRAWINGS AND DESIGN CALCULATIONS FOR THE MODULAR BLOCK WALL CONFORMING TO ALL MANUFACTURER SPECIFICATIONS AT LEAST 30 DAYS PRIOR TO THE CONSTRUCTION FOR REVIEW AND APPROVAL BY THE ENGINEER. DESIGN CALCULATIONS AND DETAIL DRAWINGS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER. IF COMPUTER PROGRAMS ARE USED TO PREPARE THE DESIGN, THE OUTPUT AND AN EXAMPLE HAND CALCULATION OF THE WALL DESIGN SECTION SHALL BE FURNISHED.

FOUNDATION APPROVAL:
INSPECTION AND APPROVAL OF THE WALL FOUNDATION BY THE SITE GEOTECHNICAL ENGINEER WILL BE REQUIRED PRIOR TO PLACEMENT OF THE LEVELING PAD AND SELECT GRANULAR BACKFILL. FOUNDATION SOILS FOUND TO BE UNSUITABLE, SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL TO A DEPTH DETERMINED BY THE SITE GEOTECHNICAL ENGINEER. GRADING OF WALL FOUNDATION SHALL BE UNIFORM AND WILL INCLUDE REMOVAL OF LOOSE DEBRIS.

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FAX: 816-942-3013
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CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

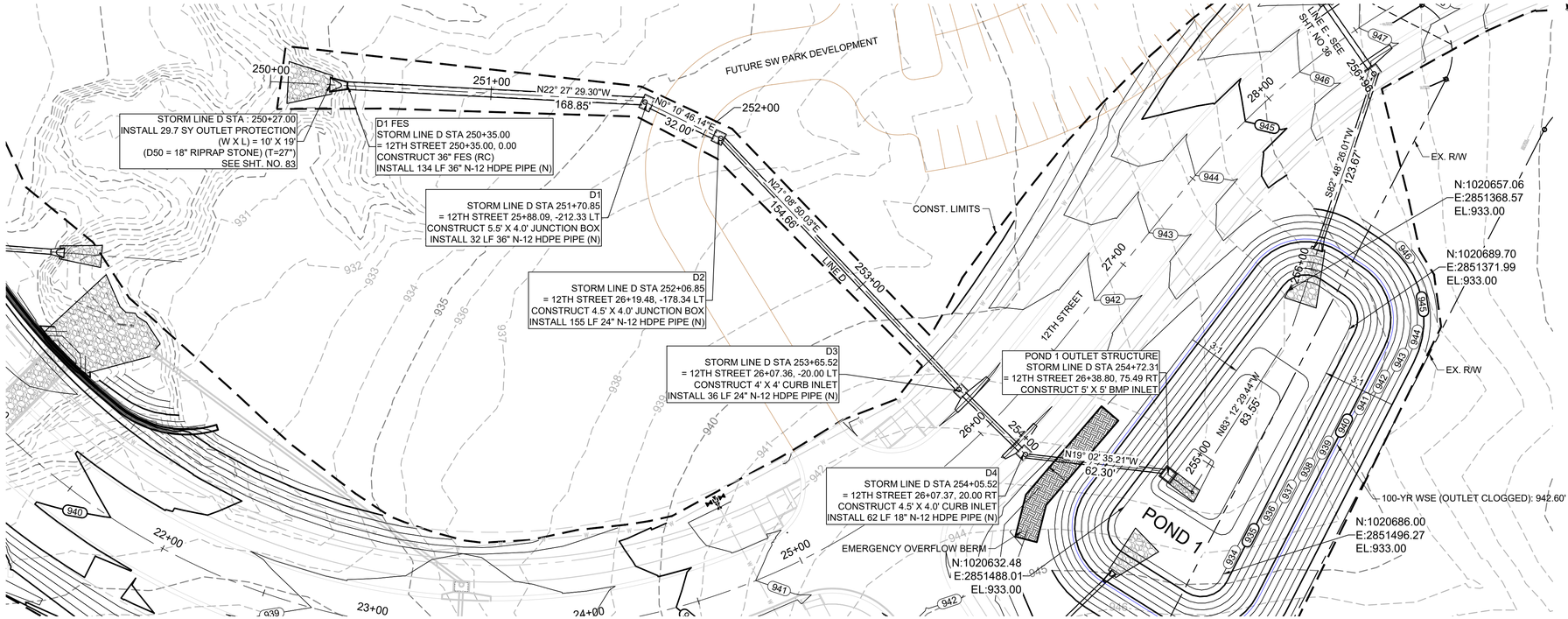
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

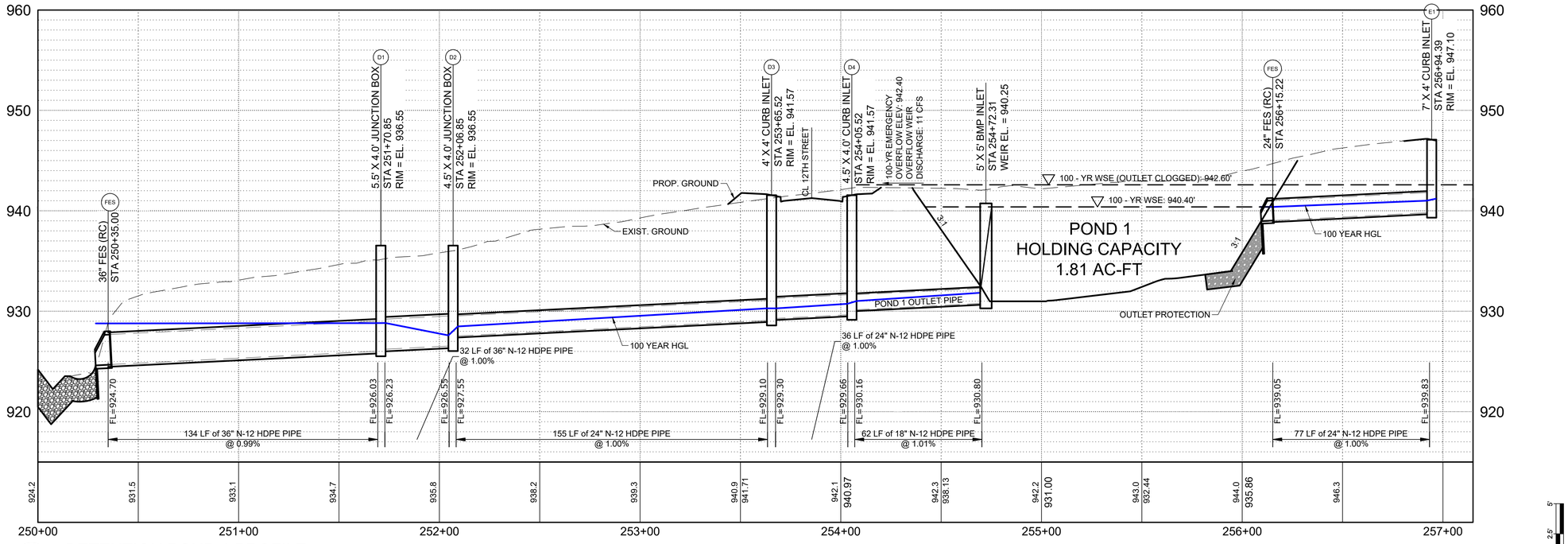
SHEET TITLE
TYPICAL MODULAR BLOCK WALL DETAILS

SHEET NO:
31 of 126

W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-MISC_DETL.dwg
1/20/2026



D1 DETENTION POND 1 PLAN



A1 DETENTION POND 1 PROFILE

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DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

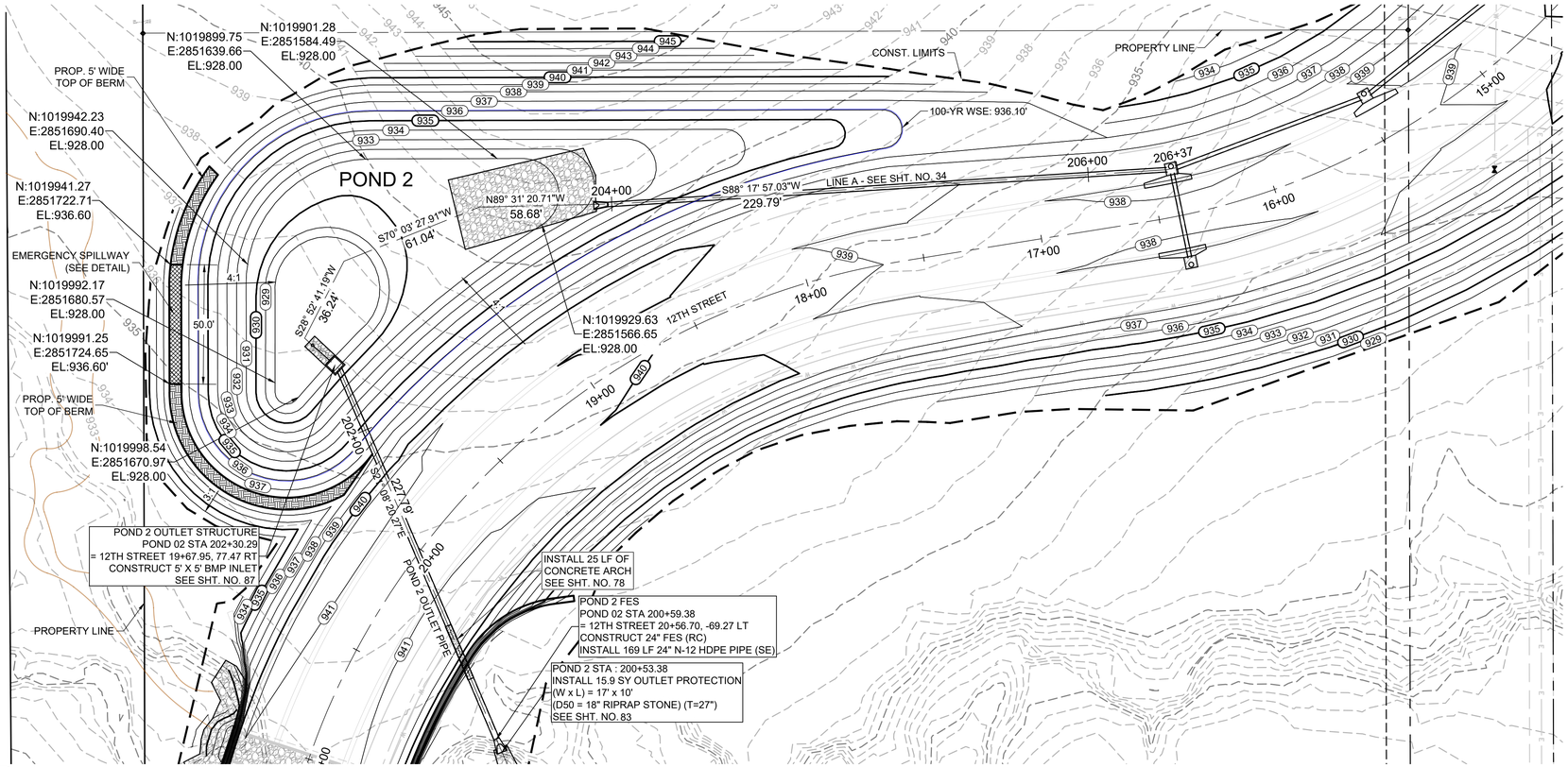
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
POND 1 PLAN & PROFILE

SHEET NO:
32 of 126

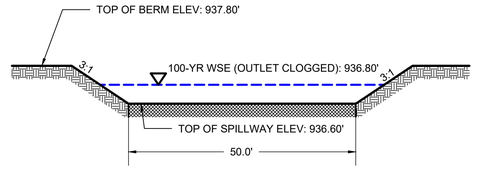
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1/20/2026

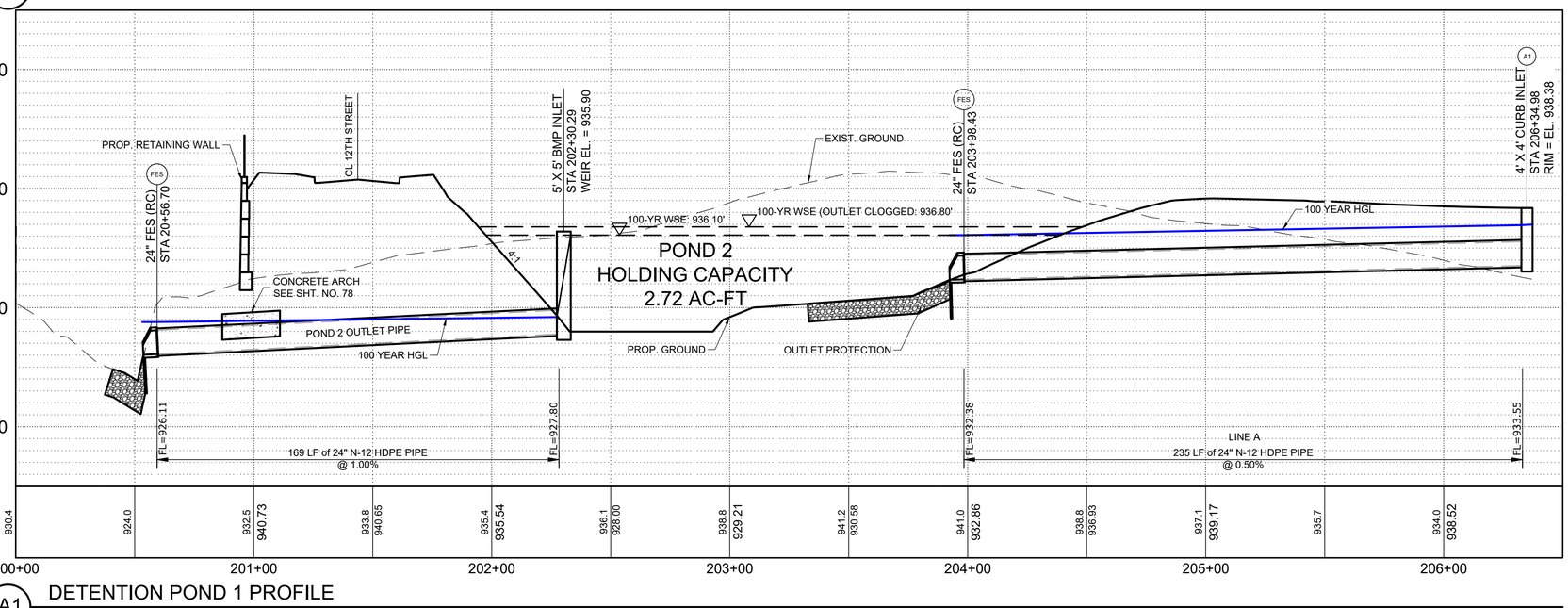


D1 DETENTION POND 2 PLAN

FOR ALL OUTLET STRUCTURE DETAILS, SEE SHT. NO 87

EMERGENCY SPILLWAY DETAIL





A1 DETENTION POND 1 PROFILE

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PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

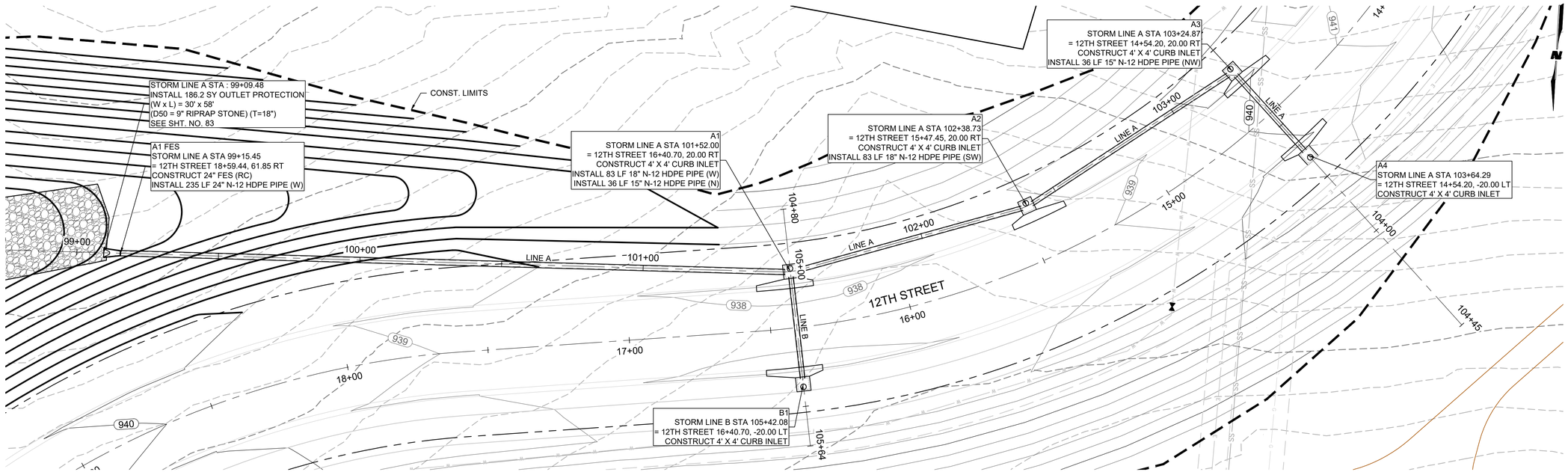
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DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

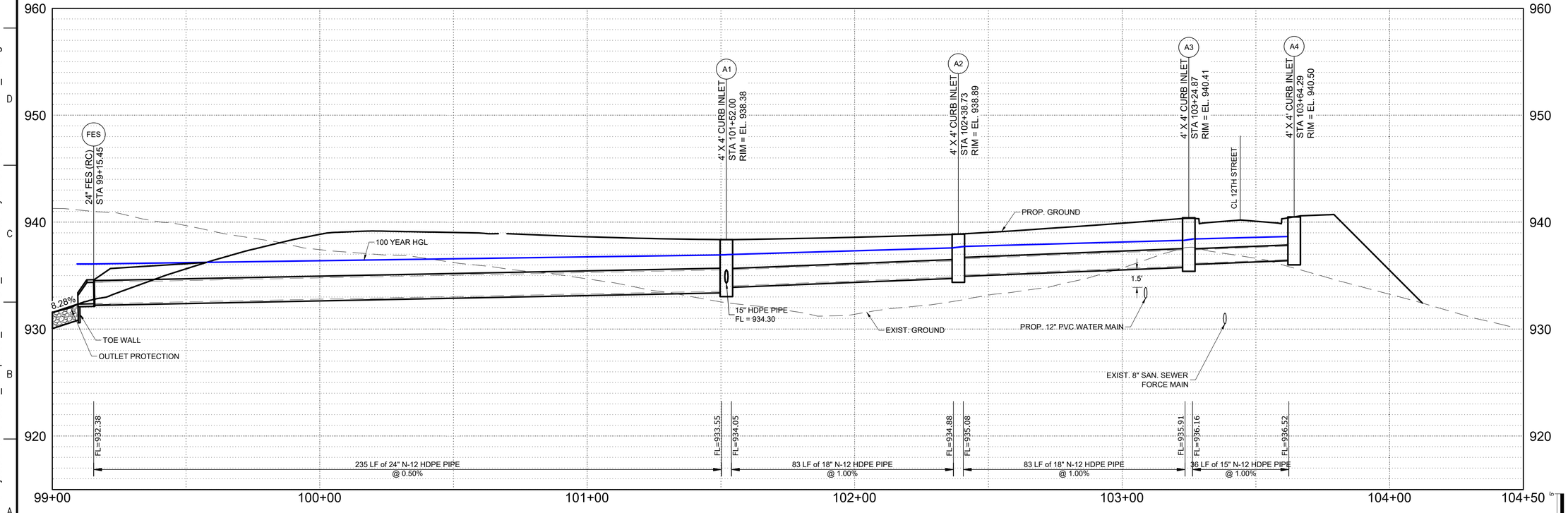
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POND 2 PLAN & PROFILE

SHEET NO:
33 of 126

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1/20/2026



E1 STORM SEWER LINE A PLAN



A1 STORM SEWER LINE A PROFILE

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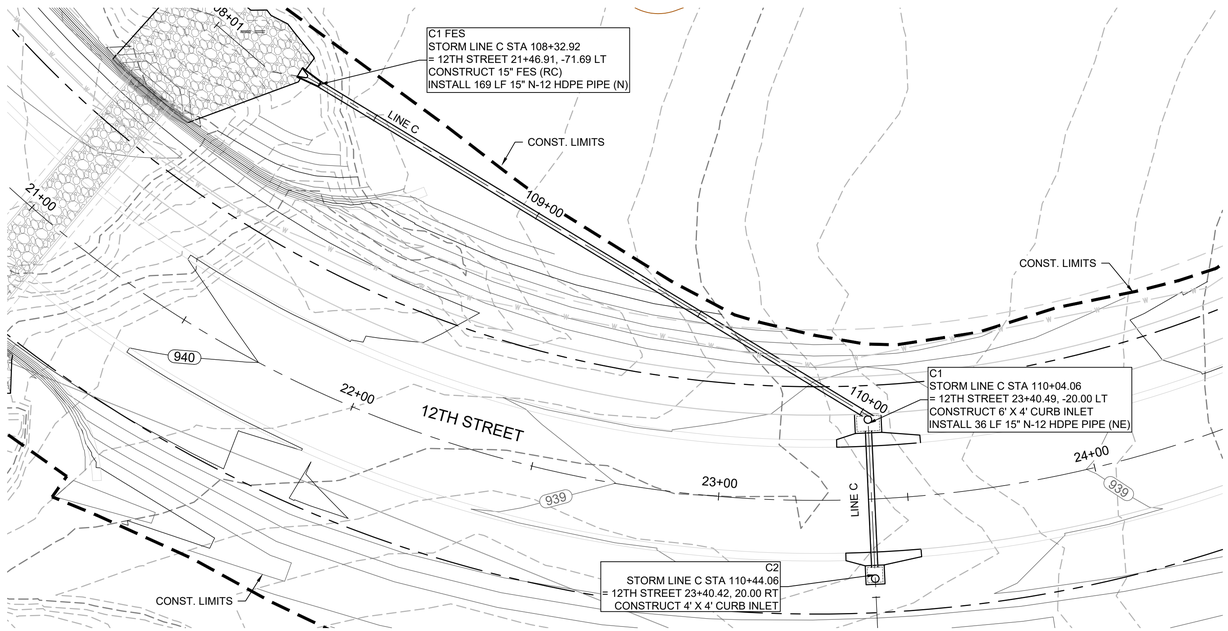
PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

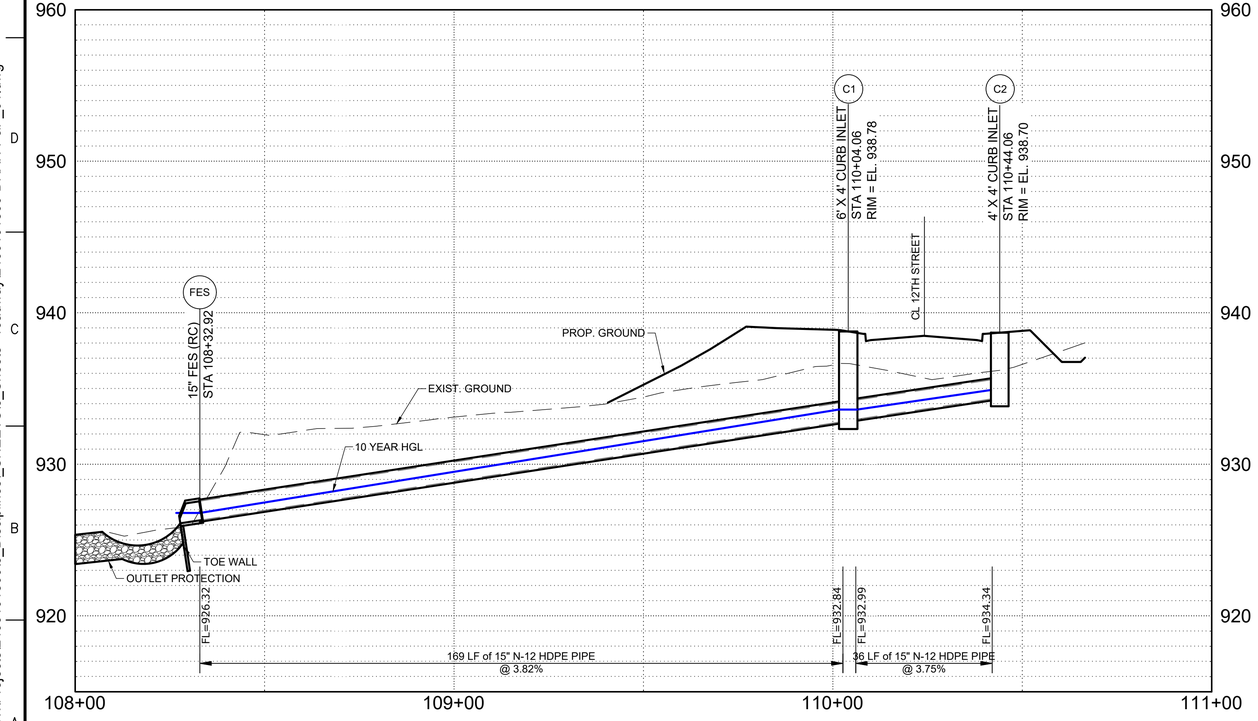
SHEET TITLE
STORM SEWER LINE A PLAN AND PROFILE

SHEET NO:
34 of 126



E1 STORM SEWER LINE C PLAN

0 10' 20'



A1 STORM SEWER LINE C PROFILE

0 10' 20'

0 2.5' 5'

W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-DRAN-P&P_01.dwg

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DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME

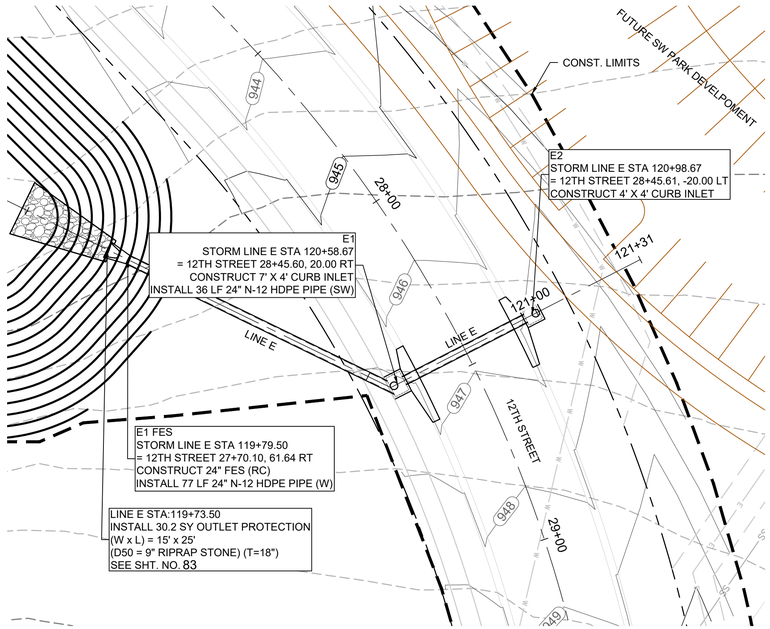
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

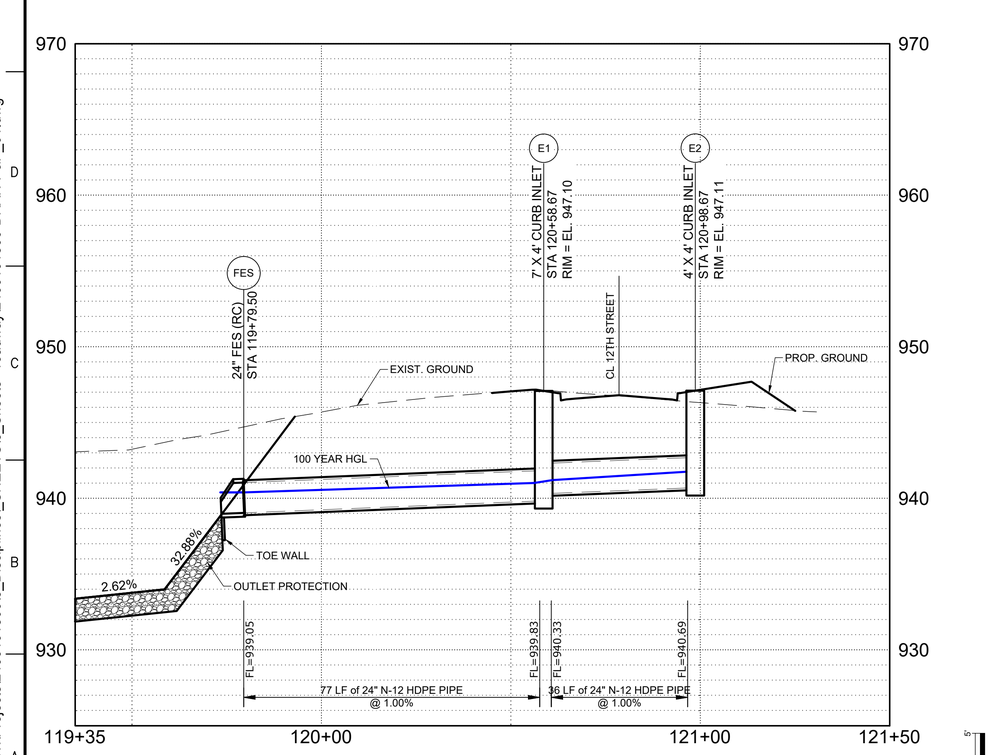
SHEET TITLE
STORM SEWER LINE C PLAN AND PROFILE

SHEET NO:
35 of 126



E1 STORM SEWER LINE E PLAN

0 10' 20'



A1 STORM SEWER LINE E PROFILE

0 10' 20'

0 2.5' 5'

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NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
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DATE:	1/20/2026

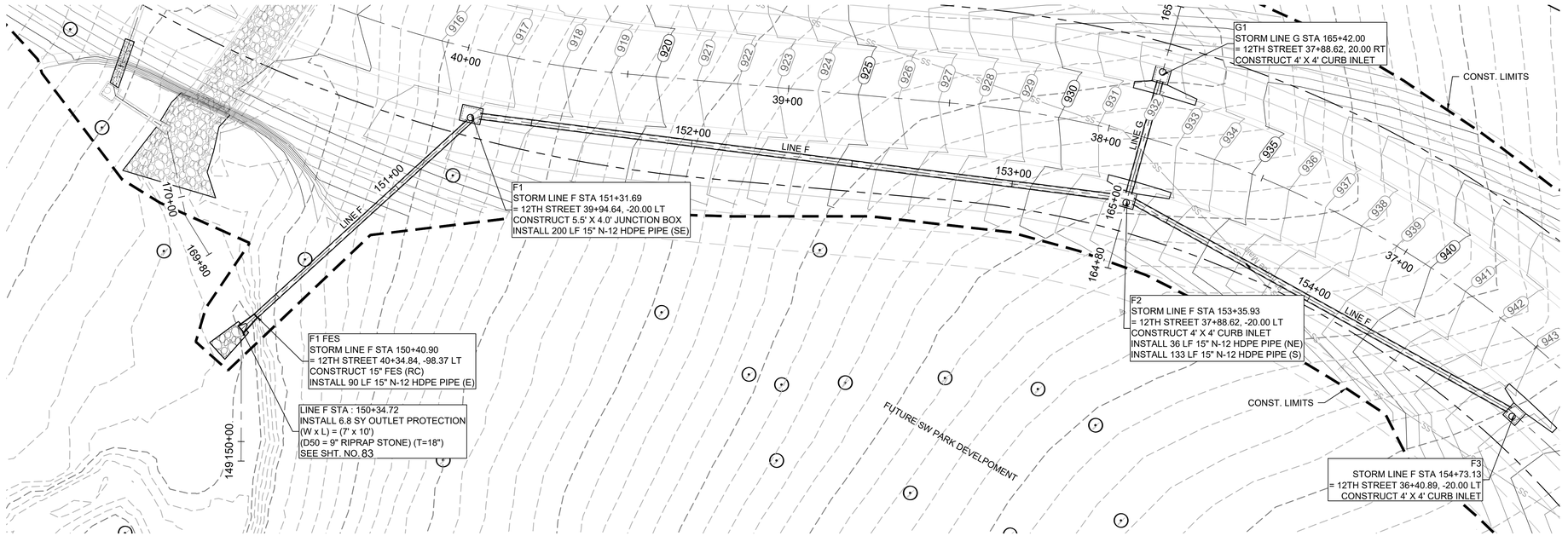
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STORM SEWER LINE E PLAN AND PROFILE

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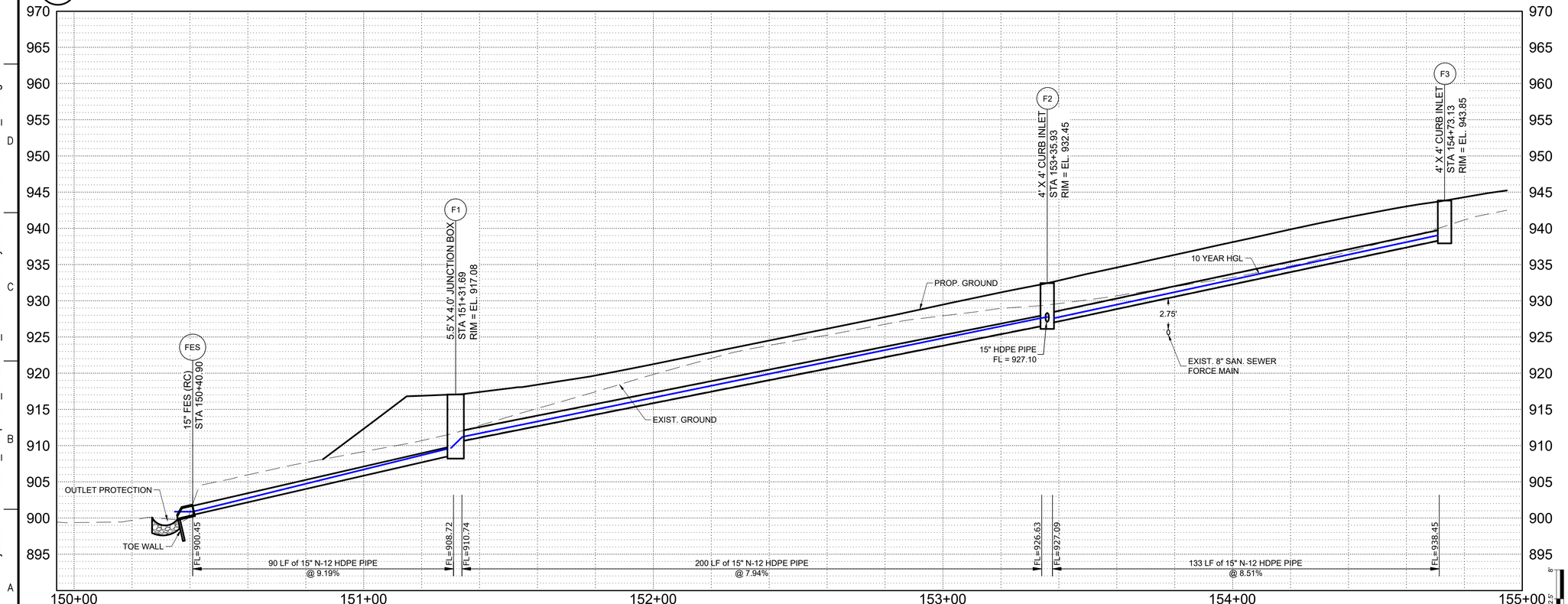
36 of 126

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E1 STORM SEWER LINE F PLAN

0 10' 20'



A1 STORM SEWER LINE F PROFILE

0 10' 20'

0 2.5' 5'

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CONSULTANTS: Stantec

SEAL: STATE OF MISSOURI — DARREN JOHN MEYER — NUMBER PE-2024000077 — 1/20/2026 — PROFESSIONAL ENGINEER

PROJECT NAME: 12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

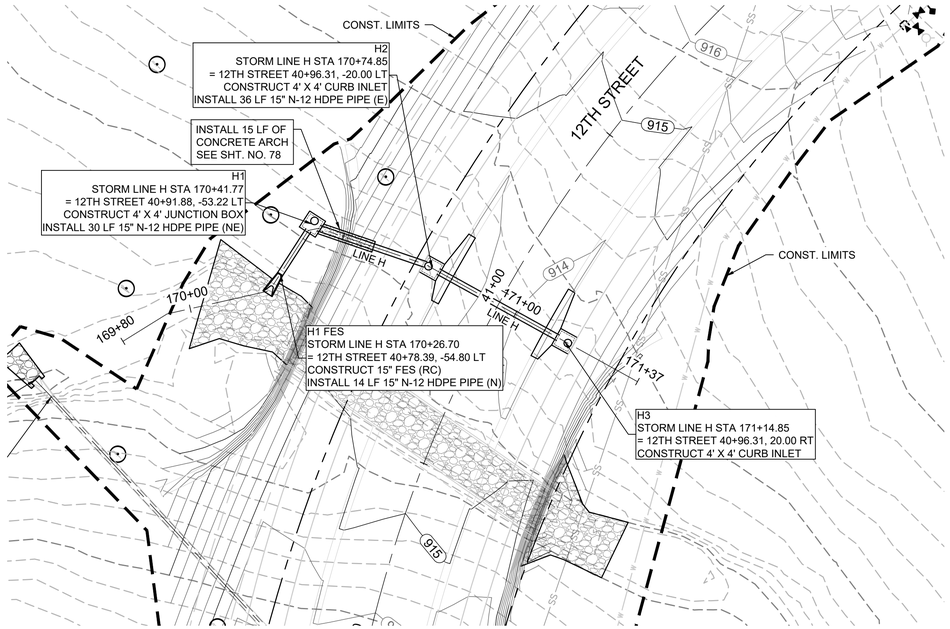
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
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CHECKED BY:	DJM
DATE:	1/20/2026

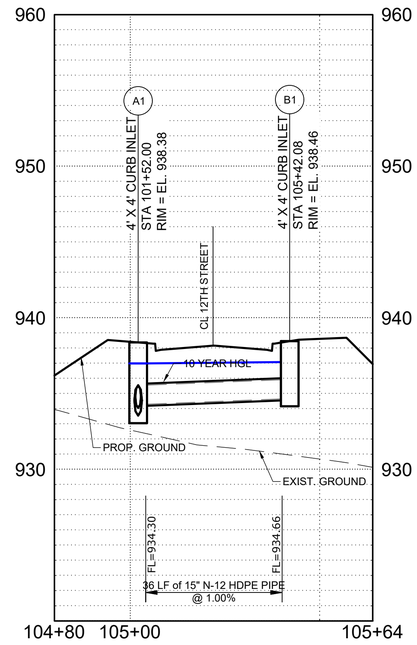
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SHEET NO: 37 of 126

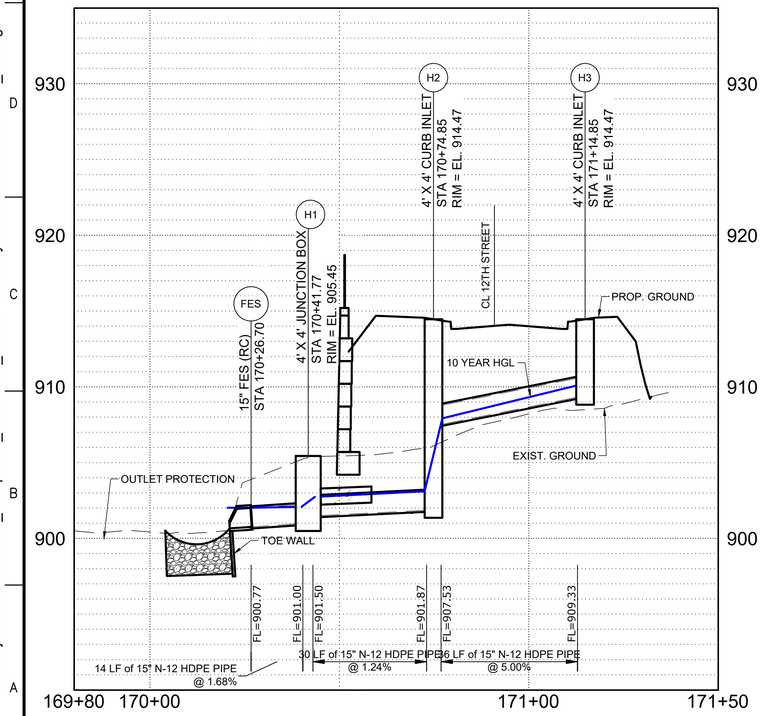
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1/20/2026



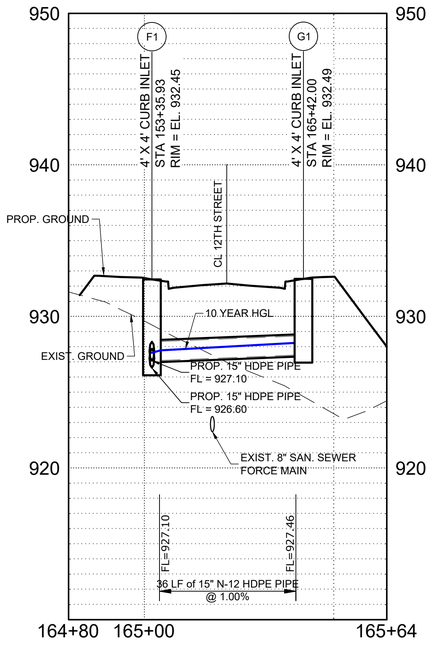
E1 STORM SEWER LINE H PLAN



E8 STORM SEWER LINE B PROFILE



A1 STORM SEWER LINE H PROFILE



A8 STORM SEWER LINE G PROFILE

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NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

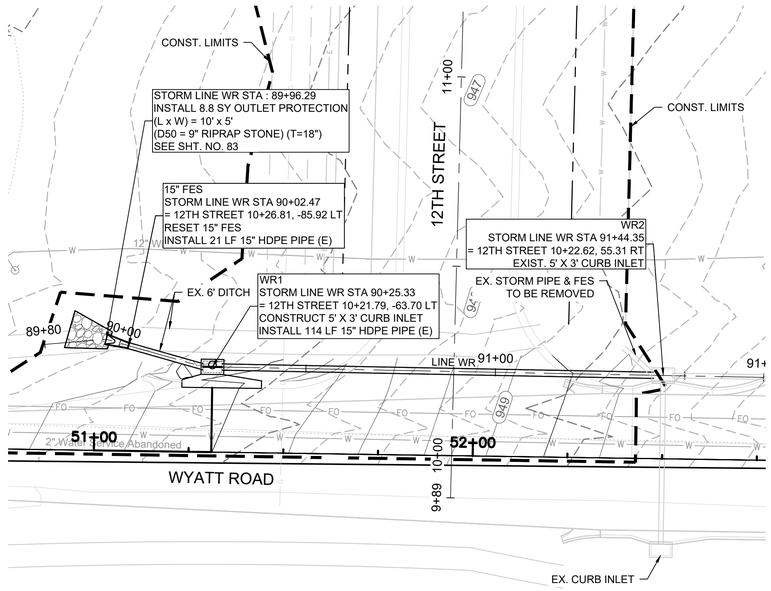
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
STORM SEWER LINE H PLAN AND PROFILE

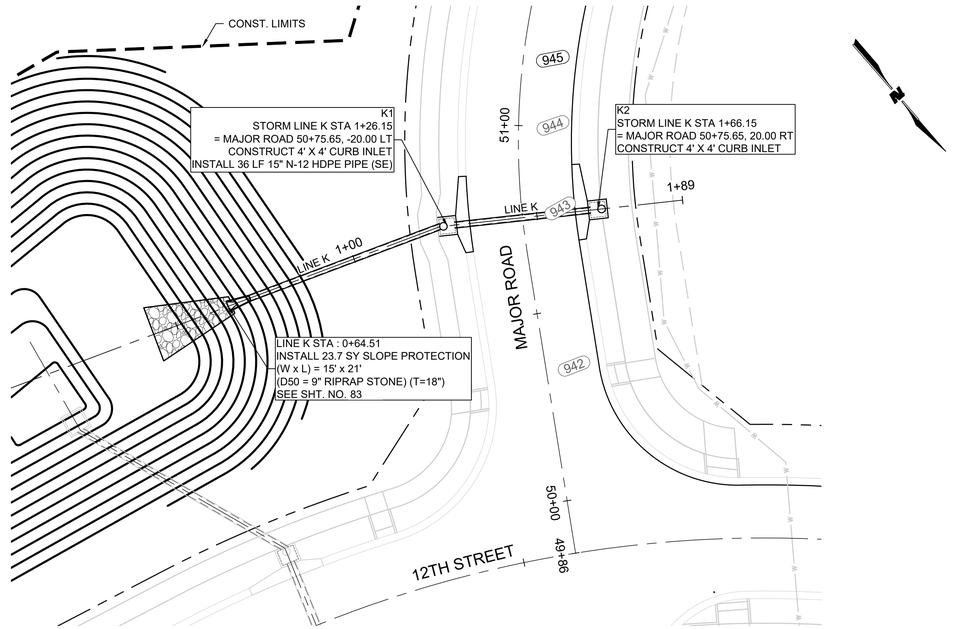
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1/20/2026



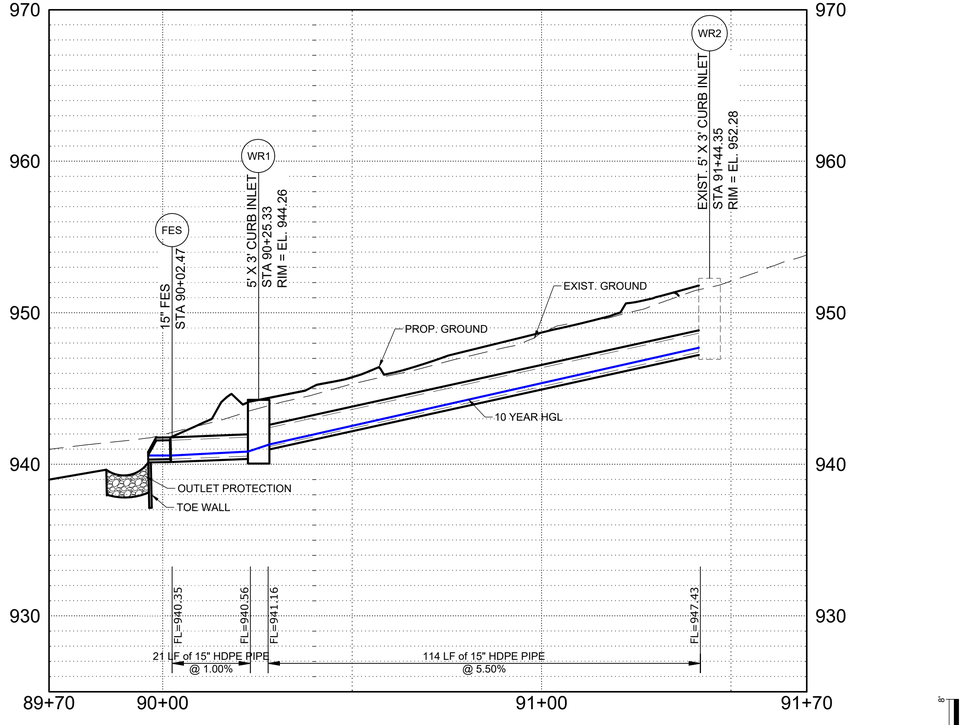
E1 STORM SEWER LINE WR PLAN

0 10' 20'



E6 STORM SEWER LINE K PLAN

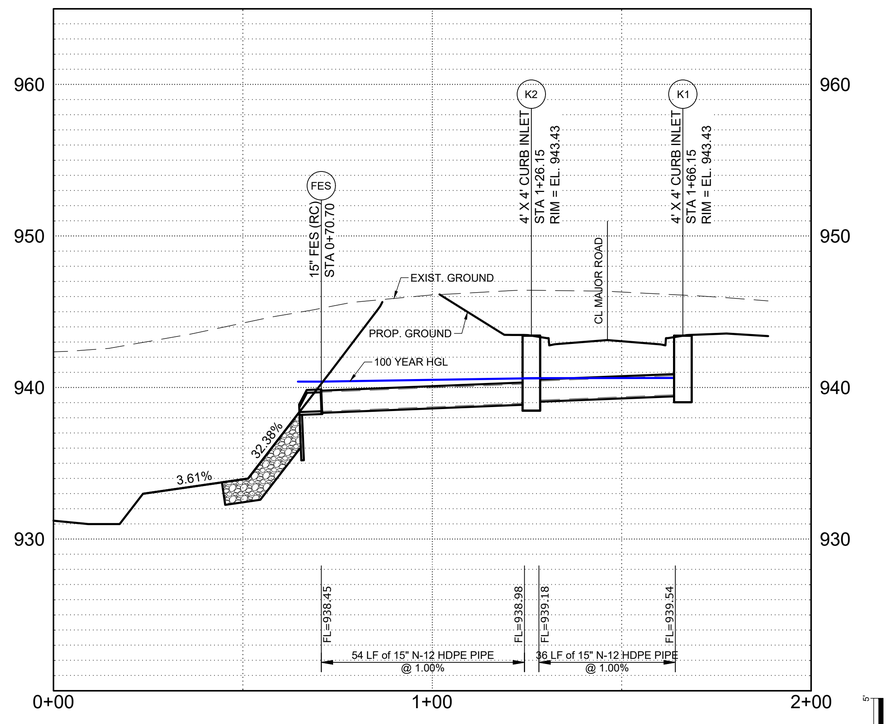
0 10' 20'



A1 STORM SEWER LINE WR PROFILE

0 10' 20'

0 2.5' 8'



A6 STORM SEWER LINE K PROFILE

0 10' 20'

0 2.5' 5'

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STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE

STORM SEWER LINE WR & K PLAN AND PROFILE

SHEET NO:

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1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-DRAN-P&P_01.dwg

PROPERTY LINE

WR1
0.03 AC
C = 0.70

WR2 (EXIST.)
0.08 AC
C = 0.84

A4
1.24 AC
C = 0.47

A3
1.17 AC
C = 0.35

A2
0.06 AC
C = 0.64

A1
0.31 AC
C = 0.65

B1
0.46 AC
C = 0.74

E2
0.25 AC
C = 0.70

EX. R/W

D3
0.25 AC
C = 0.76

C1
0.40 AC
C = 0.76

C2
0.43 AC
C = 0.64

E1
0.92 AC
C = 0.39

EX. R/W

D4
0.32 AC
C = 0.66

K1
0.76 AC
C = 0.38

X2
0.13 AC
C = 0.70

F4
0.42 AC
C = 0.72

F3
0.11 AC
C = 0.75

H2
1.00 AC
C = 0.58

H3
0.86 AC
C = 0.56

G1
1.20 AC
C = 0.46

12TH STREET

WYATT ROAD

MAJOR ROAD

PROPERTY LINE

FUTURE REDWOOD
DEVELOPMENT

0 50' 100'

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NUMBER PE-2024000077
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12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

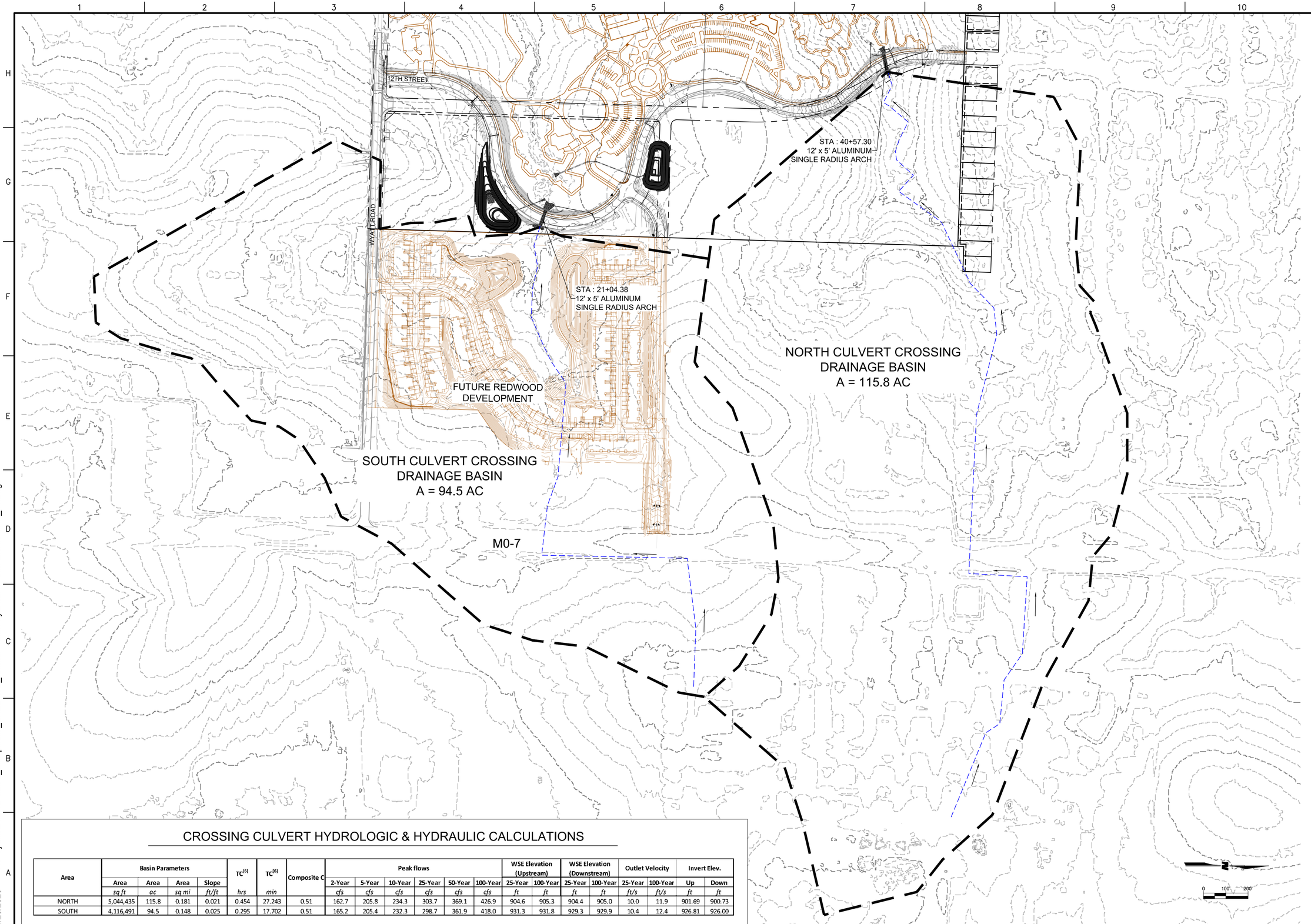
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
INLET DRAINAGE AREAS

SHEET NO:
40 of 126

1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-DRAN-MAP_01.dwg



CROSSING CULVERT HYDROLOGIC & HYDRAULIC CALCULATIONS

Area	Basin Parameters				TC[6]	TC[6]	Composite C	Peak flows						WSE Elevation (Upstream)		WSE Elevation (Downstream)		Outlet Velocity		Invert Elev.	
	Area	Area	Area	Slope				2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	25-Year	100-Year	25-Year	100-Year	25-Year	100-Year	Up	Down
	sq ft	*ac*	*sq mi*	*ft/ft*	*hrs*	*min*		*cfs*	*cfs*	*cfs*	*cfs*	*cfs*	*cfs*	*ft*	*ft*	*ft*	*ft*	*ft/s*	*ft/s*	*ft*	*ft*
NORTH	5,044,435	115.8	0.181	0.021	0.454	27.243	0.51	162.7	205.8	234.3	303.7	369.1	426.9	904.6	905.3	904.4	905.0	10.0	11.9	901.69	900.73
SOUTH	4,116,491	94.5	0.148	0.025	0.295	17.702	0.51	165.2	205.4	232.3	298.7	361.9	418.0	931.3	931.8	929.3	929.9	10.4	12.4	926.81	926.00

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SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
CULVERT CROSSING DRAINAGE AREAS

SHEET NO:
41 of 126

W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-DRAN-MAP_01.dwg
1/20/2026

10 Year - 12th Street Storm Sewer Summary Table

Structure										Hydrology							Pipes											
Structure No.	Station	Offset	Drains Into	Recieves Flow From	Inlet Elevation	Size (L x W)	Inlet Depth	Type	10-YR Gutter Spread	Drainage Area No.	Inc. A (Acres)	Accum. Area (Acres)	Comp. C	Tc (min)	100 Year		Pipe I.D	Length (ft)	Size (in)	Type	Pipe Invert Elev.		Slope (%)	Capacity (cfs)	Velocty (ft/s)	Actual Flow (cfs)	10-YR HGL Elevation	
															I (in/hr)	Q (cfs)					DS (ft)	US (ft)					DS (ft)	US (ft)
Line C																												
C1	23+40.49	20.00' LT	Stream		937.11	6 X 4	6.48	Curb Inlet	SUMP	C1	0.40	0.83	0.76	5	7.35	2.23	C1-STREAM	170.20	15	HDPE	926.32	932.79	3.80	13.64	7.32	4.19	926.80	933.62
C2	23+40.42	20.00' RT	Stream	K2	937.03	4 X 4	4.86	Curb Inlet	SUMP	C2	0.43	0.43	0.64	5	7.50	2.02	C2-C1	36.00	15	HDPE	932.99	934.34	3.75	13.55	3.51	2.02	933.62	934.91
Line F																												
F1	39+94.64	20.00' LT	Stream	F2	915.32	5.5 X 4	8.76	Junc. Box									F1-STREAM	90.09	15	HDPE	900.45	908.72	9.18	21.20	10.23	5.87	900.90	909.70
F2	37+88.62	20.00' LT	F1	F3, G1	930.78	4 X 4	6.33	Curb Inlet	4.36	F2	0.11	1.63	0.75	5	7.35	0.61	F2-F1	200.23	15	HDPE	910.75	926.62	7.93	19.69	9.93	6.03	911.22	927.61
F3	36+40.49	20.00' LT	F2		942.18	4 X 4	5.91	Curb Inlet	7.01	F3	0.42	0.42	0.72	5	7.35	2.22	F3-F2	133.56	15	HDPE	927.09	938.45	8.51	20.40	4.22	2.22	927.61	939.05
G1	37+88.62	20.00' RT	F2		930.82	4 X 4	5.33	Curb Inlet	8.23	G1	1.20	1.20	0.46	6	7.06	3.90	G1-F2	36.00	15	HDPE	927.10	927.46	1.00	7.00	5.28	3.90	927.77	928.26
Line H																												
H1	40+91.88	53.22' LT	Stream	H2	903.78	4 X 4	4.95	Junc. Box									H1-STREAM	14.01	15	HDPE	900.77	901.00	1.64	9.08	6.29	7.71	902.03	902.10
H2	40+96.31	20.00' LT	H1	H3	912.80	4 X 4	13.17	Curb Inlet	SUMP	H2	1.00	1.86	0.58	5	7.35	4.26	H2-H1	30.04	15	HDPE	901.50	901.80	1.00	7.76	6.31	7.74	902.75	903.12
H3	40+96.31	20.00' RT			912.80	4 X 4	5.64	Curb Inlet	SUMP	H3	0.86	0.86	0.56	5	7.35	3.54	H3-H2	36.00	15	HDPE	907.53	909.33	5.00	15.64	7.42	3.54	907.93	910.09
Wyatt Rd																												
WR1	50+30.98	22.50' LT	Ditch	WR2	944.18	5 x 3	5.79	Curb Inlet	2.90	WR1	0.03	0.11	0.70	5	7.35	0.15	WR1-DITCH	20.69	15	HDPE	940.35	940.56	1.02	6.51	2.88	0.54	940.59	940.85
WR2 (EX)	52+50.00	20.50' LT	WR1	EX. STORM SEWER	952.28	5 x 3	5.53	Curb Inlet	3.43		0.08	0.08	0.84	5	7.35	0.51	WR1-WR2	114.00	15	HDPE	941.16	947.43	5.50	15.14	4.07	0.49	941.32	947.7

100 Year - 12th Street Storm Sewer Summary Table

Structure										Hydrology							Pipes											
Structure No.	Station	Offset	Drains Into	Recieves Flow From	Inlet Elevation	Size (L x W)	Inlet Depth	Type	100-YR Gutter Spread	Drainage Area No.	Inc. A (Acres)	Accum. Area (Acres)	Comp. C	Tc (min)	100 Year		Pipe I.D	Length (ft)	Size (in)	Type	Pipe Invert Elev.		Slope (%)	Capacity (cfs)	Velocty (ft/s)	Actual Flow (cfs)	100-YR HGL Elevation	
															I (in/hr)	Q (cfs)					DS (ft)	US (ft)					DS (ft)	US (ft)
Line A																												
A1	16+40.70	20.00' RT	SOUTH POND	A2, B1	936.71	4 X 4	5.33	Curb Inlet	SUMP	A1	0.31	3.24	0.65	5	10.32	2.08	A1-POND02	234.68	24	HDPE	932.38	933.55	0.50	17.30	4.67	14.67	936.10	936.94
A2	15+47.45	20.00' RT	A1	A3	937.22	4 X 4	4.76	Curb Inlet	5.28	A2	0.06	2.47	0.64	5	10.32	0.40	A2-A1	82.87	18	HDPE	934.05	934.88	1.00	11.39	5.49	9.70	936.99	937.60
A3	14+54.20	20.00' RT	A2	A4	938.74	4 X 4	5.26	Curb Inlet	10.38	A3	1.17	2.41	0.35	7	9.55	3.91	A3-A2	82.88	18	HDPE	935.08	935.91	1.00	11.38	5.34	9.43	937.74	938.31
A4	14+54.20	20.00' LT	A3		938.83	4 X 4	4.48	Curb Inlet	11.78	A4	1.24	1.24	0.47	7	9.55	5.57	A4-A3	36.00	15	HDPE	936.16	936.52	1.00	7.00	4.54	5.57	938.44	938.67
B1	16+40.70	20.00' LT	A1		936.86	4 X 4	4.89	Curb Inlet	SUMP	B1	0.46	0.46	0.74	5	10.32	3.51	B1-A1	36.00	15	HDPE	934.00	934.16	1.00	4.67	2.86	3.51	936.99	937.08
																	Pond 1 Outlet Pipe	168.95	24	HDPE	926.11	927.80	1.00	24.51	5.10	13.80	928.80	929.22
Line D																												
D1	25+88.09	212.33' LT	Stream	D1		5.5 X 4	11.02	Junc. Box									D1-STREAM	133.36	36	HDPE	926.03	924.70	1.00	72.16	1.59	11.07	928.80	928.83
D2	26+19.48	178.34' LT	D1	D2		4.5 X 4	10.50	Junc. Box									D2-D1	36.00	36	HDPE	926.23	926.55	1.00	72.25	3.35	11.12	928.84	927.61
D3	26+07.36	20.00' LT	D2	D3	939.90	4.0 X 4	12.97	Curb Inlet	SUMP	D3	0.25	0.57	0.76	5	10.32	1.96	D3-D2	155.20	24	HDPE	927.55	929.10	1.00	24.49	6.66	11.22	928.50	930.30
D4	26+07.37	20.00' RT	D3		939.90	4.5 X 4	12.41	Curb Inlet	SUMP	D4	0.32	0.32	0.66	5	10.32	2.18	D4-D3	36.00	18	HDPE	929.30	929.66	1.00	24.50	5.65	9.38	930.30	930.75
																	Pond 2 Outlet Pipe	63.56	18	HDPE	930.16	930.80	1.00	11.42	6.20	7.30	931.03	931.85
Line E																												
E1	28+45.60	20.00' RT	NORTH POND	E2	945.44	7 X 4	7.76	Curb Inlet	9.12	E1	0.92	1.89	0.39	9	8.89	3.19	E1-POND01	78.74	24	HDPE	939.05	939.83	1.00	22.51	5.25	10.95	940.40	941.02
E2	28+45.61	20.00' LT	E1		945.44	4 X 4	6.92	Curb Inlet	7.47	E2	0.97	0.97	0.90	5	10.32	1.81	E2-E1	36.00	24	HDPE	940.33	940.69	1.00	22.62	6.03	9.01	941.21	941.76
Line K																												
K1	50+75.65	20.00' LT	NORTH POND	K2	941.76	4 X 4	4.96	Curb Inlet	8.27	K1	0.76	0.89	0.38	8	6.53	2.26	K1-POND1	53.69	15	HDPE	938.18	938.98	1.00	6.98	2.91	3.57	940.40	940.61
K2	50+75.65	20.00' RT	K1		941.76	4 X 4	4.39	Curb Inlet	5.93	K2	0.13	0.13	0.76	5	7.35	1.02	K1-K2	36.00	15	HDPE	939.18	939.54	1.00	7.00	0.86	1.02	940.63	940.64

10 Year Sump Inlet Capacity

Structure No.	L (ft)	Actual Q (cfs)	Capacity (cfs)
C1	6	2.23	18.72
C2	4	2.02	12.48
H2	4	4.26	12.48
H3	4	3.54	12.48

100 Year Sump Inlet Capacity

Structure No.	L (ft)	Q (cfs)	Capacity (cfs)
A1	4	2.08	12.48
B1	4	3.51	12.48
D3	4	1.96	12.48
D4	4.5	2.18	14.04

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STATE OF MISSOURI
DARREN JOHN MEYER
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1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

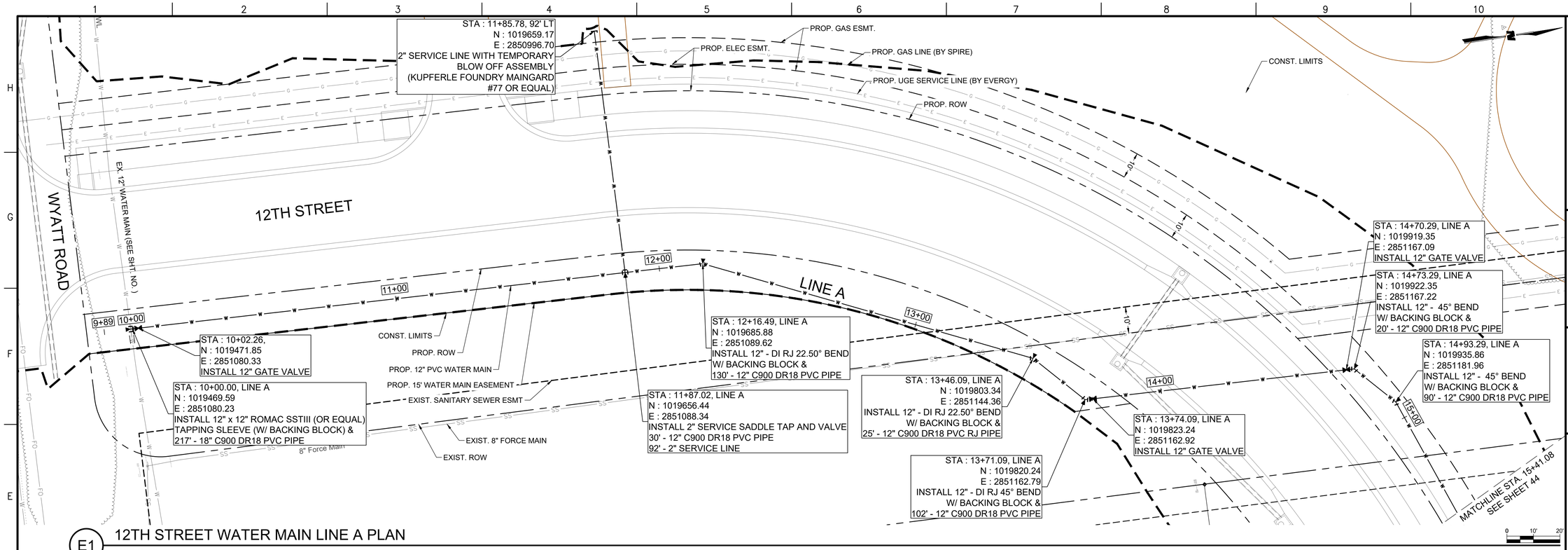
BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
DRAINAGE CALCULATIONS

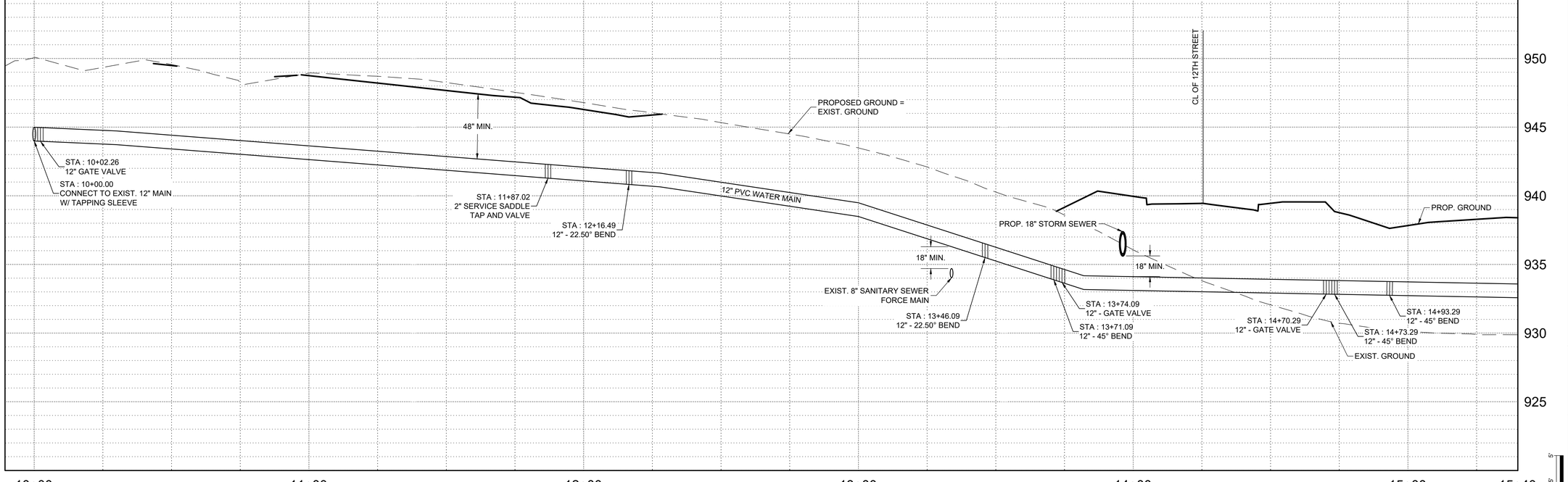
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1/20/2026



E1 12TH STREET WATER MAIN LINE A PLAN

SCALE: 1" = 20'



A1 12TH STREET WATER MAIN LINE A PROFILE

SCALE: 1" = 20'

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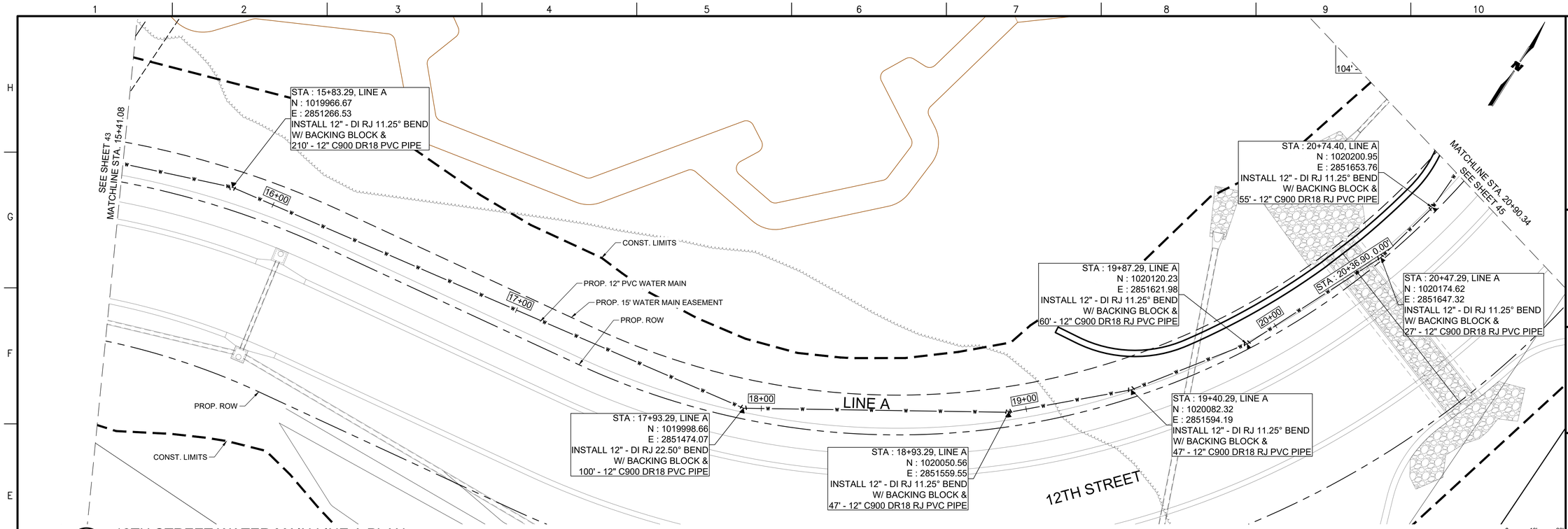
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PROJECT NO:	2400101800
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SHEET TITLE
WATER MAIN PLAN AND PROFILE

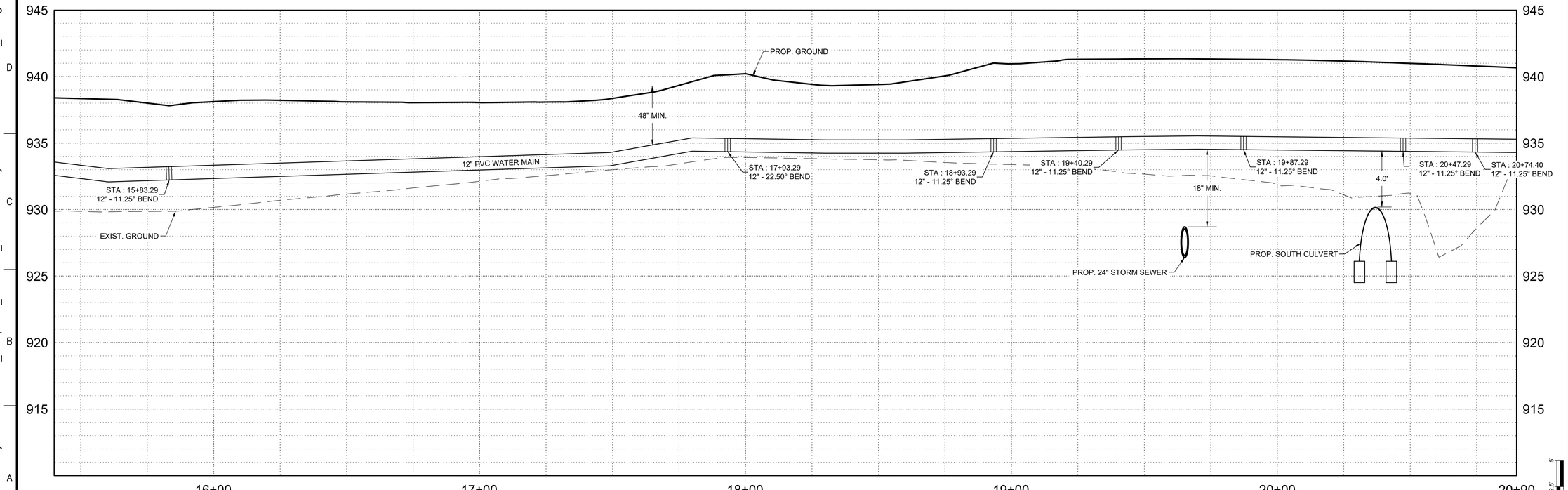
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E1 12TH STREET WATER MAIN LINE A PLAN

SCALE: 1" = 20'



A1 12TH STREET WATER MAIN LINE A PROFILE

SCALE: 1" = 20'

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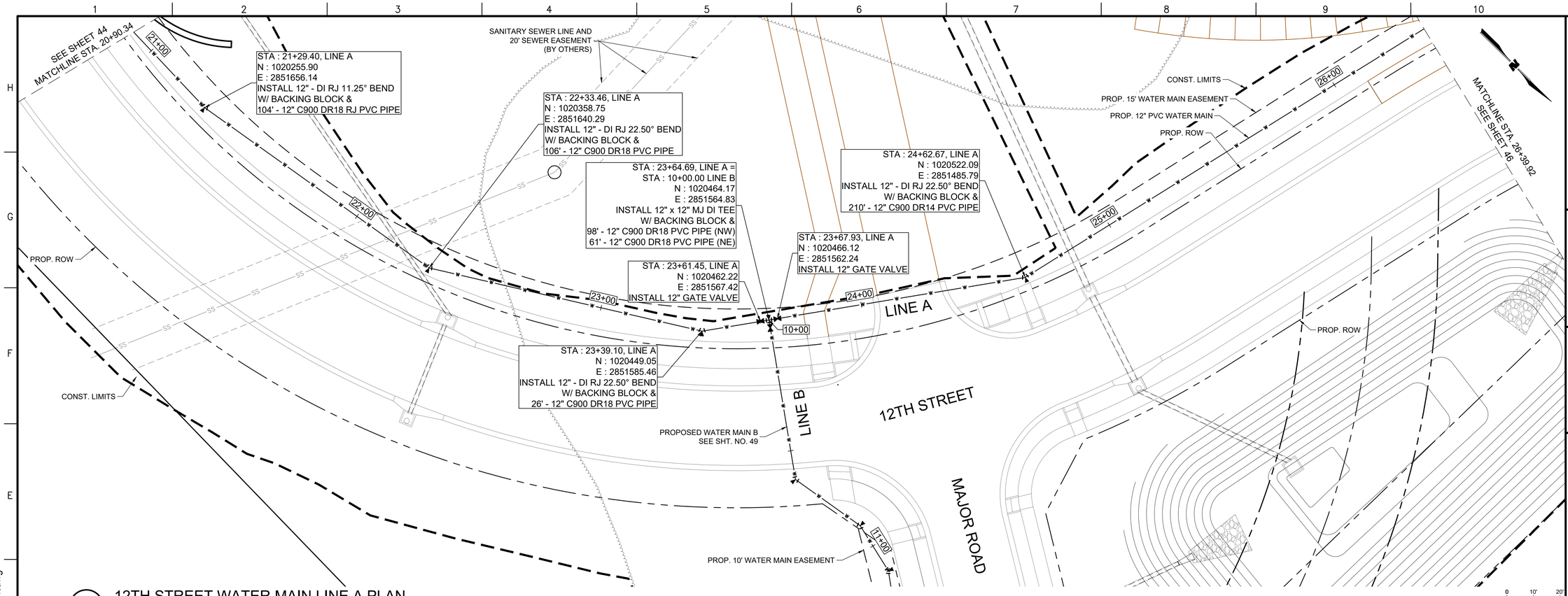
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SHEET TITLE

WATER MAIN PLAN AND PROFILE

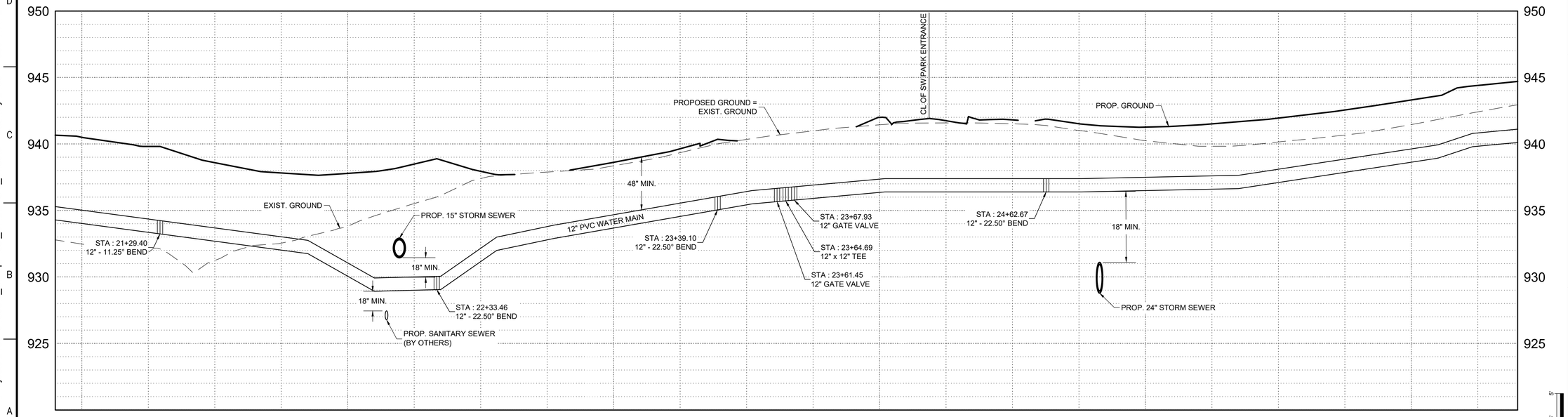
SHEET NO:

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E1 12TH STREET WATER MAIN LINE A PLAN

SCALE: 1" = 20'



A1 12TH STREET WATER MAIN LINE A PROFILE

SCALE: 1" = 20'

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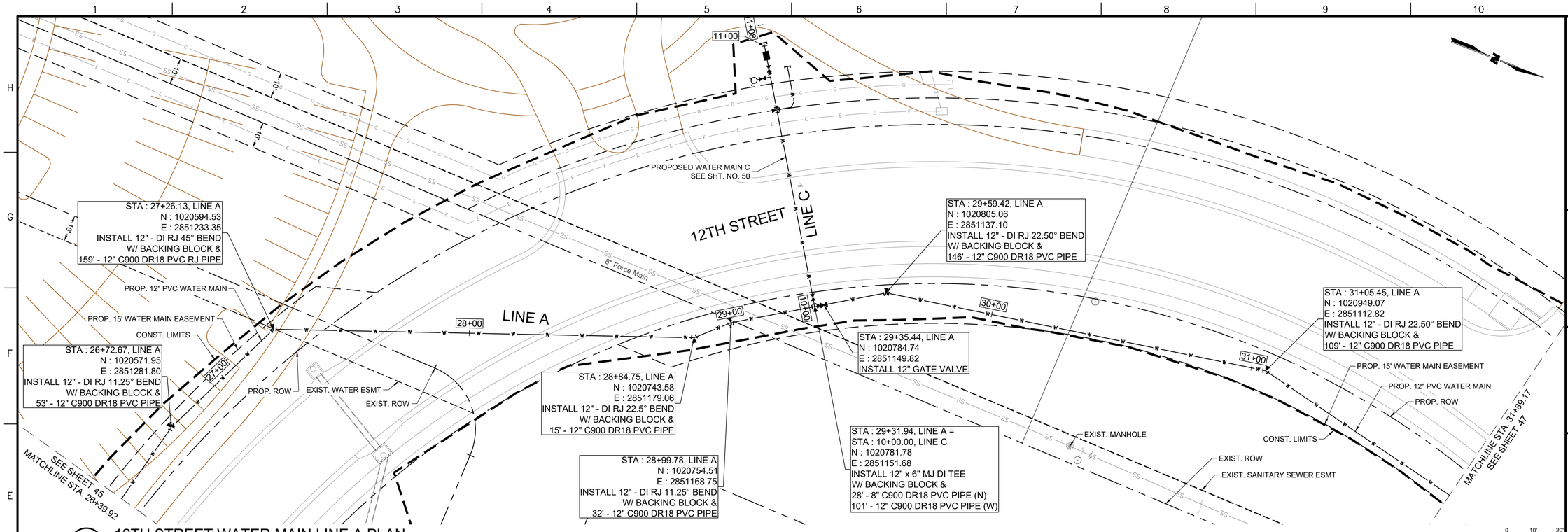
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SHEET TITLE

WATER MAIN PLAN AND PROFILE

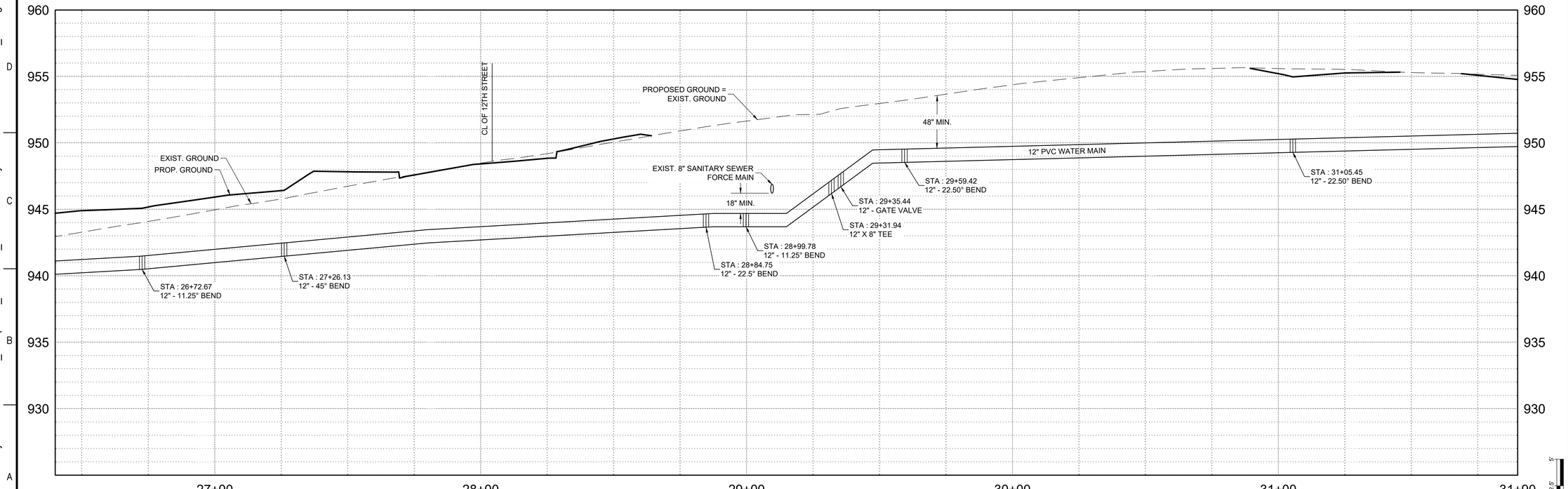
SHEET NO:

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E1 12TH STREET WATER MAIN LINE A PLAN

SCALE: 1" = 20'



A1 12TH STREET WATER MAIN LINE A PROFILE

SCALE: 1" = 20'

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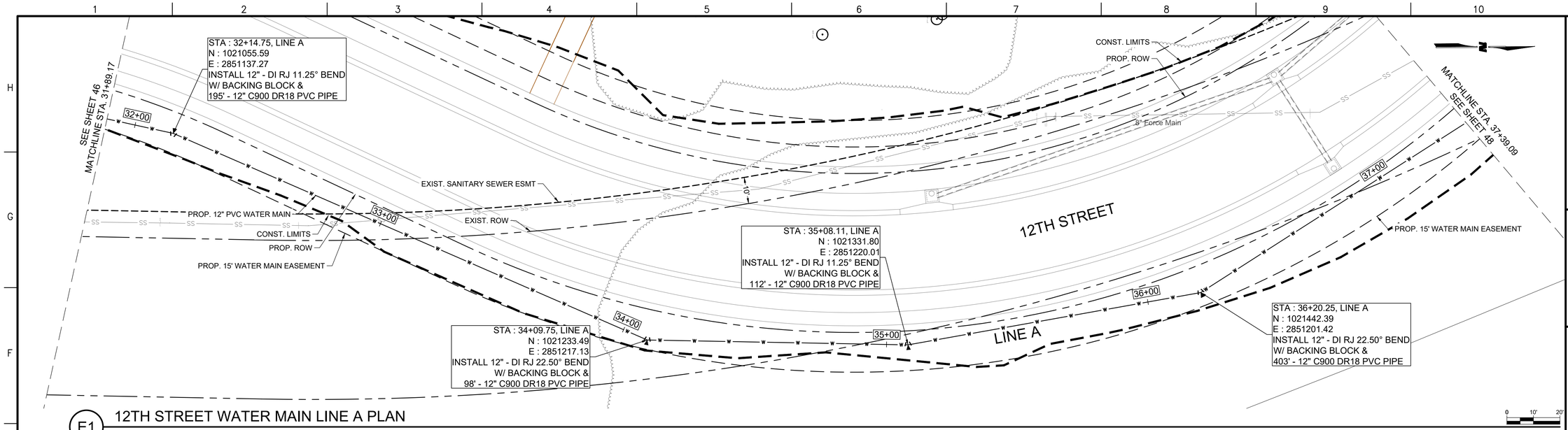
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WATER MAIN PLAN AND PROFILE

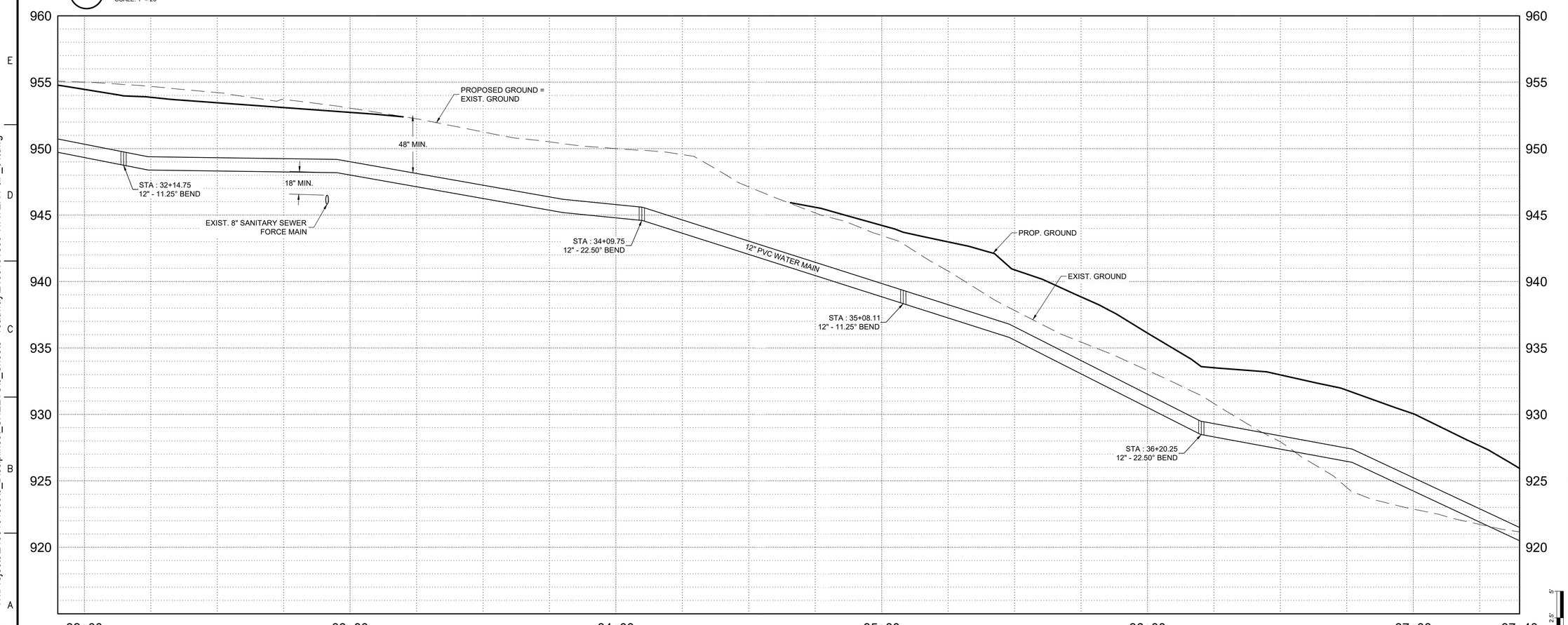
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E1 12TH STREET WATER MAIN LINE A PLAN

SCALE: 1" = 20'



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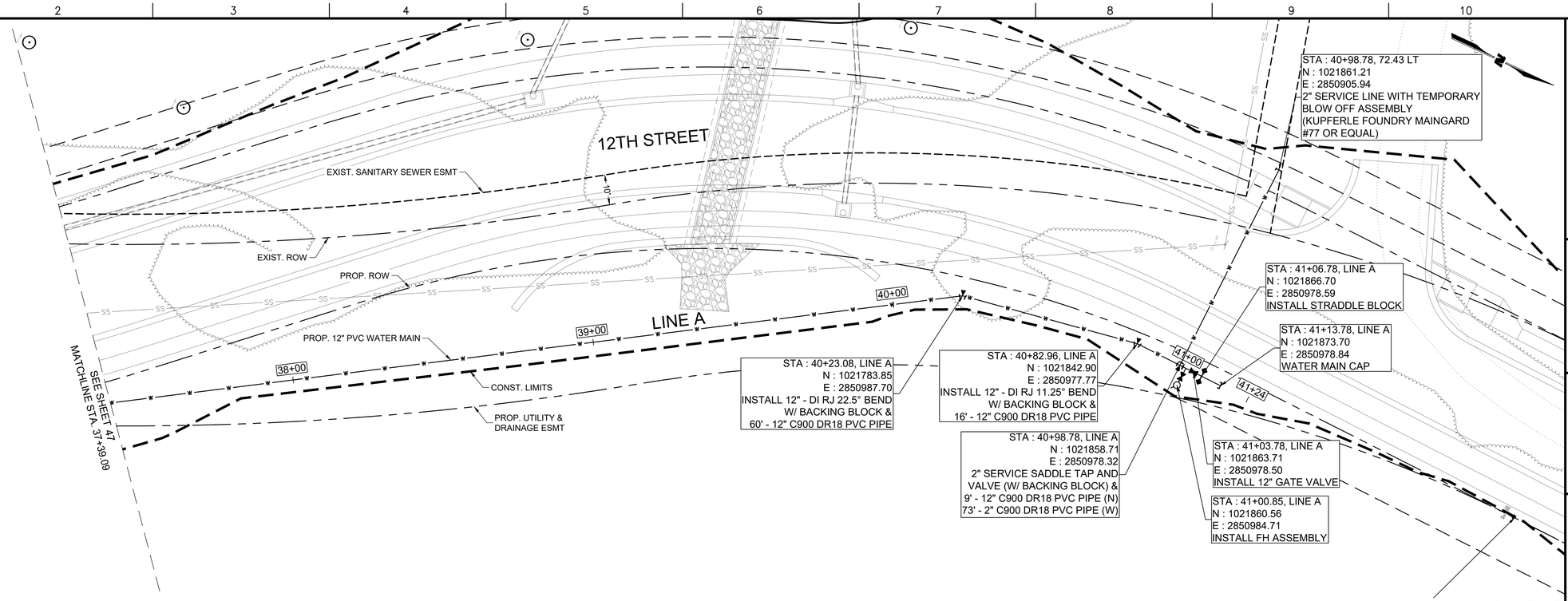
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WATER MAIN PLAN AND PROFILE

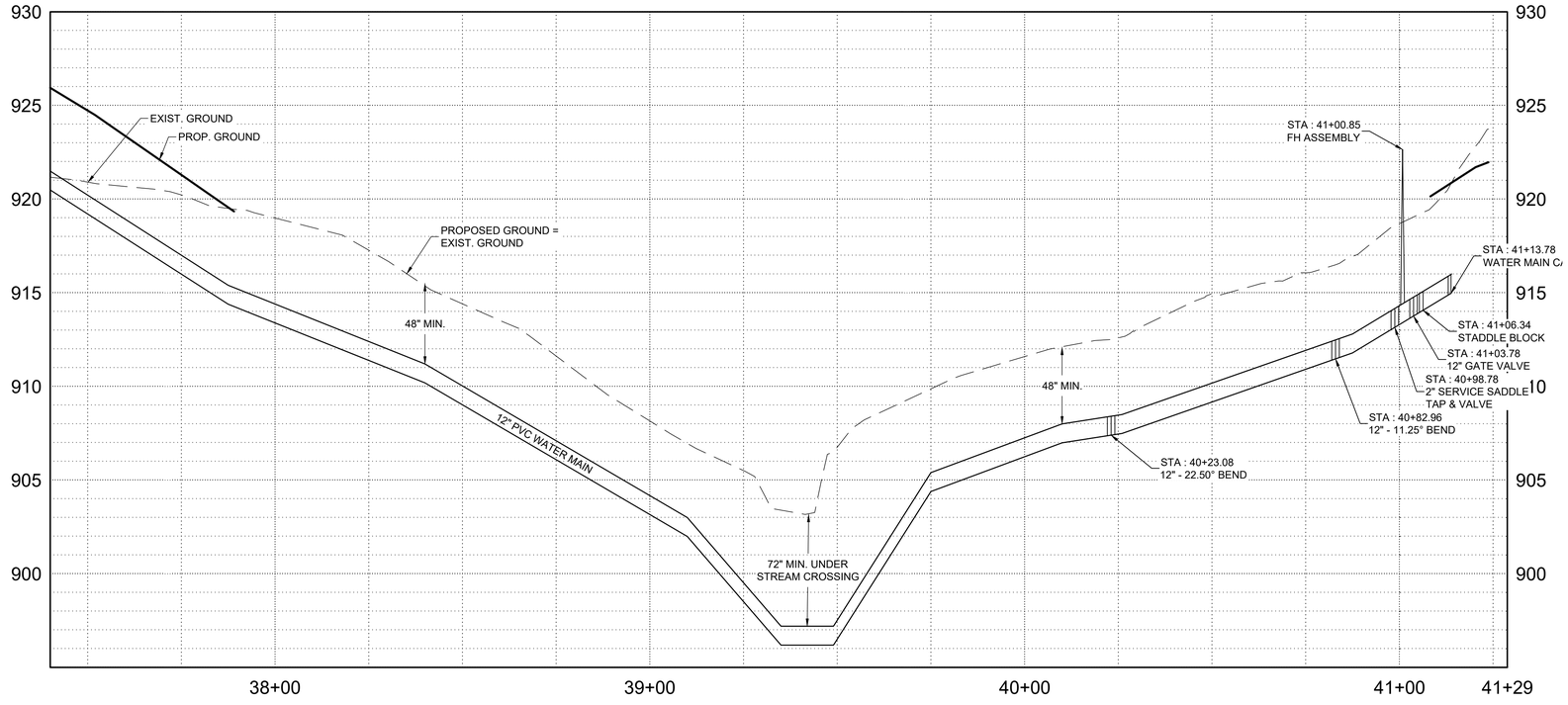
SHEET NO:

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E1 12TH STREET WATER MAIN LINE A PLAN

SCALE: 1" = 20'



A1 12TH STREET WATER MAIN LINE A PROFILE

SCALE: 1" = 20'

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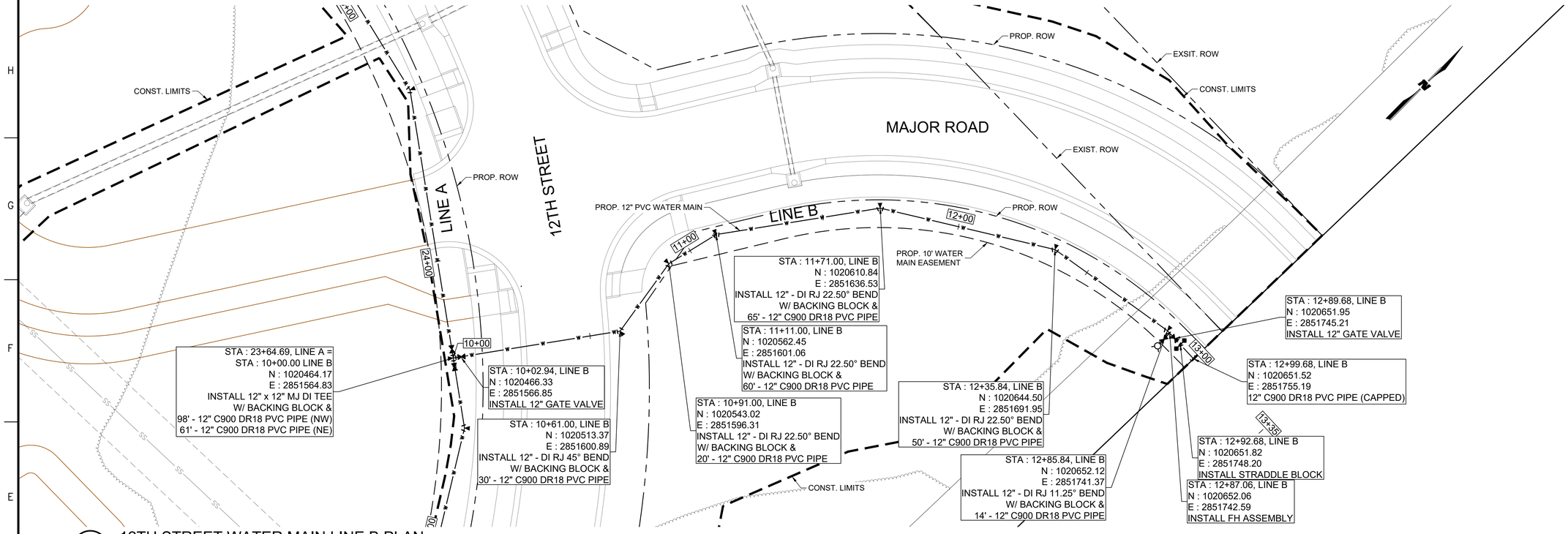
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SHEET TITLE
WATER MAIN PLAN AND PROFILE

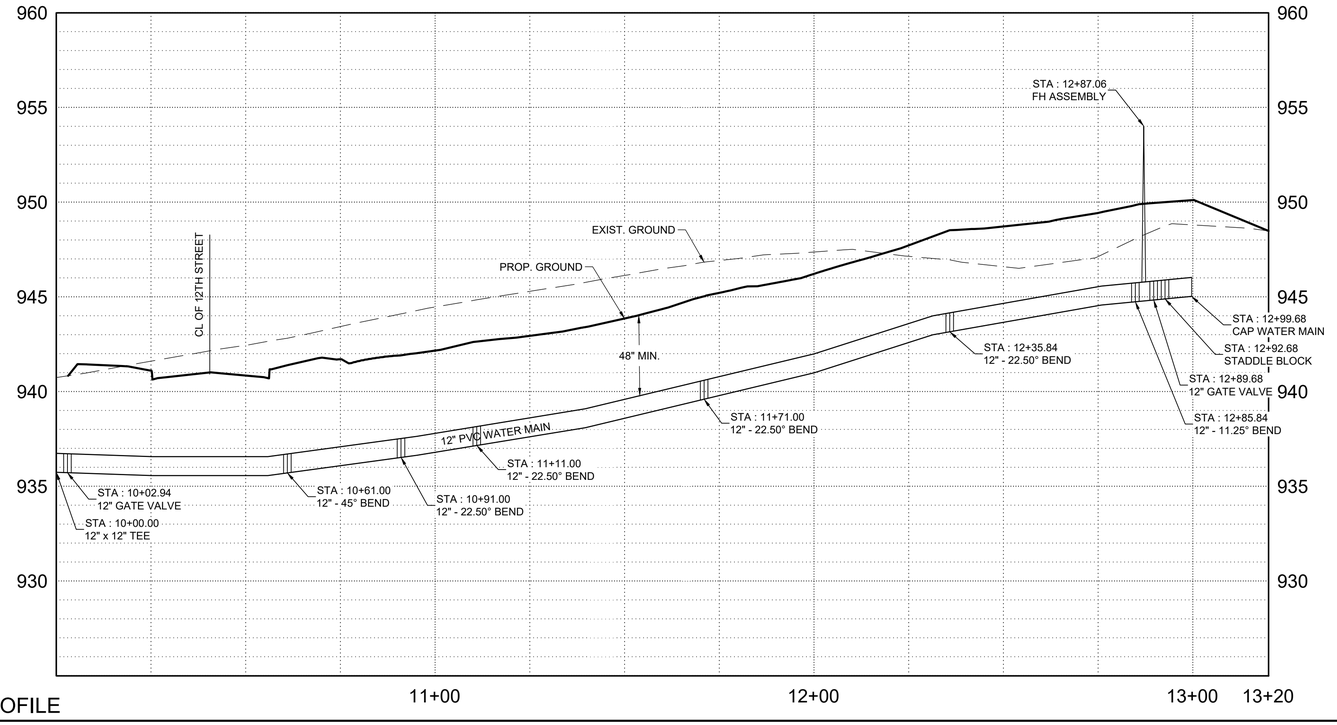
SHEET NO:
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E1 12TH STREET WATER MAIN LINE B PLAN

SCALE: 1" = 20'



A1 12TH STREET WATER MAIN LINE B PROFILE

SCALE: 1" = 20'

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DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

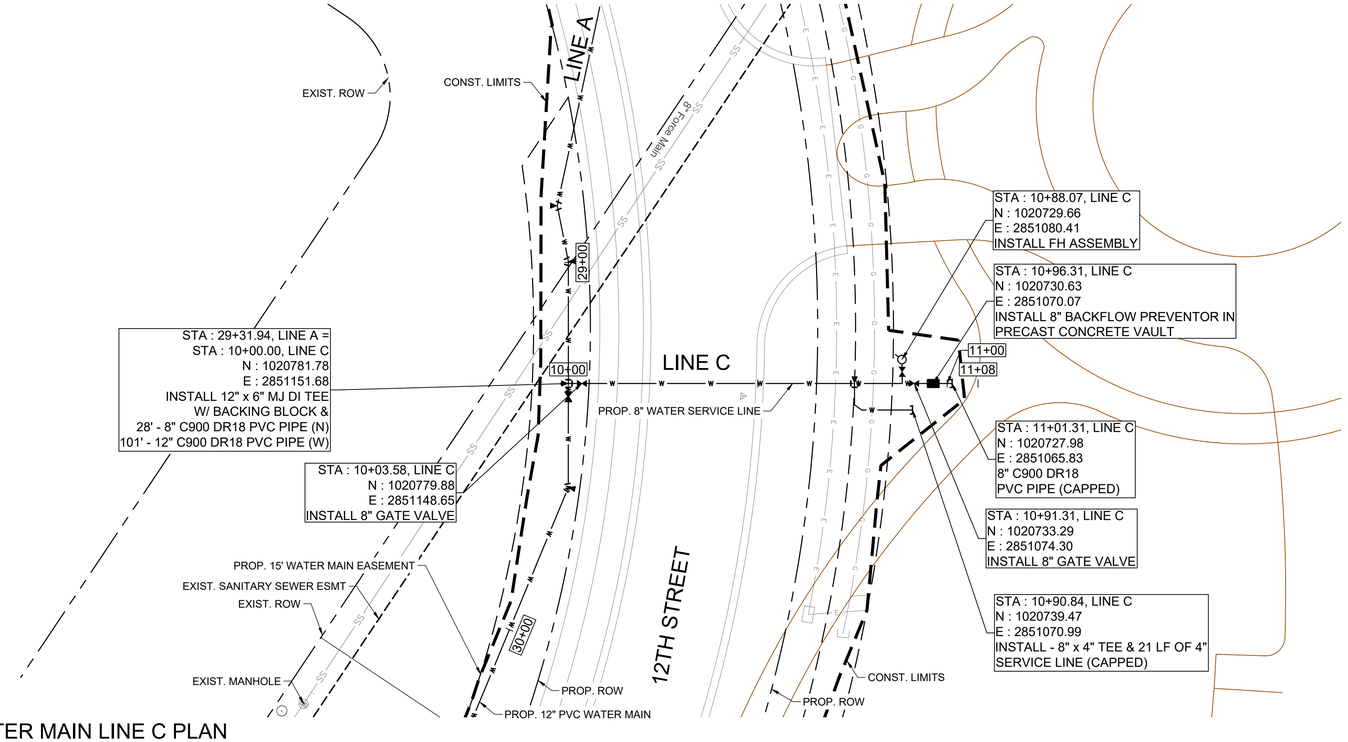
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
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DATE:	1/20/2026

SHEET TITLE
WATER MAIN PLAN AND PROFILE

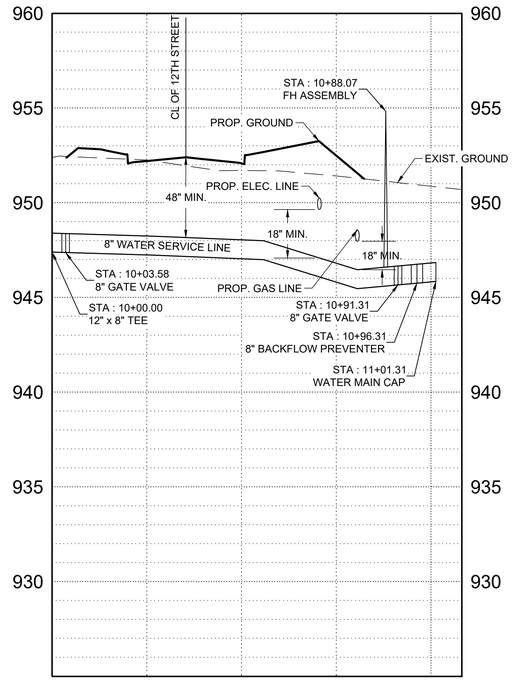
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1/20/2026



E1 12TH STREET WATER MAIN LINE C PLAN

SCALE: 1" = 20'



A1 12TH STREET WATER MAIN LINE C PROFILE

SCALE: 1" = 20'

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WATER MAIN PLAN AND PROFILE

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WATER MAIN NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS TO THE PUBLIC WATER DISTRICT NO. 13, MISSOURI, AND ALL THE REQUIREMENTS OF THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AND MISSOURI CLEAN WATER COMMISSION.

2. WATER MAIN SHALL BE PVC C900, DR 18.

3. ALL FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT FITTINGS WITH MEGALUGS.

4. FIRE HYDRANTS SHALL BE WATEROUS PACER, MEULLER CENTURION, OR KENNEDY GUARDIAN WITH NON-RISING STEM OR APPROVED EQUAL BY THE DISTRICT. HYDRANTS SHALL HAVE 5-1/4" VALVE WITH 4-1/2" PUMPER NOZZLE AND (2) 2-1/2" HOZE NOZZLES (LEFT HAND OPENING). ALL FIRE HYDRANTS SHALL BE RED.

5. VALVES 12 INCH AND SMALLER SHALL BE RESILIENT WEDGE GATE VALVES AND SHALL COMPLY WITH AWWA C515, WITH NON-RISING STEM, FULLY ENCAPSULATED EPDM RUBBER WEDGE, EPDM RUBBER SEAL O-RINGS AND BE MANUFACTURED BY MUELLER, CLOW, AMERICAN FLOW CONTROL, OR M & H. VALVES 12 INCH AND LARGER SHALL BE RESILIENT SEAT BUTTERFLY VALVES AND SHALL COMPLY WITH AWWA C504, WITH NON-RISING STEM, EPDM RUBBER SEAT IN BODY DESIGN, EPDM RUBBER SEALS, AND MANUFACTURED BY MUELLER, PRATT, OR DEZURIK.

6. VALVE BOXES SHALL BE CLAY AND BAILEY # P-108 OR APPROVED EQUAL. ALL BOXES TO BE INSTALLED OUT OF PAVEMENT AREAS.

7. WATER LINES ARE TO BE CONSTRUCTED TO A DEPTH OF 4 FEET BELOW FINAL GRADE. INITIAL GRADING WORK TO ESTABLISH FINAL GRADE IS TO BE COMPLETE PRIOR TO WATER LINE PLACEMENT.

8. EASEMENTS FOR WATER LINES WITHIN A PLATTED AREA SHALL BE SHOWN ON THE PLAT. EASEMENTS FOR WATER LINES LOCATED OUTSIDE THE PLATTED AREA SHALL BE PROVIDED FOR BY SEPARATE DOCUMENTS AFTER THE FINAL PLAT IS RECORDED.

9. ALL TEES, BENDS, PLUGS, VALVES, AND HYDRANTS SHALL BE PROVIDED WITH THRUST BLOCKS. PRE-CAST BLOCKS SHALL NOT BE USED.

10. AFTER WATER MAINS HAVE BEEN LAID BACKFILLED, THEY SHALL BE SUBJECT TO A HYDROSTATIC PRESSURE TEST OF NOT LESS THAN 150 PSI IN ACCORDANCE WITH AWWA C605. THE LINE SHALL BE PRESSURIZED TO TEST PRESSURE FOR TWO HOURS. AT THE END OF THE TWO-HOUR PERIOD, THE LINE SHALL BE REPRESSURIZED AND THE VOLUME OF WATER REQUIRED TO RESTORE PRESSURE SHALL BE MEASURED. THE MAXIMUM AMOUNT OF WATER TO RESTORE PRESSURE SHALL BE LESS THAN 0.5 GALLONS PER 1000 FEET OF TESTED MAIN. TESTING SHALL BE DONE BY CONTRACTOR IN PRESENCE OF DISTRICT.

11. THE NEW MAIN SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651. DISINFECTION TESING AND FLUSHING SHALL BE DONE BY CONTRACTOR IN PRESENCE OF DISTRICT.

12. AFTER FINAL FLUSHING AND BEFORE THE PIPELINE IS PLACED IN SERVICE, TWO SAMPLES SHALL BE COLLECTED AND SHALL BE TESTED FOR BACTERIOLOGICAL QUALITY IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES. SATISFACTORY RESULTS FOR BOTH SAMPLES IS REQUIRED FOR SUCCESSFUL COMPLETION OF BACTERIOLOGICAL TESTING. CONTACT THE DISTRICT TO COORDINATE SAMPLE COLLECTION AND TESTING.

13. SAMPLE TAPS MUST BE INCLUDED IN THE NEW LINE, NO LESS THAN TWO (2) FEET AND NO MORE THAN TEN (10) FEET FROM WHERE THE NEW WATER LINE CONNECTS TO THE EXISTING LINES AND/OR AT THE END OF THE LINE. COORDINATE SAMPLE TAP LOCATION WITH DISTRICT.

14. A REPRESENTATIVE OF THE DISTRICT MUST BE PRESENT FOR:
    I. DISINFECTING
    II. PRESSURE TESTING
    III. BACTERIOLOGICALTESTING.

15. ALL WATER MAINS SHALL HAVE LOCATE WIRE TAPED TO TOP OF PIPE AND CAUTION WATER MAIN BELOW ALUMINUM TAPE 12" ABOVE THE TOP OF WATER MAIN. LOCATE WIRE SHALL MEET DISTRICT REQUIREMENTS FOR LOCATING EQUIPMENT OPERATION.

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CITY OF BLUE SPRINGS, MO.

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WATER LINE DETAILS

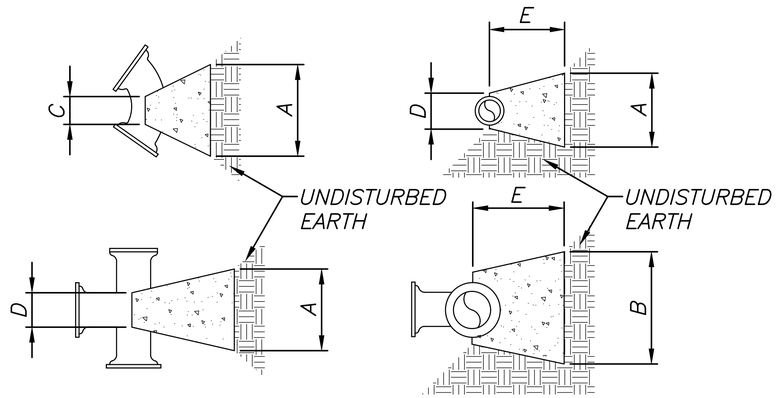
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PIPE SIZE	FITTING	DISTANCE IN INCHES				
		A	B	C	D	E
4" AND SMALLER	11.25 & 22.5°	9	9	8	8	6
	45°	18	9	8	8	12
	90°	21	12	8	8	12
	TEE/PLUG	15	12	8	8	12
6"	11.25 & 22.5°	12	12	8	10	12
	45°	27	12	8	10	12
	90°	33	18	8	10	12
	TEE/PLUG	24	18	8	10	12
8"	11.25 & 22.5°	18	15	8	10	12
	45°	33	15	8	10	18
	90°	42	24	8	10	18
	TEE/PLUG	30	24	8	10	18
10" & 12"	11.25 & 22.5°	27	24	12	12	18
	45°	51	24	12	12	24
	90°	63	36	12	12	30
	TEE/PLUG	45	36	12	12	24
14" & 16"	11.25 & 22.5°	33	33	12	16	18
	45°	69	33	12	16	30
	90°	84	48	12	16	36
	TEE/PLUG	60	48	12	16	30

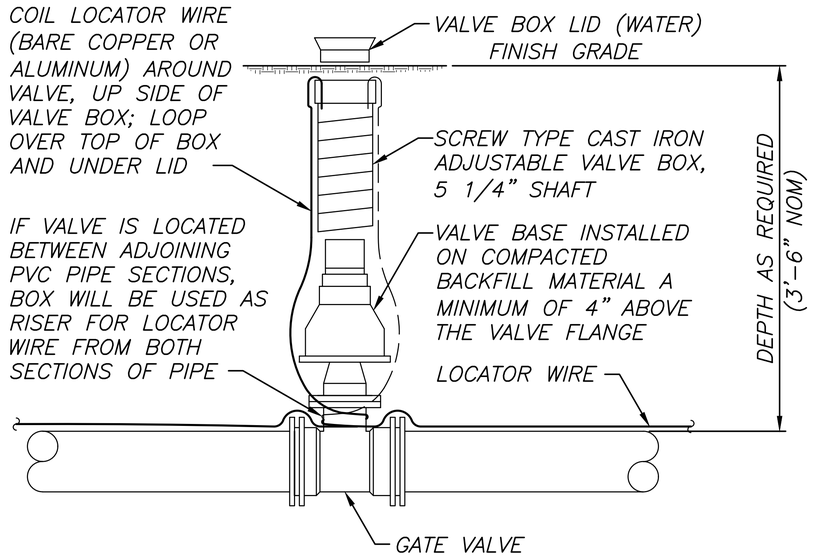
NOTES:

1. THRUST BLOCKS ARE BASED ON A WORKING PRESSURE OF 100 PSI, PLUS 100% SURGE, AND 2000 PSF ALLOWABLE SOIL BEARING PRESSURE.
2. FOR PIPE SIZES NOT SHOWN USE DIMENSIONS FOR NEXT LARGER SIZE.
3. USE 3/8" PLYWOOD SEPARATOR BETWEEN BLOCKS AND PLUGS TO PROVIDE FOR FUTURE REMOVAL.



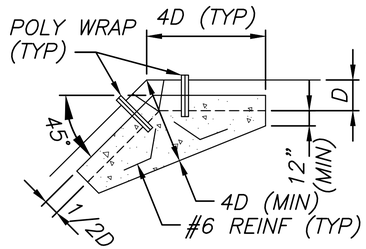
CONCRETE THRUST BLOCK DETAIL

NOT TO SCALE

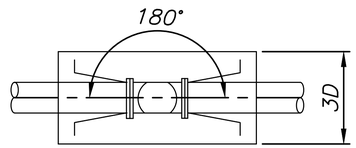


TYPICAL GATE VALVE INSTALLATION

NOT TO SCALE



MJ FITTING WITH RETAINER GLANDS REQUIRED FOR ALL VERTICAL BENDS



VERTICAL BEND THRUST BLOCK DETAIL

NOT TO SCALE

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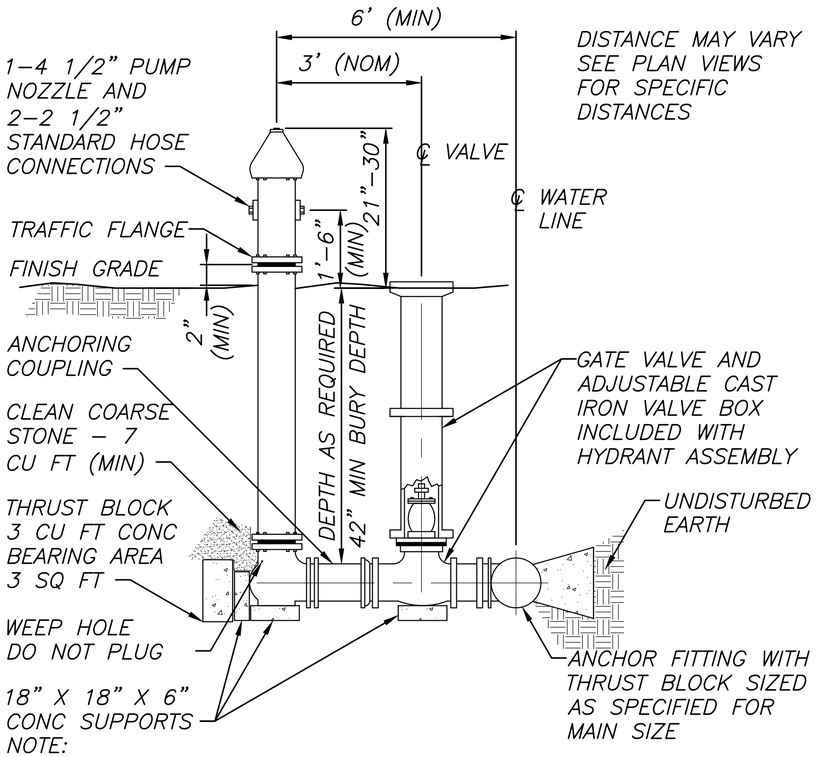
BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
WATER LINE DETAILS

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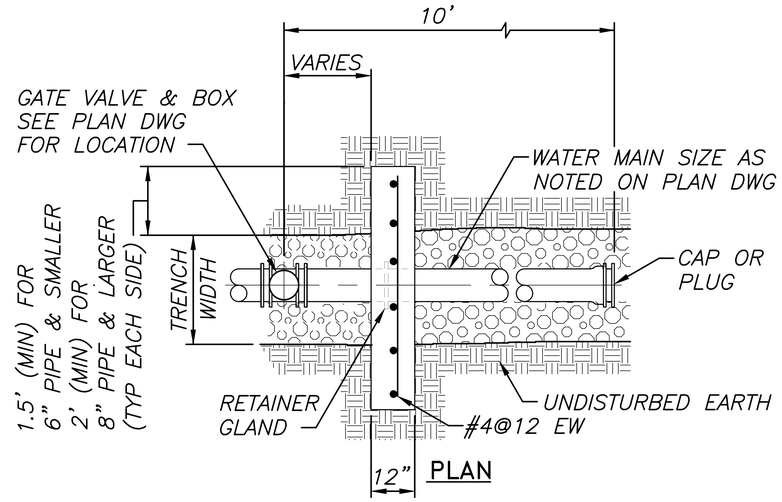
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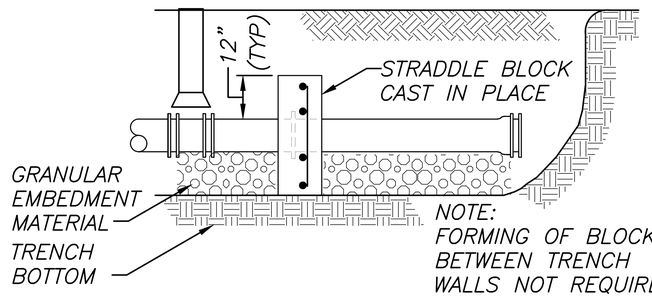
NOTE:
RETAINER GLANDS REQUIRED ON ALL FITTINGS. RESTRAINED JOINTS SHALL BE REQUIRED WHERE INDICATED OR DICTATED BY AVAILABLE SPACE OR UNSUITABLE SOIL CONDITIONS.

HYDRANT ASSEMBLY DETAIL

NOT TO SCALE



PLAN



ELEVATION

LINE TERMINATION DETAIL

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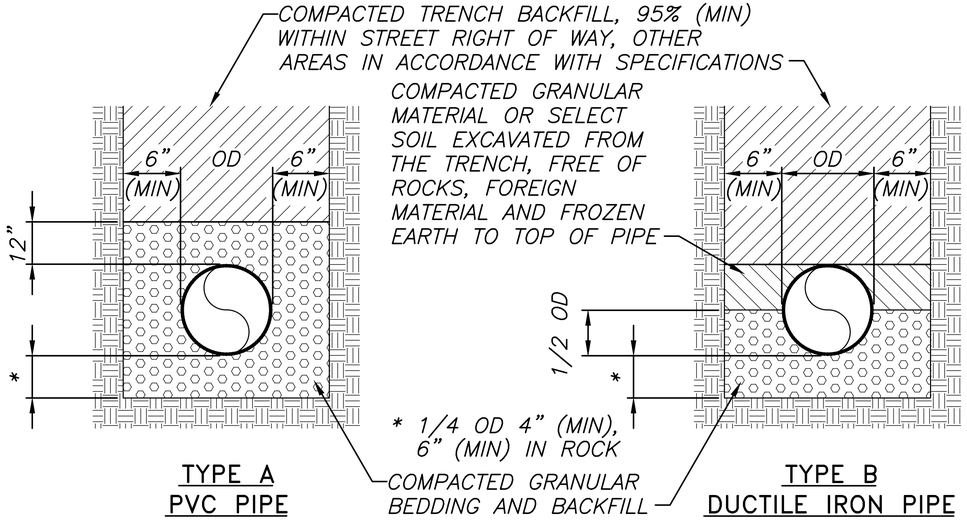
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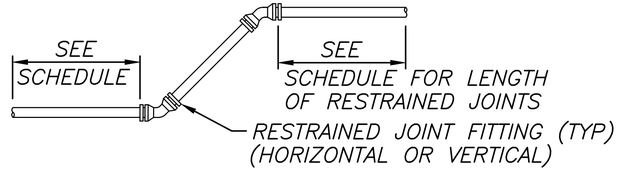
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PIPE INSTALLATION DETAILS
TYPICAL – OUT OF TRAFFIC AREAS
NOT TO SCALE

SCHEDULE

90° BEND – 60 LF EACH SIDE OF FITTING
45° BEND – 30 LF EACH SIDE OF FITTING
22.5° BEND – 20 LF EACH SIDE OF FITTING
11.25° BEND – 10 LF EACH SIDE OF FITTING



TYPICAL RESTRAINED JOINT PIPE DETAIL/SCHEDULE
NOT TO SCALE

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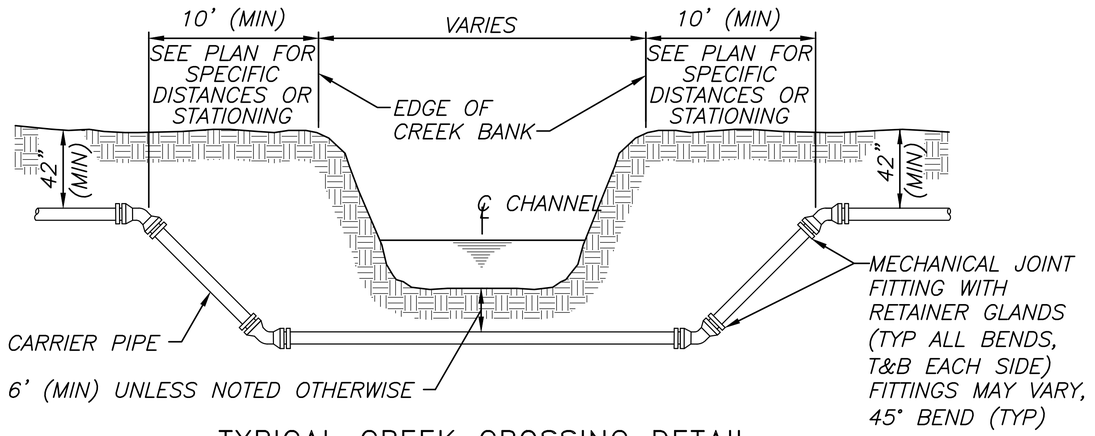
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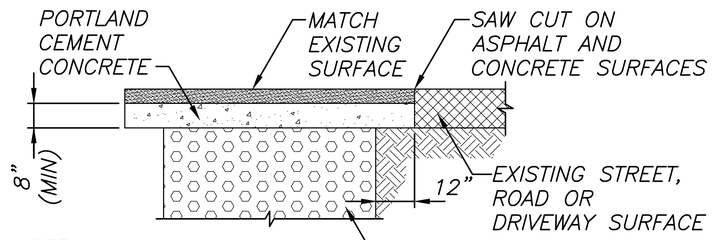
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TYPICAL CREEK CROSSING DETAIL

NOT TO SCALE



NOTE:
ALL CUTS REQUIRED IN CONCRETE SURFACES SHALL BE REPLACED FROM EXISTING EXPANSION JOINT TO EXISTING EXPANSION JOINT.

STREET, ROAD AND DRIVEWAY RESTORATION DETAIL

NOT TO SCALE

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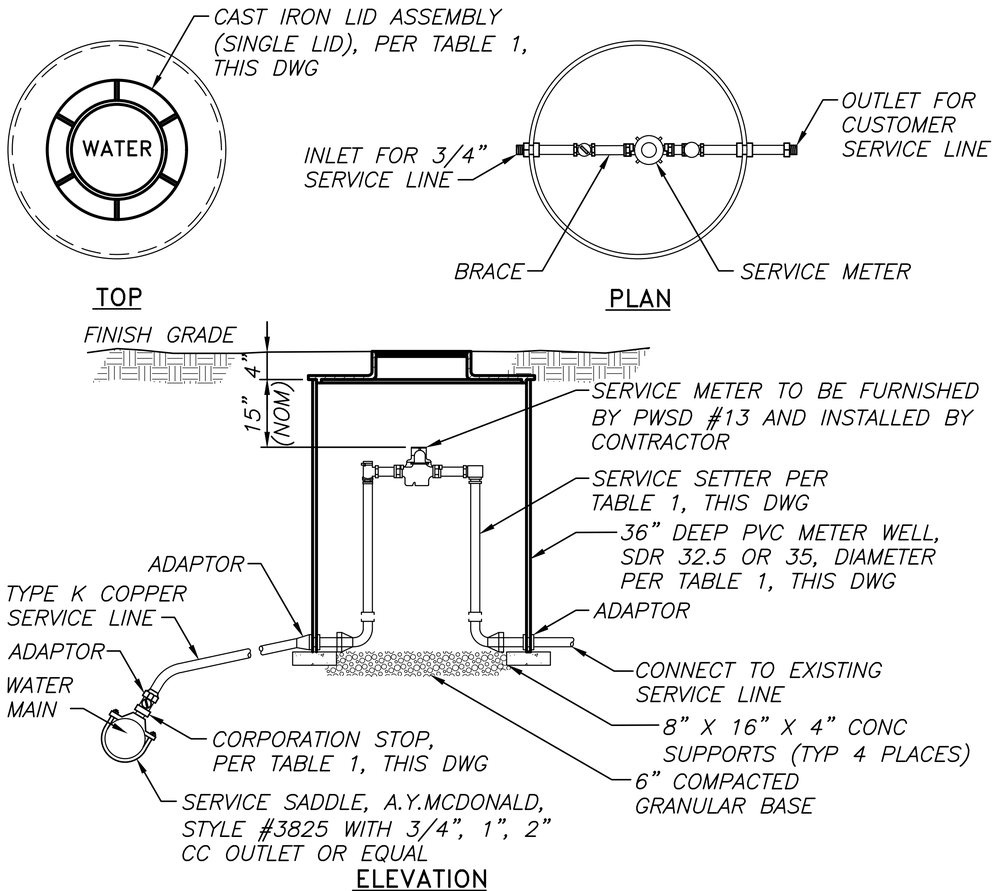
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TYPICAL METER SETTING
FOR 5/8"x3/4", 1" AND 2" METERS

NOT TO SCALE

TABLE 1

METER & PRV SIZE	WELL DIMENSIONS		LOCKING COVER	METER SETTER	CORP STOP	METER
	DIA	DEPTH	AY MCDONALD	AY MCDONALD	AY MCDONALD	NEPTUNE
5/8"x3/4"	18"	36"	#47M32CT	#22-218WD2233	#4701-22-3	NEPTUNE 5/8"x3/4" T-10 PROREAD w/ R900 PIT MIU
1"	24"	36"	#74M32CT	#22-418WD2244	#4701-22-4	NEPTUNE 1" PROREAD w/ R900 PIT MIU
2"	36"	36"	#74M36T	#208718WDFF775	#4701-22-7	NEPTUNE 2" PROREAD w/ R900 PIT MIU

NOTE:
NEPTUNE T-10 PROREAD METERS SHALL BE EQUIPPED W/ R900 PIT TRANSCEIVERS W/ 6 WHEEL ODAMETERS GALLON REGISTRATION.

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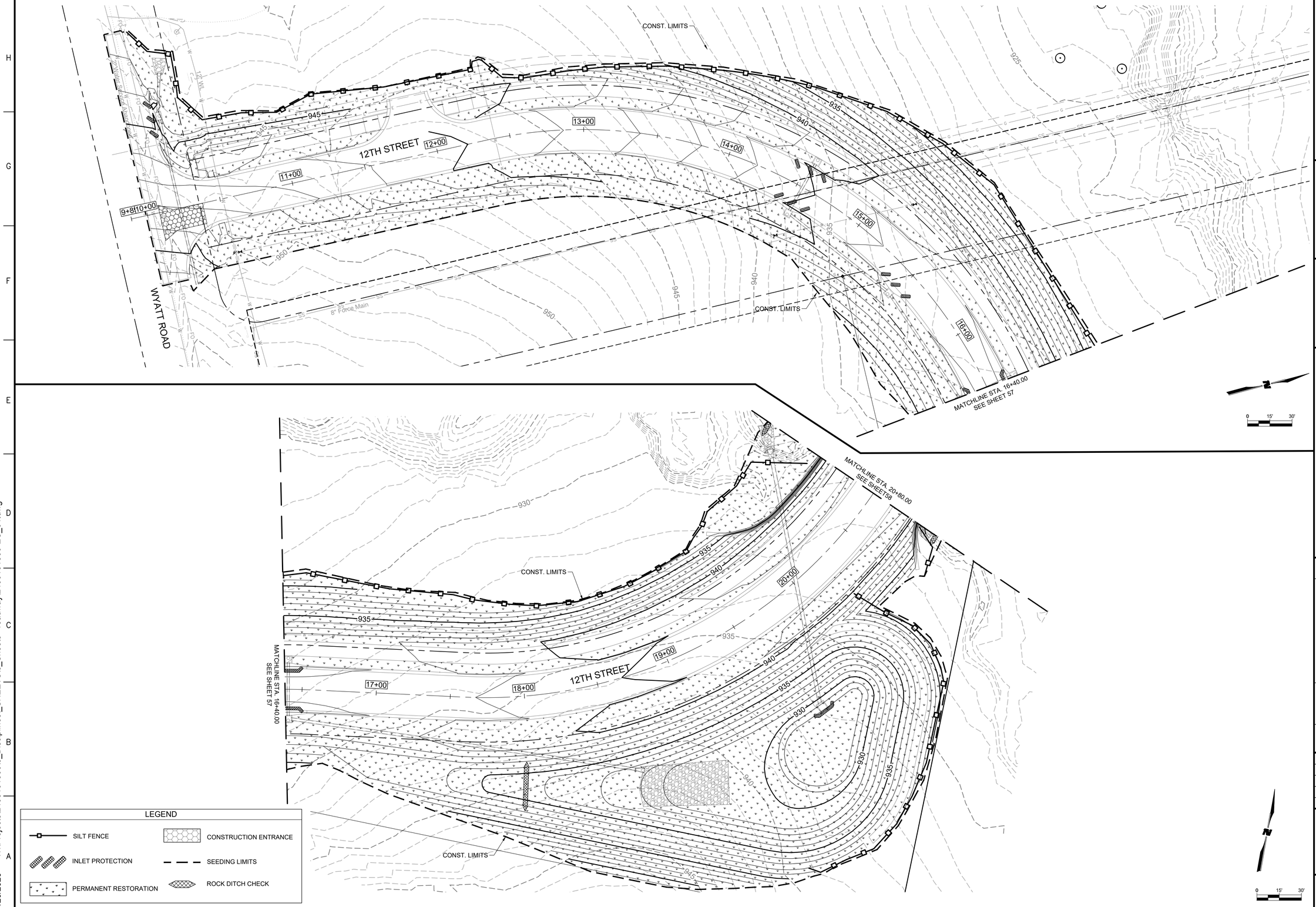
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SHEET TITLE: WATER LINE DETAILS

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LEGEND

- SILT FENCE
- CONSTRUCTION ENTRANCE
- INLET PROTECTION
- SEEDING LIMITS
- PERMANENT RESTORATION
- ROCK DITCH CHECK

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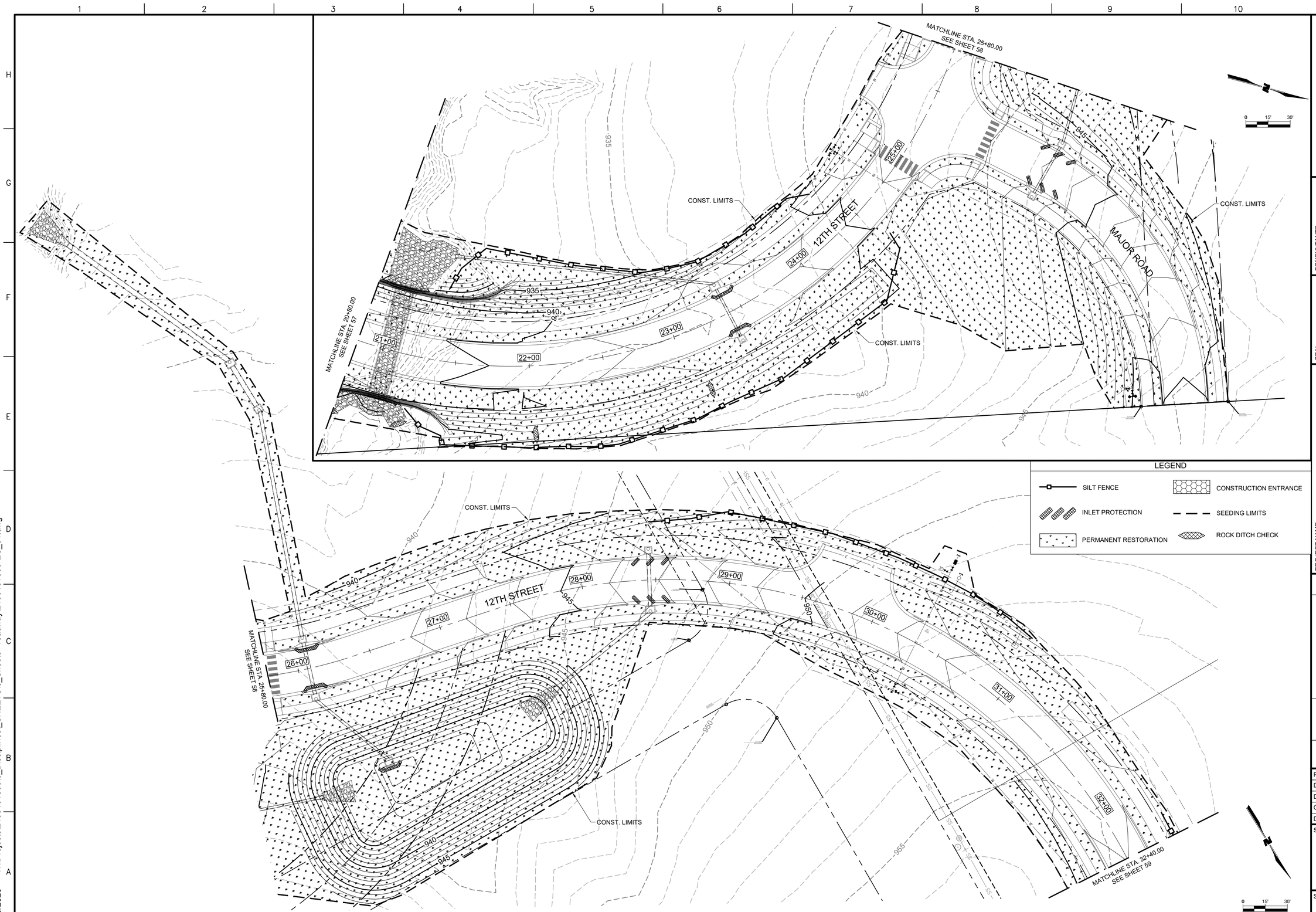
SHEET TITLE

EROSION CONTROL PLAN

SHEET NO:

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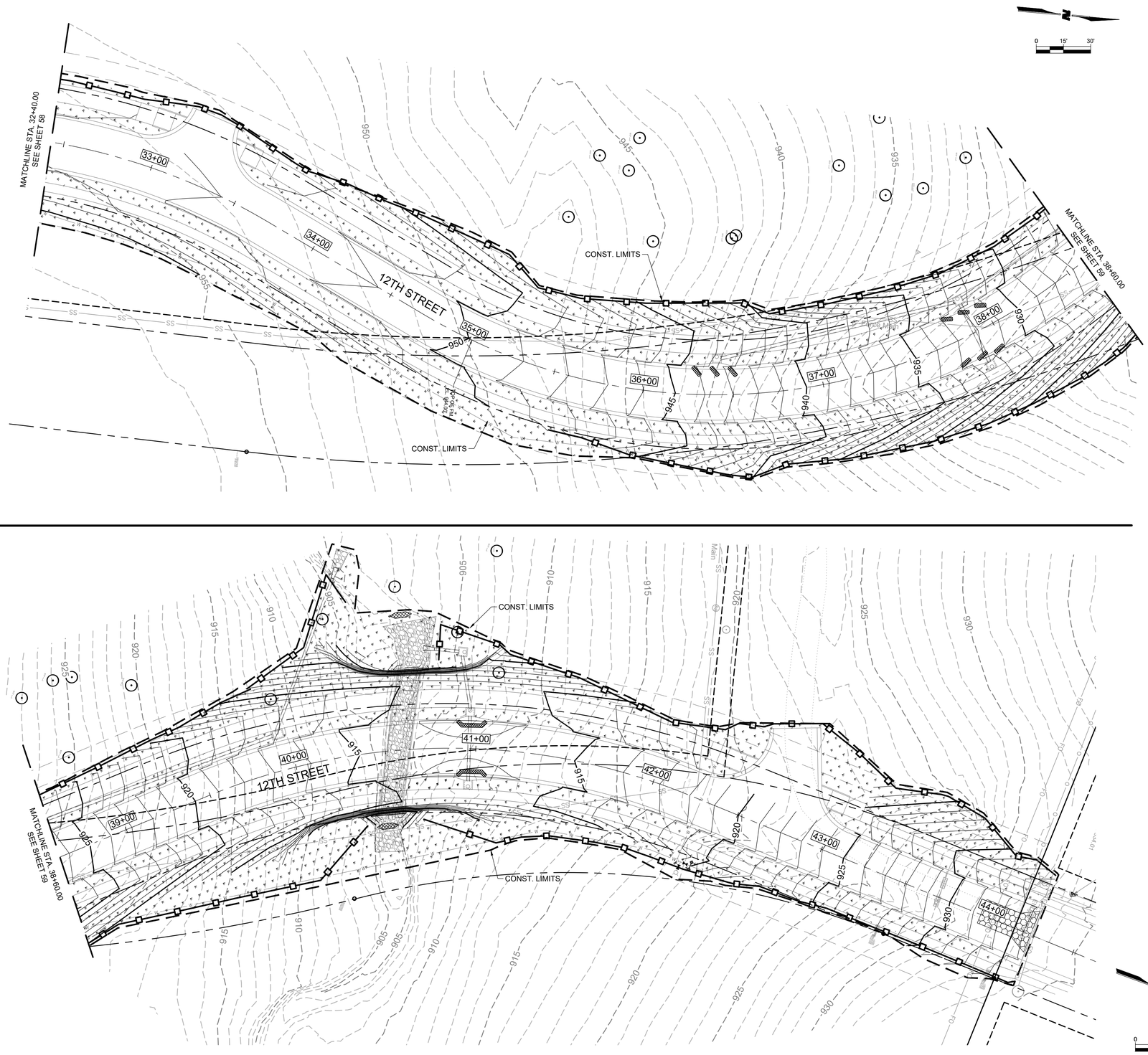
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EROSION CONTROL PLAN

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EROSION CONTROL NOTES:

1. AN APPROVED LAND DISTURBANCE PERMIT HAS BEEN COMPLETED BY THE ENGINEER TO MDNR FOR AN NPDES CONSTRUCTION PERMIT. THE CONTRACTOR SHALL ASSUME OWNERSHIP OF THE PERMIT AND PREPARE A SWPPP TO ACCOMPANY THE NPDES PERMIT PRIOR TO CONSTRUCTION. THE EROSION CONTROL PLAN SHOWN HEREIN IS FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL DEVELOP A NEW EROSION CONTROL PLAN HE INTENDS TO IMPLEMENT BASED ON CURRENT SITE CONDITIONS. THE CONTRACTOR'S PLAN SHALL COMPLY WITH NPDES REQUIREMENTS, AND THE MINIMUM REQUIREMENTS SHOWN HEREIN.
2. ANY MUD TRACKED ONTO ADJACENT STREETS SHALL BE REMOVED (CLEANED UP) AT THE END OF EACH WORKING DAY.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND UPKEEP OF ALL EROSION CONTROL DEVICES.
4. ALL DISTURBED AREAS SHALL BE STABILIZED WITH MULCH OR OTHER SIMILARLY EFFECTIVE STABILIZING BMP WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
5. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION AND ALL CORRESPONDING EROSION CONTROL DEVICES. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE IN WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SEDIMENT CONTROL BARRIERS FOR A PERIOD OF ONE (1) YEAR AFTER COMPLETION OF THE PROJECT OR UNTIL RELEASED FROM THIS RESPONSIBILITY BY THE OWNER, WHICHEVER PERIOD IS SHORTER.
7. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, LAKES, STREETS OR ANY OTHER DRAINAGE FEATURE.
8. THESE PLANS ARE INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
9. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON SOIL EROSION BMP'S DETAIL SHEETS.
10. THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THESE PLANS ARE FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISES THAT MAY REQUIRE DEVICES OTHER THAN THAT SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
11. THE CONTRACTOR SHALL COMPLETE A SWPPP INSPECTION AND MAINTENANCE FORM AS REQUIRED BY THE MDNR LAND DISTURBANCE PERMIT. INSPECTIONS SHALL BE MADE AT LEAST WEEKLY, AND WITHIN 24 HOURS FOLLOWING A $\frac{1}{2}$" OR GREATER STORM EVENT. ANY DAMAGE TO THE EROSION CONTROL MEASURES SHALL BE REPAIRED BY THE CONTRACTOR WITHIN 7 DAYS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION CONTROL & REMOVAL OF ANY SEDIMENT THAT MAY COLLECT IN THE DOWNSTREAM GUTTERS. ALL EROSION CONTROL DEVICES SHALL BE PAID FOR AS A PART OF LUMP SUM EROSION CONTROL BID ITEM.
13. TEMPORARY BMPS SHALL BE REMOVED AFTER TURF ESTABLISHMENT, UNLESS SAID BMPS ARE NATURALLY AND READILY BIO-DEGRADABLE. MINIMUM BMPS TO BE PROVIDED AND INSTALLED INCLUDE THE FOLLOWING:
    - 13.1 INSTALL TEMPORARY EROSION CONTROL BLANKET (ECB) OVER SEEDED AREAS ON STEEP SLOPES (>/=3:1) AND IN DRAINAGE CHANNELS. THE ECB SHALL BE A BIO-DEGRADABLE AMERICAN EXCELSIOR CURLEX I, OR NORTH AMERICAN GREEN SC 150 ECB, OR ACCEPTABLE EQUIVALENT INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
    - 13.2 INSTALL TEMPORARY SEDIMENT FENCE AT THE BASE OF DISTURBED SLOPES, DOWN-SLOPE FROM STOCKPILED EXCAVATED MATERIAL, ALONG THE PROJECT PERIMETER, AND AT OTHER LOCATIONS SHOWN WHERE SEDIMENT DISCHARGE FROM THE SITE IS LIKELY. SEDIMENT FENCE SHALL BE 16" MINIMUM AND 34" MAXIMUM ABOVE GROUND SURFACE.
    - 13.3 INSTALL TEMPORARY INLET PROTECTION AROUND ALL STORM INLET STRUCTURES.
    - 13.4 INSTALL TEMPORARY SEED (ANNUAL RYEGRASS) IN AREAS TO BE SEEDED WITH NATIVE GRASSES, DISTURBED AREAS THAT CONSTRUCTION ACTIVITY WILL NOT OCCUR FOR AT LEAST 14 CALENDAR DAYS, OR WHEN PERMANENT SEEDING IS DELAYED UNTIL THE SPECIFIED SEASON. SEE SEEDING SPECS.
14. THE STANDARD CITY OF BLUE SPRINGS PARK DEPARTMENT SEED MIX SHALL BE USED FOR ALL DISTURBED AREAS. THE MIX SHALL BE A 90-10 FESCUE BLUEGRASS BLEND FROM SITEONE, ADVANCED TURF SOLUTIONS, OR APPROVED EQUAL. SEED TAG SHALL BE SUBMITTED TO THE ENGINEER AND OWNER FOR APPROVAL PRIOR TO PLACEMENT.

LEGEND

- SILT FENCE
- CONSTRUCTION ENTRANCE
- INLET PROTECTION
- SEEDING LIMITS
- PERMANENT RESTORATION
- ROCK DITCH CHECK

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STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

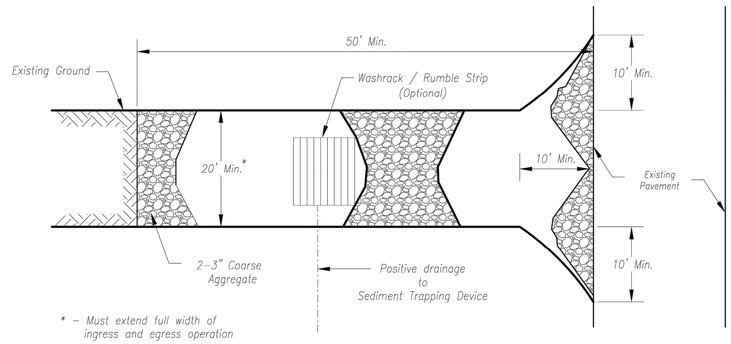
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
EROSION CONTROL PLAN

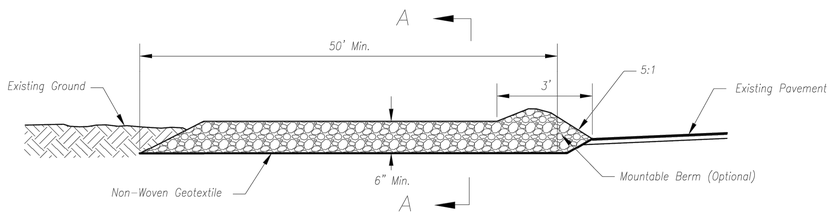
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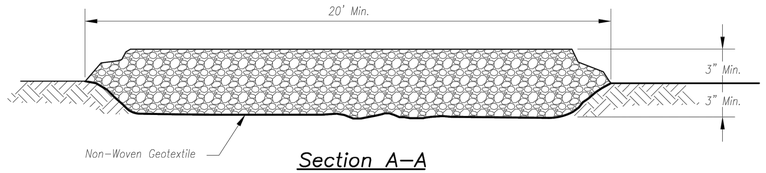
Plan View

Not to Scale



Side Elevation

Not to Scale



Section A-A

Not to Scale

Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of Installation. Top dress with clean aggregate as needed.

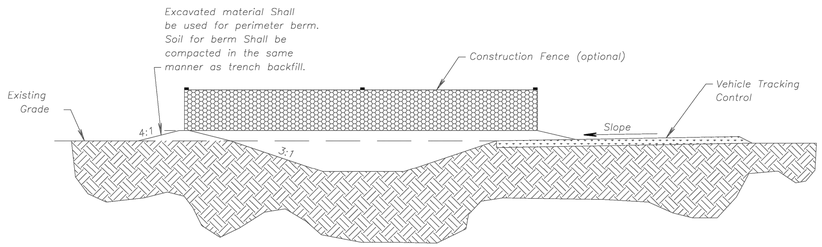
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.



CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

AMERICAN PUBLIC WORKS ASSOCIATION

KANSAS CITY METRO CHAPTER

CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT

STANDARD DRAWING NUMBER ESC-01

ADOPTED: 10/24/2016

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1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

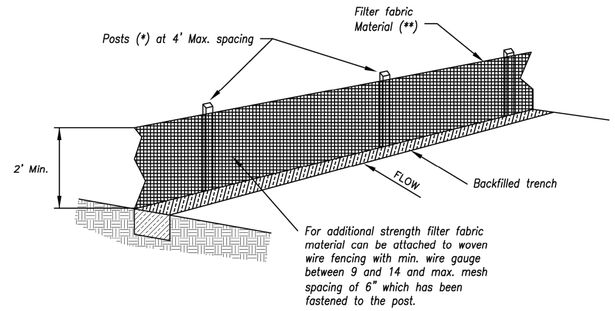
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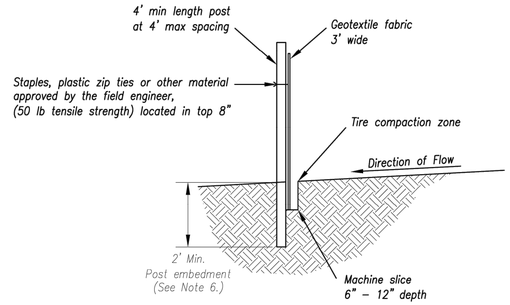
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
EROSION CONTROL DETAILS

SHEET NO:
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(*) POSTS

- MIN, LENGTH 4'
- HARDWOOD 1 3/16" x 1 3/16"
- NO.2 SOUTHERN PINE 2 5/8" x 2 5/8"
- STEEL 1.33 LB/FT

(**) – Geotextile Fabric shall meet the requirements of AASHTO M288

SILT FENCE DETAILS

Not to Scale

Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ⅓ the height of silt fence.
2. Repair as necessary to maintain function and structure.

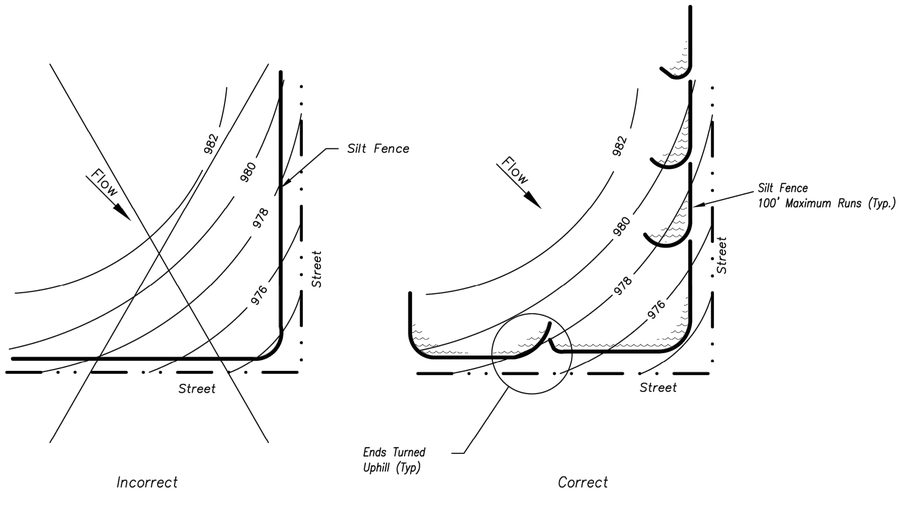
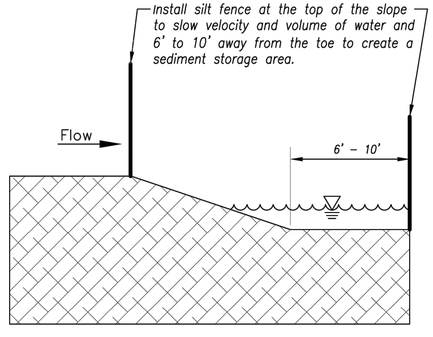
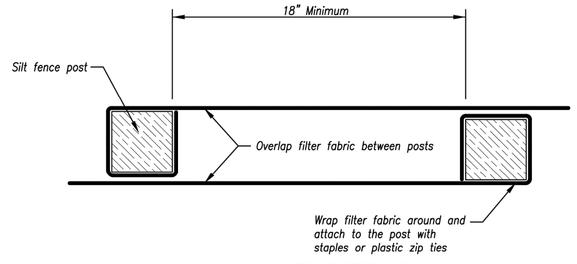


Figure A

SILT FENCE LAYOUT

Not to Scale





JOINING FENCE SECTIONS

Not to Scale

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION

KANSAS CITY METRO CHAPTER

SILT FENCE

STANDARD DRAWING NUMBER ESC-03

ADOPTED: 10/24/2016

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NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

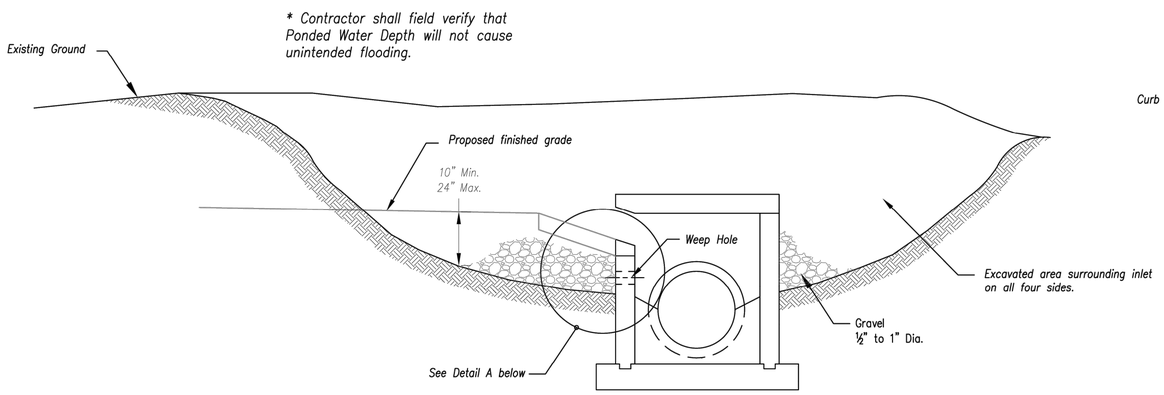
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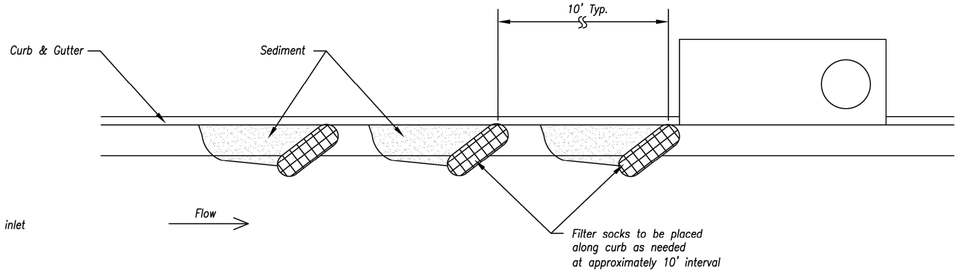
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
EROSION CONTROL DETAILS

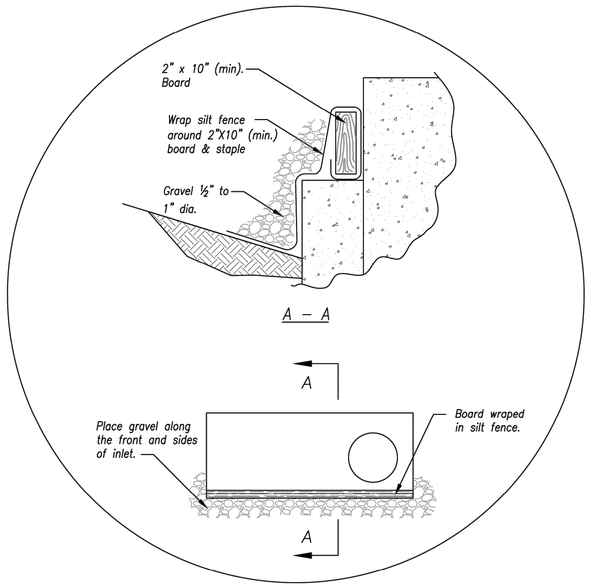
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1/20/2026





On Grade Curb Inlet Protection



Detail A

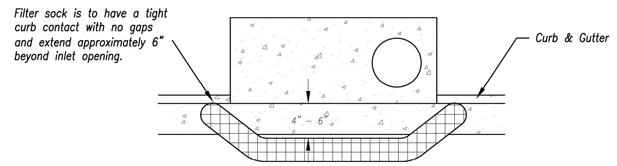
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

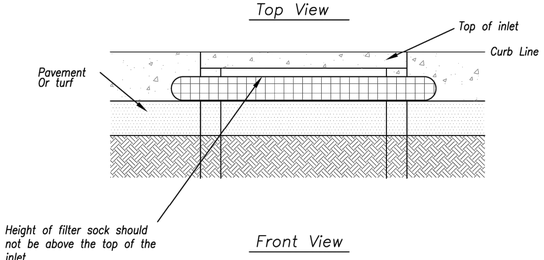
1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.



Top View



Front View

Sump Inlet Sediment Filter

LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER

CURB INLET PROTECTION

STANDARD DRAWING NUMBER ESC-06
ADOPTED: 10/24/2016

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1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
EROSION CONTROL DETAILS

SHEET NO:
62 of 126

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GENERAL NOTES:

1. COORDINATE POLE, FOUNDATION, POWER SOURCES, AND CONDUIT LOCATIONS WITH ALL OTHER DISCIPLINES, CITY OF BLUE SPRINGS, AND EXISTING CONDITIONS.
2. ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO THE 2023 NATIONAL ELECTRICAL CODE AND CITY OF BLUE SPRINGS STANDARDS.
3. REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION OR FABRICATION OF THE AFFECTED WORK.
4. COORDINATE CONSTRUCTION SEQUENCE WITH ALL DISCIPLINES.
5. PROVIDE HEAVY DUTY WEATHER-TIGHT JUNCTION AND PULL BOXES AS REQUIRED FOR CONDUCTOR PULLING AND SPLICING.
6. CITY OF BLUE SPRINGS SHALL PROVIDE TRANSFORMER. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TRANSFORMER SECONDARY OVERCURRENT PROTECTION AND ALL CONDUIT AND WIRING ON LOAD SIDE OF TRANSFORMER SECONDARY OVERCURRENT PROTECTIVE DEVICE INCLUDING THE CONNECTION TO SECONDARY OVERCURRENT PROTECTIVE DEVICE, AS SHOWN.
7. ALL LUMINARIES, POLES, AND BASES SHALL MEET CITY OF BLUE SPRINGS 2023 ENGINEERING STANDARDS AND SPECIFICATIONS.
8. COORDINATE EXACT LOCATION OF TRANSFORMER AND POINT OF SERVICES WITH EVERGY AND THE CITY OF BLUE SPRINGS.
9. FIXTURE SHALL BE LOCATED BY THE OFFSET AND STATIONING ON THE LUMINAIRE INFORMATION TABLE OR AS SHOWN ON PLANS. FOUNDATION ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR. TOP OF THE FOUNDATION SHALL BE 2-INCHES ABOVE THE FINAL GRADE.
10. THE ENGINEER SHALL COORDINATE THE REVIEW OF LIGHTING MATERIALS WITH CITY OF BLUE SPRINGS.
11. CONTRACTOR SHALL COORDINATE FINAL LOCATION, CONDUIT ROUTING, AND JUNCTION BOX LOCATIONS TO STAY WITHIN PROJECT LIMITS OF CONSTRUCTION (LOC) LINES.
12. CONTRACTOR IS RESPONSIBLE FOR MAKING ALL DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.
13. FUSE EACH LUMINAIRE AT POLE WITH 20 AMP HH FUSE.
14. WIRE SIZES SHOWN ON THE PLAN DRAWINGS ARE A MINIMUM SIZE. LARGER CONDUCTORS MAY BE USED AT THE CONTRACTORS DISCRETION.
15. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE. ACTUAL CONDUIT ROUTING WILL BE DETERMINED IN THE FIELD BY THE ENGINEER AND THE CONTRACTOR.
16. ALL CABLE AND VOLTAGE DROP CALCULATIONS ARE BASED ON COPPER CONDUCTORS.
17. CIRCUITS SHALL INCLUDE A GROUND CONDUCTOR. GROUND CONDUCTOR SHALL BE THE SAME SIZE AS THE PHASE CONDUCTORS.
18. FOUNDATIONS, SEE LIGHT POLE FOUNDATION DETAIL, SHEET 57.

LEGEND:

LIGHT POLE

SCH80 PVC ELECTRICAL CONDUIT(S) AND CONDUCTOR PER THE LIGHTING PLANS. MINIMUM 30" BURIAL DEPTH.

PULL BOX, POLYMER CONCRETE W/OPEN BOTTOM

CONDUIT CALLOUTS:

CKT: CIRCUIT NO.
N: NUMBER OF CONDUCTORS (NOTE 17)
S: SIZE OF CONDUCTORS
#: CONDUIT SIZE

TABULATION OF STREET LIGHTING ITEMS

DETAIL NO.	ITEM DESCRIPTION	UNIT	PROJECT TOTALS
	LIGHT POLE AND FIXTURES	EACH	24
	LIGHT POLE FOUNDATIONS	EACH	24
	PRECAST PULL BOXES (TYPE: S, 12"X12"X12")	EACH	24
	PRECAST PULL BOXES (TYPE: M, 13"X24"X12")	EACH	2
	POWER FEED, METER PEDESTAL, CONTROLLER CABINET ASSEMBLY	EACH	1
	UNDERGROUND CONDUIT TRENCH (1 1/2" SCH80 PVC)	LF	4500
	WIRING	LF	4500

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1/19/2026

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

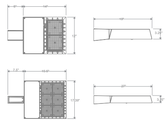
RATIO Series
AREA/SITE LIGHTER

MICRO STRIKE STRIKE

FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as retail, commercial and campus parking lots
- Featuring Strike and Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual comfort standard
- Compact and lightweight design with low EPA
- 3G rated for high vibration applications including bridges and overpasses
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™ and 7-Pin with networked controls
- Best in class surge protection available





CONTROL TECHNOLOGY

SERVICE PROGRAMS

	Weight	EPA at 0
RAR1	13.5 lbs / 6.1 kg	.45ft² / .13m2
RAR2	24 lbs / 10.9 kg	.55ft² / .17m2

SPECIFICATIONS

CONSTRUCTION
- Rectilinear form mimics the traditional shoebox form factor keeping a similar but updated style and appearance, ideal for retrofit applications
- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish

OPTICS
- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 80, 160, 320 or 480 midpower LEDs
- 3000K, 4000K or 5000K (70 CRI) CCT
- Zero uplight at 0 degrees of tilt
- Field rotatable optics

INSTALLATION
- Standard square arm mount, compatible with B3 drill pattern
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option or accessory for square and round poles.
- Knuckle arm fitter option available for 2-3/8" OD tenon. Max tilt of 60 degrees with 4 degree adjustable increments. (Restrictions apply for 7-pin options)

ELECTRICAL
- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/ IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

CONTROLS
- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0- 10 V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor

CERTIFICATIONS
- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Not all product variations on this page are DLC Qualified. Refer to www.designlights.org for the most up-to-date list.
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications
- Fixture is IP66 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-5) and Trade Agreements Act (FAR 52.225-11). See Buy America(n) Solutions (link to https://www.currentlighting.com/resources/america-solutions)

WARRANTY
- 5 year limited warranty
- See HLI Standard Warranty for additional information

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DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

RATIO Series
AREA/SITE LIGHTER MICRO STRIKE

Gray Shading = Service Program Limit of 15 luminaires S10

MICRO STRIKE OPTICS - ORDERING GUIDE

CATALOG #

Example: RAR1-80L-25-3K7-2-UNV-ASQ-BL-NXW-BC

ORDERING INFORMATION

Series	# LEDs - Wattage	CCT/CRI	Distribution	Optics Rotation	Voltage
RAR1 Ratio Area Size 1 - Micro Strike	80L-25 25W - 3,000 Lumens	5K7/5000K, 70 CRI	2 IES TYPE II	Blank for no rotation	UNV Universal-120-277V
	80L-39 39W -5,200 Lumens	4K7/4000K, 70 CRI	3 IES TYPE III	L Optic rotation left	120 120V
	80L-50 50W - 6,000 Lumens	5K7/5000K, 70 CRI	4W IES TYPE IV	R Optic rotation right	208 208V
	160L-70 70W - 9,000 Lumens		4F IES TYPE IV Forward		240 240V
	160L-100 100W - 12,000 Lumens		5QWIES TYPE V		277 277V
	160L-115 115W - 15,000 Lumens				347 347V
	160L-135 135W - 18,000 Lumens				480 480V
RAR2 Ratio Area Size 2 - Micro Strike	320L-110 110W - 15,000 Lumens				
	320L-140 140W - 18,000 Lumens				
	320L-165 165W - 21,000 Lumens				
	480L-185 185W - 24,000 Lumens				
	480L-210 210W - 27,000 Lumens				
	480L-240 240W - 30,000 Lumens				
	480L-255 255W - 36,000 Lumens				
	480L-295 295W - 42,000 Lumens				
	480L-340 340W - 48,000 Lumens				

Mounting	Color	Control Options Network	Options
ASQ Arm mount for square pole/flat surface	BLT Black Matte Textured	NXWS16F NX Networked Wireless Enabled Integral NXSMPS2 LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	BC Backlight control
ASQU Universal arm mount for square pole/flat surface- Does not include round pole adapt or B3 drill pattern	BLS Black Gloss Smooth	NXWS40F NX Networked Wireless Enabled Integral NXSMPS2 HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	FU Fusing¹
Mounting Round Poles	DBT Dark Bronze Matte Textured	NXW NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without SMSce	TB Terminal block
A_ Arm mount for round pole1 B3 drill pattern	DBS Dark Bronze Gloss Smooth	**Control Options Other**	2PF2 power feed with 2 drivers2
A_U Universal arm mount for round pole1	GTT Graphite Matte Textured	SCP_F 7-Pin receptacle with shorting cap	
Mounting Other	LGS Light Grey Gloss Smooth	7PR 7-Pin twist lock receptacle	
WB Wall bracket	PSS Platinum Silver Smooth	7PR-SC 7-Pin receptacle with shorting cap	
MAF Mast arm fitter for 2-3/8" OD horizontal arm	WHT White Matte Textured	7PR-MD40F Low voltage sensor for 7PR	
K Knuckle	WHS White Gloss Smooth	7PR-TL 7-Pin PCR with photocontrol	
	VGT Verde Green Textured	ADD AutoDim Timer Based Dimming	
	Color Option	ADT AutoDim Time of Day Dimming	
	CC Custom Color	BTS-14F Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	
		BTS-40F Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	
		BTSO-12F Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	

Notes:
1 Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
2 Not available with 25, 50, 255, 295 & 340W configurations
3 At least one SCPREMOTE required to program SCP motion sensor
4 Replace "_" with 8F or 40F lens
5 Must specify voltage
6 Networked Controls cannot be combined with other control options
7 Not available with 2PF option
8 BTS and BTSO available for 50 Watts or higher and only on 120-277 voltage

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DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

SSSH Series Poles
SQUARE STRAIGHT STEEL

Gray Shading = Service Program Limit of 15 poles S10

ORDERING INFORMATION

Example: SSSH25–40A–2L–S2–DBT–UL

SSSH – Series: SSSH Square Straight Steel Pole EXO – Height: Reference page 3 Ordering matrix – Shaft: Reference page 3 Ordering matrix – Thickness: Reference page 3 Ordering matrix: A - .125" Wall; B - .188" Wall; C - .250" Wall – Mounting: 1 Single arm mount; 2 Two fixtures at 180˚; 2L Two fixtures at 90˚; 3T Three fixtures at 90˚; 4 Four fixtures at 90˚; TA Tenon (2.38" OD x 4" Tall); TB Tenon (2.88" OD x 4" Tall); TC Tenon (3.5" OD x 6" Tall); TR Removable Tenon (2.38" x 4"); OT Open Top (includes pole cap) – Drill Pattern: B3 2 bolt (2-1/2" spacing). Ratio; S2 2 bolt (3-1/2" spacing); UDP Universal Drill Pattern – Finish: BLT Black Matte Textured; BLS Black Gloss Smooth; DBT Dark Bronze Matte Textured; DBS Dark Bronze Gloss Smooth; GTT Graphite Matte Textured; LGT Light Grey Matte Textured; LGS Light Grey Gloss Smooth; PSS Platinum Silver Smooth; WHT White Matte Textured; WHS White Gloss Smooth; VGT Verde Green Textured; Color Option: CC Custom Color# – Options: GFP 20 Amp GFCI Receptacle and Cover; EHH² Extra Handhole; C05³ .5" Coupling; C07³ 75° Coupling; C20³ 2" Coupling; MPB⁴ Mid-pole Luminaire Bracket; VM1⁵ Mode vibration dampener; VM2⁵ 2nd mode vibration dampener; LAB Less Anchor Bolts; UL UL Certified

Accessories (Order Separately)	
VM2S08	Field-installed 2nd mode vibration dampener - 8 ft
VM2S12	Field-installed 2nd mode vibration dampener - 12 ft
VM2S16	Field-installed 2nd mode vibration dampener - 16 ft
VM2S20	Field-installed 2nd mode vibration dampener - 20 ft
VM2S25	Field-installed 2nd mode vibration dampener - 25 ft
SSSHSTK4KIT	Pole Cap and anchor bolt kit

1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the "TR" notation. Example: SSSH25-40A-1-S2-TR-DB.
2 Custom colors available; RAL number preferable
3 Specify option location using logic found on page 3 (Option Orientation).
4 VM1 recommended on poles 20' and taller with EPA of less than 1.
5 There will be a weld witness mark on the side of the pole with the Factory installed VM2

MOUNTING ORIENTATION

Denotes handhole location



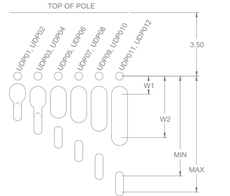
STOCKED POLE ORDERING LOGIC

Catalog #	Description
SSSH20-40A-4-HV-DB-WPO	Square Steel pole, 20', 4" square cross-section, 1/8" wall thickness, Dark Bronze Matte Textured paint. Pole only, no anchor bolts, base cover or pole cap included.
SSSH25-40A-4-HV-DB-WPO	Square Steel pole, 25', 4" square cross-section, 1/8" wall thickness, Dark Bronze Matte Textured paint. Pole only, no anchor bolts, base cover or pole cap included.
SSSHSTK4KIT	Stock kit includes anchor bolts, template, base cover and plastic pole cap. Must be ordered separately from pole.

Note: the HV drill pattern is a combination of the S2 pattern and B3 pattern.

DRILL PATTERNS

UNIVERSAL DRILL PATTERN (UDP)



Two Bolt Mounting with Center Wireway						
Mounting Hardware	Universal Mounting Patterns					
3/8" or less	UDP01	UDP03	UDP05	UDP07	UDP09	UDP011
7/16" to 1/2"	UDP02	UDP04	UDP06	UDP08	UDP010	UDP012
"Min" Attachment Dimension	1.69	2.25	3.00	3.76	4.50	5.50
"Max" Attachment Dimension	2.24	2.99	3.75	4.49	5.49	6.00
W1 (Wireway min)	0.85	1.00	1.00	1.00	1.00	1.00
W2 (Wireway max)	1.05	1.36	1.88	2.13	2.60	3.00

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DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

SSSH Series Poles
SQUARE STRAIGHT STEEL

Gray Shading = Service Program Limit of 15 poles S10

ORDERING INFORMATION (CONTINUED)

CATALOG NUMBER	HEIGHT FEET	HEIGHT METERS	NOMINAL SHAFT DIMENSIONS	WALL THICKNESS	BOLT CIRCLE (SUGGESTED)	BOLT CIRCLE (RANGE)	BASE PLATE SQUARE	ANCHOR BOLT SIZE	BOLT PROJECTION	POLE WEIGHT (LBS)
SSSH10-40A	10	3.0	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	77
SSSH12-40A	12	3.7	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	90
SSSH14-40A	14	4.3	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	103
SSSH16-40A	16	4.9	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	116
SSSH18-40A	18	5.5	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	129
SSSH20-40A	20	6.1	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	142
SSSH25-40A	25	7.6	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	175
SSSH14-40B	14	4.3	4" square	.188"	11"	10" - 19"	10.50"	3/4" x 30" x 3"	3.5	152
SSSH16-40B	16	4.9	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	171
SSSH18-40B	18	5.5	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	190
SSSH20-40B	20	6.1	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	209
SSSH25-40B	25	7.6	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	257
SSSH30-40B	30	9.1	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	304
SSSH15-50B	16	4.9	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	219
SSSH18-50B	18	5.5	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	243
SSSH20-50B	20	6.1	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	267
SSSH25-50B	25	7.6	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	327
SSSH30-50B	30	9.1	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	387
SSSH25-50C	25	7.6	5" square	.25"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	427
SSSH30-50C	30	9.1	5" square	.25"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	507
SSSH20-60B	20	6.1	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	329
SSSH25-60B	25	7.6	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	404
SSSH30-60B	30	9.1	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	479
SSSH35-60B	35	10.7	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	554
SSSH40-60B	40	12.2	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	629

Notes:
- Factory supplied template must be used when setting anchor bolts. Current will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.
- For more information about pole vibration and vibration dampeners, please consult factory.
- Unwrap poles immediately upon receipt to avoid condensation build up and possible corrosion. There will be a weld witness mark on the side of the pole with the Factory installed VM2.

EHH Extra handhole — Provision for Grounding

C05 / C07 / C20 Coupling — 2" -11.5 NPSC Threads; 3/4" - 14 NPSC Threads; 1/2" - 14 NPSC Threads; Overall Height 10'-30'

VM1 1st mode vibration dampener — Field Installed Pole Top dampener designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

VM2 2nd mode vibration dampener — Field installed, internal dampener designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration. VIBRATION DAMPER 2ND MODE

VM2SXX Field-installed 2nd mode vibration dampener — VM2S08 – 8' / VM2S12 – 12' / VM2S16 – 16' / VM2S20 – 20' / VM2S24 – 24' — Field installed, internal dampener designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

GFI 20 Amp GCFI Receptacle & Cover — Square Steel Pole; Standard hand hole frame; Adapter plate; Gasket; 20 AMP GFCI; Wet Locations In-use Cover; 18"; 4"; 3"

MPB Mid Pole Bracket — Square Steel Pole; Attachment stub, 5" long, welded to pole; 2" pipe tenon, 4.25" tall; TENON; Arm, 3' Sq. x 13.5" long (ships separately); 3" Sq. x 13.5" long

Option Orientation — Follow the logic below when ordering location specific options. For each option, note the desired orientation (in degrees) and its height (in feet).
Example: Option C05 should be ordered as: SSSH20-40A-TA-DB-C05-0-15 (.5" coupling on the handhole side of pole, 15' up from the pole base) 1' spacing required between option. Consult factory for other configurations.

BASE COVER — VIBRATION DAMPER 2ND MODE — HANDHOLE — TENON — suggested **** option in feet

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CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
MARCY HESS
1-29-26
NUMBER PE-2012013488
PROFESSIONAL ENGINEER

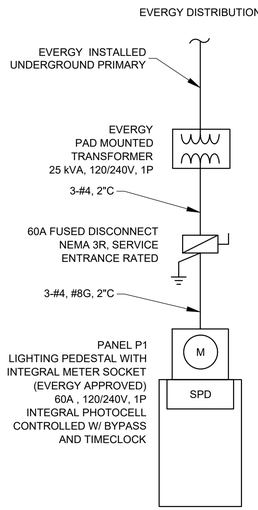
PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	CAS
DRAWN BY:	CAS
CHECKED BY:	JTR
DATE:	1/20/2026

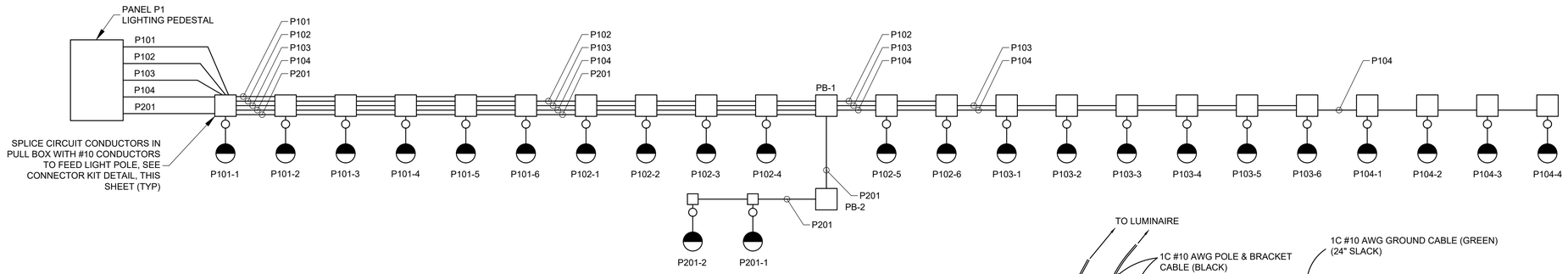
SHEET TITLE
ELECTRICAL GENERAL NOTES AND LEGEND

SHEET NO:
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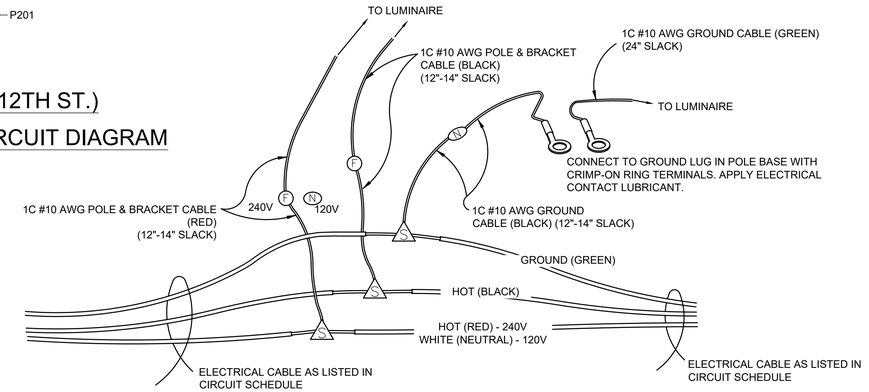
P1 (@ 12TH ST.)

LIGHTING SINGLE LINE DIAGRAM



P1 (@ 12TH ST.)

LIGHTING CIRCUIT DIAGRAM



ELECTRICAL CONNECTOR LEGEND

- (F) BREAK-AWAY FUSED ELECTRICAL CONNECTOR WITH 8 OR 2 AMP FUSE
- (N) BREAK-AWAY NON-FUSED ELECTRICAL CONNECTOR WITH GROUND/NEUTRAL "SLUG"
- (S) SPLICE KIT

ELECTRICAL CONNECTOR NOTES:

1. THE SPECIFIED CABLE SLACK SHALL BE PROVIDED ON EACH SIDE OF THE FUSED AND UN-FUSED CONNECTORS.
2. ADDITIONAL SLACK SHALL BE PROVIDED FOR THE FEEDER SUCH THAT WHEN EXTENDED UPWARD, THE TOP OF THE CONNECTORS ARE NO LESS THAN 1" AND NO MORE THAN 3" ABOVE THE TOP OF THE HAND HOLE OPENING.
3. ALL CONNECTIONS AND SPLICES SHALL BE SUBMERSIBLE RATED FOR USE BELOW GRADE.

(LUMINAIRE, 120V OR 240V)

ELECTRICAL CONNECTOR KIT SCHEMATIC

PANEL P1 SCHEDULE

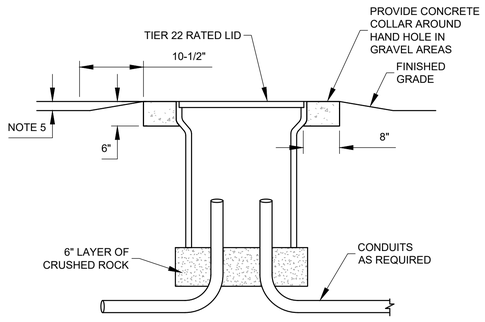
120/240 VOLTS, 1 PHASE, 3 WIRE — 60 AMPERES — MAIN CIRCUIT BREAKER 10,000 AIC
LOCATION - 12TH ST. AND WYATT — *EMD = 3 kVA — ENCLOSURE - NEMA 3R PEDESTAL

DEMAND LOAD	DEMAND FACTOR	CONNECT LOAD	LOAD	BKR	CKT	PH	CKT	BKR	LOAD	CONNECT LOAD	DEMAND FACTOR	DEMAND LOAD
2.5	1.0	2.5	LIGHT CIRCUIT P101	20/2	1	A	2	20/2	LIGHT CIRCUIT P102	2.5	1.0	2.5
2.5	1.0	2.5			3	B	4			2.5	1.0	2.5
2.5	1.0	2.5	LIGHT CIRCUIT P103	20/2	5	A	6	20/2	LIGHT CIRCUIT P104	1.7	1.0	1.7
2.5	1.0	2.5			7	B	8			1.7	1.0	1.7
0.9	1.0	0.9	LIGHT CIRCUIT P201	20/2	9	A	10	30/2	SPD			
0.9	1.0	0.9			11	B	12					
5.9	A	5.9	PANEL	10.1	A		10.1	PANEL		4.2	A	4.2
5.9	B	5.9	CONNECTED AMPS	10.1	B		10.1	DEMAND AMPS		4.2	B	4.2

EST MAX DEMAND = VOLTS x MAX DEMAND AMPS = 240 x 10 = 3 kVA
MINIMUM AMPACITY = 1.25 x MAX DEMAND AMPS = 1.25 x 10 = 13 AMPS

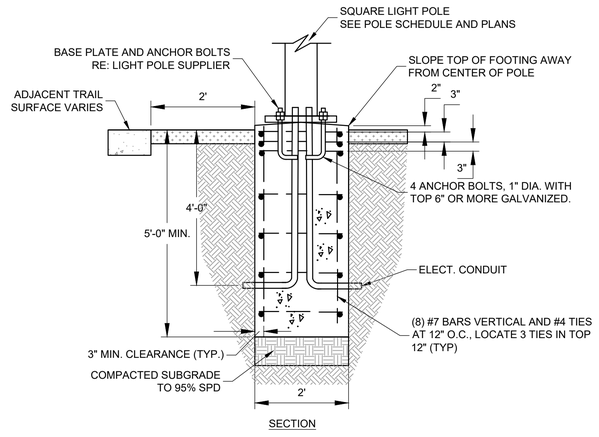
LUMINAIRE INFORMATION TABLE

POLE NUMBER	ALIGNMENT	LCC	PROPOSED STATION	OFFSET	LUMINAIRE TYPE	POLE TYPE
P101-1	12TH ST	PANEL P1	10+43	19'-0"	A	1
P101-2	12TH ST	PANEL P1	11+53	19'-0"	A	1
P101-3	12TH ST	PANEL P1	13+07	19'-0"	A	1
P101-4	12TH ST	PANEL P1	14+70	19'-0"	A	1
P101-5	12TH ST	PANEL P1	16+35	19'-0"	A	1
P101-6	12TH ST	PANEL P1	18+16	19'-0"	A	1
P102-1	12TH ST	PANEL P1	19+55	19'-0"	A	1
P102-2	12TH ST	PANEL P1	21+36	18'-0"	A	1
P102-3	12TH ST	PANEL P1	23+16	19'-0"	A	1
P102-4	12TH ST	PANEL P1	24+85	19'-0"	A	1
P102-5	12TH ST	PANEL P1	25+15	19'-0"	A	1
P102-6	12TH ST	PANEL P1	27+38	19'-0"	A	1
P103-1	12TH ST	PANEL P1	28+92	19'-0"	A	1
P103-2	12TH ST	PANEL P1	30+56	19'-0"	A	1
P103-3	12TH ST	PANEL P1	32+14	19'-0"	A	1
P103-4	12TH ST	PANEL P1	33+73	19'-0"	A	1
P103-5	12TH ST	PANEL P1	35+49	19'-0"	A	1
P103-6	12TH ST	PANEL P1	37+23	19'-0"	A	1
P104-1	12TH ST	PANEL P1	38+88	19'-0"	A	1
P104-2	12TH ST	PANEL P1	40+75	19'-0"	A	1
P104-3	12TH ST	PANEL P1	42+24	19'-0"	A	1
P104-4	12TH ST	PANEL P1	44+06	19'-0"	A	1
P201-1	MAJOR RD	PANEL P1	50+39	18'-0"	A	1
P201-2	MAJOR RD	PANEL P1	52+06	18'-0"	A	1



HAND HOLE NOTES:
1. PROVIDE TAMPER PROOF LID WITH 'ELECTRIC' DESIGNATION.
2. PROVIDE MINIMUM 12"W x 18"L x 18"D HAND BOX. CONTRACTOR IS RESPONSIBLE TO PROVIDE LARGER BOXES TO ACCOMMODATE CONDUIT AS NEEDED. POLYMER CONCRETE OPEN BOTTOM TIER 22 RATED HAND HOLE OR APPROVED EQUAL.
3. PROVIDE PULL ROPE IN EMPTY CONDUITS.
4. LABEL WIRE IN POWER HAND HOLES WITH THE CIRCUIT NUMBERS.
5. 2" IN GRAVEL AREAS; FLUSH WITH GRADE IN SIDEWALK AND TURF AREA.

TYPICAL PULL BOX DETAIL



SECTION

TYPICAL LIGHT POLE FOUNDATION DETAIL

POLE SCHEDULE

TYPE	POLE	ARM	DESCRIPTION	DESIGN MANUFACTURER/CAT	DESIGN MOUNTING
1	35' SQUARE	N/A	35' SQUARE STRAIGHT STEEL POLE	EXO OUTDOOR LIGHTING/CAT#SSSH35-60B	SQUARE STEEL BASE W/ COVER AND ANCHOR BOLTS SEE FOUNDATION DETAIL, THIS SHEET

LUMINAIRE SCHEDULE

TYPE	LAMP	VOLTAGE	WATTAGE	DESCRIPTION	DESIGN MANUFACTURER / CAT NO.	DESIGN MOUNTING
A	LED	240	100	RATIO AREA SIZE 1 LIGHT FIXTURE, LED, TYPE II DISTRIBUTION	RAR1-160L-100-3K7-2-UNV-ASQ-DBT-BC	35' MOUNTING HEIGHT

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Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL



PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

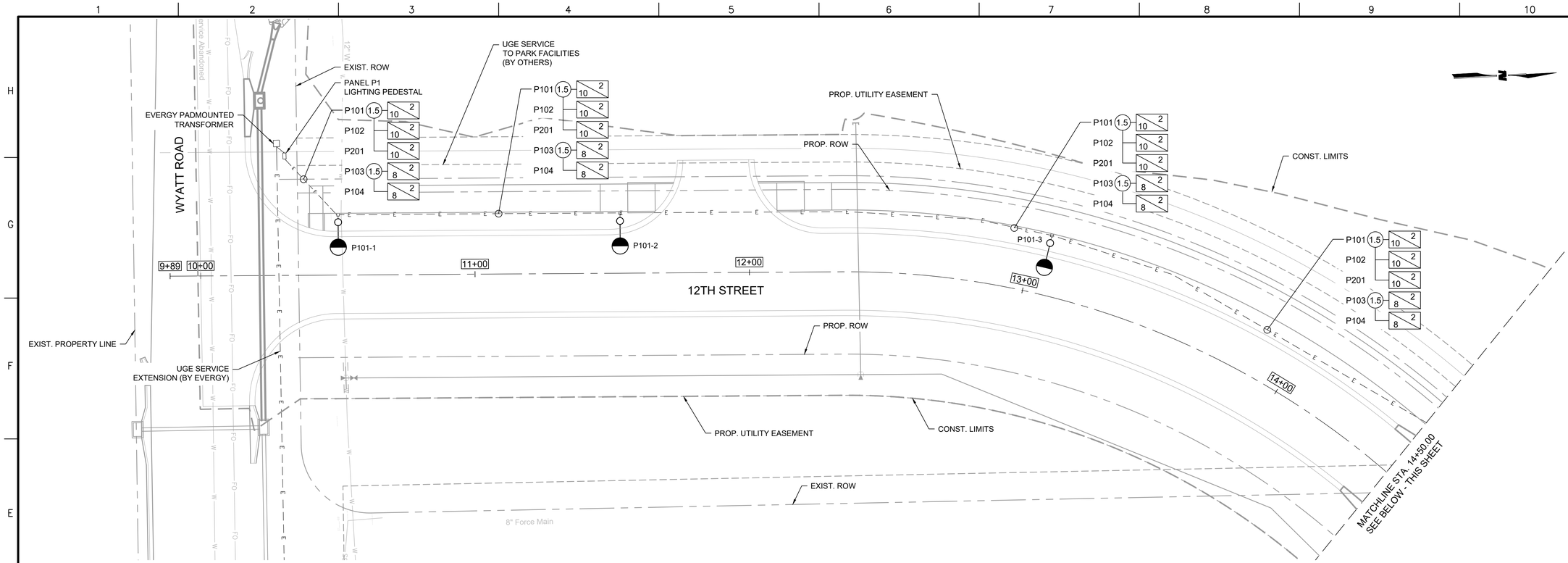
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	CAS
DRAWN BY:	CAS
CHECKED BY:	JTR
DATE:	1/20/2026

SHEET TITLE
ELECTRICAL SINGLE-LINE DIAG. AND SCHEDULES

SHEET NO:
64 of 126

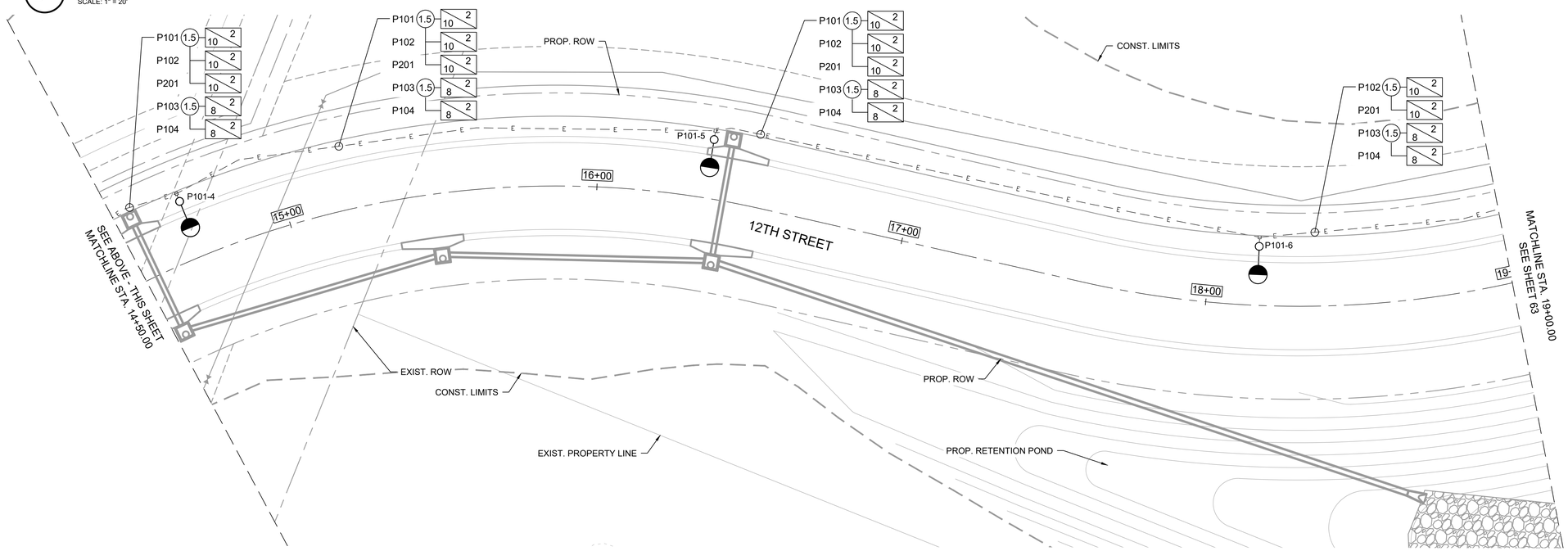
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1/19/2026



D1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'

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CONSULTANTS: Stantec

SEAL: STATE OF MISSOURI · MARC T. HESS · 1-29-26 · NUMBER PE-2010013488 · PROFESSIONAL ENGINEER

PROJECT NAME: 12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

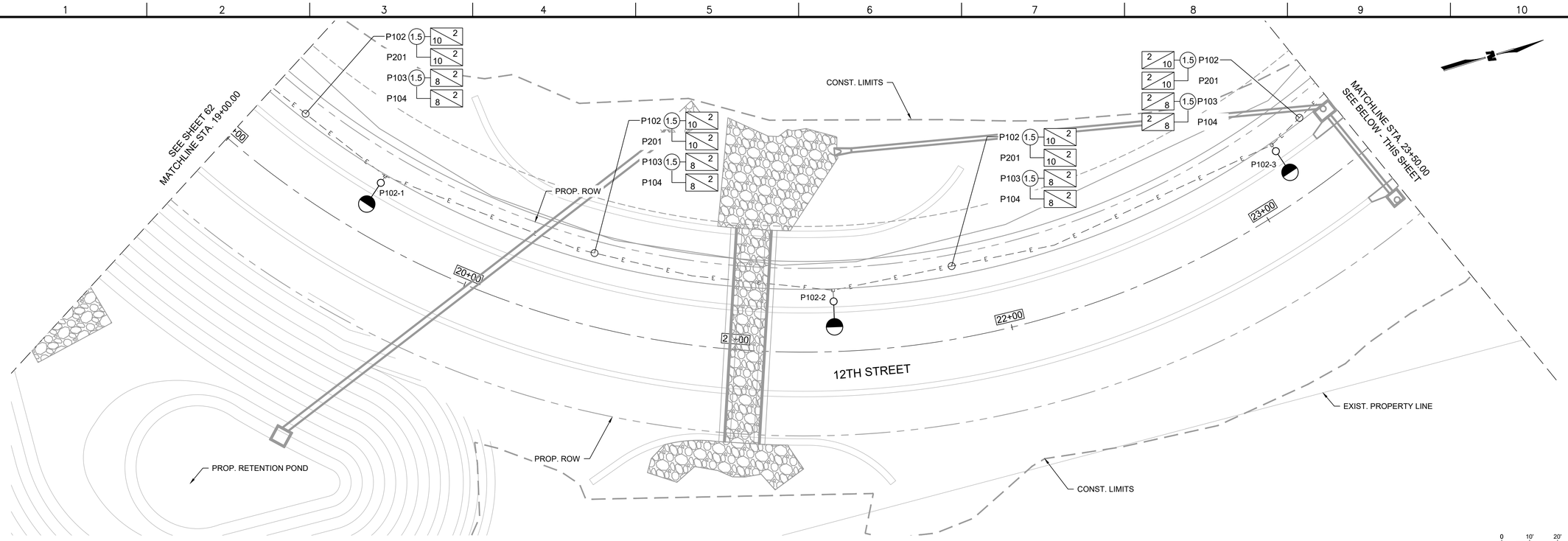
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	CAS
DRAWN BY:	CAS
CHECKED BY:	JTR
DATE:	1/20/2026

SHEET TITLE: LIGHTING PLAN

SHEET NO: 65 of 126

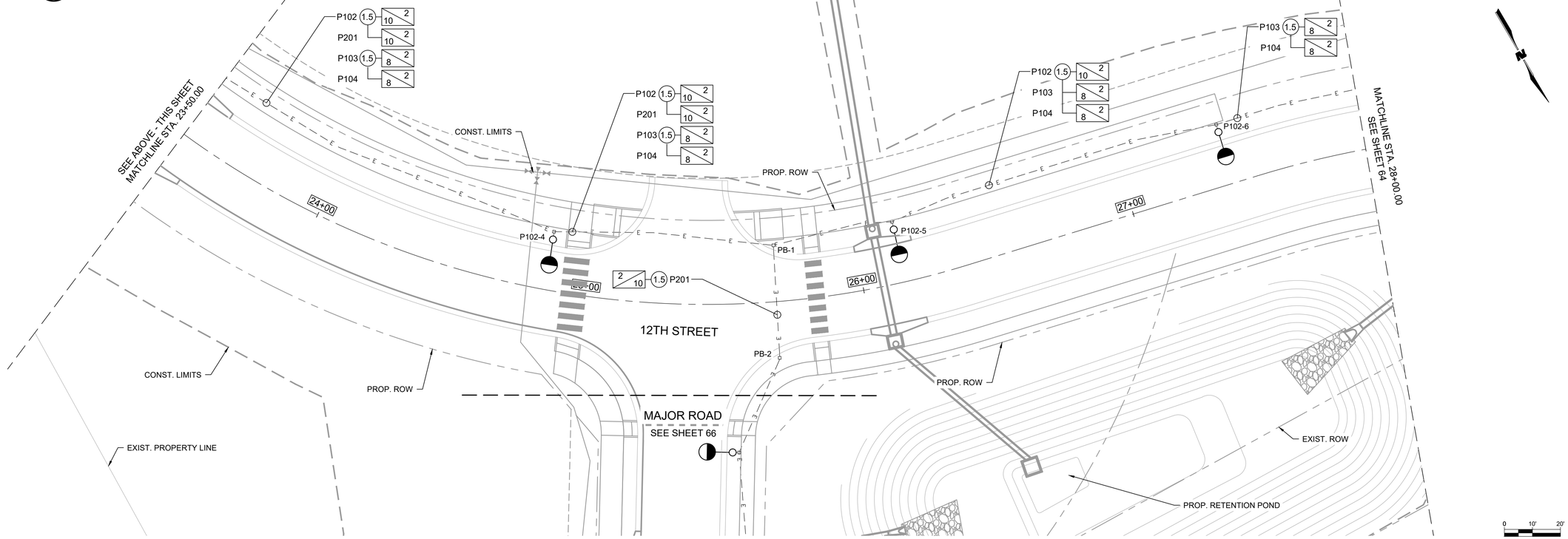
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E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'

W:\Projects\2400101800\3_Disciplines_SHEETS\6_sheets - electrical\2400101800-12th Street Lighting.dwg

1/19/2026

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-333-4300
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS

Stantec

SEAL

STATE OF MISSOURI
MARC T. HESS
1-29-26
NUMBER PE-2010013488
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

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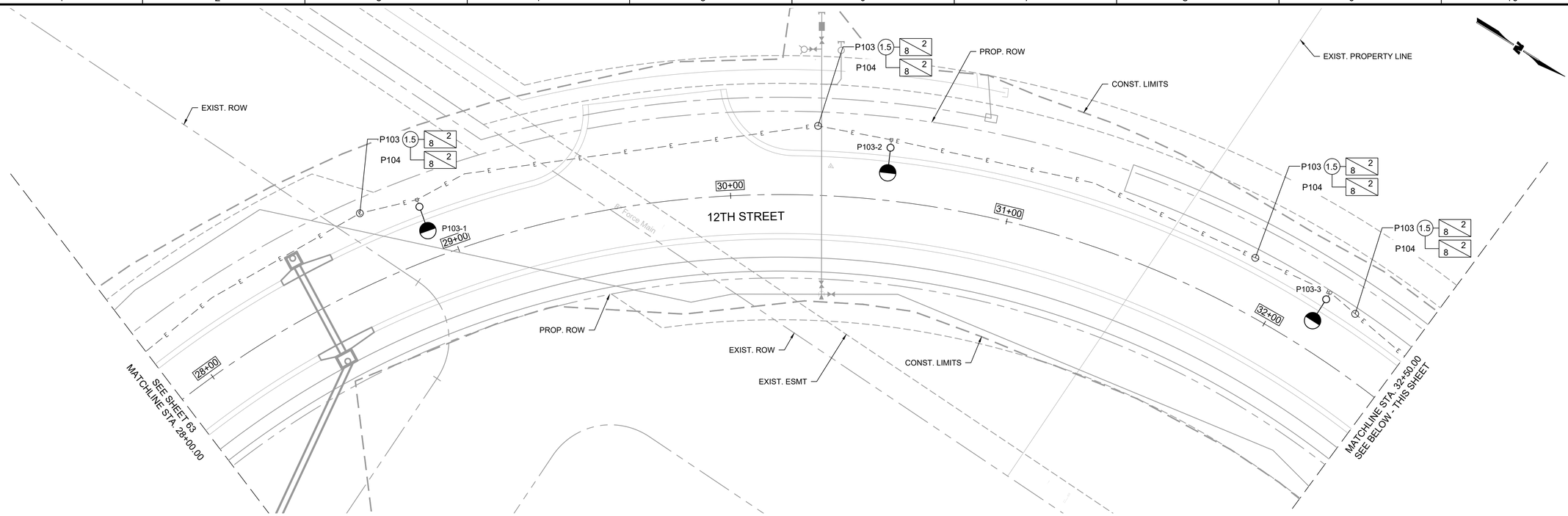
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SHEET TITLE

LIGHTING PLAN

SHEET NO:

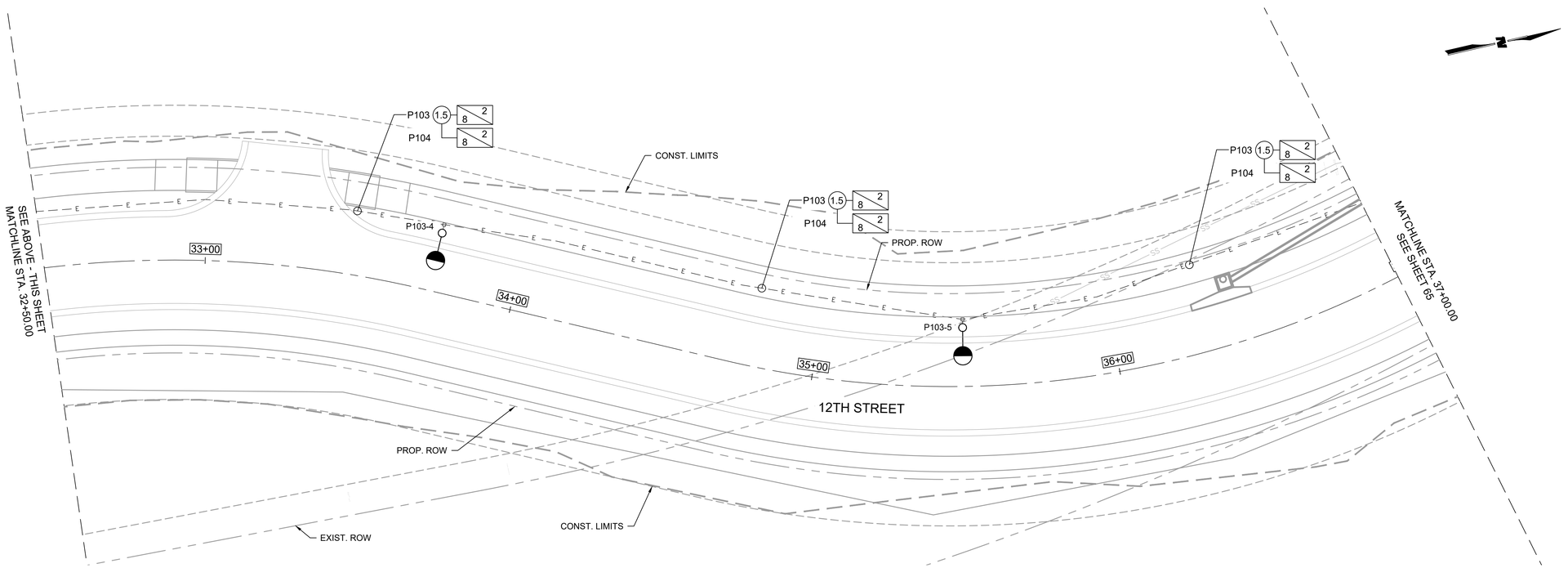
66 of 126



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'

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STATE OF MISSOURI
MARCY HESS
1-29-26
NUMBER PE-2010013488
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

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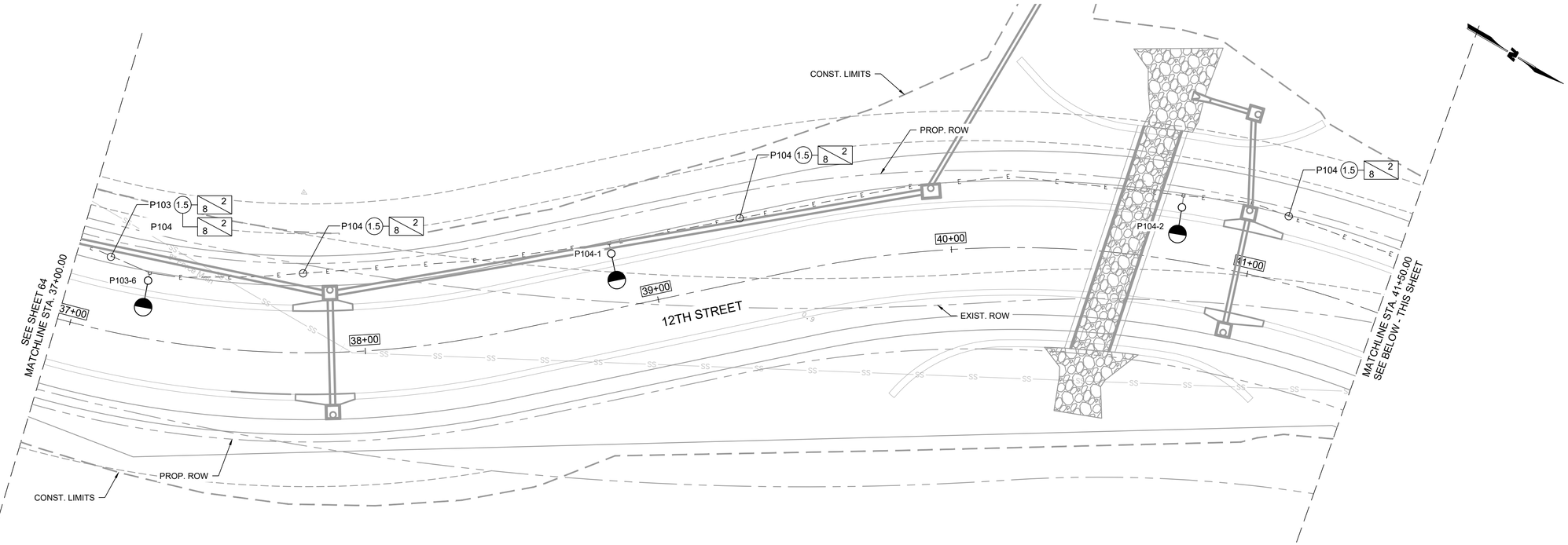
LIGHTING PLAN

SHEET NO:

67 of 126

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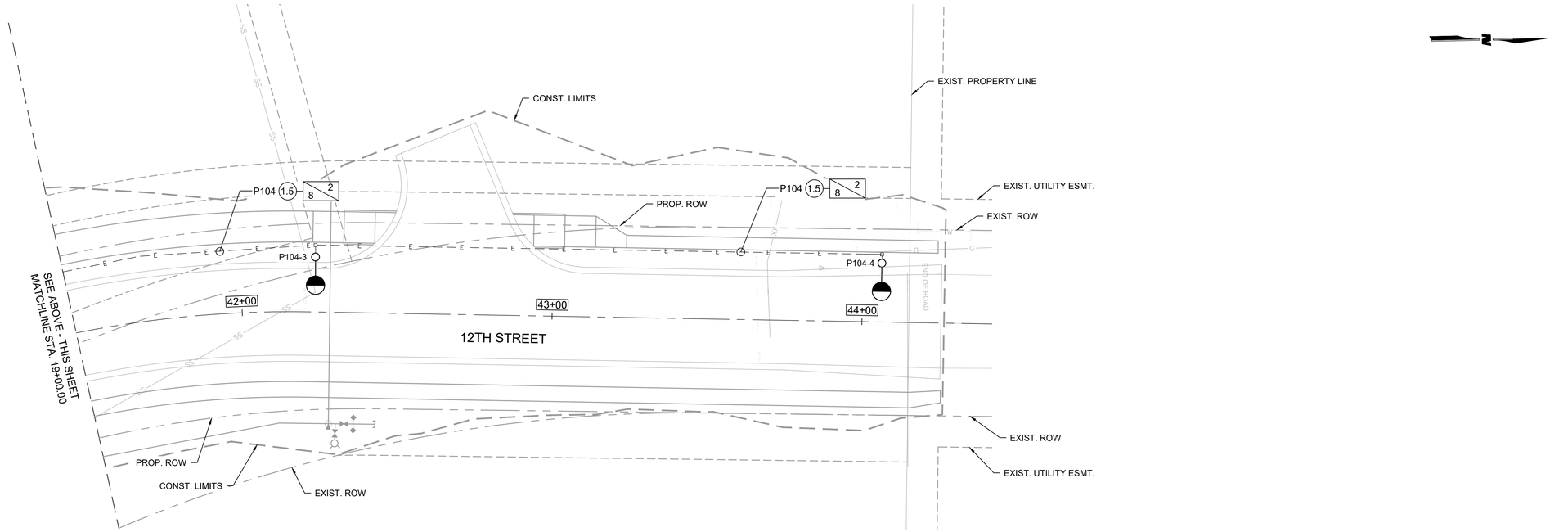
1/19/2026



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'

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12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

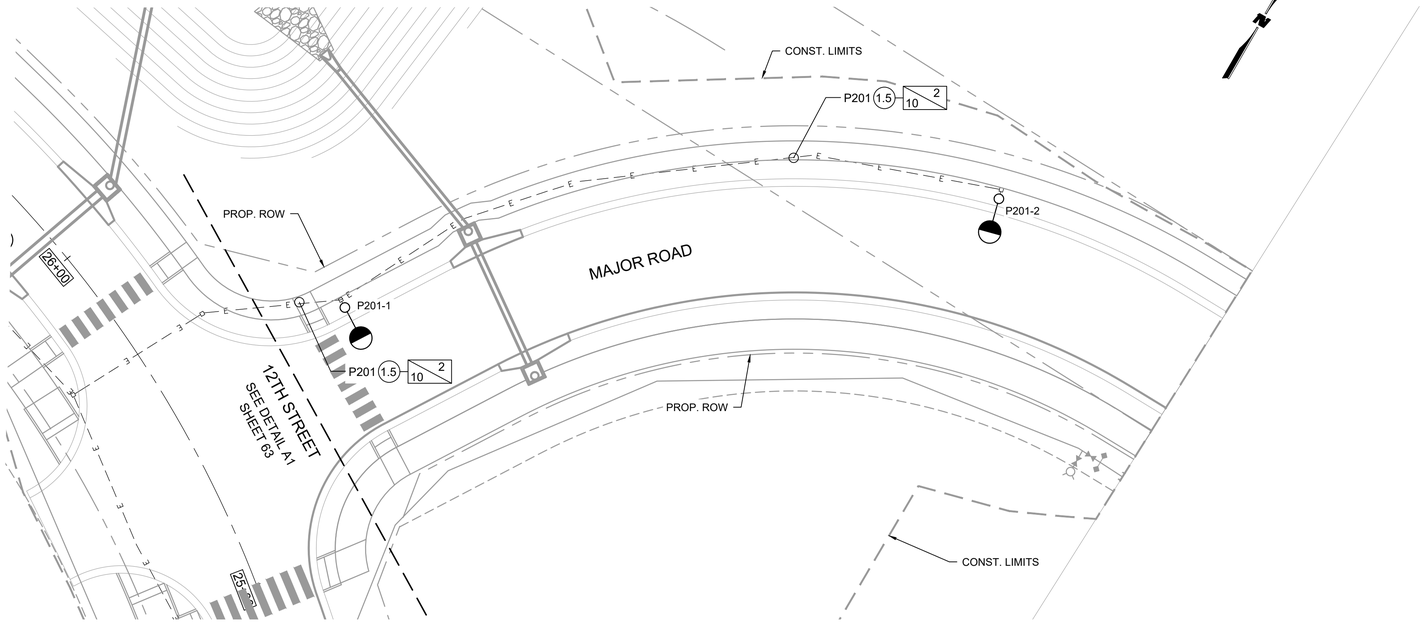
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SHEET TITLE
LIGHTING PLAN

SHEET NO:
68 of 126

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E1 MAJOR RD PLAN

SCALE: 1" = 20'

0 10' 20'

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MARCY HESS
1-29-26
NUMBER PE-2010013488
PROFESSIONAL ENGINEER

PROJECT NAME
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CITY OF BLUE SPRINGS, MO.

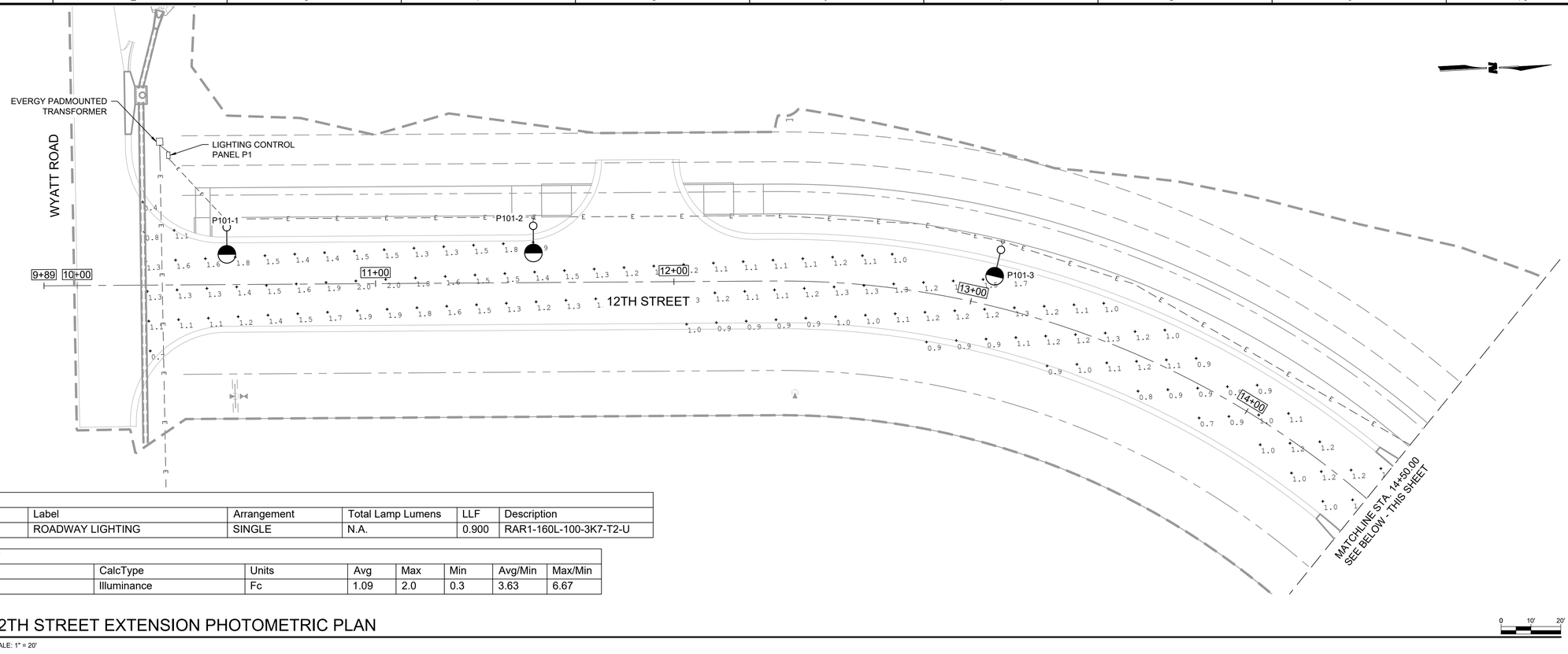
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SHEET TITLE
LIGHTING PLAN

SHEET NO:
69 of 126

1/19/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\6_sheets - electrical\2400101800-12th Street Lighting.dwg

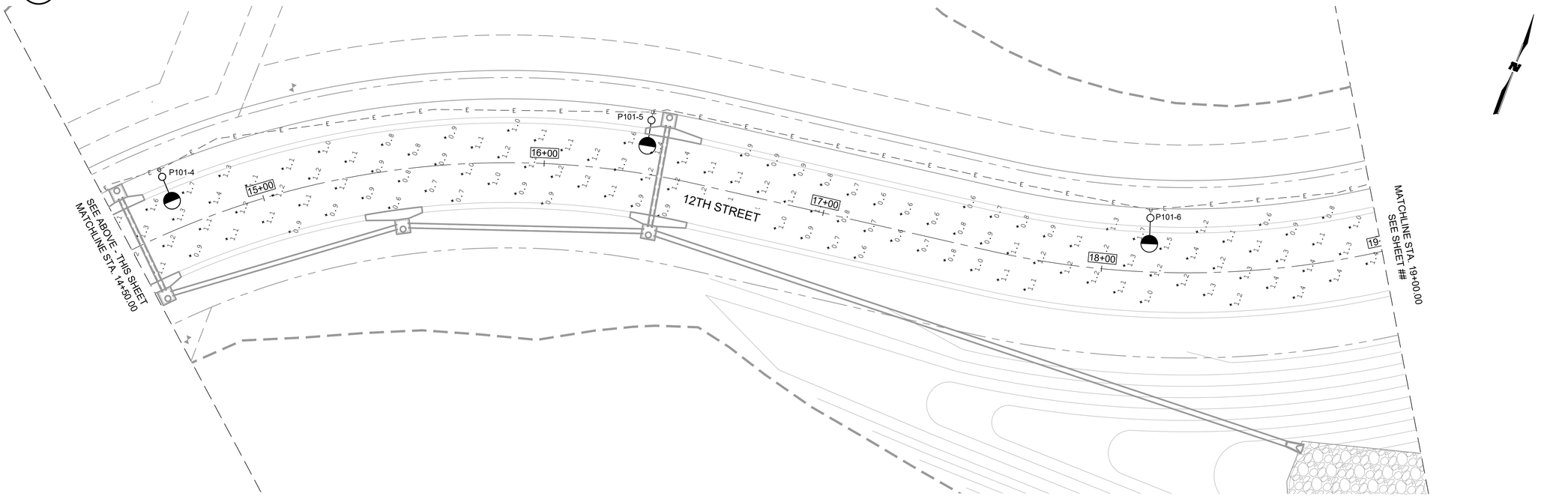


Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	22	ROADWAY LIGHTING	SINGLE	N.A.	0.900	RAR1-160L-100-3K7-T2-U

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
12th St	Illuminance	Fc	1.09	2.0	0.3	3.63	6.67

D1 12TH STREET EXTENSION PHOTOMETRIC PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PHOTOMETRIC PLAN

SCALE: 1" = 20'

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CONSULTANTS: Stantec

SEAL: STATE OF MISSOURI — MARCY HESS — 1-29-26 — NUMBER PE-2012013488 — PROFESSIONAL ENGINEER

PROJECT NAME: 12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

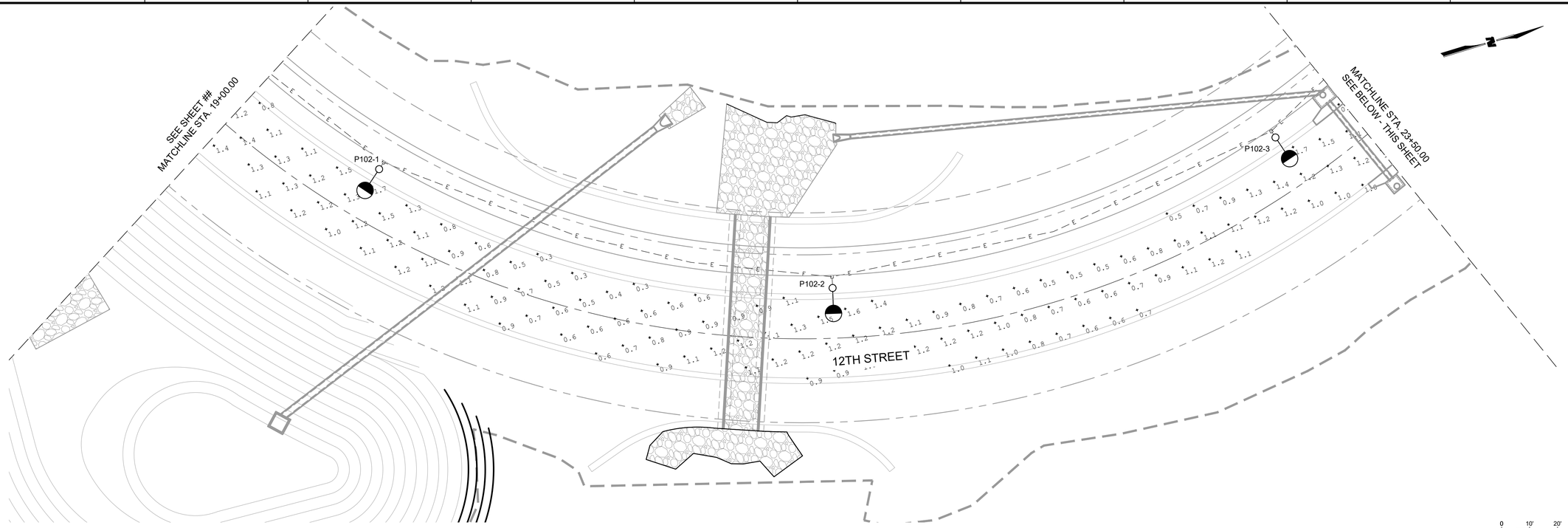
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	CAS
DRAWN BY:	CAS
CHECKED BY:	JTR
DATE:	1/20/2026

SHEET TITLE: PHOTOMETRIC PLAN

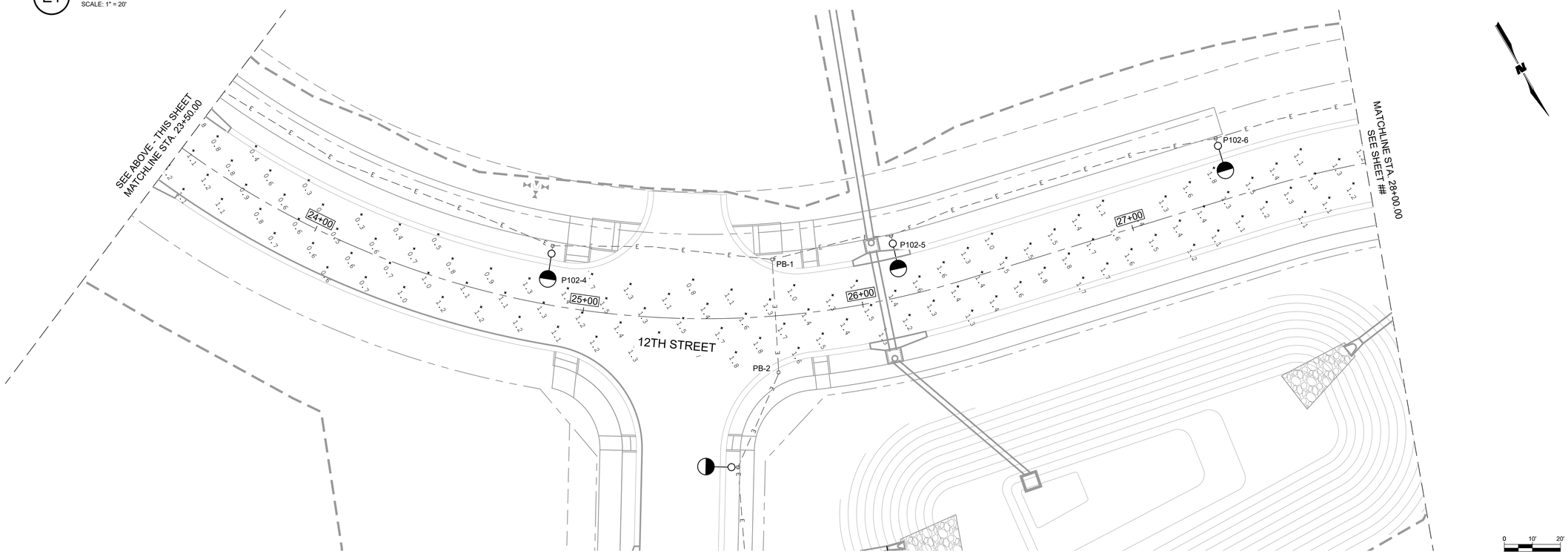
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1/19/2026



E1 12TH STREET EXTENSION PHOTOMETRIC PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PHOTOMETRIC PLAN

SCALE: 1" = 20'

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PROFESSIONAL ENGINEER

PROJECT NAME
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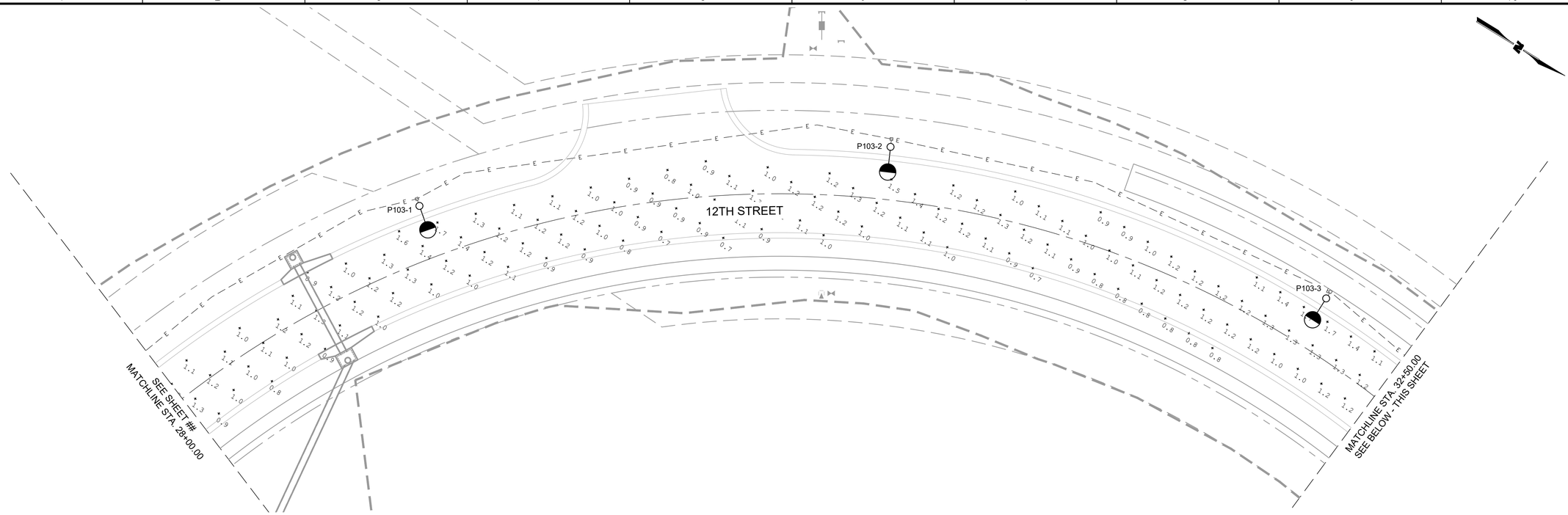
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SHEET TITLE
PHOTOMETRIC PLAN

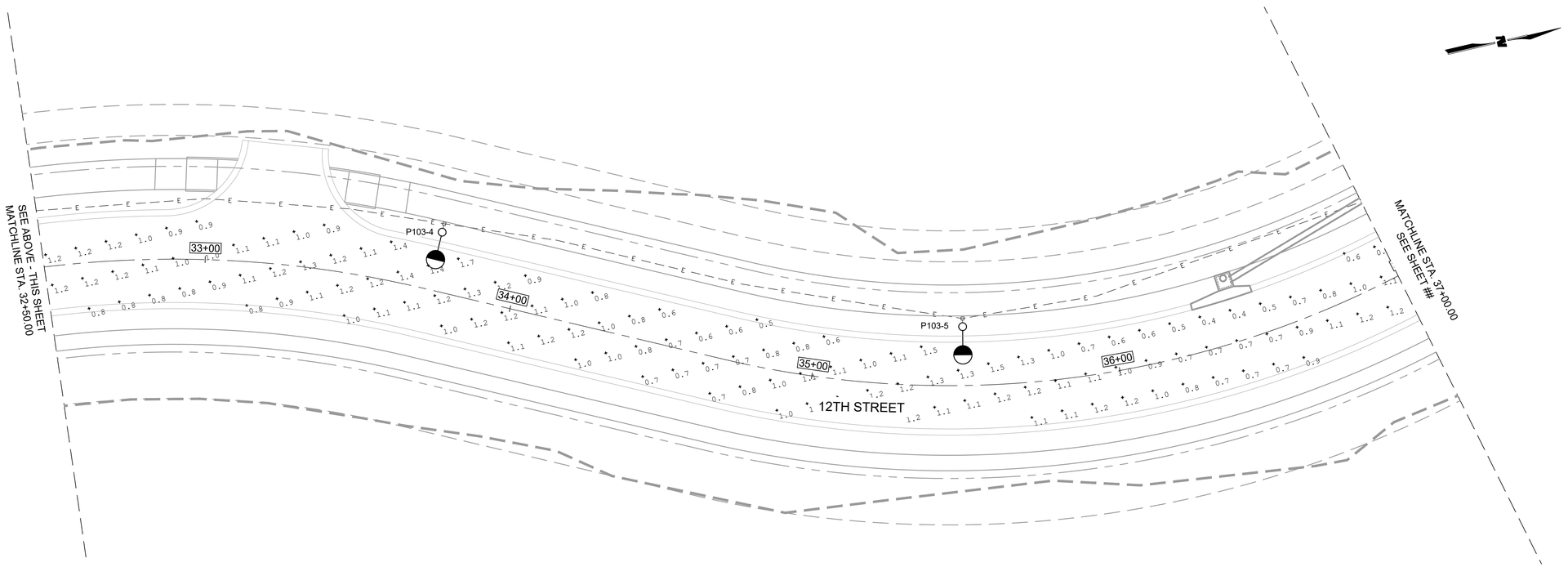
SHEET NO:
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1/19/2026



E1 12TH STREET EXTENSION PHOTOMETRIC PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PHOTOMETRIC PLAN

SCALE: 1" = 20'

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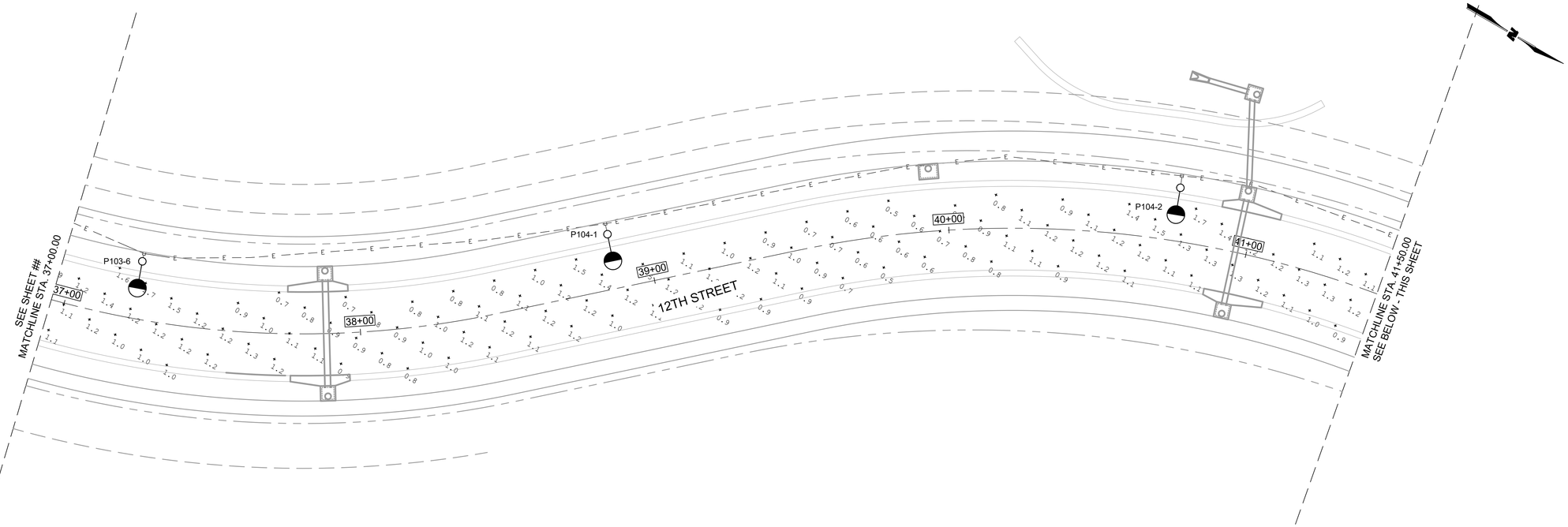
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SHEET TITLE
PHOTOMETRIC PLAN

SHEET NO:
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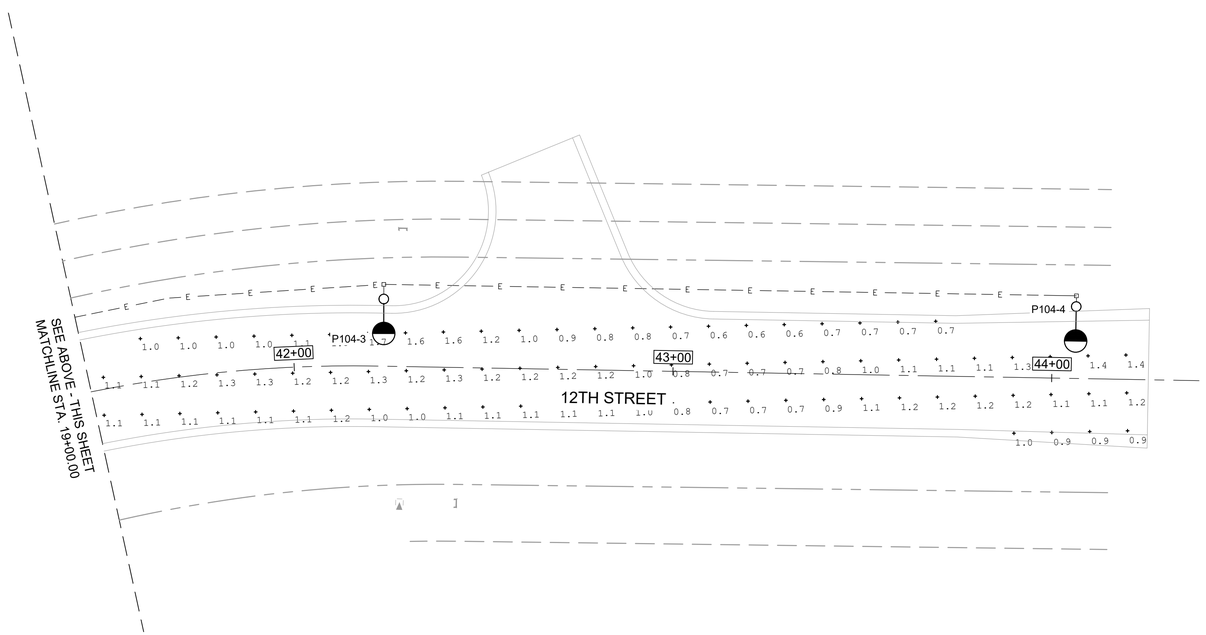
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1/19/2026



E1 12TH STREET EXTENSION PHOTOMETRIC PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PHOTOMETRIC PLAN

SCALE: 1" = 20'

0 10' 20'

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DATE:	1/20/2026

SHEET TITLE

PHOTOMETRIC PLAN

SHEET NO:

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1/19/2026

SOUTHWEST PARK
CITY OF BLUE SPRINGS

CITY OF BLUE SPRINGS
FIRE STATION #3
1101 SW WYATT RD

WYATT ROAD

12TH STREET
(EXIST. R/W)

MAJOR RD

EXIST. FIBER
2" WATER SERVICE LINE ABANDONED
PROP. WATER SERVICE LINE
PROP. R/W
PROP. WATER ESMT.
PROP WATER LINE SEE SH. 43-48
8" FORCE MAIN
EXIST. 12" PVC WATER LINE
EXIST. 8" DIP SAN. SEWER FORCE MAIN
EXIST. SANITARY SEWER ESMT.
4" FORCE MAIN
CP-101 - SET 5/8" IRON BAR W/ YELLOW ORANGE CAP N 1013529.108 E 2850758.247 EL 1057.39
FUTURE SW PARK DEVELOPMENT (BY OTHERS)
PROPOSED SANITARY SEWER GRAVITY MAIN (BY OTHERS)
SANITARY SEWER PERM. CONST. ESMT.
SANITARY SEWER TEMP. CONST. ESMT.
PROP. GAS ESMT.
PROP. ELEC. ESMT.
PROP. UGE SERVICE LINE (BY EVERGY)
PROP. GAS LINE (BY SPIRE)
PROP. SEWER LATERAL STUB-OUT (CAPPED)
PROP. 6" SERVICE LINE, HYDRANT, & BACKFLOW PREVENTOR
MATCHLINE STA. 30+50.00 SEE SHEET 75
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
30+00

0 25' 50'

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SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
OVERALL UTILITY PLAN

SHEET NO:
74 of 126

FUTURE SW PARK DEVELOPMENT

PROP. GAS SERVICE LINE (BY SPIRE)

PROP. UGE SERVICE LINE (BY EVERGY)

MATCHLINE STA 30+50.00' SEE SHEET 74

PROP. R/W

PROP. ELEC. ESMT.

PROP. GAS ESMT.

EXIST. 8" DIP SAN. SEWER FORCE MAIN

EXIST. SANITARY SEWER ESMT.

EX. R/W

PROP. WATER ESMT.

PROP WATER LINE A SEE SH. 43-48

8" FORCE MAIN

PROP. WATER SERVICE LINE

WATER MAIN EXTENSION CAP

EX. 2" FIBER LINE

FOUND REBAR W/ 3-1/2" ALUM CAP (AMP R YNEARSON)

FOUND 3" REBAR (NO CAP) SET IN CONCRETE

0 25' 50'

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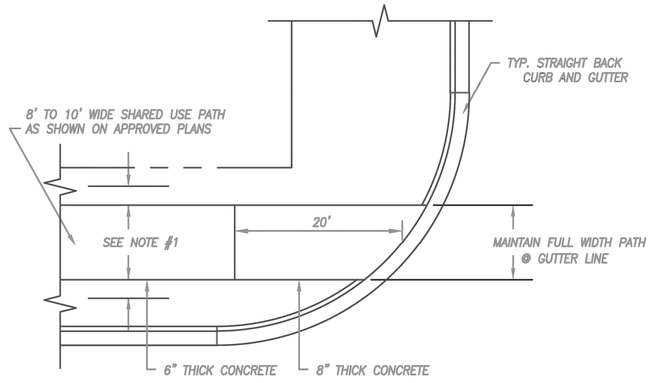
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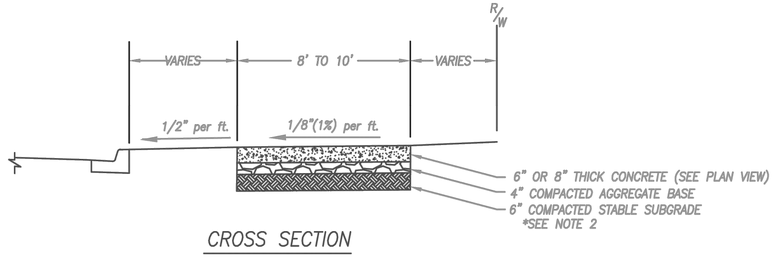
SHEET TITLE
OVERALL UTILITY PLAN

SHEET NO:
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PLAN VIEW



CROSS SECTION

CONCRETE SHARED USE PATH

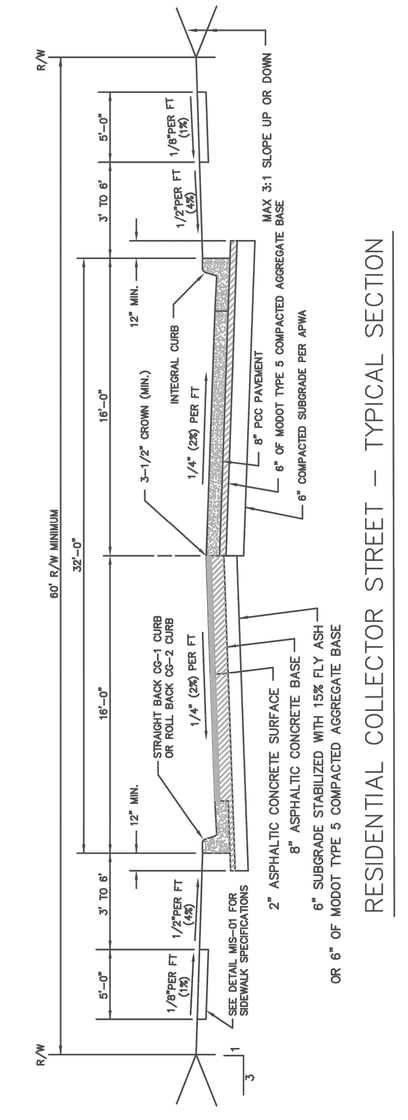
NOTES:
1. MAINTAIN 2' WIDE ZONE CLEAR OF SIGNS, POSTS, RAILINGS, ETC.
2. SHARED USE PATH SHALL BE PLACED ON 6" OF COMPACTED SUBGRADE PER APWA SPECIFICATIONS.
3. EXPANSION JOINTS SHALL BE PLACED EVERY 150' AND CONTRACTION JOINTS SHALL BE SAW CUT EVERY 10'. PICTURE FRAMING (JOINTING AND EDGING) IS NOT ALLOWED.
4. ALL CONCRETE SHALL BE KCMMB 4K MIX.
5. FOR ADA RAMPS, REFER TO MODOT PROWAG SPECIFICATIONS. EXCEPTIONS: REFER TO NOTE #4 FOR CONCRETE SPECIFICATIONS AND NOTE #6 FOR TRUNCATED DOME PANELS ALLOWED.
6. TRUNCATED DOME PANELS SHALL BE ARMOR TILE CAST IN PLACE OR ADA SOLUTIONS CAST IN PLACE SYSTEMS OR APPROVED EQUAL. PANELS SHALL BE BRICK RED IN COLOR. PANEL SHALL BE 2' X WIDTH OF SHARED USE PATH.
7. WHENEVER ANY PORTION OF A CURB INLET TOP SLAB IS UTILIZED FOR A SHARED USE PATH, A FOOTING SHALL BE INSTALLED. SEE STANDARD DETAIL MIS–02. IF A TOP SLAB IS USED FOR A PORTION OF THE SIDEWALK, IT MUST MEET ADA CROSS SLOPE REQUIREMENTS.
8. SHARED USE PATH SHALL MEET MoDOT AND PROWAG ADA REQUIREMENTS.

Blue Springs Missouri

STANDARD DETAILS

CONCRETE SHARED USE PATH

REVISIONS				DRAWN BY: PWC	DATE: 04–11–06
NO.	DATE	BY	REMARKS	DETAIL NO.: MIS–04	SCALE: NO SCALE
1	04/18	TSD	REPLACED ASPHALT SHARED USE PATH	APPROVED BY:	



RESIDENTIAL COLLECTOR STREET – TYPICAL SECTION

NOTES:
1. CONSTRUCT ADA COMPLIANT SIDEWALK ON EACH SIDE OF STREET
2. ALL PCC CONCRETE SHALL BE KCMMB 4K MIX.
3. PCC PAVEMENT ALLOWED ONLY WITH APPROVAL FROM THE CITY OF BLUE SPRINGS PUBLIC WORKS DIRECTOR.
4. AC MIXES SHALL CONFORM TO APWA. RECYCLED ALLOWED IN BASE AC ONLY. NO SHINGLES ALLOWED IN MIX DESIGN.
5. SIDEWALK SHALL BE PLACED ON 6" OF COMPACTED SUBGRADE PER APWA SPECIFICATIONS.
6. FOR DRIVEWAY DETAIL SEE MIS–03
7. THERE SHALL BE A MINIMUM OF 1' OF R/W BEHIND THE SIDEWALK.

Blue Springs Missouri

STANDARD DETAILS

RESIDENTIAL COLLECTOR STREET

REVISIONS				DRAWN BY: SPJ	DATE: 1–22–93
NO.	DATE	BY	REMARKS	DETAIL NO.: STR–02	SCALE: NO SCALE
1	01/14	BM	GENERAL UPDATE	APPROVED BY:	
2	04/18	TSD	GENERAL UPDATE		

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CONSULTANTS: Stantec

SEAL: STATE OF MISSOURI — DARREN JOHN MEYER — NUMBER PE-2024000077 — 1/20/2026 — PROFESSIONAL ENGINEER

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CITY OF BLUE SPRINGS, MO.

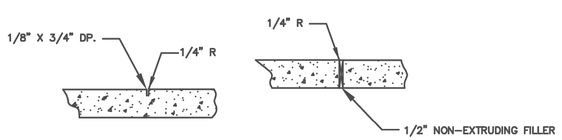
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DATE:	1/20/2026

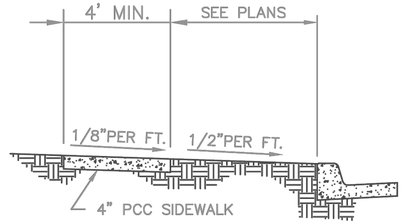
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SHEET NO: 76 of 126

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1/20/2026



SIDEWALK JOINT DETAILS



TYPICAL SIDEWALK SECTION

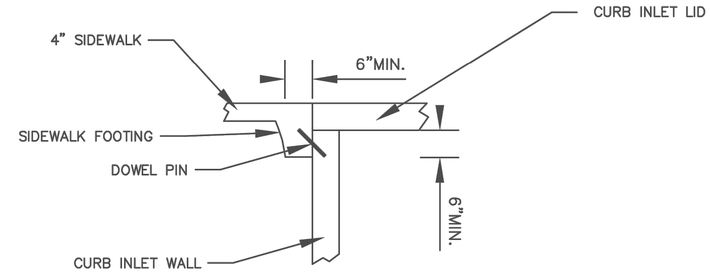
NOTES:
1. CONTRACTION JOINTS 4' O.C. OR EQUAL TO THE WIDTH OF SIDEWALK.
2. EXPANSION JOINTS SHALL ABUT EXISTING WALKS, CURBS, DRIVEWAYS, SIMILAR STRUCTURES AND 150' CTRS. MAXIMUM.
3. SIDEWALK SHALL BE PLACED ON 6" OF COMPACTED SUBGRADE PER APWA SPECIFICATIONS.
4. KEY ALL CONSTRUCTION JOINTS.
5. SIDEWALK THICKNESS SHALL BE INCREASED TO 6" MINIMUM WHEN CROSSING A RESIDENTIAL DRIVEWAY AND SHALL MATCH THE THICKNESS OF THE CONCRETE WHEN CROSSING A COMMERCIAL DRIVEWAY.
6. ALL CONCRETE SHALL BE KCMMB 4K MIX.
7. FOR ALL ADA RAMPS AND SIDEWALKS, REFER TO MODOT PROWAG SPECIFICATIONS. EXCEPTIONS: REFER TO NOTE #6 FOR CONCRETE SPECIFICATIONS AND NOTE #8 FOR TRUNCATED DOME PANELS ALLOWED.
8. TRUNCATED DOME PANELS SHALL BE ARMOR TILE CAST IN PLACE OR ADA SOLUTIONS CAST IN PLACE SYSTEMS OR APPROVED EQUAL. PANELS SHALL BE BRICK RED IN COLOR. PANEL SHALL BE 2' X WIDTH OF SIDEWALK.
9. WHENEVER ANY PORTION OF A CURB INLET LID IS UTILIZED FOR SIDEWALK, A FOOTING SHALL BE INSTALLED. SEE STANDARD DETAIL MIS-02.
10. ALL SIDEWALK SHALL MEET MoDOT AND PROWAG ADA REQUIREMENTS.
11. ANY SIDEWALK INSTALLED PARALLEL TO THE STREET WITH A GREEN SPACE LESS THAN 3' WIDE BETWEEN THE BACK OF THE CURB AND THE SIDEWALK, THE SIDEWALK THICKNESS SHALL BE INCREASED TO 6" AND THE SIDEWALK WIDTH INCREASED BY 1'.
12. SIDEWALK SHALL BE 6" THICK AT STREET INTERSECTIONS FROM THE BACK OF CURB FOR THE FIRST 8 LINEAL FEET AND SHALL BE A MINIMUM OF 5' WIDE FROM THE BACK OF CURB THROUGH THE LANDING.
13. SIDEWALK SHALL BE INSTALLED AT THE WIDTH SHOWN ON THE CONSTRUCTION PLANS.

Blue Springs Missouri

STANDARD DETAILS

SIDEWALK SECTION

REVISIONS				DRAWN BY: SPJ	DATE: 2-3-93
NO.	DATE	BY	REMARKS	DETAIL NO.: MIS-01	SCALE: NO SCALE
1	01/14	BM	GENERAL UPDATE	APPROVED BY:	
2	04/18	TSD	GENERAL UPDATE		



NOTES:
1. DOWEL PINS SHALL BE #4 BARS, 7" LONG, INSERTED A MINIMUM OF 3" AND A MAXIMUM OF 4" INTO CURB INLET WALL.
2. EXPANSION JOINTS SHALL BE PLACED AROUND THE LID WHERE THE SIDEWALK ABUTS AND SHALL ISOLATE THE SIDEWALK FROM THE FULL DEPTH OF THE LID. THESE SHALL NOT BE COUNTED TOWARDS THE EXPANSION REQUIRED.
3. DOWEL PINS SHALL BE PLACED ON 18" CENTERS WITH A MINIMUM OF ONE PER EVERY SIDE AFFECTED.
4. FOOTING SHALL BE USED WHENEVER ANY PORTION OF THE CURB INLET LID IS UTILIZED FOR SIDEWALK AND TOP . OF CURB INLET AND SIDEWALK SHALL BE FLUSH. IF CURB INLET LID IS USED IT MUST MEET ADA CROSS SLOPE REQUIREMENTS.
5. COST OF FOOTING IS SUBSIDAIRY TO THE SIDEWALK BID.

SIDEWALK FOOTING AT CURB INLET DETAIL

Blue Springs Missouri

STANDARD DETAILS

SIDEWALK FOOTING AT C.I.

REVISIONS				DRAWN BY: PWC	DATE: 03-20-14
NO.	DATE	BY	REMARKS	DETAIL NO.: MIS-02	SCALE: NO SCALE
1	04/18	TSD	GENERAL UPDATE	APPROVED BY:	

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Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

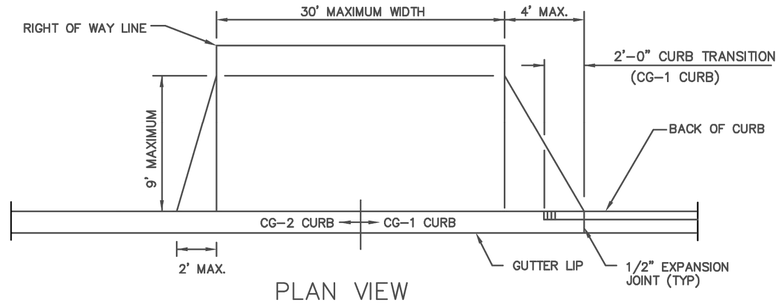
NO.	DESCRIPTION	DATE	BY
REV.			

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

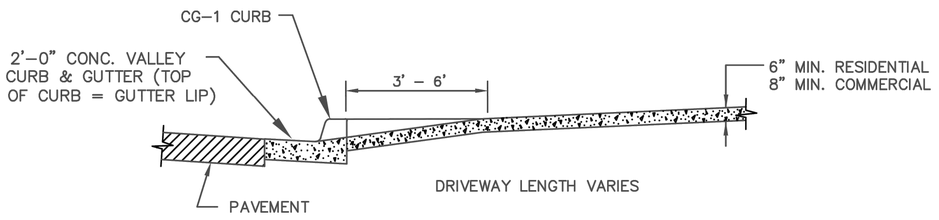
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STANDARD DETAILS

SHEET NO:
77 of 126

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1/20/2026

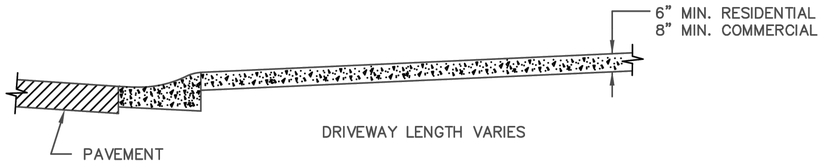


PLAN VIEW



SECTION WITH STRAIGHT BACK CURB (CG-1)

DRIVEWAY DETAIL WITH CURB TRANSITION



SECTION WITH ROLL BACK CURB (CG-2)

DRIVEWAY DETAIL

NOTE:
1. WINGS NOT REQUIRED FOR DRIVEWAY WITH NO TRANSITION.
2. GUTTER FLOW LINE SHALL BE MANTAINED.
3. ALL CONCRETE WITHIN THE RIGHT OF WAY SHALL BE KCMMB 4K MIX. EXCEPTION: DRIVEWAYS LOCATED ON THE NON SIDEWALK SIDE OF THE STREET ARE NOT REQUIRED TO USE KCMMB FOR DRIVEWAY CONSTRUCTION.
4. DRIVEWAY WIDTH IN THE RIGHT OF WAY SHALL MATCH WHAT IS SHOWN ON THE APPROVED PLOT PLAN. WINGS THAT DO NOT EXCEED THE PLAN VIEW SHOWN ABOVE DO NOT COUNT TOWARDS THE DRIVEWAY WIDTH.
5. ON DRIVEWAYS WHERE A SIDEWALK CROSSES, ADA CROSS SLOPE (2% MAXIMUM) REQUIREMENTS SHALL BE MET. THE CITY RECOMMENDS A 1% CROSS SLOPE.
6. REFER TO THE DESIGN AND CONSTRUCTION MANUAL FOR FURTHER REQUIREMENTS.

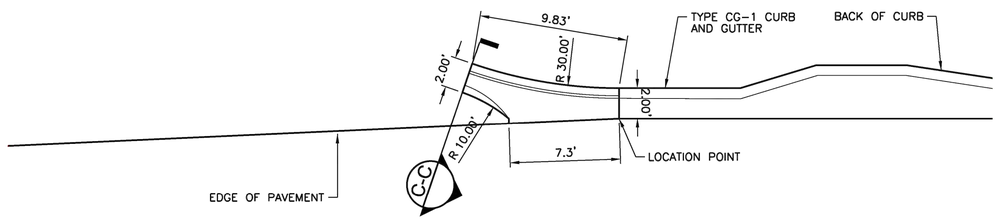
Blue Springs Missouri

REVISIONS			
NO.	DATE	BY	REMARKS
1	01/14	BM	GENERAL UPDATE
2	04/18	TSD	GENERAL UPDATE

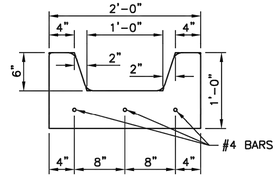
STANDARD DETAILS

RESIDENTIAL DRIVEWAY

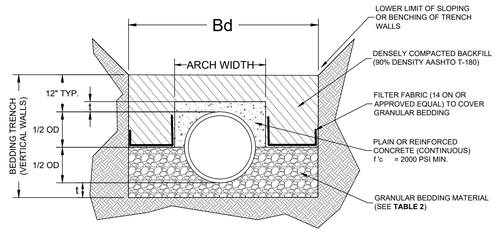
DRAWN BY: SPJ	DATE: 2-22-95
DETAIL NO.: MIS-03	SCALE: NO SCALE
APPROVED BY:	



CONCRETE FLUME DETAIL



SECTION C-C



CONCRETE ARCH

NO SCALE

TABLE 2. CONCRETE BEDDING REQUIREMENTS
(CONCRETE CRADLE OR CONCRETE ARCH)

NOMINAL DIAMETER, D	MINIMUM THICKNESS, t	MIN. WIDTH OF CRADLE OR ARCH
18" & SMALLER	4"	OD + 8"
21" TO 24"	6"	OD + 8"
27" TO 33"	8"	OD + 8"
36" TO 42"	10"	1.25 OD
48" & LARGER	1/4" D	1.25 OD

LEGEND
Bd = TRENCH WIDTH, INCLUDING SHORING (SEE **S-301.1**)
D= INSIDE DIAMETER OF PIPE, OR SPAN DIMENSION FOR ARCH OR ELLIPTICAL
OD= OUTSIDE DIAMETER OF PIPE
t= CONCRETE BEDDING THICKNESS

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FAX: 816-942-3013
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Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

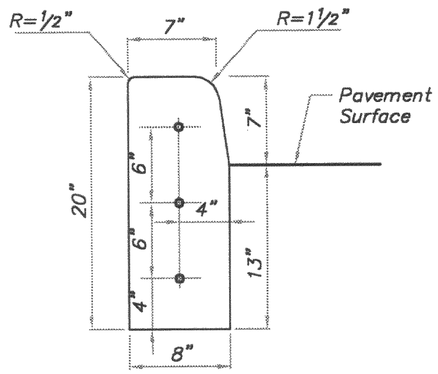
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

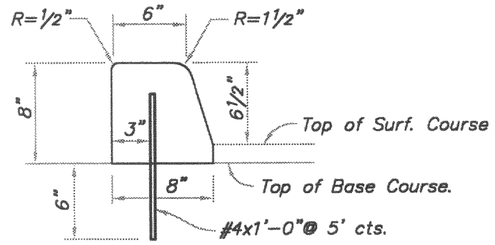
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STANDARD DETAILS

SHEET NO:
78 of 126

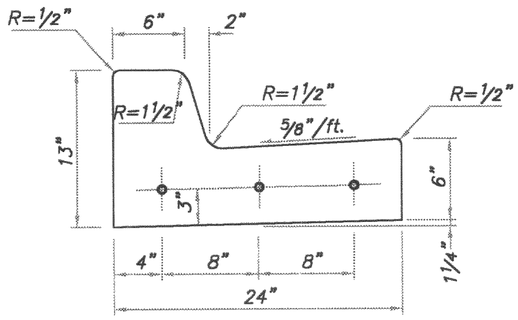
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1/20/2026



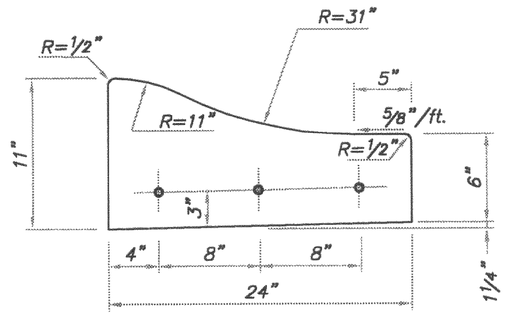
STRAIGHT CURB
(TYPE C–1)



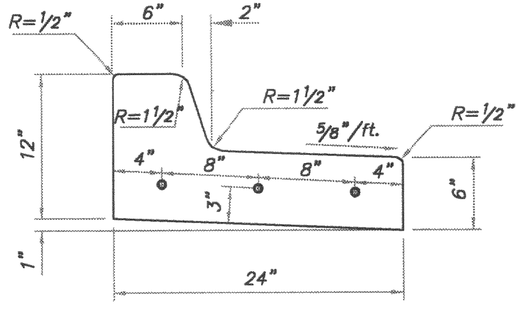
DOWELLED CURB
(TYPE DC)



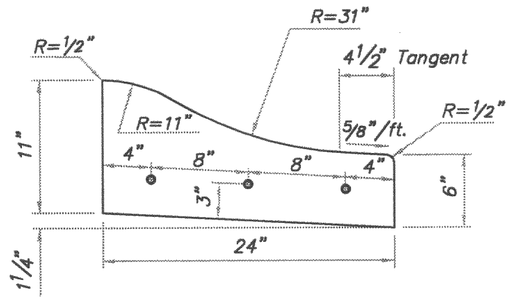
STRAIGHT BACK CURB & GUTTER
(TYPE CG–1)



ROLL BACK CURB & GUTTER
(TYPE CG–2)



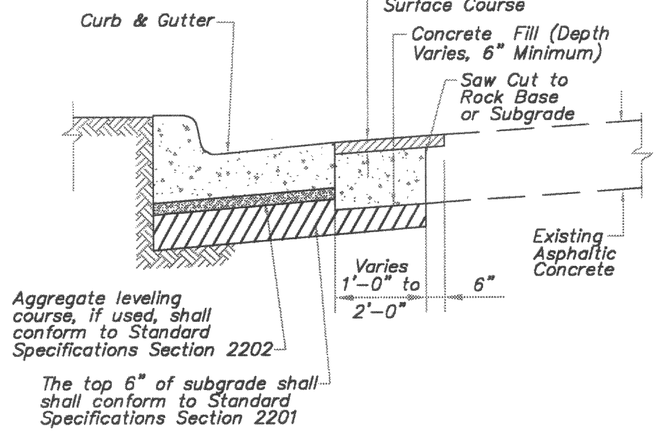
STRAIGHT BACK DRY CURB & GUTTER
(TYPE CG–1 DRY)



ROLL BACK DRY CURB & GUTTER
(TYPE CG–2 DRY)

GENERAL NOTES:

1. 3/4" Isolation Joints with 5/8" dia. x 2' smooth dowels shall be placed at radius points and at 150' intervals. These dowel bars shall be greased and wrapped on one end with expansion tubes.
2. 1" deep Contraction Joints shall be installed at approximately 10' intervals. These joints shall pass across the entire curb section.
3. Fix dowel bars with bar supports.
4. Depth of curb shall be a minimum of 8" through the handicap access ramp.
5. Concrete shall conform to Standard Specifications Section 2208.2.B.
6. Asphaltic concrete surface course shall conform to Standard Specifications Section 2205.2.



CURB REPLACEMENT DETAIL

AMERICAN PUBLIC WORKS ASSOCIATION
APWA KANSAS CITY METROPOLITAN CHAPTER

CURB DETAILS

STANDARD DRAWING NUMBER C – 1
ADOPTED: MAY 23, 2001

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
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Cert. of Authority # 2003007599

CONSULTANTS
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SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

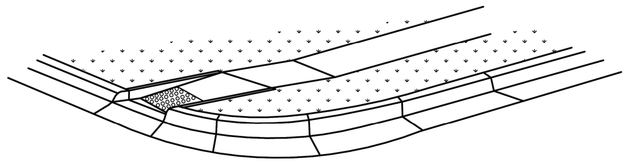
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DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

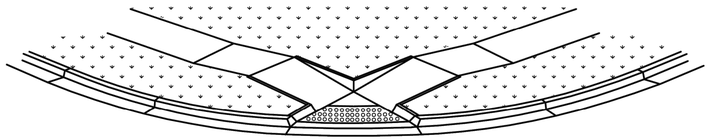
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STANDARD DETAILS

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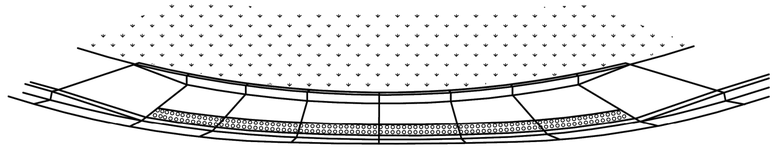
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1/20/2026



3–D View Type A
Sidewalk Ramp
Not to Scale



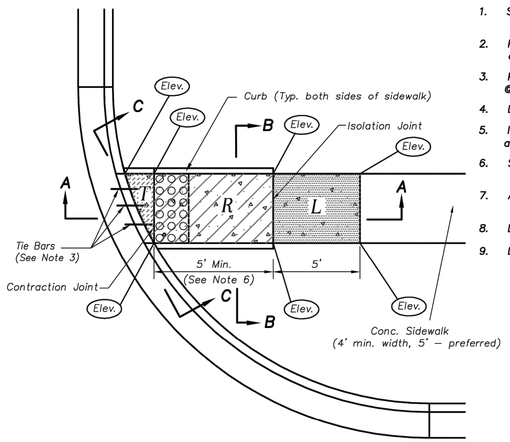
3–D View Type B
Sidewalk Ramp
Not to Scale



3–D View Type C
Sidewalk Ramp
Not to Scale

Sidewalk Ramp Notes:

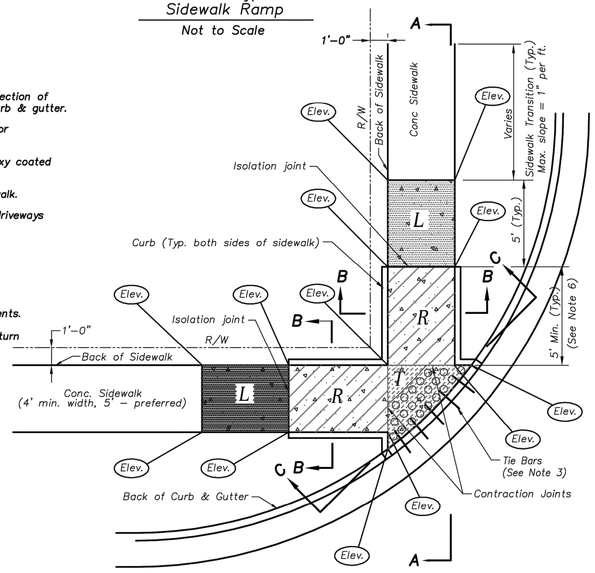
1. Sidewalk ramp location determined from the intersection of the extension of back of sidewalk and back of curb & gutter.
2. Plan drawings shall include a table of elevations for all points labelled as (Elev.).
3. Key all construction joints or use tie bars #4 epoxy coated @ 12" o.c.
4. Longitudinal joint spacing to match width of sidewalk.
5. Isolation joints shall be placed where walk abuts driveways and similar structures, and 250' centers max.
6. Sidewalk Ramp shall be lengthened to provide ADA compliance slope but need not exceed 15'.
7. ADA maximum ramp slope = 1"/Ft. ADA maximum cross slope = 2%.
8. Detectable warnings to comply with ADA requirements.
9. Landing for Type C ramp along the entire curb return is preferred, but may be shortened to minimum ADA compliant dimension.



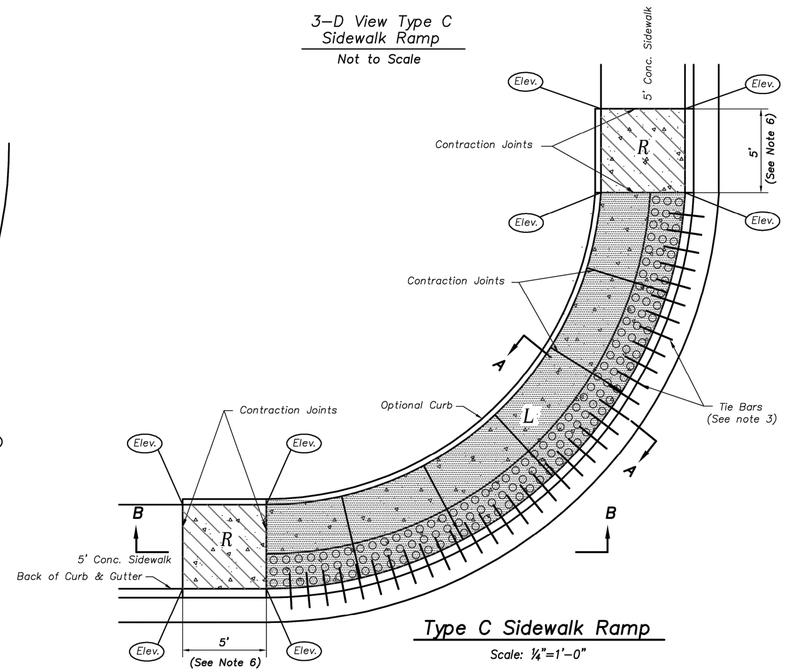
Type A Sidewalk Ramp
Scale: ¼"=1'–0"

Legend:

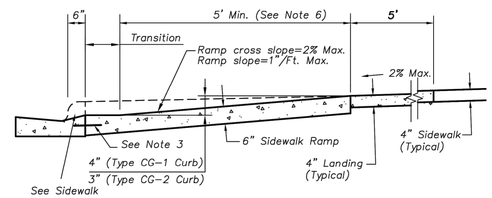
- R — Ramp
- L — Landing
- 2' Wide Detectable Warning
- T — Transition



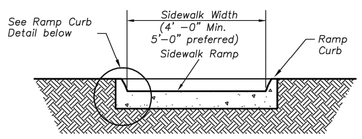
Type B Sidewalk Ramp
Scale: ¼"=1'–0"



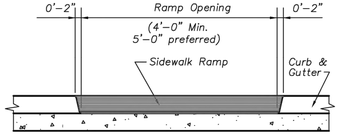
Type C Sidewalk Ramp
Scale: ¼"=1'–0"



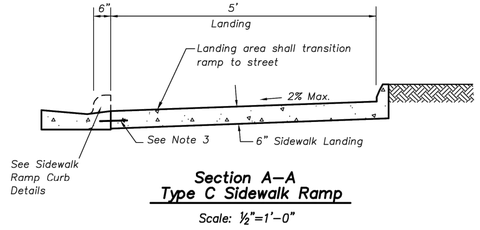
Section A–A
Type A & B Sidewalk Ramp
Scale: ½"=1'–0"



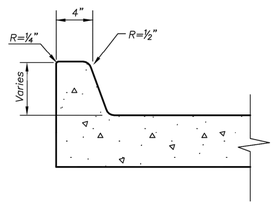
Section B–B
Type A & B Sidewalk Ramp
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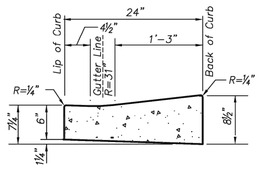
Section C–C
Type A & B Sidewalk Ramp
Scale: ½"=1'–0"



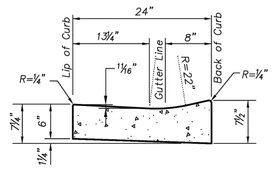
Section A–A
Type C Sidewalk Ramp
Scale: ½"=1'–0"



Ramp Curb Detail
Scale: 1 1/2" = 1'–0"

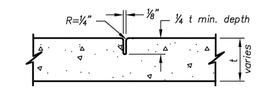


Use With Type CG–2 Curb
Scale: 1"=1'–0"

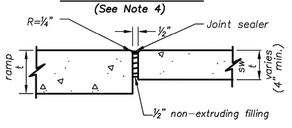


Use With Type CG–1 Curb
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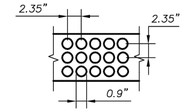
Street Curb Detail at Ramp



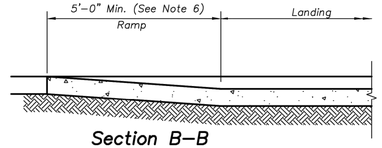
Contraction Joint
(See Note 4)



Isolation Joint
(See Note 5)



Detectable Warning
Dome Spacing and Section
Not to Scale



Section B–B
Type C Sidewalk Ramp
Scale: ½"=1'–0"

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METROPOLITAN CHAPTER

SIDEWALK RAMP DETAILS

STANDARD DRAWING NUMBER SW-1
ADOPTED: DECEMBER 18, 2002

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
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Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

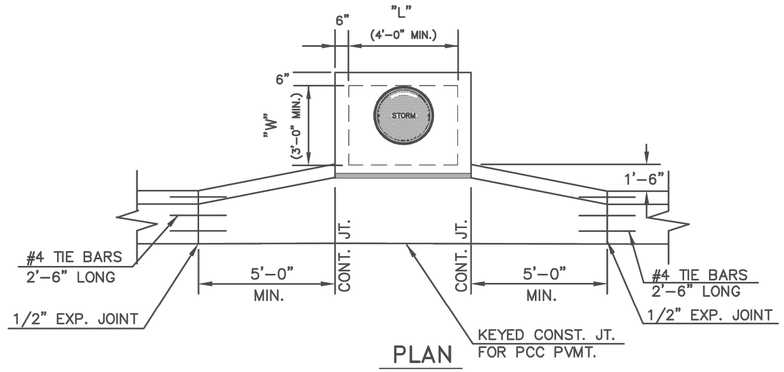
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

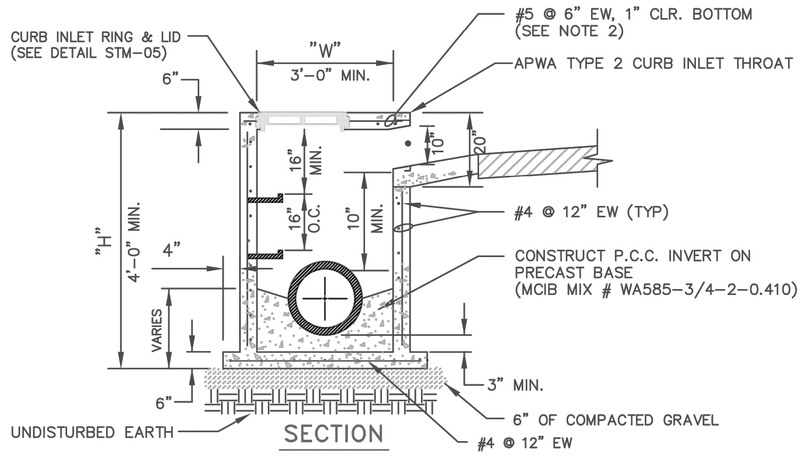
SHEET TITLE
STANDARD DETAILS

SHEET NO:
80 of 126

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1/20/2026



PLAN



SECTION

PRECAST CURB INLET

NOTES:
1. REMOVE LIFTING HOOKS FLUSH UPON PLACEMENT OF TOP SLAB AND GROUT AS NECESSARY TO REPAIR.
2. TOP SLAB REINFORCEMENT SHALL ALSO INCLUDE 2 #5 @ 4" DIAGONAL FOUR SIDES OF OPENING.
3. TOP SLAB SHALL BE SET @ 1/2" PER FOOT SLOPE (TYP) TO THE INLET THROAT. EXCEPTION: IF ANY PORTION OF THE TOP SLAB IS UTILIZED AS SIDEWALK, THE SLOPE SHALL MEET ADA CROSS SLOPE REQUIREMENTS (SEE DETAIL MIS-01).
4. INLET SHALL BE BACKFILLED TO WITHIN 1' OF FINISH GRADE USING KDOT AB-3 ROCK
5. ON-GRADE INLETS SHALL CONFORM TO STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
6. INLET LOCATION SHALL NOT CONFLICT WITH ADA RAMPS OR CURB RETURNS.
7. RING & LID SHALL BE ALIGNED WITH STEPS.
8. TOP SLAB SHALL FIT TIGHTLY TO INLET. GAPS <3" SHALL BE GROUTED. GAPS 3" TO 5" SHALL BE BLOCKED AND GROUTED. GAPS >5" SHALL BE DOWELED, FORMED, POURED TO EXTEND.
9. ALL PRECAST SHALL HAVE A MINIMUM THICKNESS OF 6".

Blue Springs Missouri

REVISIONS			
NO.	DATE	BY	REMARKS
1	01/14	BM	GENERAL UPDATE
2	04/18	TSD	GENERAL UPDATE

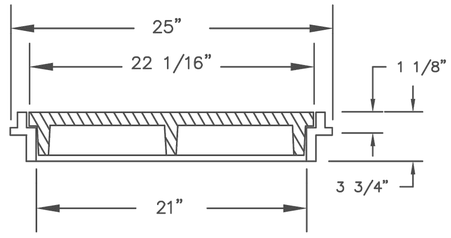
STANDARD DETAILS

PRECAST CURB INLET

DRAWN BY: DW	DATE: 2-3-93
DETAIL NO.: STM-01	SCALE: NO SCALE
APPROVED BY: SPJ	



APPROVED RING AND LID	
CLAY & BAILEY	2020
DEETER	2016
NEENAH	R-1537
GCI	SM 2100
EJ	1501A



NOTES: 1. MINIMUM LID WEIGHT IS 140 POUNDS.
2. ALL LETTERING ON THE LID FACE IS ONE INCH TALL.

STORM SEWER RING AND LID DETAIL

Blue Springs Missouri

REVISIONS			
NO.	DATE	BY	REMARKS
1	04/14	CAY	GENERAL UPDATE
2	04/18	TSD	GENERAL UPDATE

STANDARD DETAILS

STORM SEWER RING & LID

DRAWN BY: SPJ	DATE: 2-11-93
DETAIL NO.: STM-05	SCALE: NO SCALE
APPROVED BY:	

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-333-4100
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

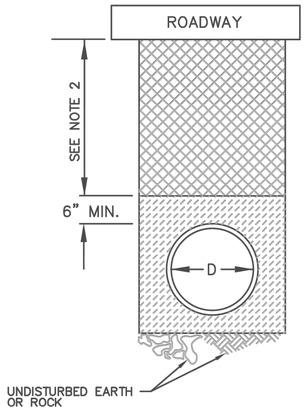
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

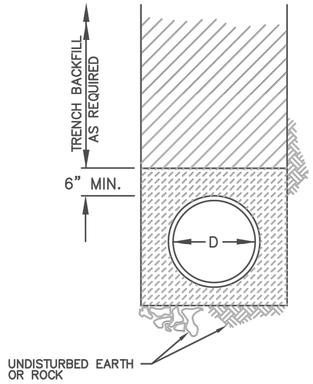
SHEET TITLE
STANDARD DETAILS

SHEET NO:
81 of 126

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1/20/2026



STORM SEWER EMBEDMENT BENEATH ROADWAY



RCP & HDPE PIPE EMBEDMENT

LEGEND	
D	NOMINAL PIPE DIAMETER
	TRENCH BACKFILL
	TAMPED GRANULAR BACKFILL (KDOT AB-3)
	GRANULAR BEDDING

MINIMUM PIPE CLEARANCES (IN)		
D	PIPE SIDE CLEARANCE[2] (SOIL/ROCK)	PIPE BOTTOM CLEARANCE (SOIL/ROCK)
0"–27"	6/6	4/6
30"–60"	8/9	6/9
66"–UP	12/12	8/12

STORM SEWER BEDDING MATERIAL GRADATION LIMITS (% PASSING)			
SIEVE SIZE	3/4"	1/2"	3/8"
1"	100		
3/4"	90–100	100	
1/2"		80–100	
3/8"	20–55	40–77	100
NO. 4	0–10	0–15	30–40
NO. 8	0–5	0–5	0–4

NOTES: 1. GRANULAR BEDDING SHALL MEET THE GRADATION REQUIREMENTS ON THE TABLE ABOVE. MATERIAL TO BE PLACED IN NOT MORE THAN 6" LAYERS AND COMPACTED BY SLICING WITH A SHOVEL OR BY VIBRATING.

2. TAMPED GRANULAR BACKFILL (KDOT AB-3) THIS MATERIAL SHALL BE USED FOR ALL EXISTING AND PROPOSED STREET CROSSINGS.

3. TRENCH BACKFILL SHALL BE FINELY DIVIDED MATERIAL FREE FROM DEBRIS AND STONES, COMPACTED TO 95% MAXIMUM DENSITY.

STORM SEWER EMBEDMENT DETAIL

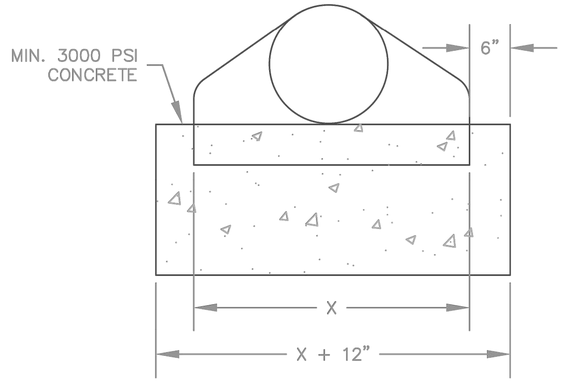
Blue Springs Missouri

STANDARD DETAILS

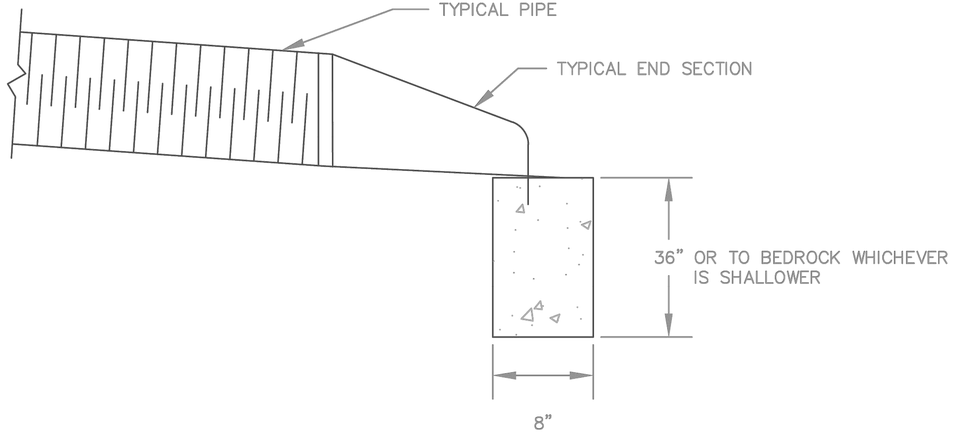
STORM SEWER EMBEDMENT

REVISIONS			
NO.	DATE	BY	REMARKS
1	01/14	BM	GENERAL UPDATE
2	04/18	TSD	GENERAL UPDATE

DRAWN BY: SPJ	DATE: 2-11-93
DETAIL NO.: STM-06	SCALE: NO SCALE
APPROVED BY:	



END VIEW



PLAN VIEW

TYPICAL TOE WALL DETAIL

Blue Springs Missouri

STANDARD DETAILS

TYPICAL TOE WALL

REVISIONS			
NO.	DATE	BY	REMARKS

DRAWN BY: PWC	DATE: 09/29/98
DETAIL NO.: STM-08	SCALE: NO SCALE
APPROVED BY:	

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-333-4100
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

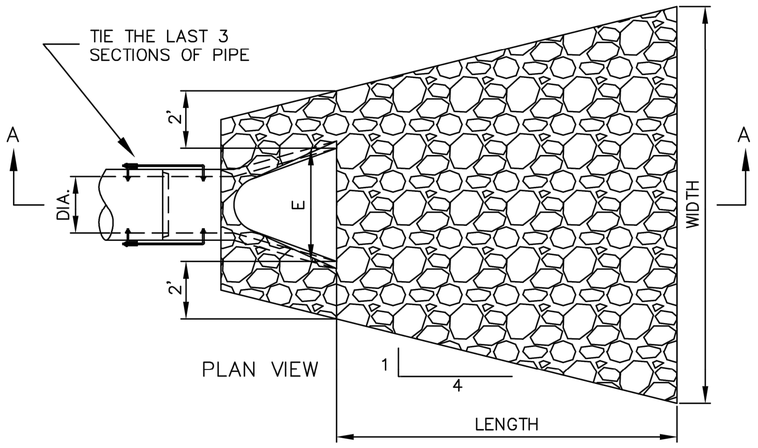
REV.	DATE	DESCRIPTION	BY

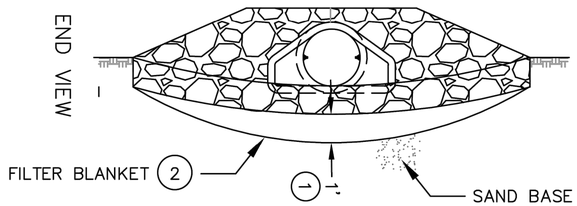
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

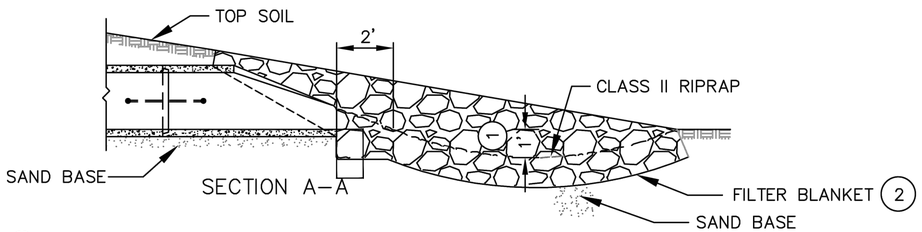
SHEET TITLE
STANDARD DETAILS

SHEET NO:
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1/20/2026







(1) FOR PIPE SIZE GREATER THEN OR EQUAL TO 30", USE 1.5 FEET

(2) GEOTEXTILE FILTER BLANKET UNLESS OTHERWISE SPECIFIED IN THE PLANS. THE FABRIC SHOULD COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE FLARED END SECTION TO THE TOP OF RIPRAP.

RIPRAP OUTLET & INLET PROTECTION DETAIL

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-333-4100
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

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SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

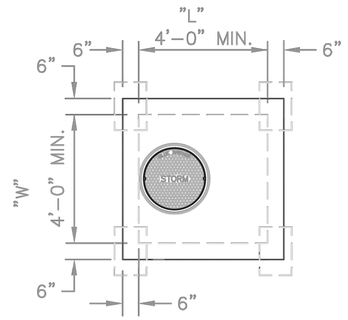
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

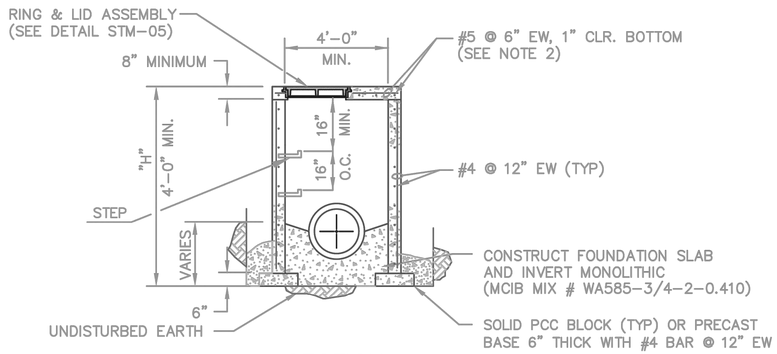
SHEET TITLE
STANDARD DETAILS

SHEET NO:
83 of 126

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1/20/2026



PLAN



SECTION

PRECAST JUNCTION BOX DETAIL

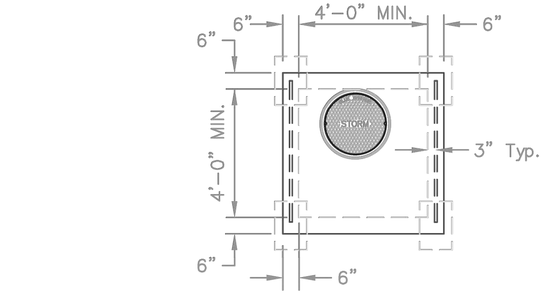
NOTES:
1. REMOVE LIFTING HOOKS FLUSH UPON PLACEMENT OF TOP SLAB AND GROUT AS NECESSARY TO REPAIR.
2. TOP SLAB REINFORCEMENT SHALL ALSO INCLUDE 2 #5 @ 4" DIAGONAL FOUR SIDES OF OPENING.
3. TOP SLAB SHALL BE SET TO MATCH FINISHED GROUND LINE. EXCEPTION: IF ANY PORTION OF THE TOP SLAB IS UTILIZED AS SIDEWALK, THE SLOPE SHALL MEET ADA CROSS SLOPE REQUIREMENTS (SEE DETAIL MIS-01) AND SHALL INSTALL A FOOTING (SEE MIS-02).
4. JUNCTION BOX SHALL BE BACKFILLED TO WITHIN 1' OF FINISH GRADE USING KDOT AB-3 ROCK WITHIN THE RIGHT OF WAY.
5. JUNCTION BOX LOCATION SHALL NOT CONFLICT WITH ADA RAMPS OR CURB RETURNS.
6. RING & LID SHALL BE ALIGNED WITH STEPS.
7. TOP SLAB SHALL FIT TIGHTLY TO INLET. GAPS <3" SHALL BE GROUTED. GAPS 3" TO 5" SHALL BE BLOCKED AND GROUTED. GAPS >5" SHALL BE DOWELED, FORMED, POURED TO EXTEND.
8. PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 6" AND THE TOP SLAB SHALL HAVE A MINIMUM THICKNESS OF 8".

Blue Springs Missouri

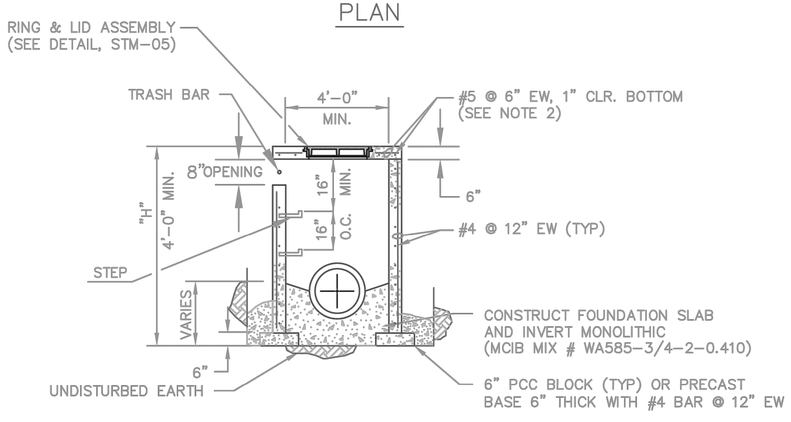
STANDARD DETAILS

PRECAST JUNCTION BOX

REVISIONS				DRAWN BY: SPJ	DATE: 2-11-93
NO.	DATE	BY	REMARKS	DETAIL NO.: STM-02	SCALE: NO SCALE
1	01/14	BM	GENERAL UPDATE	APPROVED BY:	
2	04/18	TSD	GENERAL UPDATE		



PLAN



SECTION

PRECAST STANDARD AREA INLET DETAIL

NOTES:
1. REMOVE LIFTING HOOKS FLUSH UPON PLACEMENT OF TOP SLAB AND GROUT AS NECESSARY TO REPAIR.
2. TOP SLAB REINFORCEMENT SHALL ALSO INCLUDE 2 #5 @ 4" DIAGONAL FOUR SIDES OF OPENING.
3. TOP SLAB SHALL BE SET TO MATCH FINISHED GROUND LINE. EXCEPTION: IF ANY PORTION OF THE TOP SLAB IS UTILIZED AS SIDEWALK, THE SLOPE SHALL MEET ADA CROSS SLOPE REQUIREMENTS (SEE DETAIL MIS-01).
4. INLET SHALL BE BACKFILLED TO WITHIN 1' OF FINISH GRADE USING KDOT AB-3 ROCK WITHIN THE RIGHT OF WAY.
5. JUNCTION BOX LOCATION SHALL NOT CONFLICT WITH ADA RAMPS OR CURB RETURNS.
6. RING & LID SHALL BE ALIGNED WITH STEPS.
7. TOP SLAB SHALL FIT TIGHTLY TO INLET. GAPS <3" SHALL BE GROUTED. GAPS 3" TO 5" SHALL BE BLOCKED AND GROUTED. GAPS >5" SHALL BE DOWELED, FORMED, POURED TO EXTEND.
8. ALL PRECAST SHALL HAVE A MINIMUM THICKNESS OF 6".
9. TRASH BAR(S) SHALL BE 1" DIAMETER GALVINIZED ROD CENTERED IN EACH OPENING.
10. ENGINEER SHALL CLEARLY INDICATE FIELD OPENING LOCATION(S) ON THE PLANS AND CONTRACTOR SHALL ORIENT OPENING(S) AS SHOWN ON THE APPROVED PLANS.

Blue Springs Missouri

STANDARD DETAILS

PRECAST STANDARD AREA INLET

REVISIONS				DRAWN BY: JOS	DATE: 2-12-93
NO.	DATE	BY	REMARKS	DETAIL NO.: STM-03	SCALE: NO SCALE
1	01/14	BM	GENERAL UPDATE	APPROVED BY:	
2	04/18	TSD	GENERAL UPDATE		

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-701-4100
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

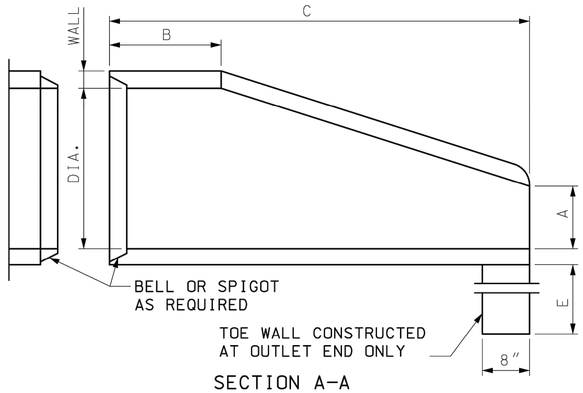
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

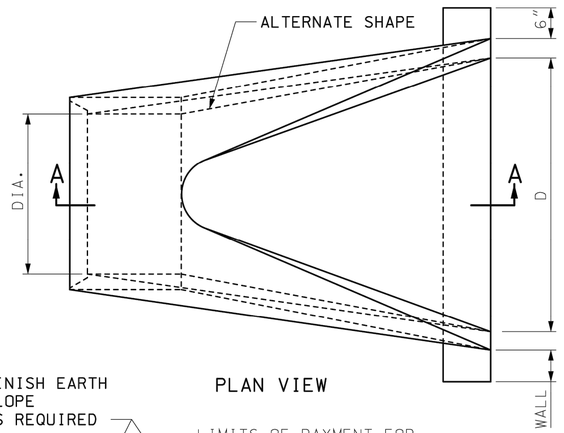
SHEET TITLE
STANDARD DETAILS

SHEET NO:
84 of 126

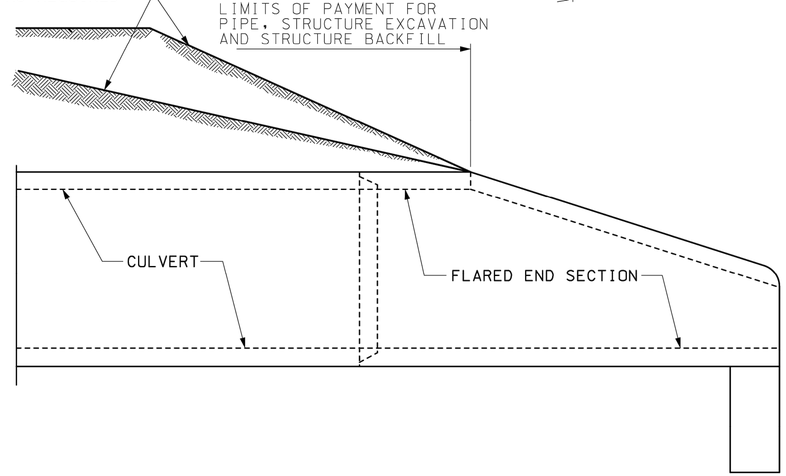
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1/20/2026



SECTION A–A



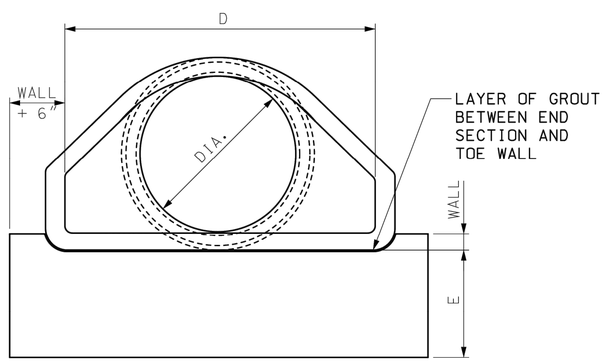
PLAN VIEW



INSTALLATION DETAILS

DIMENSIONS						
DIA.	WALL	A	B MIN.	C MIN.	D	E
12″	2″	4″	4′–0″	6′	2′–0″	18″
15″	2¼″	6″	3′–10″	6′	2′–6″	18″
18″	2½″	9″	3′–10″	6′	3′–0″	18″
21″	2¾″	9″	3′–2″	6′	3′–6″	18″
24″	3″	9½″	2′–6″	6′	4′–0″	24″
27″	3¼″	10½″	2′–1″	6′	4′–6″	24″
30″	3½″	1′–0″	1′–7″	6′	5′–0″	24″
33″	3¾″	1′–2″	1′–7″	6′	5′–6″	24″
36″	4″	1′–3″	2′–10″	8′	6′–0″	24″
42″	4½″	1′–9″	2′–11″	8′	6′–6″	24″
48″	5″	2′–0″	2′–2″	8′	7′–0″	24″
54″	5½″	2′–3″	2′–11″	8′	7′–6″	36″
60″	6″	2′–6″	3′–3″	8′	8′–0″	36″
66″	6½″	2′–0″	1′–9″	8′	8′–6″	36″
72″	7″	2′–0″	2′–9″	10′	9′–0″	36″
78″	7½″	2′–3″	2′–3″	10′	9′–6″	36″
84″	8″	2′–6″	2′–0″	10′	10′–0″	36″

REINFORCEMENT					
ADJOINING PIPE DIA.	BARREL SECTION REINFORCEMENT			FLARE SECTION REINFORCEMENT (ONE LAYER ONLY IN CENTER OF WALL)	
	CIRCULAR		ELLIPTICAL		
	INNER CAGE SQ. IN./ LIN. FT.	OUTER CAGE SQ. IN./ LIN. FT.	SQ. IN./ LIN. FT.	AREA OF LONGITUDINAL SQ. IN./ LIN. FT.	AREA OF TRANSVERSE SQ. IN./ LIN. FT.
12″	0.07			0.048	0.048
15″	0.07			0.054	0.054
18″	0.07		0.07	0.060	0.060
21″	0.07		0.07	0.066	0.066
24″	0.07		0.07	0.072	0.072
27″	0.13		0.11	0.078	0.078
30″	0.14		0.12	0.084	0.084
33″	0.15		0.13	0.090	0.090
36″	0.12	0.09	0.13	0.096	0.096
42″	0.15	0.12	0.17	0.108	0.108
48″	0.18	0.14	0.20	0.120	0.120
54″	0.22	0.16	0.24	0.132	0.132
60″	0.25	0.19	0.28	0.144	0.144
66″	0.31	0.23	0.34	0.156	0.156
72″	0.35	0.21	0.39	0.170	0.170
78″	0.40	0.24	0.44	0.185	0.185
84″	0.46	0.28	0.51	0.205	0.205



END VIEW

GENERAL NOTES:

SLIGHT VARIATIONS IN BOTH SHAPE AND DIMENSIONS FROM THOSE SHOWN MAY BE ACCEPTED IF APPROVED BY THE ENGINEER.

NOT MORE THAN THREE LIFT HOLES MAY BE DRILLED OR CAST IN THE END SECTION FOR HANDLING AND LAYING.

LIFT LUGS OR BARS WILL BE PERMITTED IN PRECAST TOE WALLS.

TOE WALLS MAY BE CAST-IN-PLACE OR PRECAST.

STEEL FIBERS MAY BE USED IN LIEU OF REBAR OR COLD DRAWN STEEL WIRE AS PER SECTION 1032.3.4.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
ERIC E. SCHROETER
NUMBER PE-28411
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

FLARED END SECTION

PRECAST CONCRETE

DATE EFFECTIVE: 04/01/2016
DATE PREPARED: 2/11/2016

732.00S

SHEET NO. 1 OF 3

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-333-4100
FAX: 816-942-3013
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Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

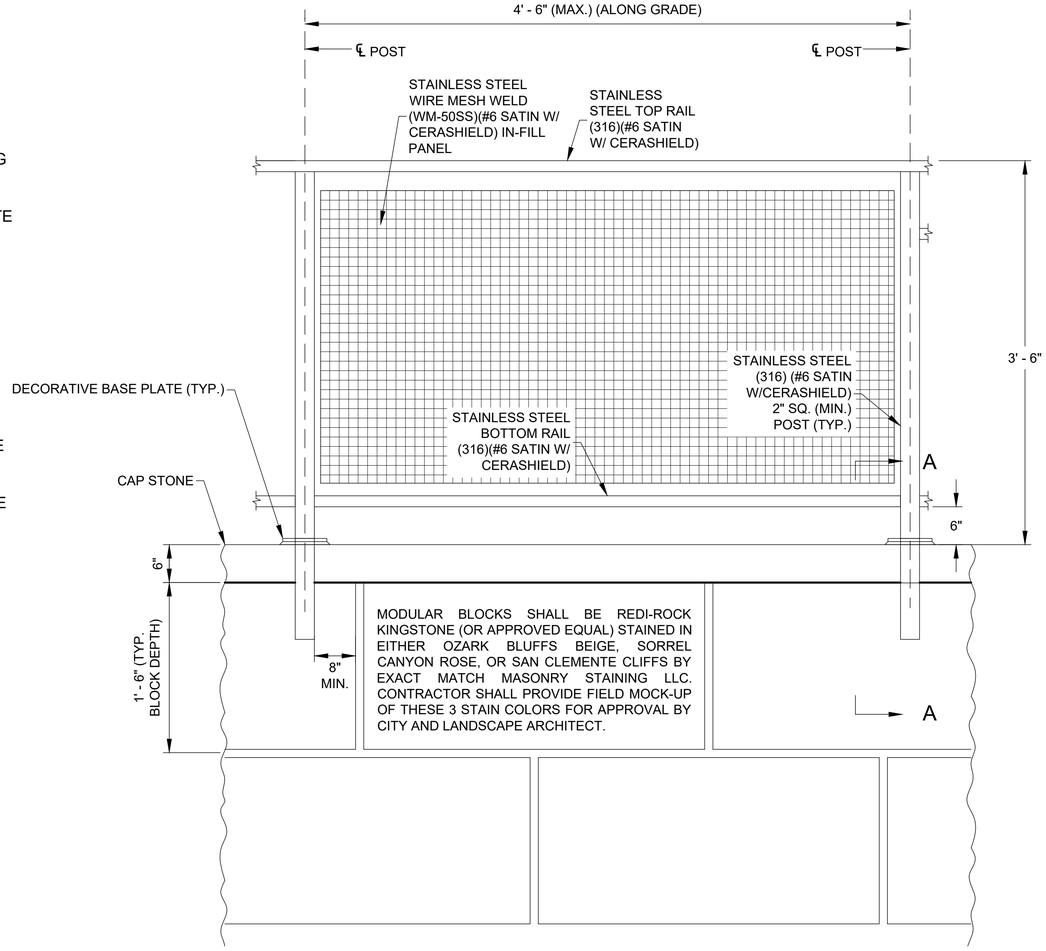
SHEET TITLE
STANDARD DETAILS

SHEET NO:
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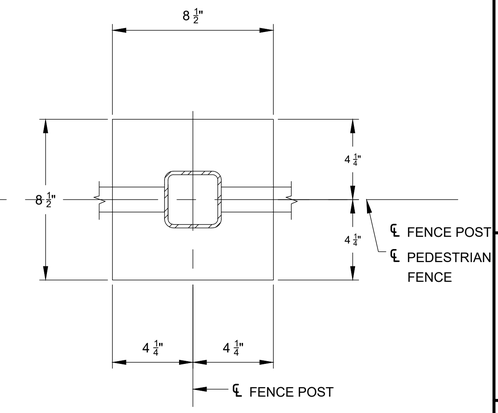
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NOTES:

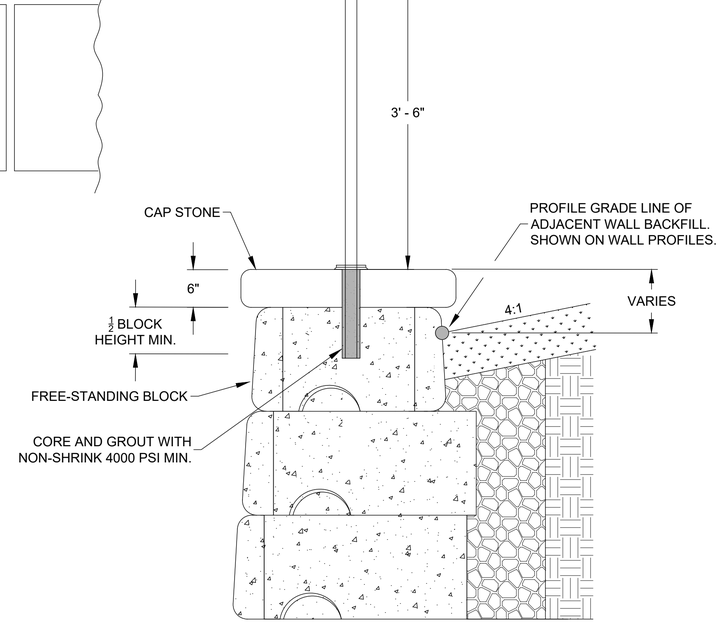
1. THESE DETAILS ARE A GENERAL REPRESENTATION OF A PEDESTRIAN FENCE. THE ACTUAL FENCE COMPONENTS MAY BE DIFFERENT THAN WHAT IS SHOWN.
2. ALL BASE PLATES AND ASSOCIATED HARDWARE SHALL BE SATIN FINISH STAINLESS STEEL TO MATCH THE FENCE POSTS, RAILS, AND WIRE MESH.
3. MEASUREMENT OF DECORATIVE PEDESTRIAN FENCE WILL BE MADE HORIZONTALLY AND TO THE NEAREST LINEAR FOOT ALONG CENTERLINE OF FENCE.
4. PAYMENT FOR FURNISHING AND ERECTING THE FENCE COMPLETE IN PLACE WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR (42 IN.) PEDESTRIAN FENCE.
5. PEDESTRIAN FENCING SHALL BE IN ACCORDANCE WITH 2020-AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH ED.
6. SHOP DRAWINGS AND STRUCTURAL CALCULATIONS WILL BE REQUIRED FOR THE PEDESTRIAN FENCE.
7. ALL MATERIALS USED IN FABRICATION AND CONSTRUCTION OF THE PEDESTRIAN FENCE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS, EXCEPT AS MODIFIED IN THE CONTRACT DOCUMENTS.
8. PEDESTRIAN FENCING SYSTEM SHALL BE SUPPLIED BY ONLY ONE MANUFACTURER. THE ASSEMBLY OF THE PICKETS TO THE RAILS AND THE RAILS TO THE POST SHALL BE THE SAME AS THE STYLE AS MENTIONED FOR THE MANUFACTURER.
9. THE PRE-APPROVED PRODUCT AND MANUFACTURER IS AS FOLLOWS; CUBE WIRE MESH RAILING SYSTEM BY VIVA RAILINGS OR APPROVED EQUAL.



ELEVATION VIEW



PART PLAN SHOWING BASE PLATE



SECTION A-A
GROUTED CONNECTION

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DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

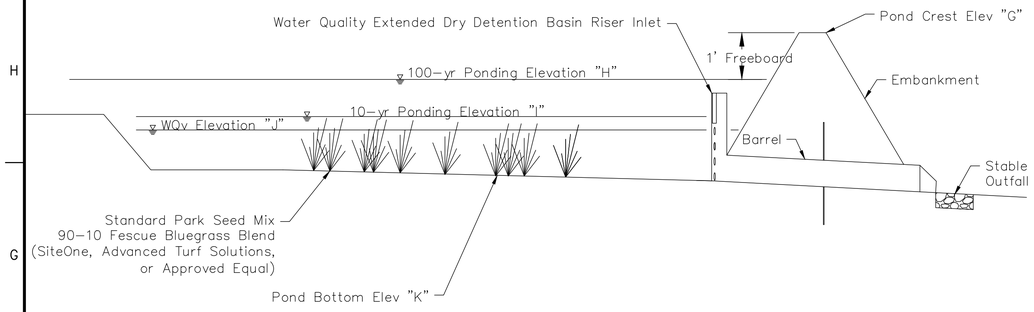
BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
PEDESTRIAN FENCE DETAIL

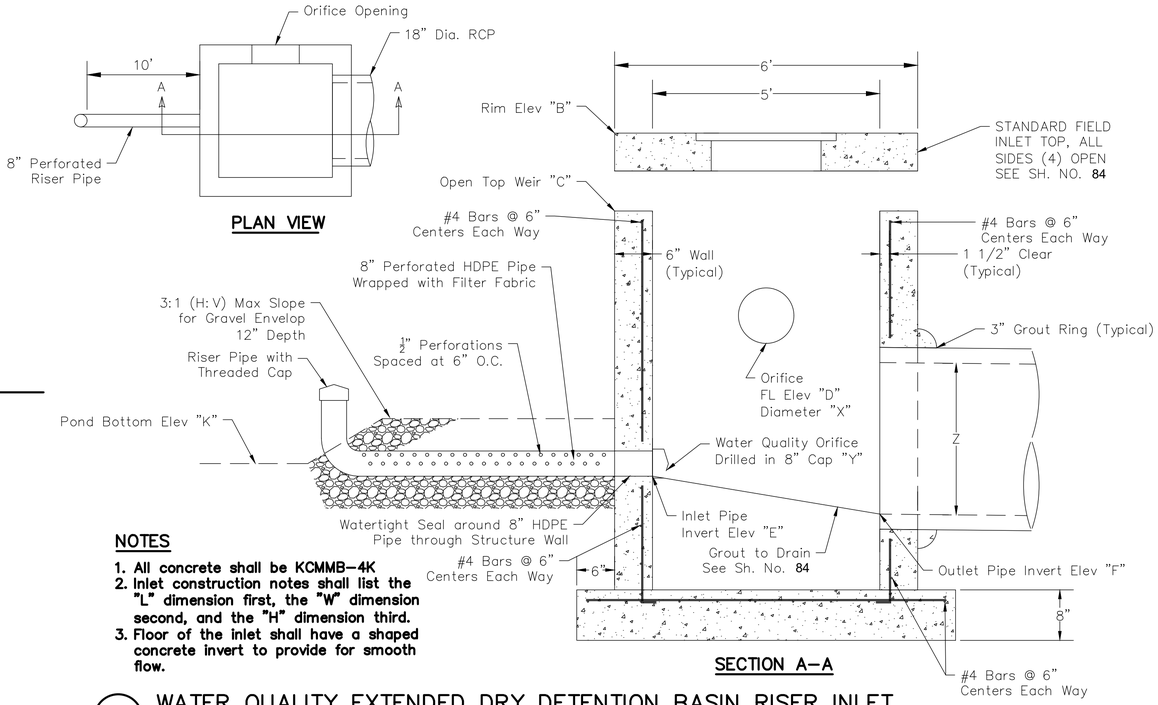
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F6 WATER QUALITY EXTENDED DRY DETENTION BASIN (EDDB)

NOT TO SCALE



A1 WATER QUALITY EXTENDED DRY DETENTION BASIN RISER INLET

NOT TO SCALE

NOTES

1. **All concrete shall be KCMMB-4K**
2. **Inlet construction notes shall list the "L" dimension first, the "W" dimension second, and the "H" dimension third.**
3. **Floor of the inlet shall have a shaped concrete invert to provide for smooth flow.**

Pond 1			
A	Roadway Elevation	942.4	ft
B	Rim Elevation	941.35	ft
C	Open Top Weir Elevation	940.25	ft
D	Orifice Flowline Elevation	933.125	ft
E	Water Quality Pipe Flowline Elevation	931	ft
F	Outlet Pipe Invert Flowline Elevation	930.8	ft
G	Pond Crest Elevation	942.4	ft
H	100-Yr Ponding Elevation	940.4	ft
I	10-Yr Ponding Elevation	937.5	ft
J	WQv Elevation	933.1	ft
K	Pond Bottom Elevation	931	ft
L	Emergency Spillway Elevation	942.4	ft
M	100-Yr Ponding Elevation (outlets clogged)	942.6	ft
X	Orifice Opening Diameter	9	in
Y	Water Quality Opening Diameter	1.5	in
Z	Outflow Pipe Size	18	in

Pond 2			
A	Roadway Elevation	938.5	ft
B	Rim Elevation	937.1	ft
C	Open Top Weir Elevation	935.9	ft
D	Orifice Flowline Elevation	930	ft
E	Water Quality Pipe Flowline Elevation	928	ft
F	Outlet Pipe Invert Flowline Elevation	927.8	ft
G	Top of Berm Elevation	937.8	ft
H	100-Yr Ponding Elevation	936.1	ft
I	10-Yr Ponding Elevation	933.5	ft
J	WQv Elevation	930	ft
K	Pond Bottom Elevation	928	ft
L	Emergency Spillway Elevation	936.6	ft
M	100-Yr Ponding Elevation (outlets clogged)	936.8	ft
X	Orifice Opening Diameter	12	in
Y	Water Quality Opening Diameter	2	in
Z	Outflow Pipe Size	24	in

NOTES

1. **Refer to Section 9004 of MARC "Manual for Best Management Practices for Stormwater Quality" (Revised October 2012) for selection, planting, and management of vegetation for BMPs.**
2. **Consult with the Missouri Department of Conservation Services for additional information about BMP vegetation restoration, maintenance, and additional vegetation options. Chapter 2 (Rain Gardening and Storm-water Management) of the Landscaping Guide for Missouri provides additional information about using vegetation for storm-water management. Chapter 2 also provides a couple sample seed mixes for a one-acre wetlands.**
3. **Vegetation management plan should be developed that allows adaptive management, not absolute prescriptive management. The process of evaluation, adjustment, refinement and change is adaptive management, and it is fundamental to the effective restoration and management of natural communities.**
4. **Maintenance tasks include periodic use of chemical and mechanical removal of invasive species, and modest enhancement seeding and planting. BMP vegetation needs to be continuously monitored for survival. BMP vegetation needs to be protected from excessive pedestrian traffic, pest infestations, and other potential damage caused by storm events, wildlife and humans.**
5. **Restorations tasks, that include, but not limited to, prescribed burning, brush control, herbicide use, seed collection, and monitoring, may require specialized training, possible licensing / certification, and oversight / guidance are required well in advance of the dates for commencement of the restoration program. Training is especially required for those activities that may have risk and safety implications (i.e. prescribed burning).**
6. **If BMP landscaping and restoration is to be achieved (prarie, woodland, wetland, or riparian areas), consult a restoration ecologist about the native environment that existed in the area and the localized conditions that will support the BMP vegetation restoration.**

A6 BMP VEGETATION

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CITY OF BLUE SPRINGS, MO.

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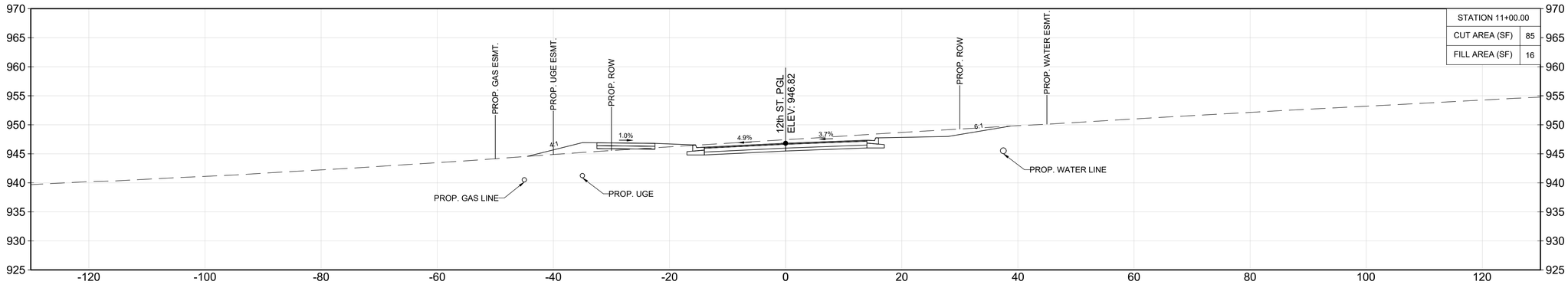
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DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

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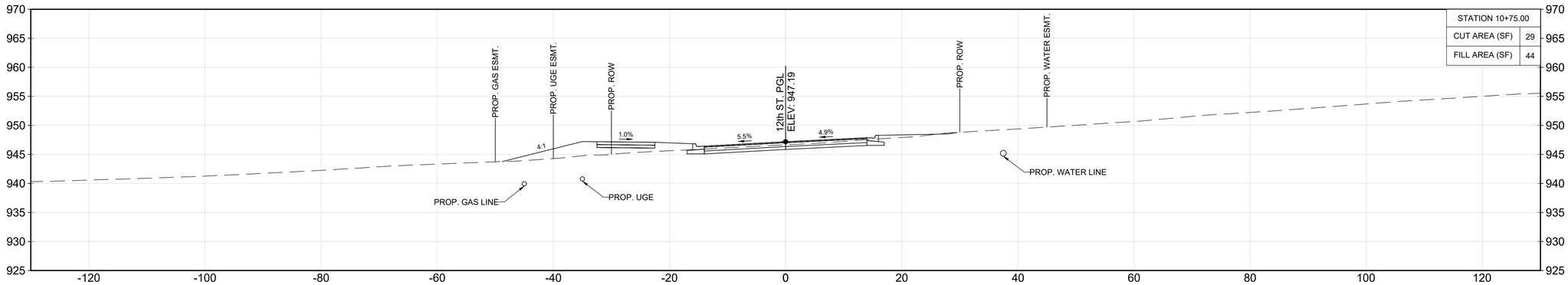
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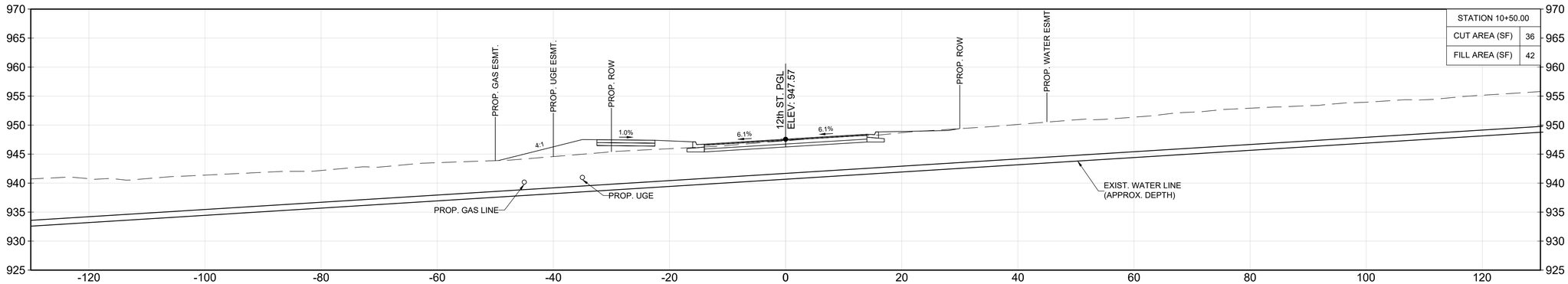
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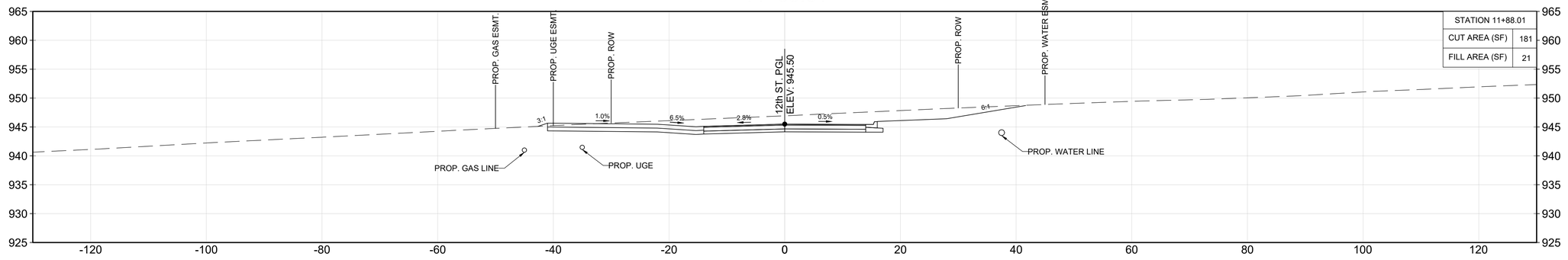
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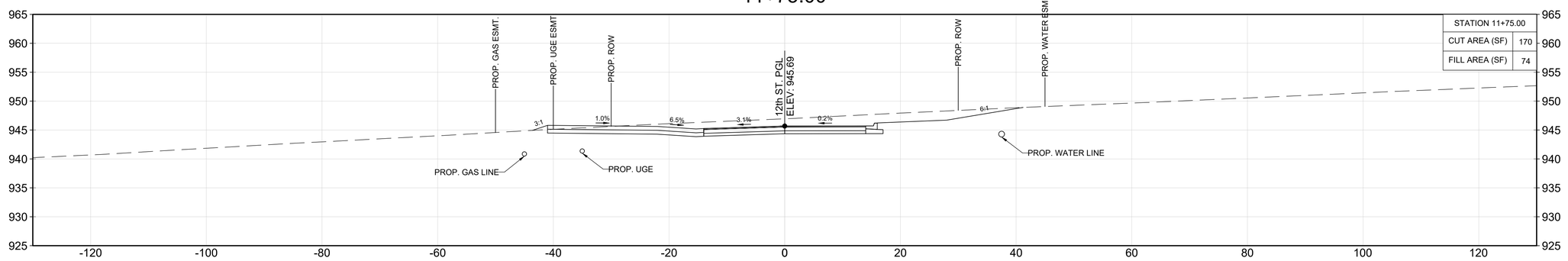
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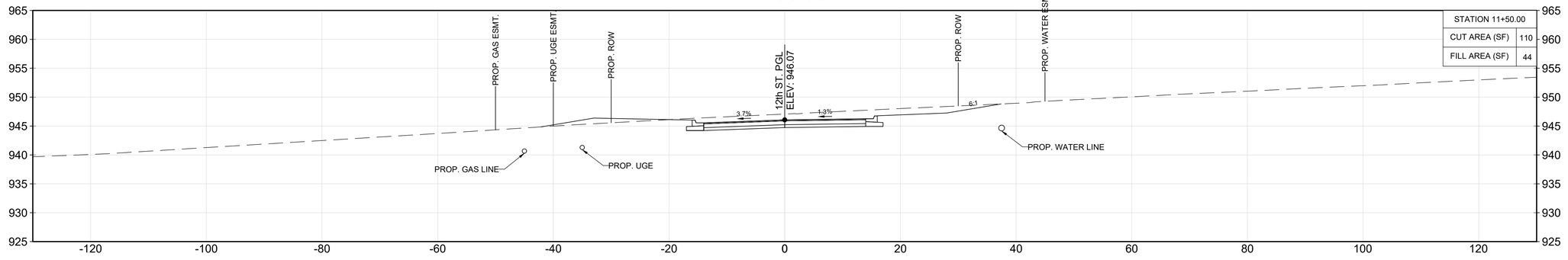
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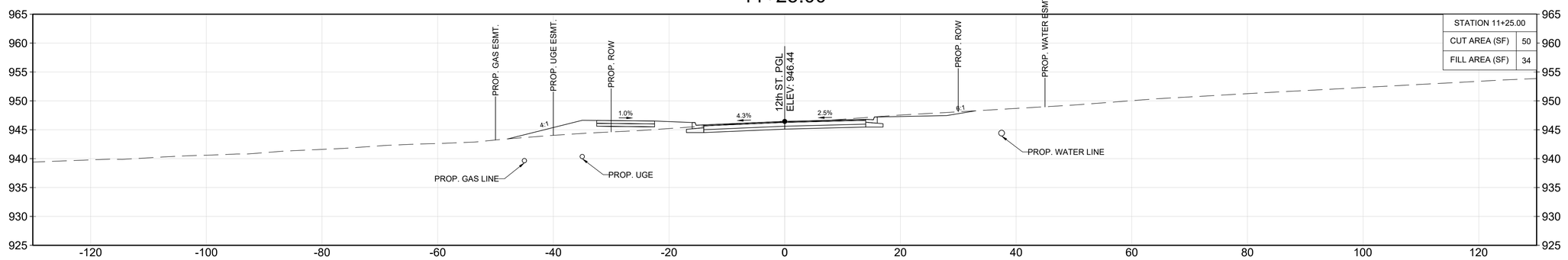
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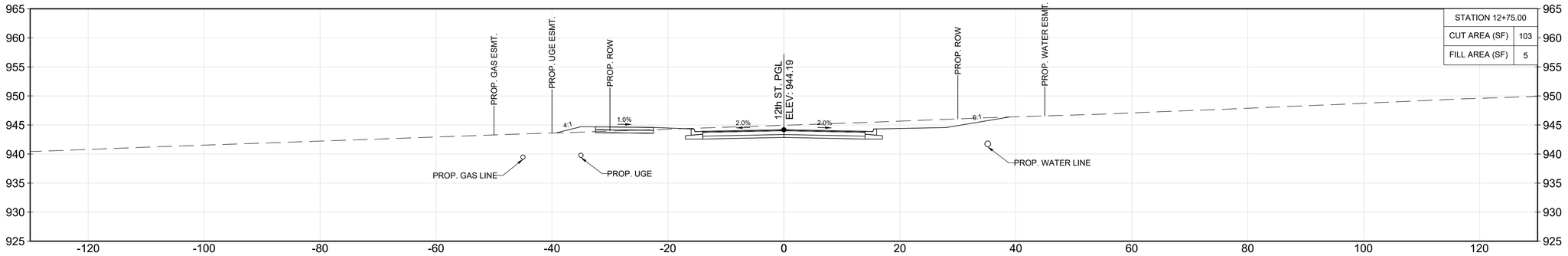
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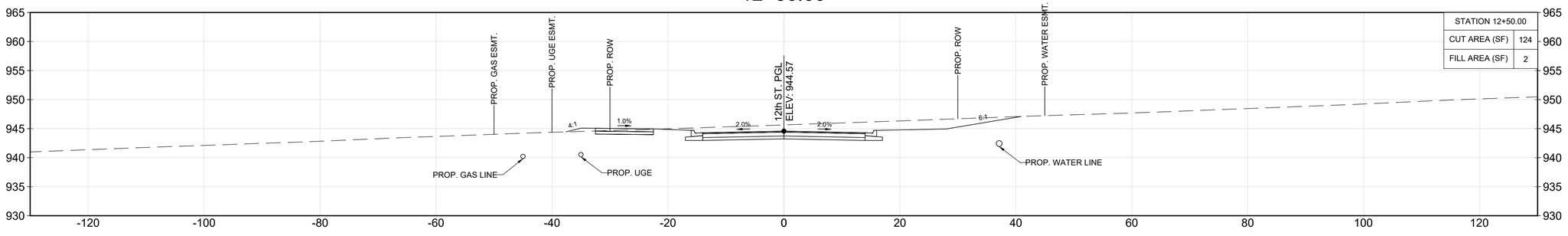
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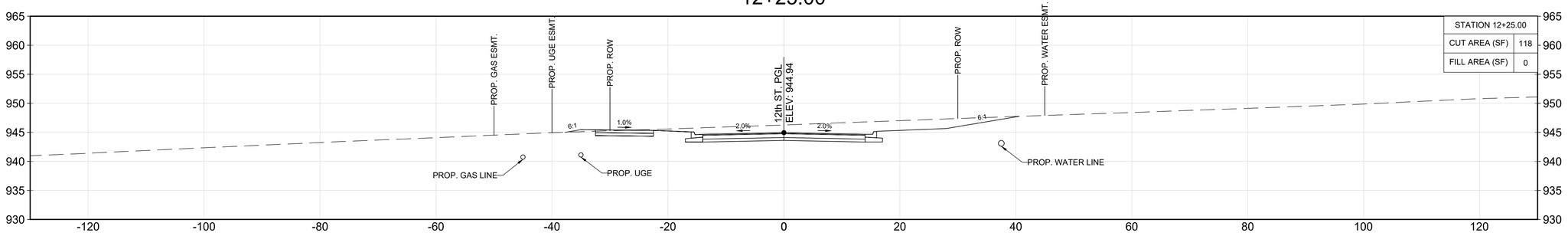
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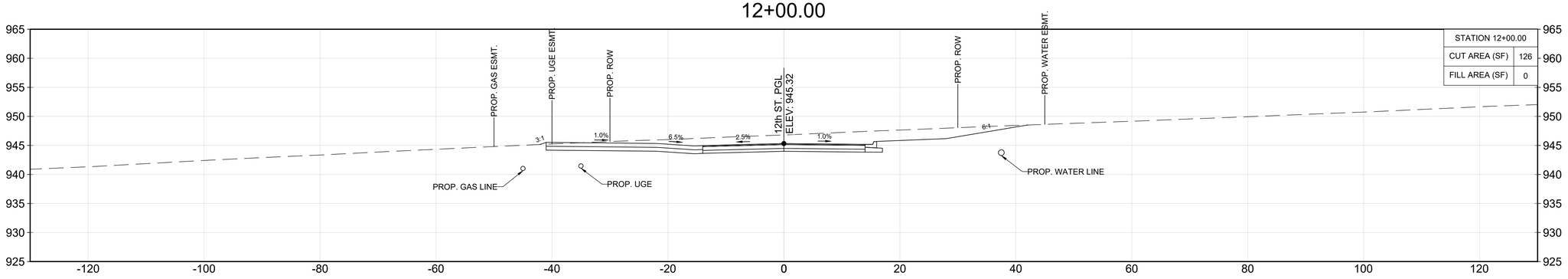
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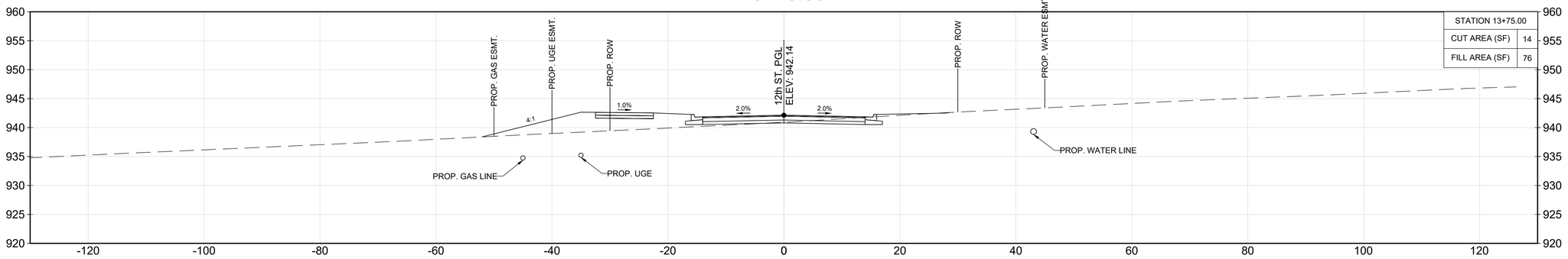
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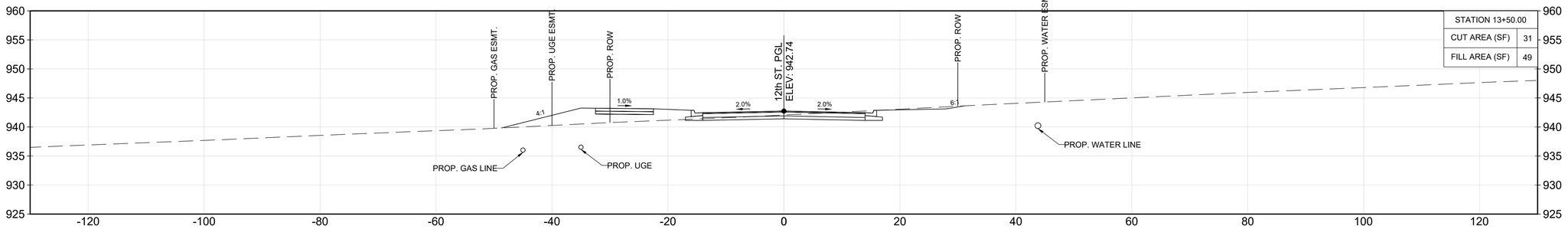
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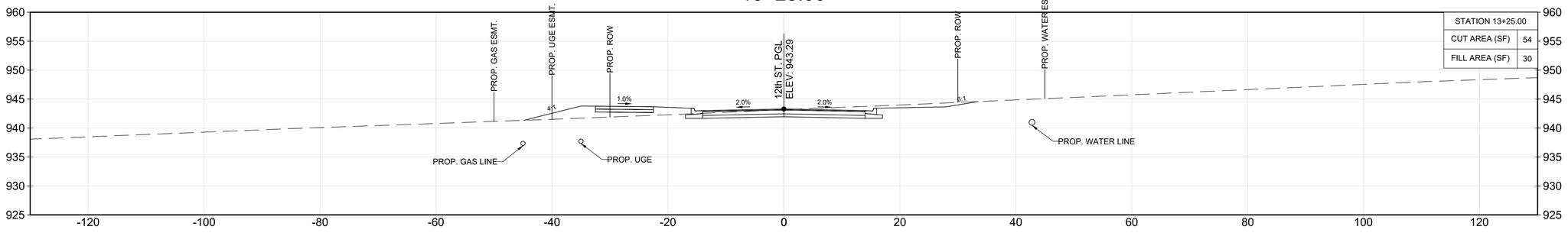
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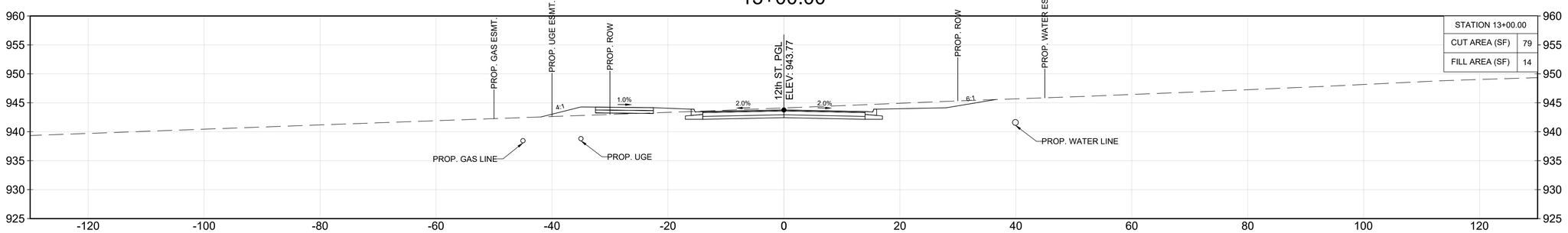
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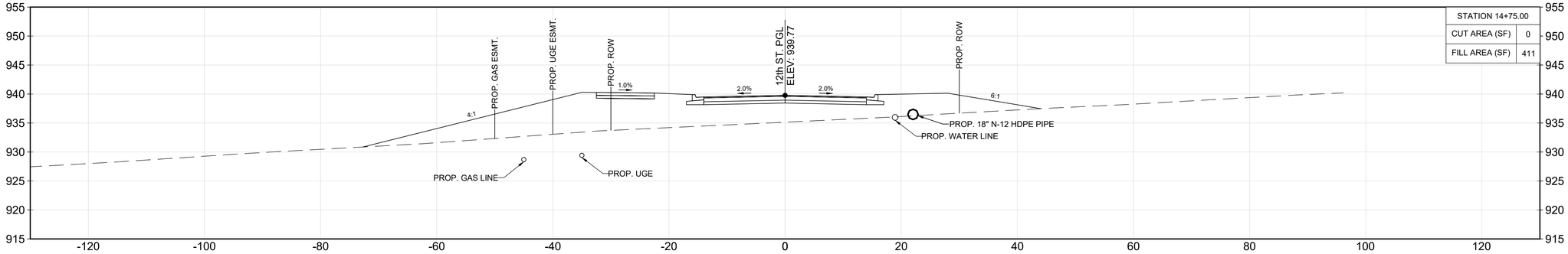
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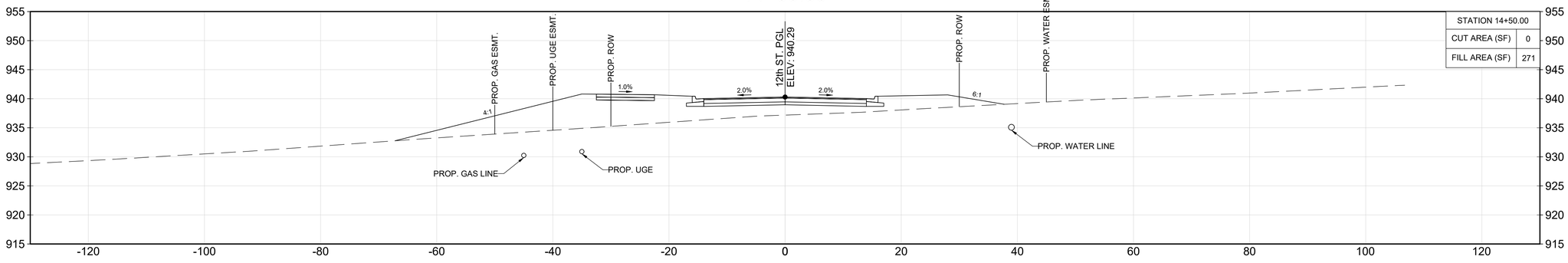
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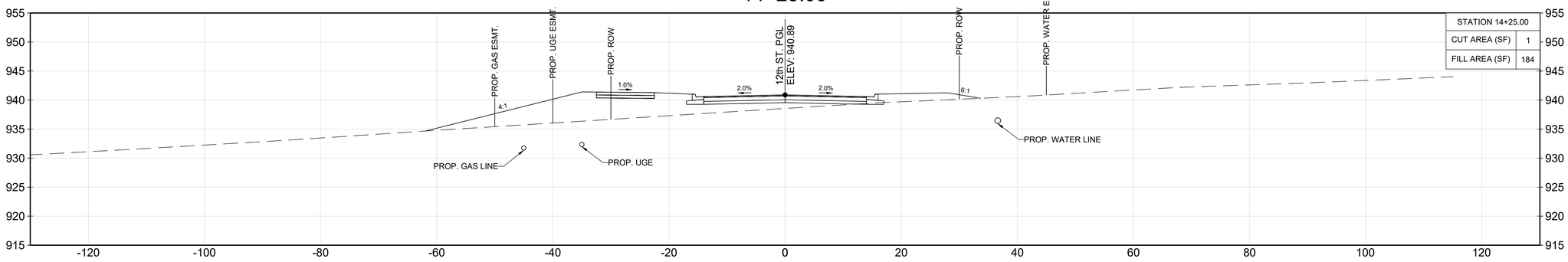
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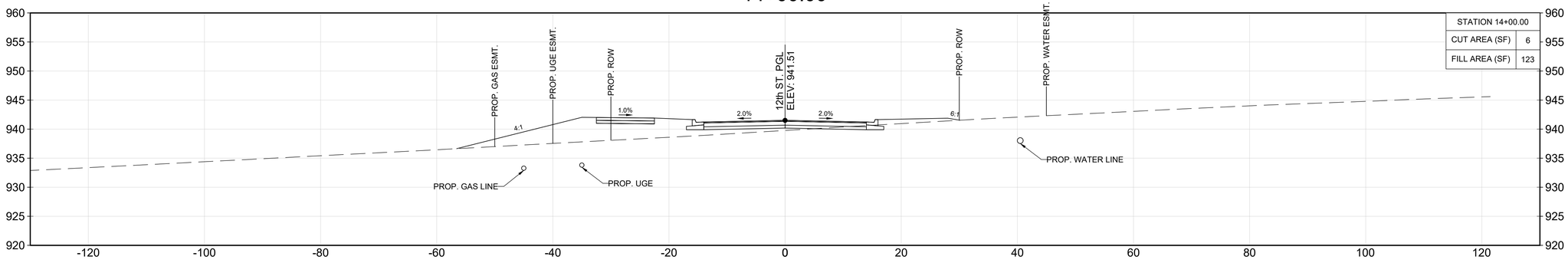
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FILL AREA (SF)	184

14+00.00



STATION 14+00.00	
CUT AREA (SF)	6
FILL AREA (SF)	123

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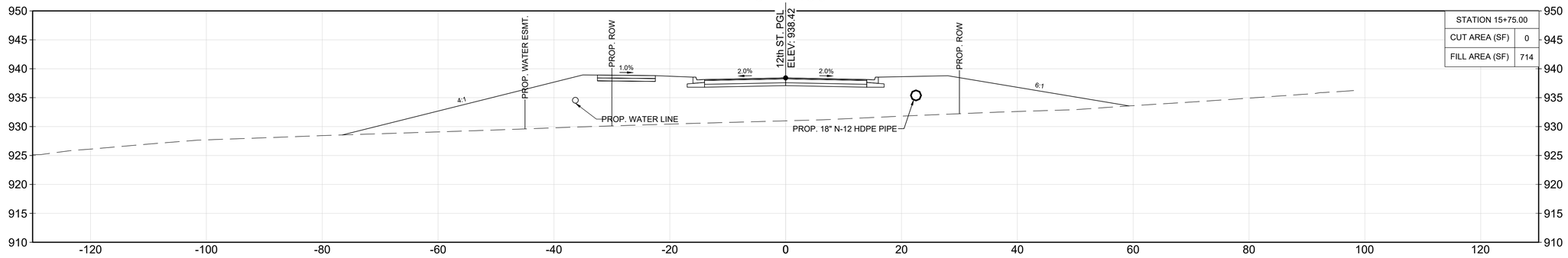
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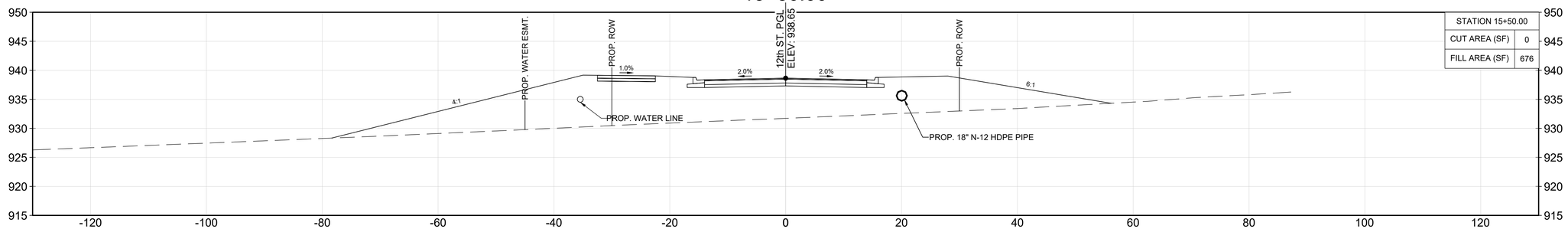
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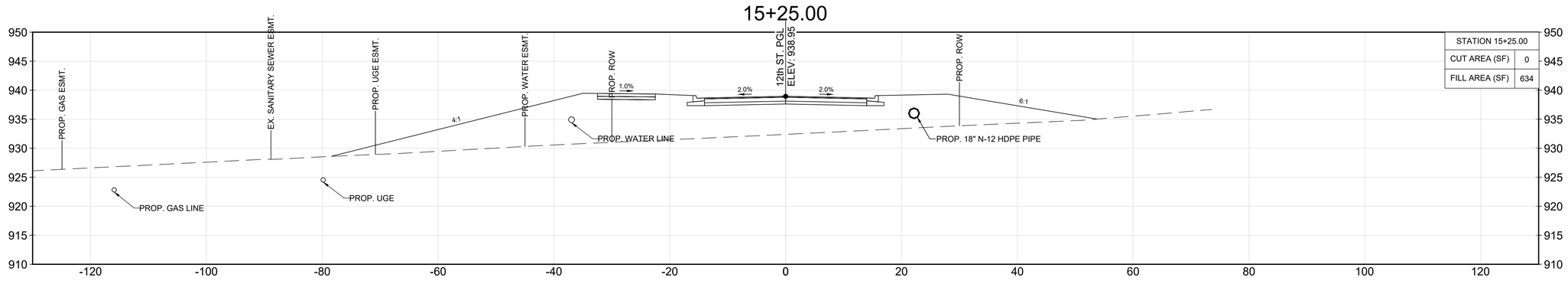
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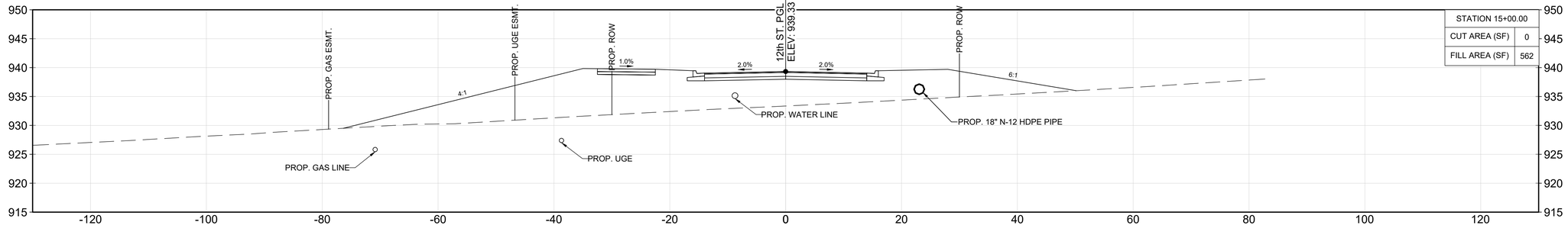
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15+00.00



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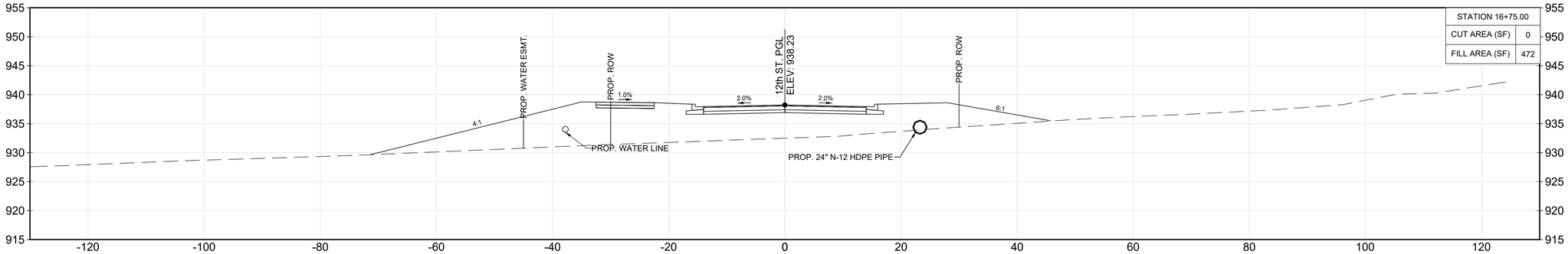
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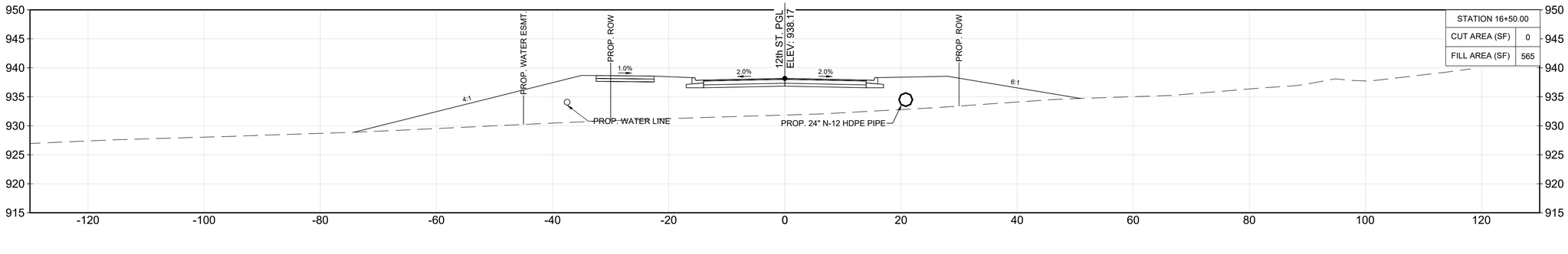
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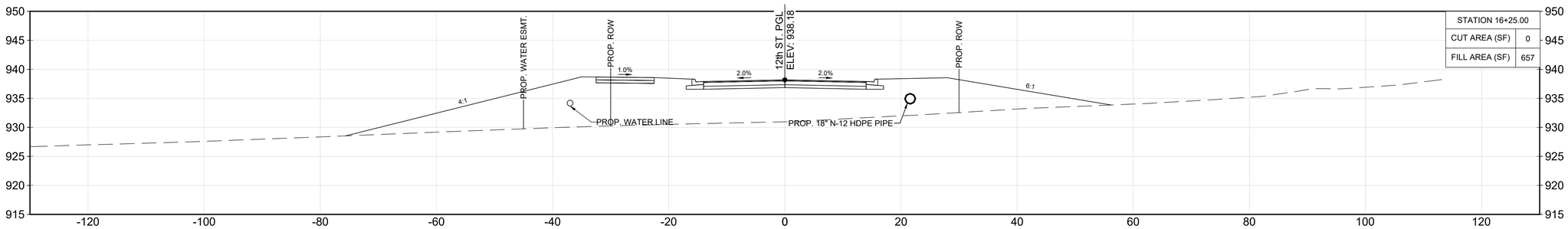
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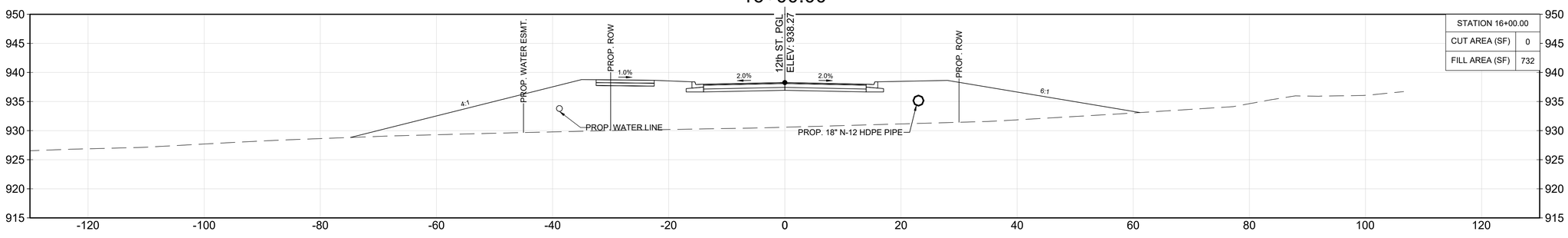
16+50.00



16+25.00



16+00.00



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STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE

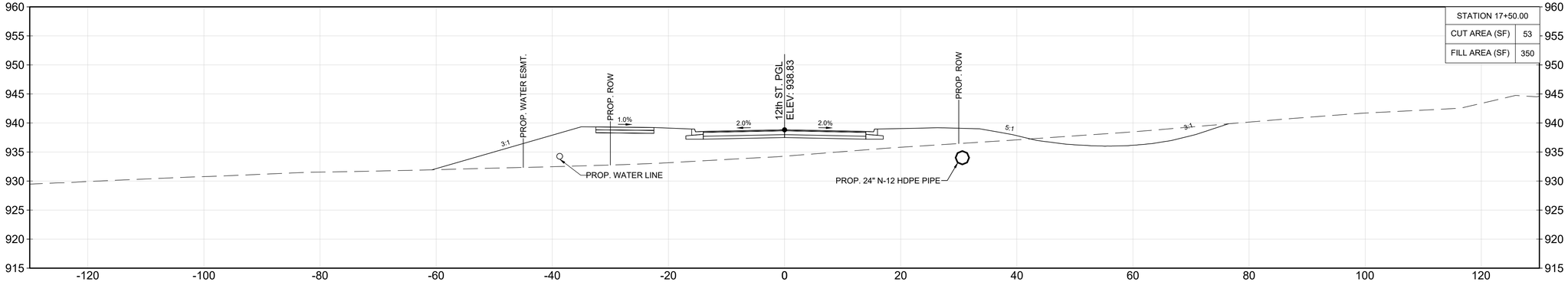
12TH STREET
CROSS SECTIONS

SHEET NO:

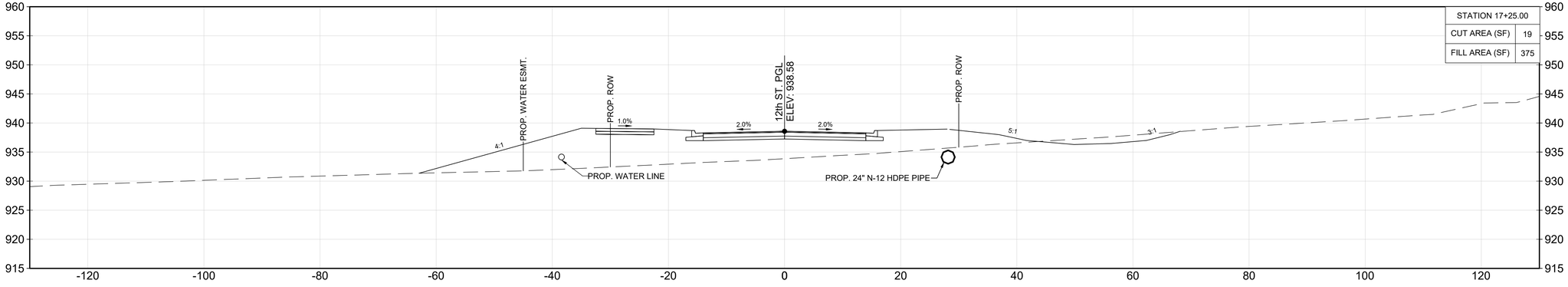
94 of 126

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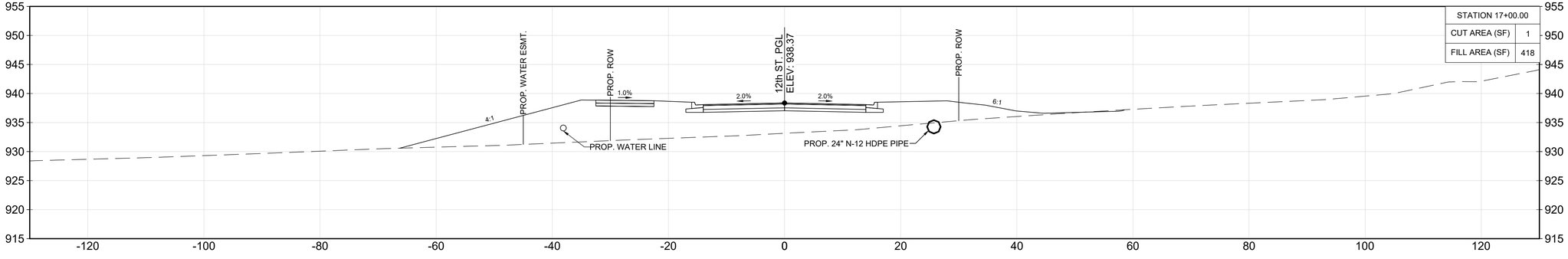
17+50.00



17+25.00



17+00.00



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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

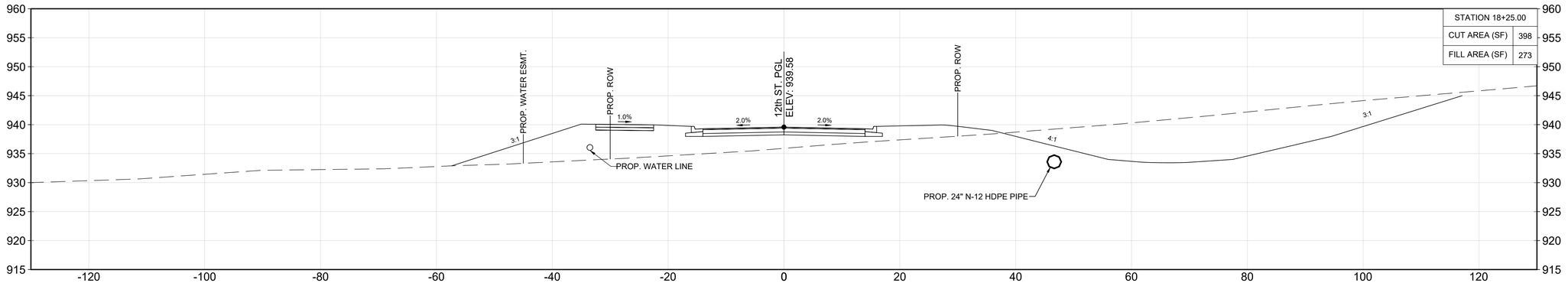
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DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET CROSS SECTIONS

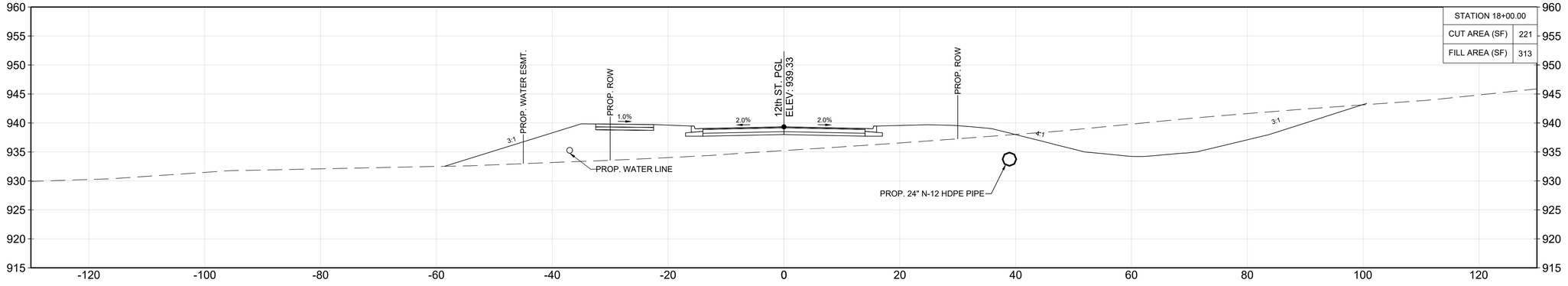
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1/20/2026

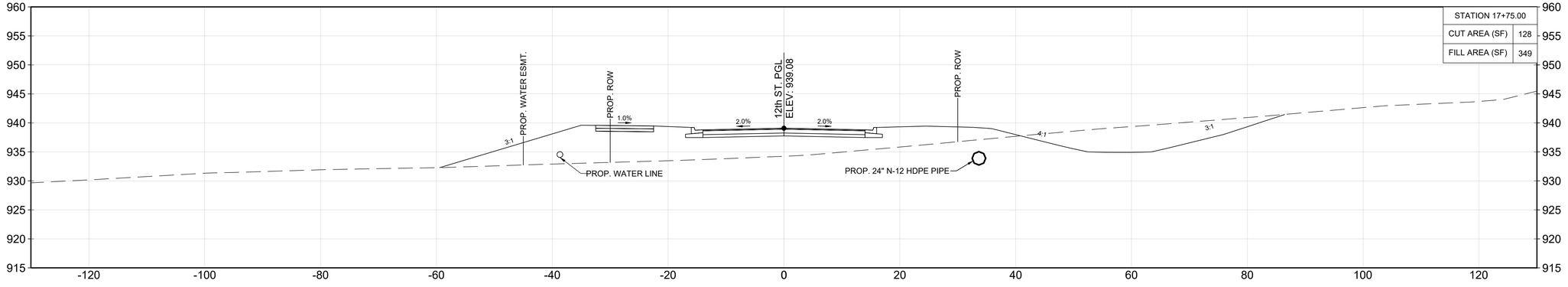
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18+00.00



17+75.00



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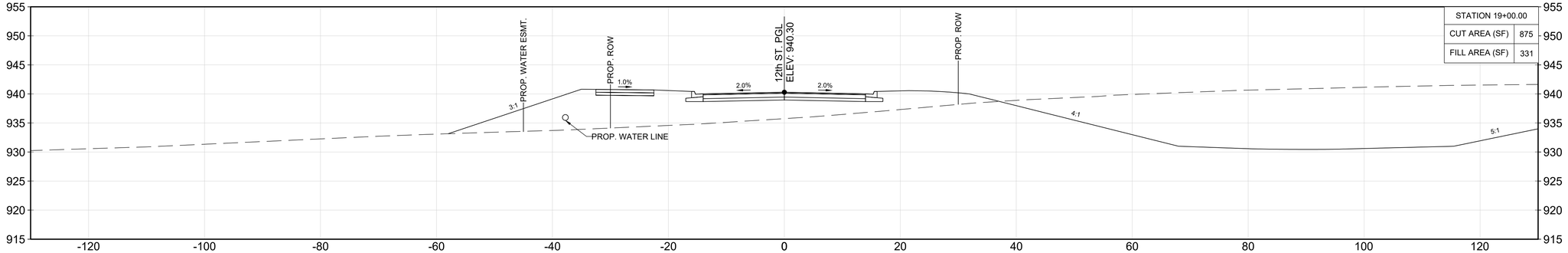
PROJECT NO:	2400101800
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SHEET TITLE
12TH STREET CROSS SECTIONS

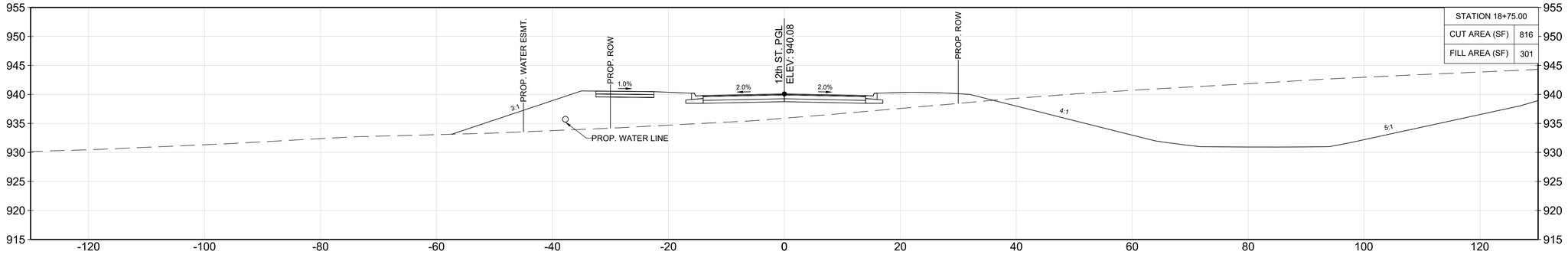
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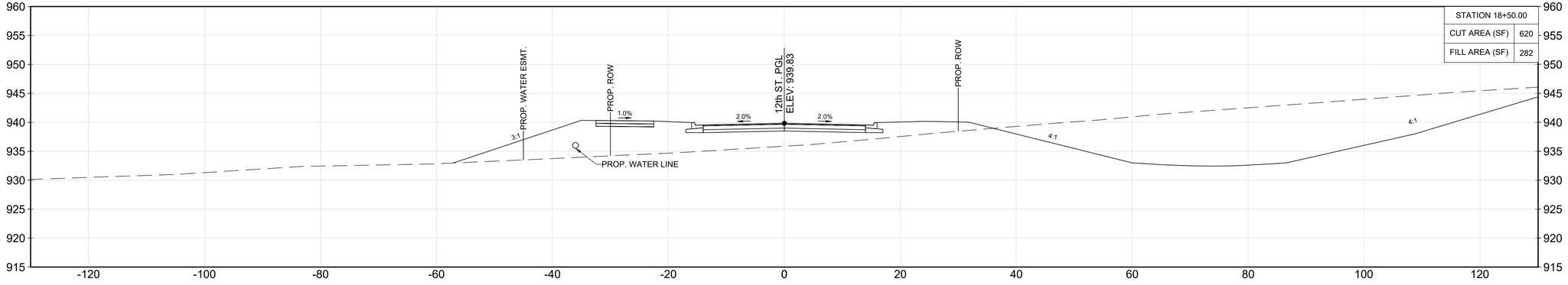
19+00.00



18+75.00



18+50.00



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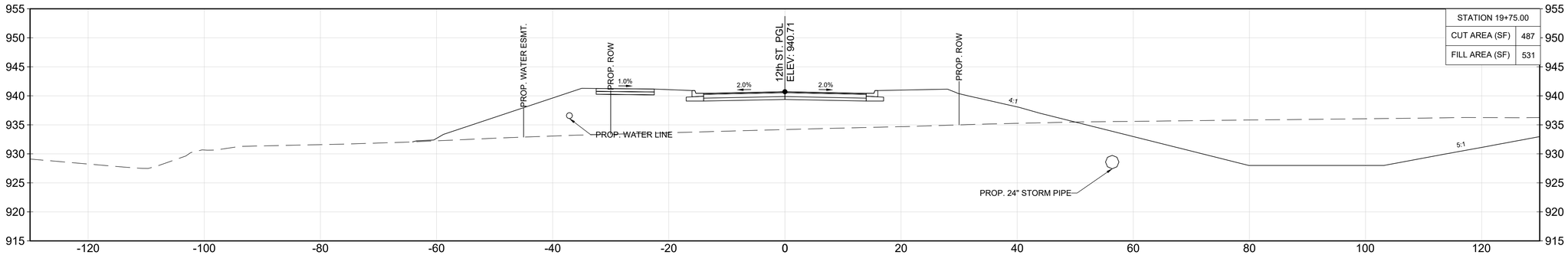
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SHEET TITLE
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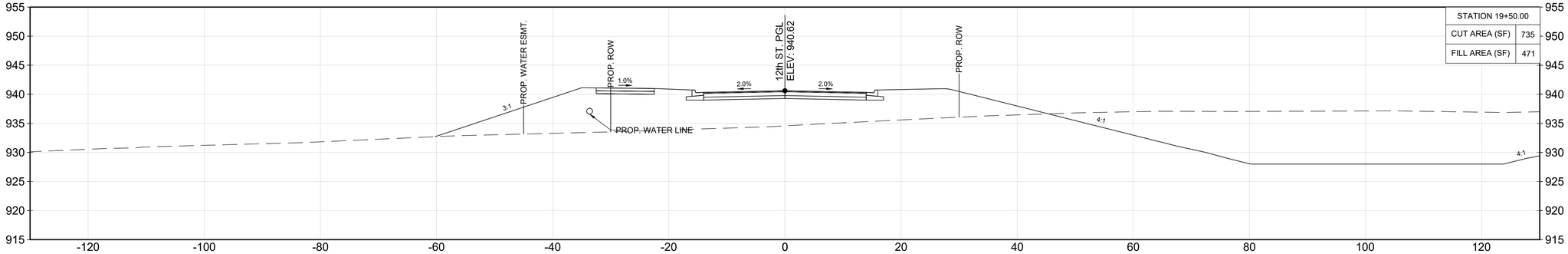
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1/20/2026

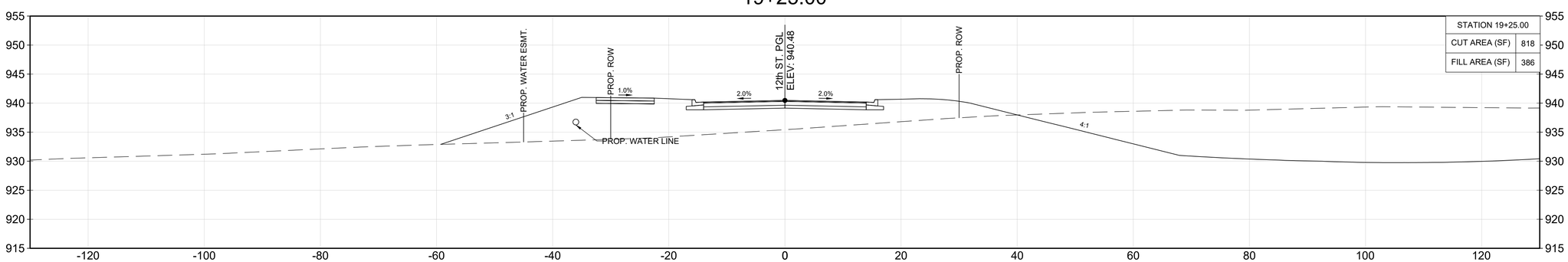
19+75.00



19+50.00



19+25.00



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CITY OF BLUE SPRINGS, MO.

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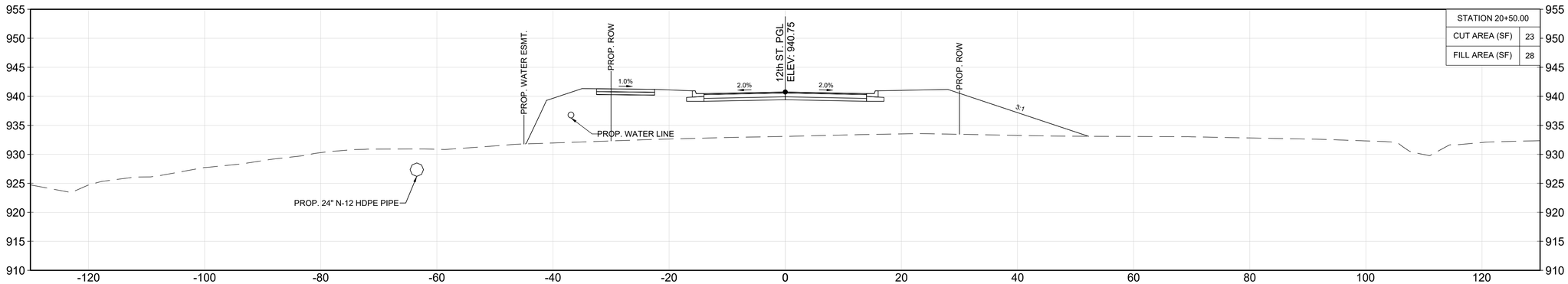
PROJECT NO:	2400101800
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DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

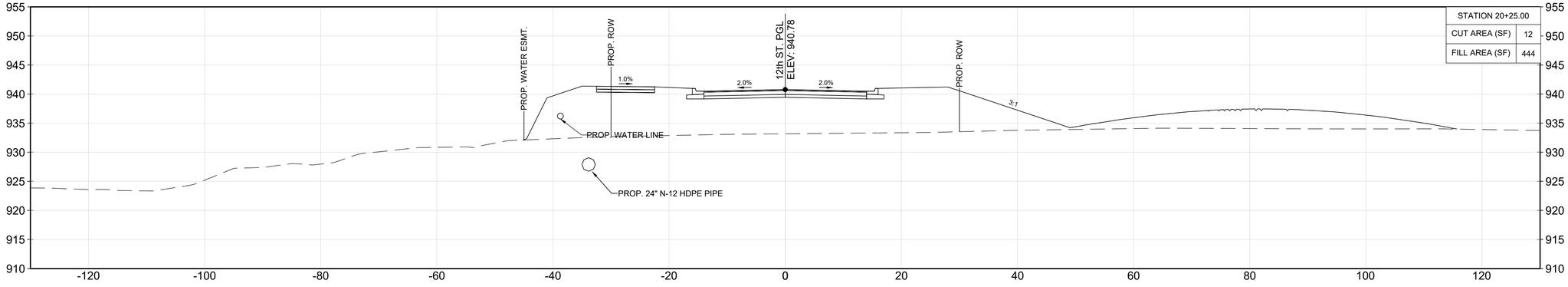
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1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-XSECT_01.dwg

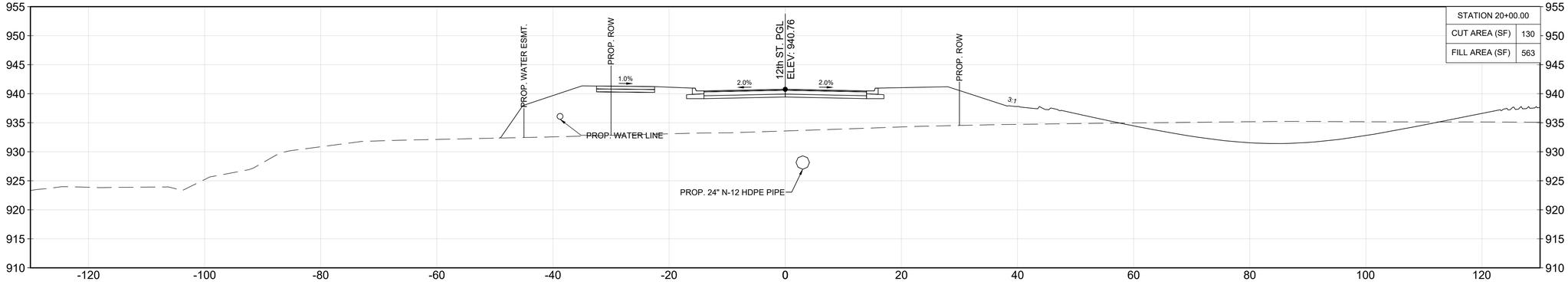
20+50.00



20+25.00



20+00.00



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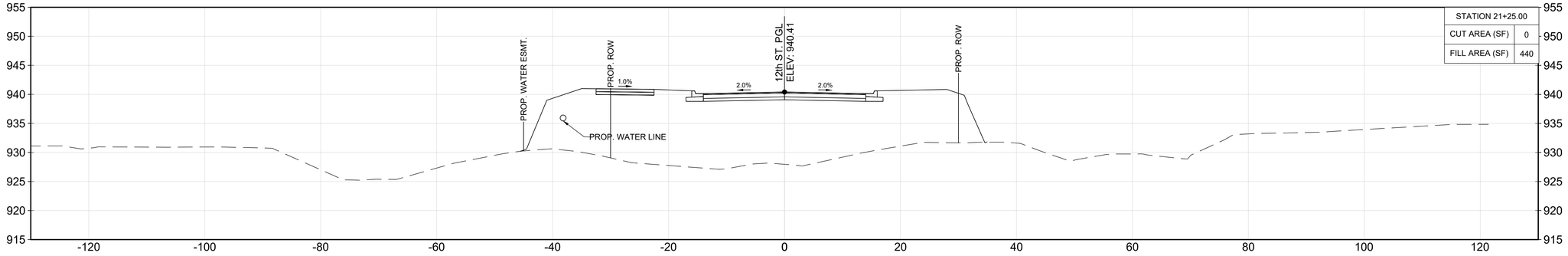
PROJECT NO:	2400101800
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SHEET TITLE
12TH STREET CROSS SECTIONS

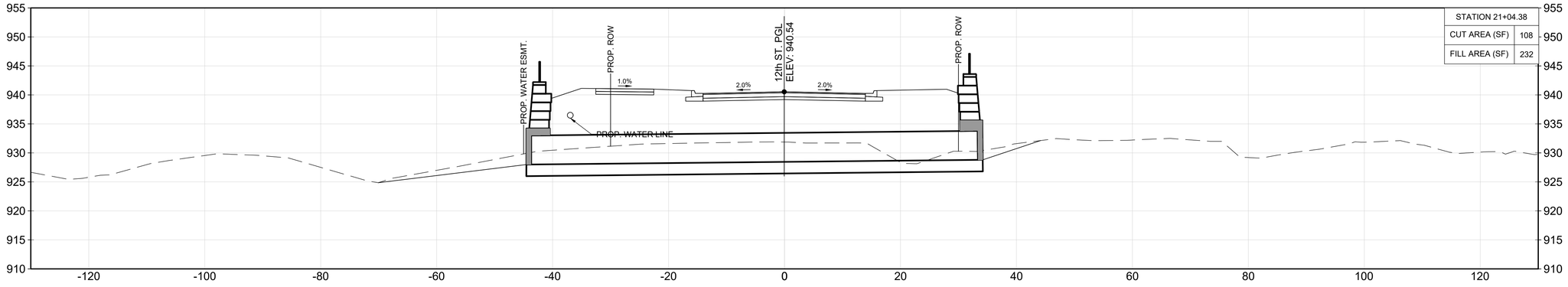
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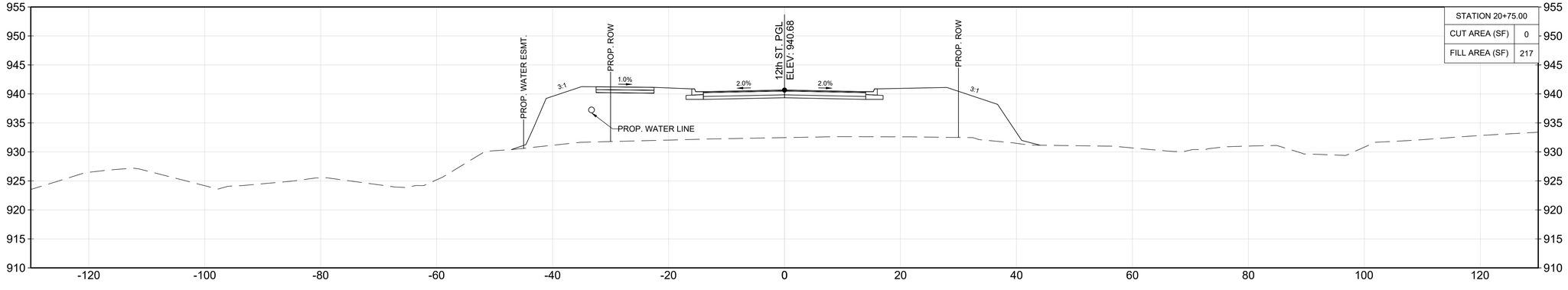
21+25.00



21+04.38



20+75.00



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NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

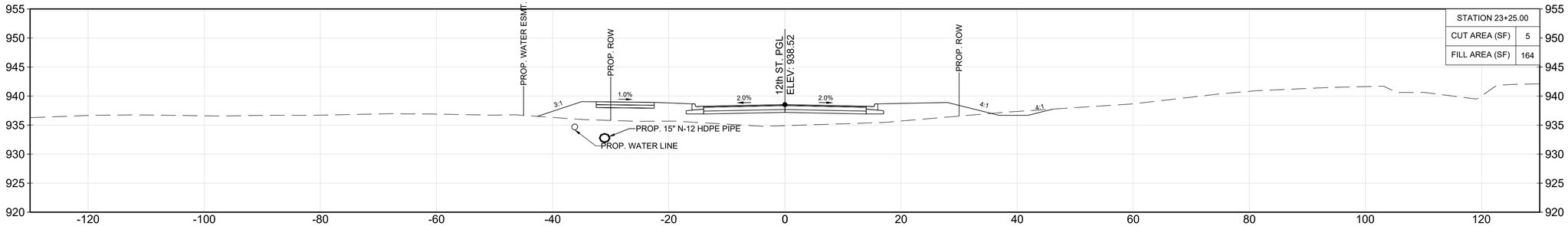
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

SHEET NO:
100 of 126

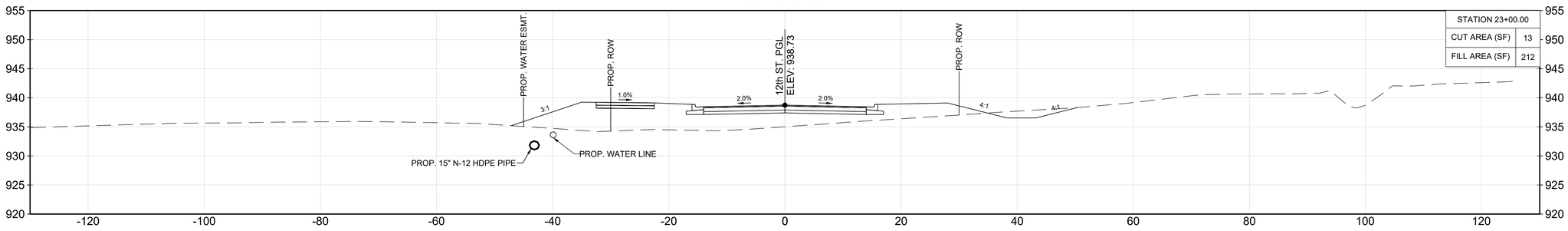
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23+25.00



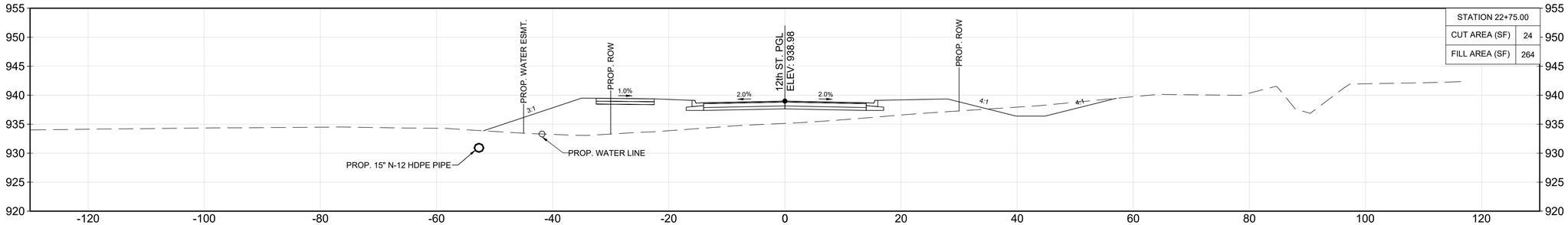
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CUT AREA (SF)	5
FILL AREA (SF)	164

23+00.00



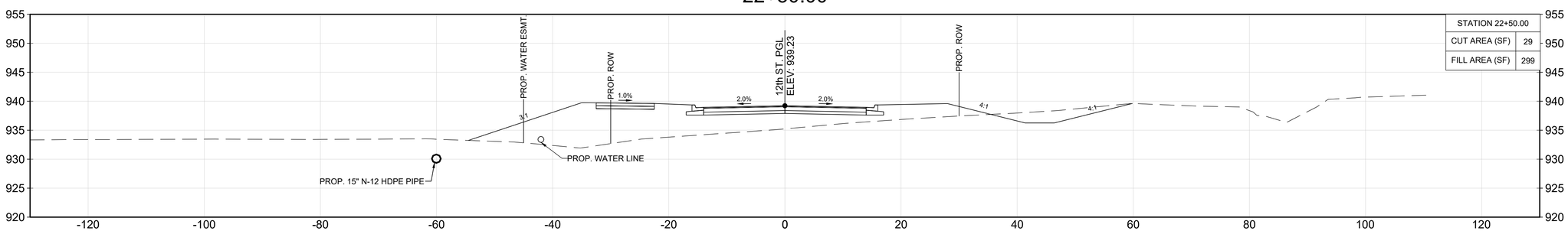
STATION 23+00.00	
CUT AREA (SF)	13
FILL AREA (SF)	212

22+75.00



STATION 22+75.00	
CUT AREA (SF)	24
FILL AREA (SF)	264

22+50.00



STATION 22+50.00	
CUT AREA (SF)	29
FILL AREA (SF)	299

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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

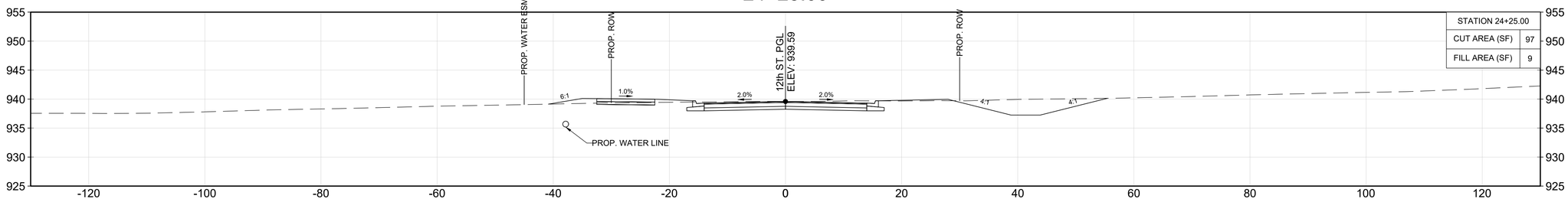
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
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SHEET TITLE
12TH STREET
CROSS SECTIONS

SHEET NO:
101 of 126

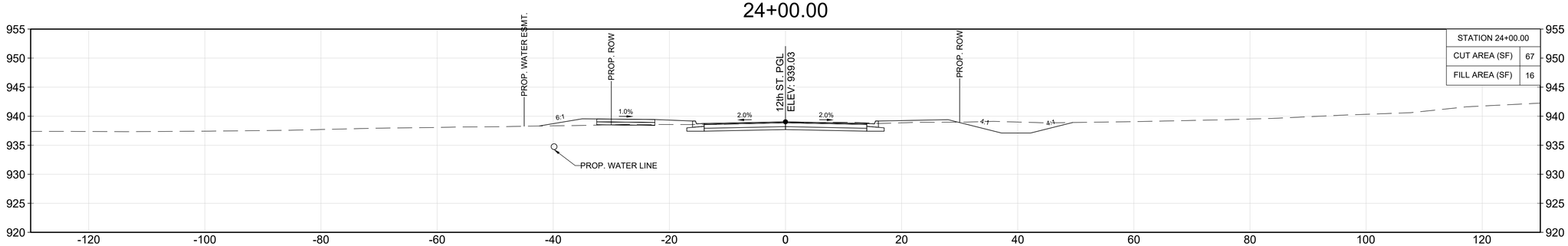
1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-XSECT_01.dwg

24+25.00



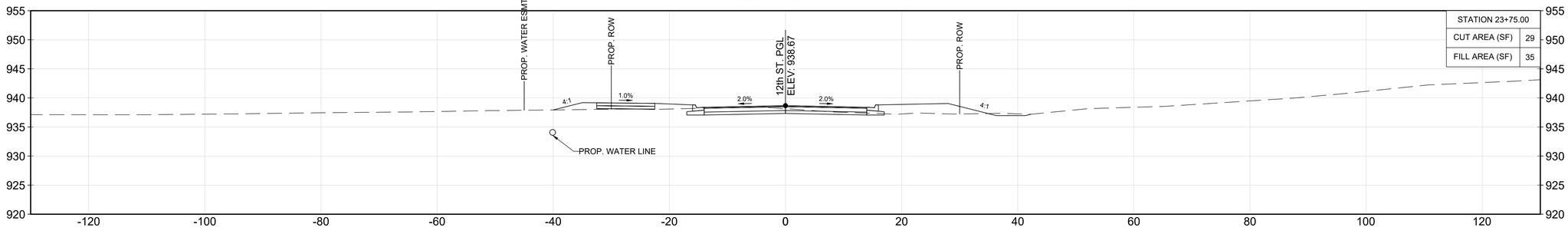
STATION 24+25.00	
CUT AREA (SF)	97
FILL AREA (SF)	9

24+00.00



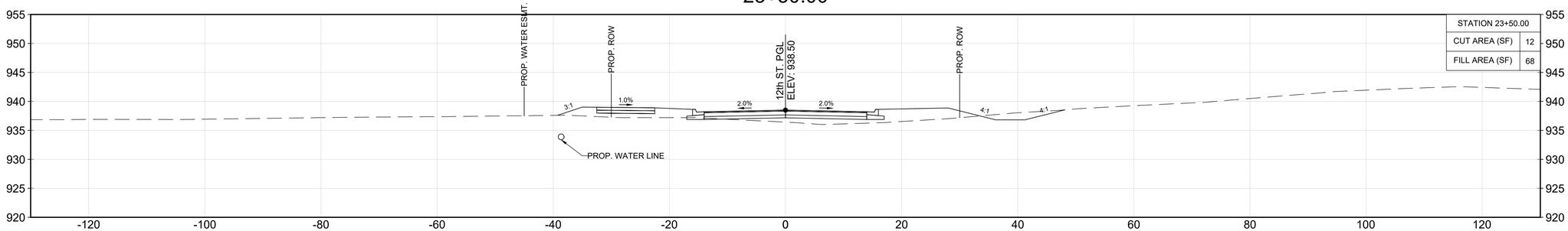
STATION 24+00.00	
CUT AREA (SF)	67
FILL AREA (SF)	16

23+75.00



STATION 23+75.00	
CUT AREA (SF)	29
FILL AREA (SF)	35

23+50.00



STATION 23+50.00	
CUT AREA (SF)	12
FILL AREA (SF)	68

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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

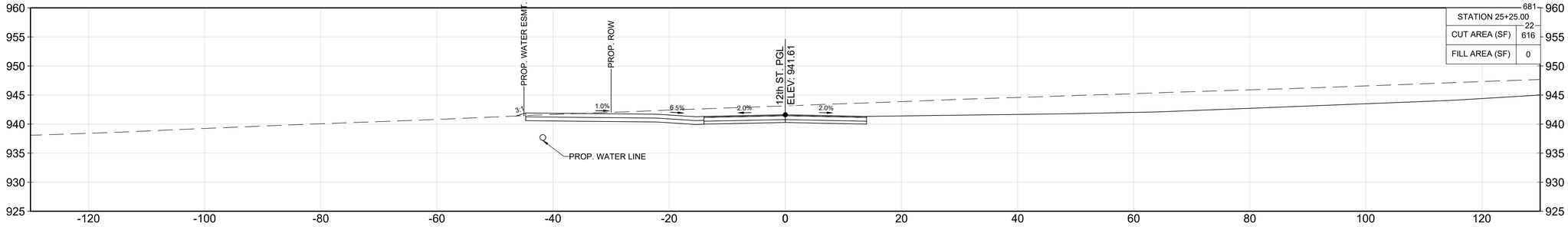
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

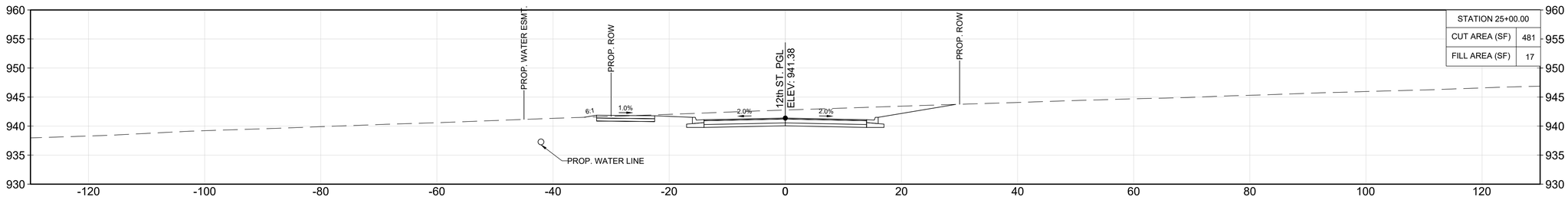
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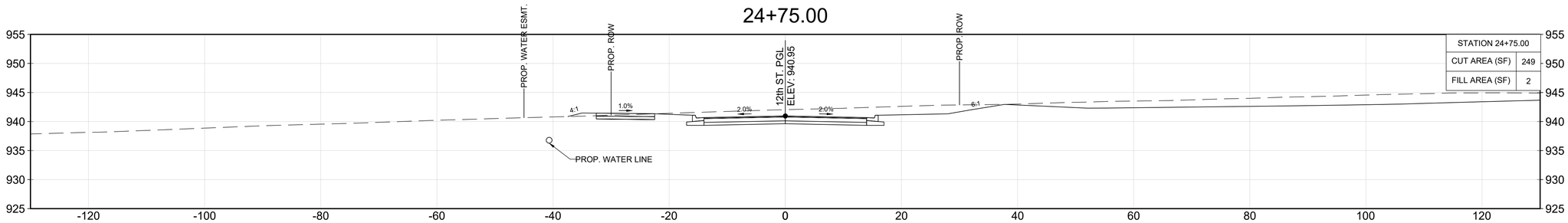
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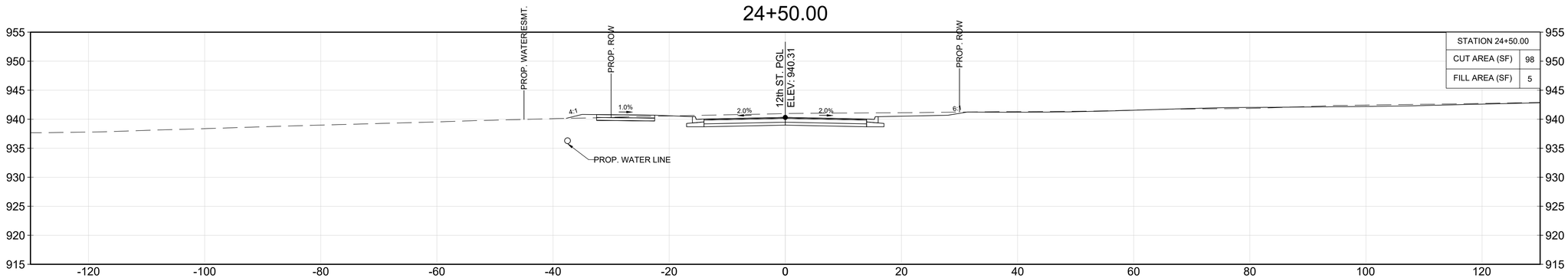
25+00.00



24+75.00



24+50.00



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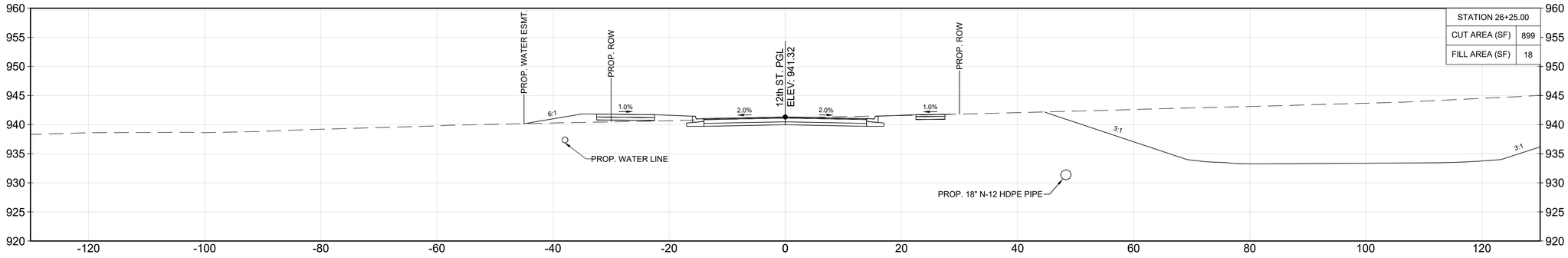
PROJECT NO:	2400101800
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SHEET TITLE
12TH STREET
CROSS SECTIONS

SHEET NO:
103 of 126

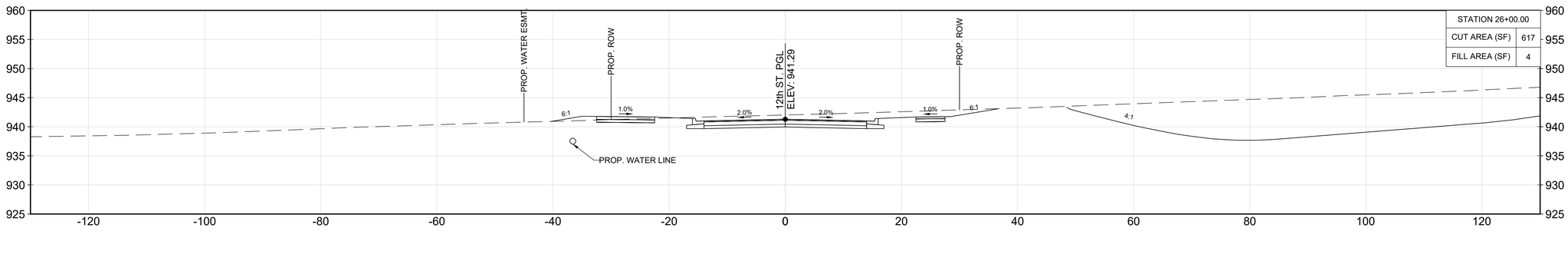
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26+25.00



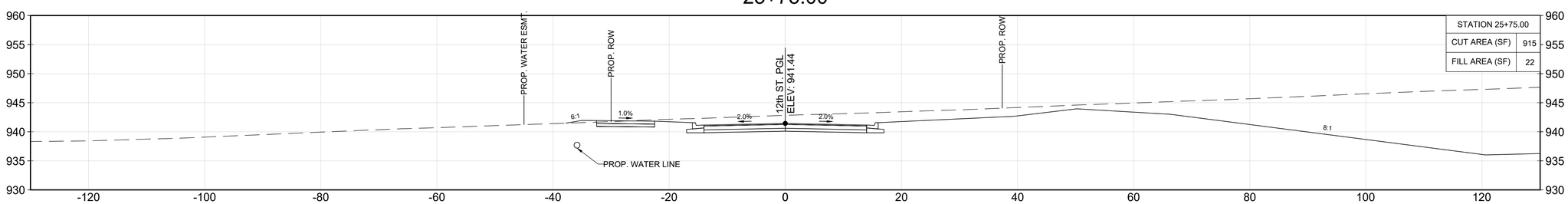
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CUT AREA (SF)	899
FILL AREA (SF)	18

26+00.00



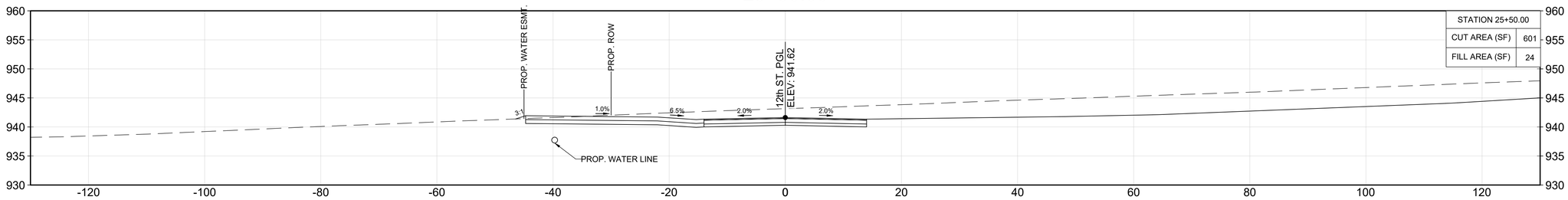
STATION 26+00.00	
CUT AREA (SF)	617
FILL AREA (SF)	4

25+75.00



STATION 25+75.00	
CUT AREA (SF)	915
FILL AREA (SF)	22

25+50.00



STATION 25+50.00	
CUT AREA (SF)	601
FILL AREA (SF)	24

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STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

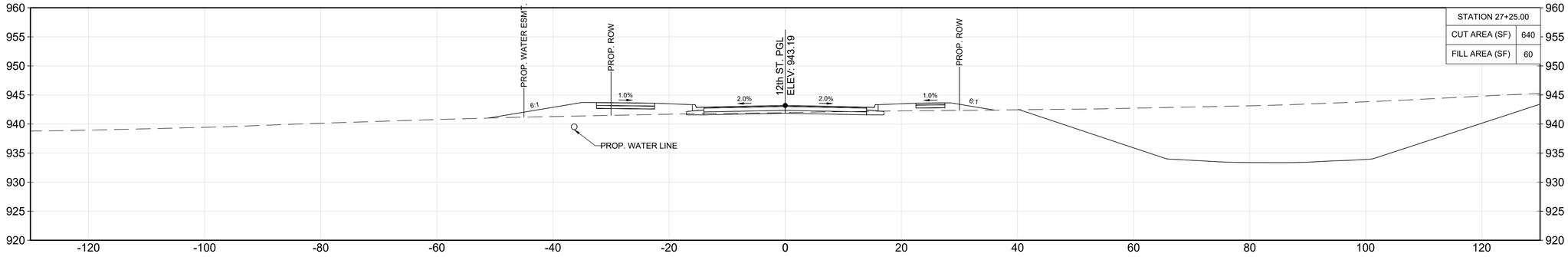
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

SHEET NO:
104 of 126

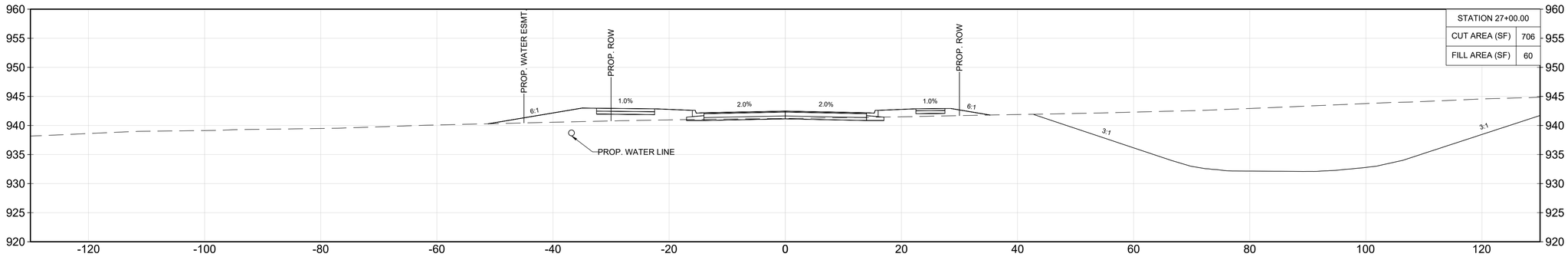
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27+25.00



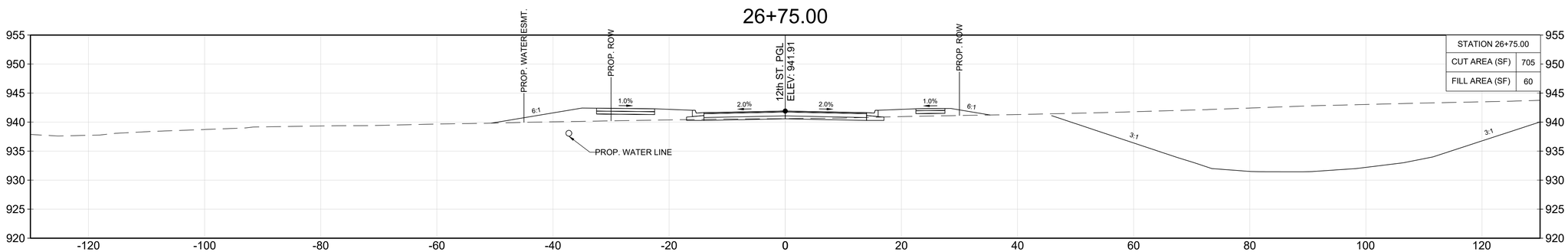
STATION 27+25.00	
CUT AREA (SF)	640
FILL AREA (SF)	60

27+00.00



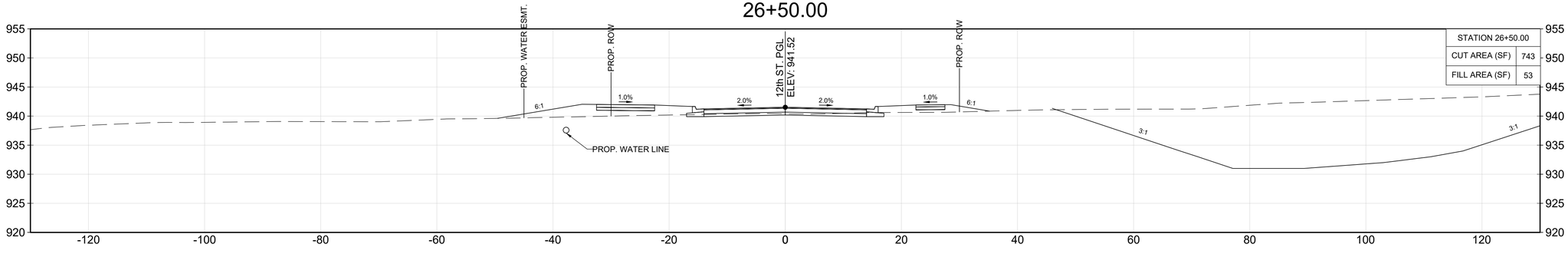
STATION 27+00.00	
CUT AREA (SF)	706
FILL AREA (SF)	60

26+75.00



STATION 26+75.00	
CUT AREA (SF)	705
FILL AREA (SF)	60

26+50.00



STATION 26+50.00	
CUT AREA (SF)	743
FILL AREA (SF)	53

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1/20/2026
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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

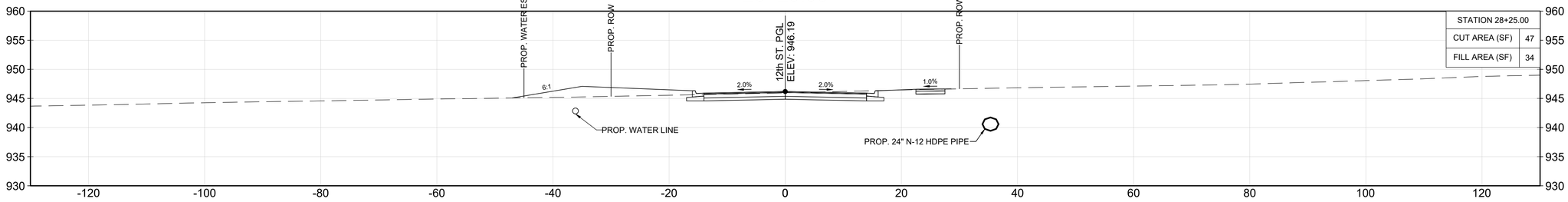
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DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

SHEET NO:
105 of 126

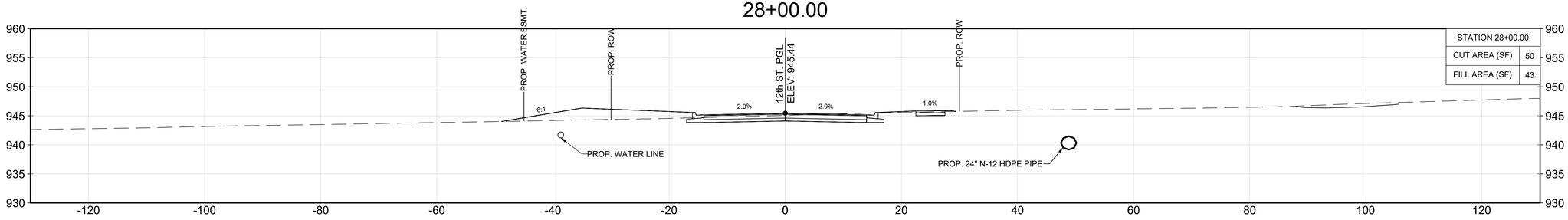
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28+25.00



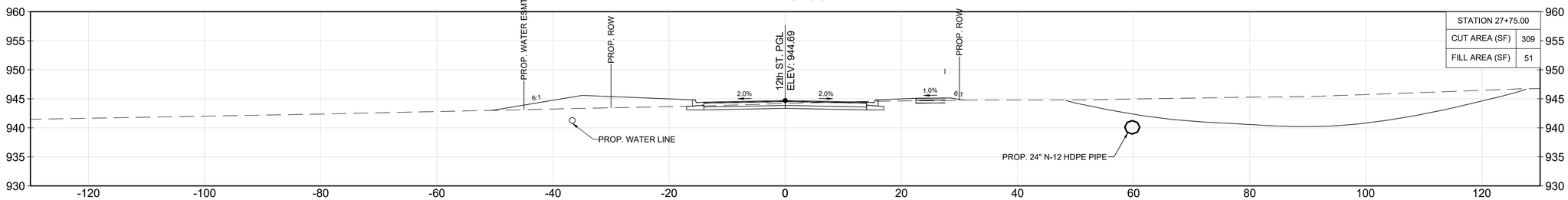
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CUT AREA (SF)	47
FILL AREA (SF)	34

28+00.00



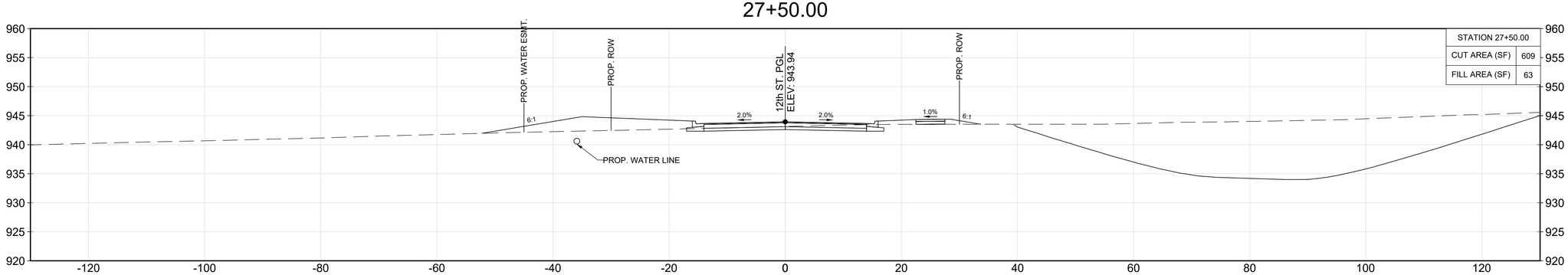
STATION 28+00.00	
CUT AREA (SF)	50
FILL AREA (SF)	43

27+75.00



STATION 27+75.00	
CUT AREA (SF)	309
FILL AREA (SF)	51

27+50.00



STATION 27+50.00	
CUT AREA (SF)	609
FILL AREA (SF)	63

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CITY OF BLUE SPRINGS, MO.

BY	DESCRIPTION	DATE	REV.

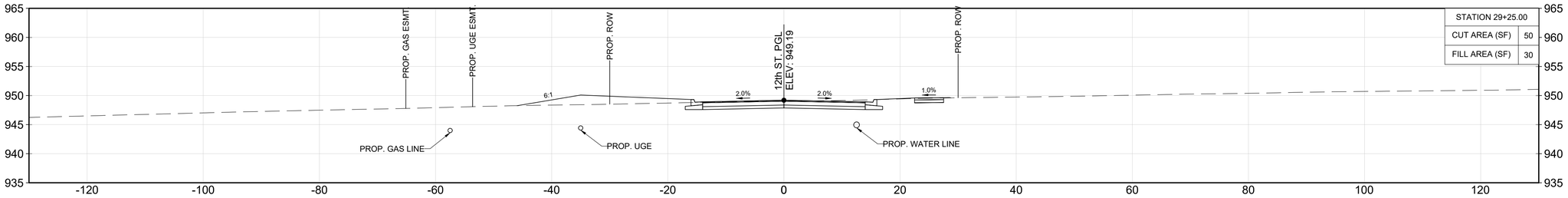
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CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

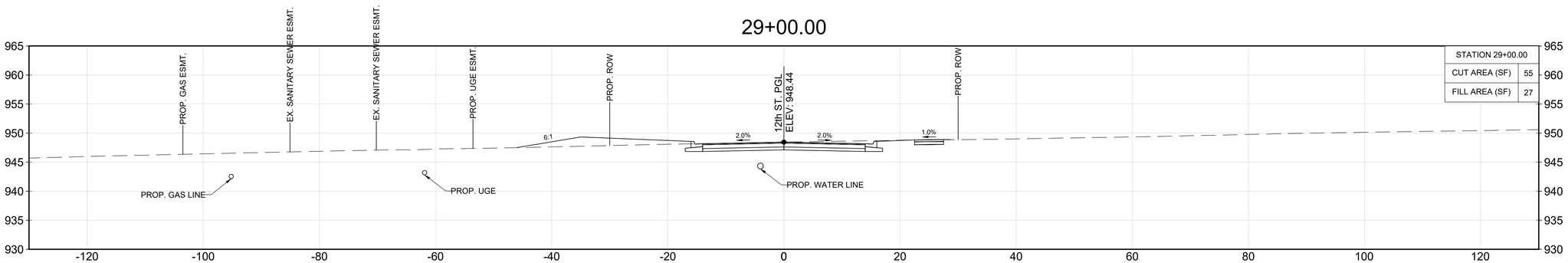
SHEET NO:
106 of 126

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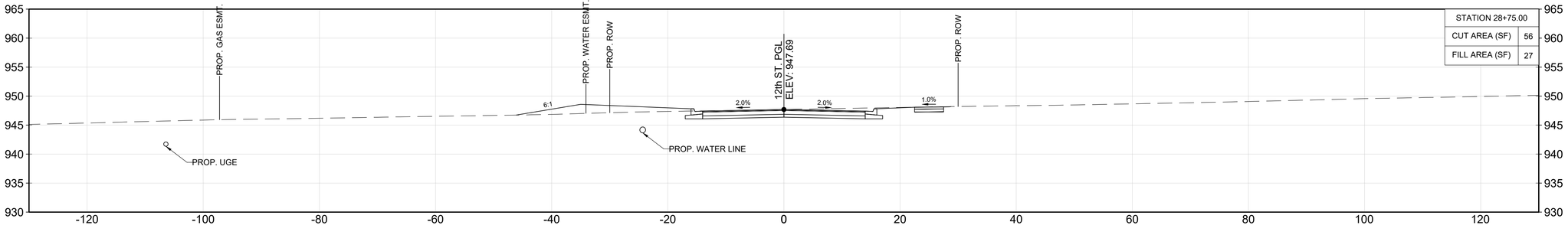
29+25.00



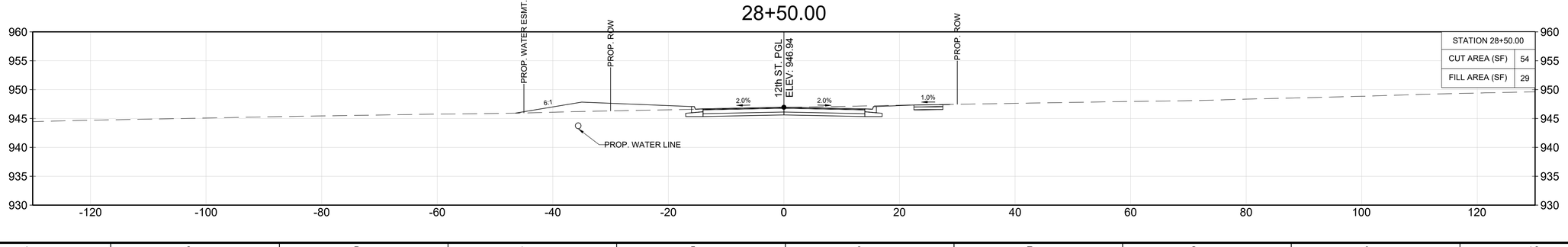
29+00.00



28+75.00



28+50.00



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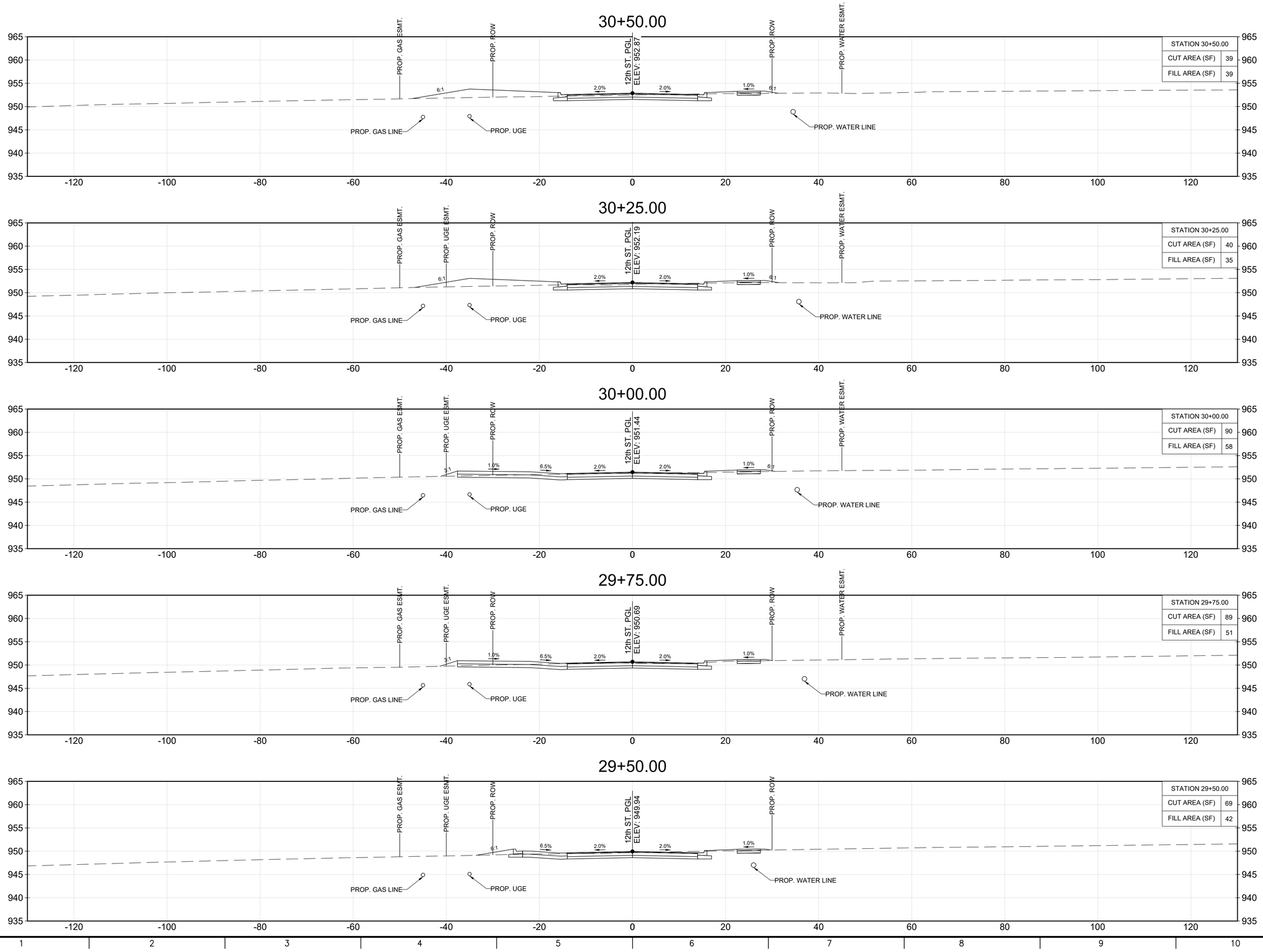
	BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
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DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET CROSS SECTIONS

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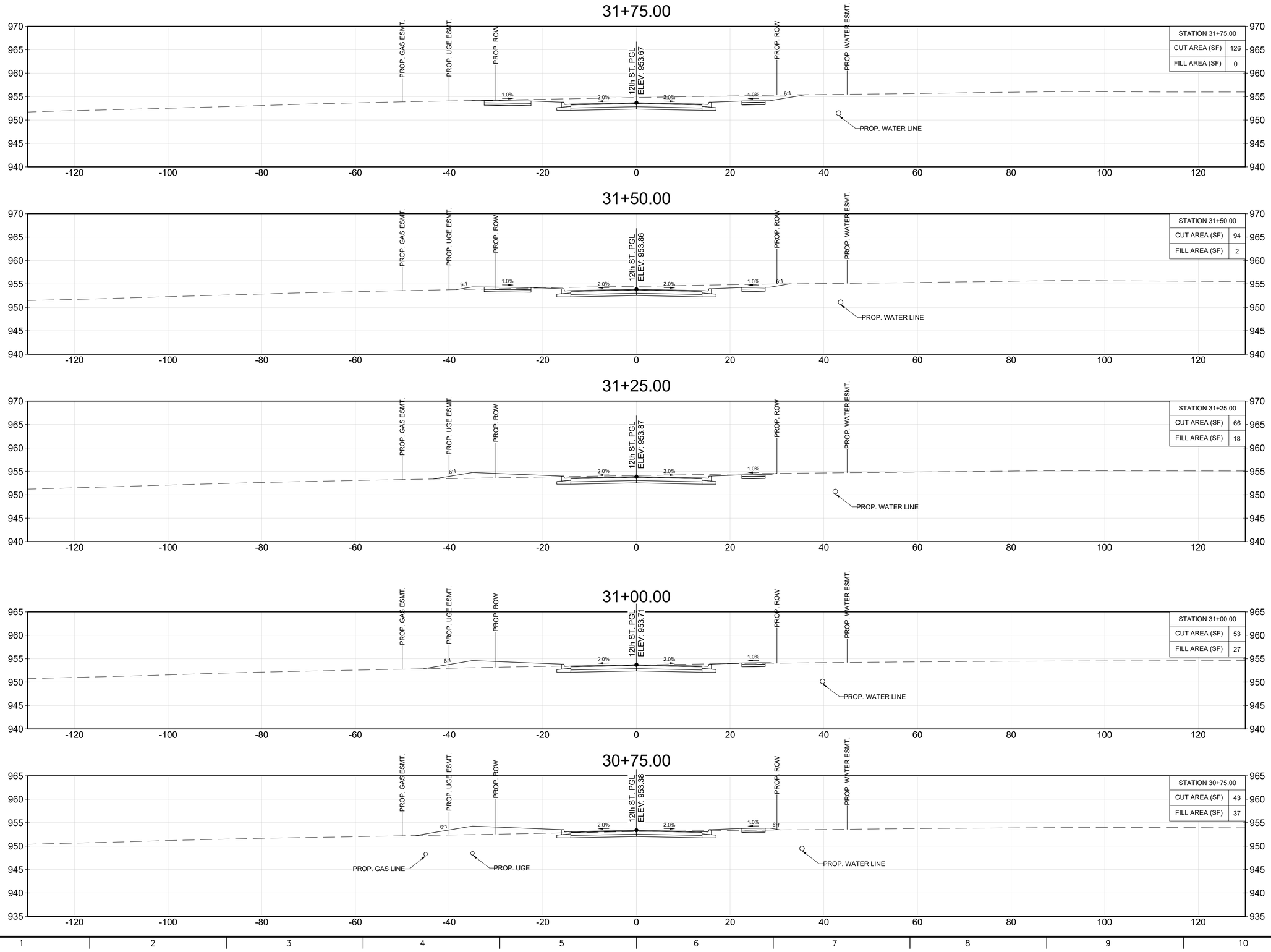
REV.	DATE	DESCRIPTION	BY

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SHEET TITLE
12TH STREET
CROSS SECTIONS

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SHEET TITLE

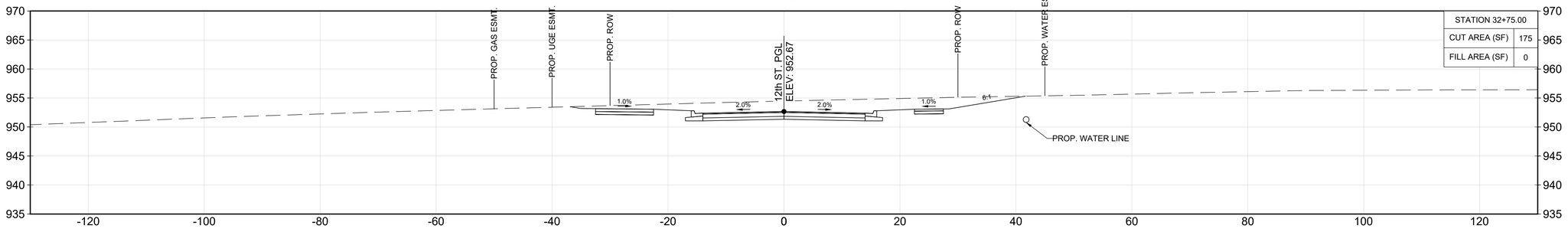
12TH STREET
CROSS SECTIONS

SHEET NO:

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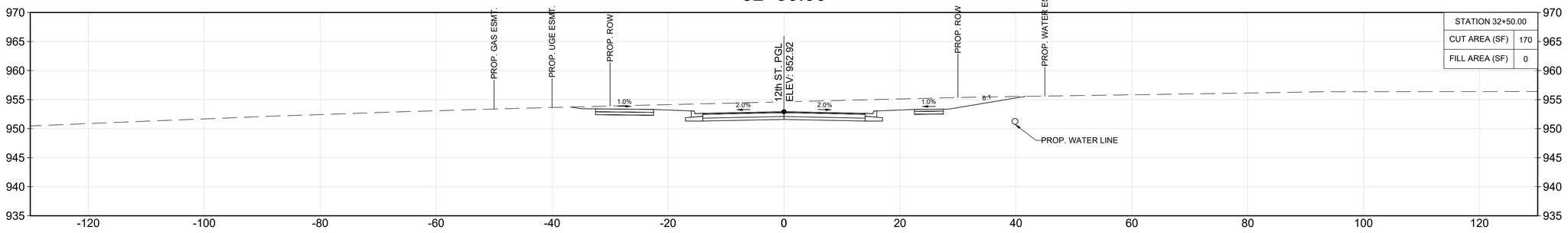
1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-XSECT_01.dwg

32+75.00



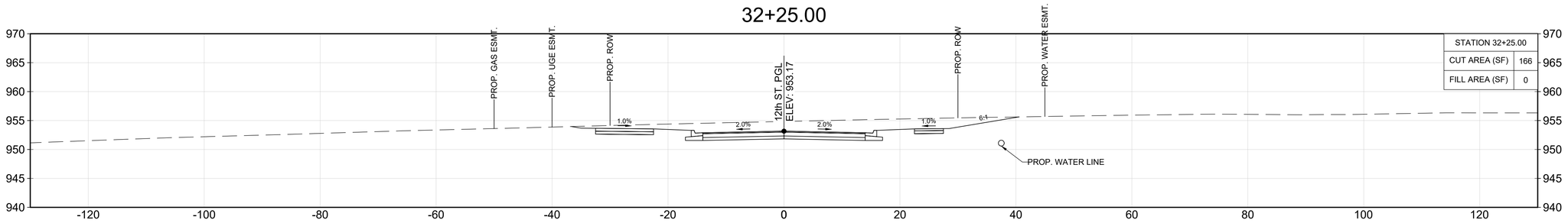
STATION 32+75.00	
CUT AREA (SF)	175
FILL AREA (SF)	0

32+50.00



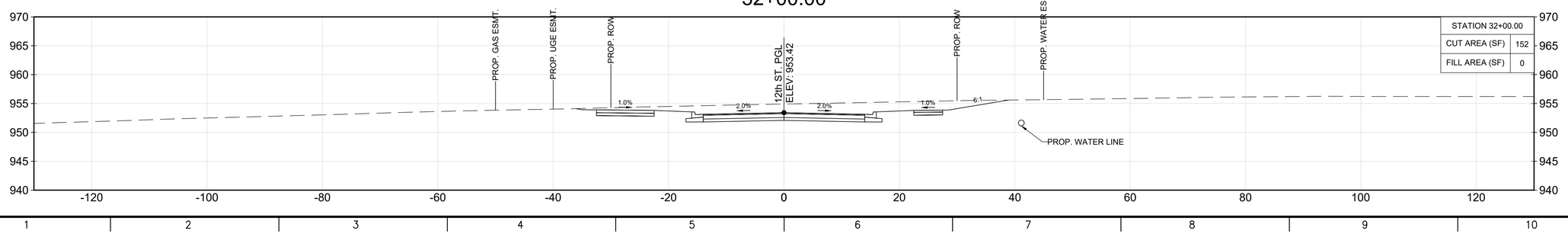
STATION 32+50.00	
CUT AREA (SF)	170
FILL AREA (SF)	0

32+25.00



STATION 32+25.00	
CUT AREA (SF)	166
FILL AREA (SF)	0

32+00.00



STATION 32+00.00	
CUT AREA (SF)	152
FILL AREA (SF)	0

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1/20/2026
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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

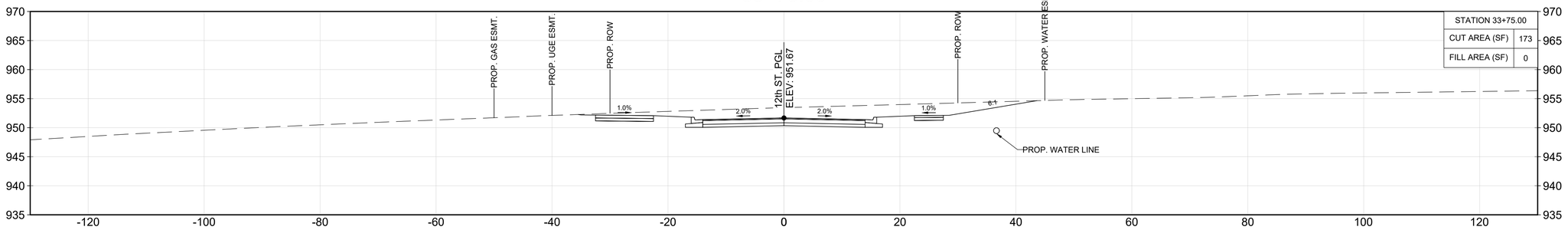
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CHECKED BY:	DJM
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SHEET TITLE
12TH STREET
CROSS SECTIONS

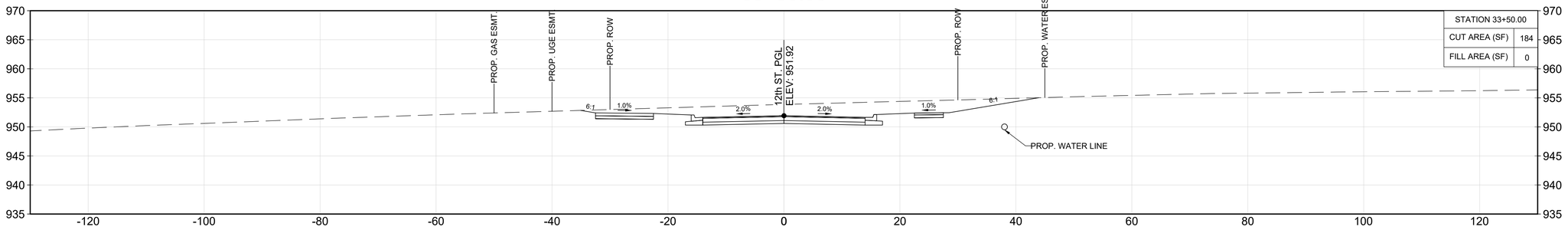
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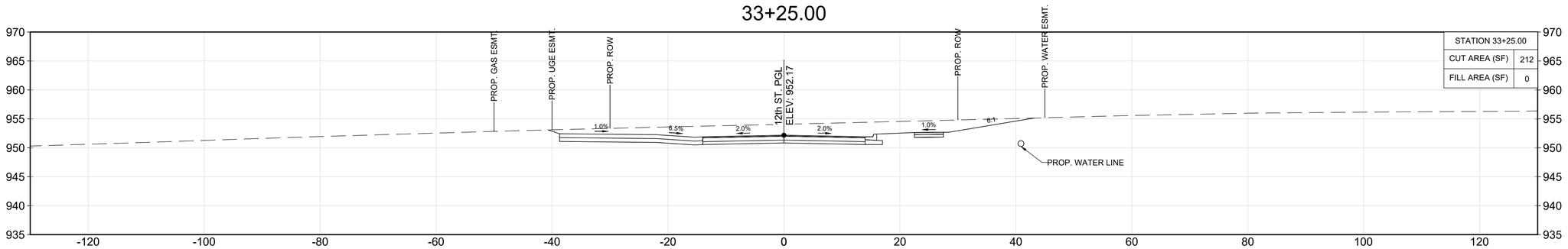
33+75.00



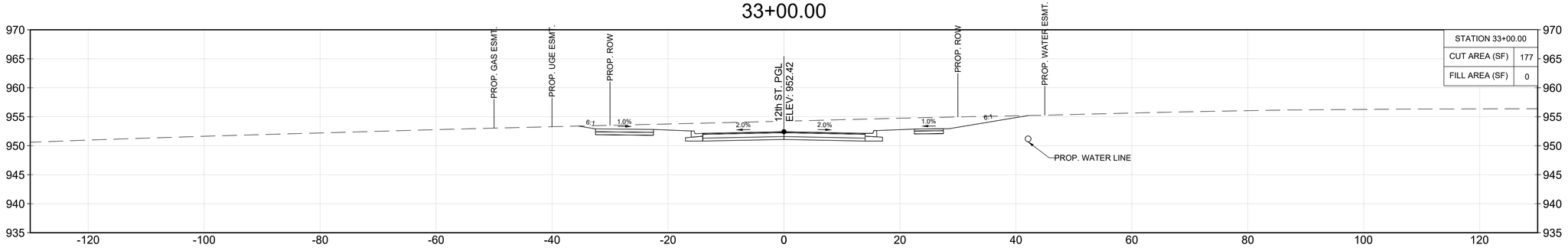
33+50.00



33+25.00



33+00.00



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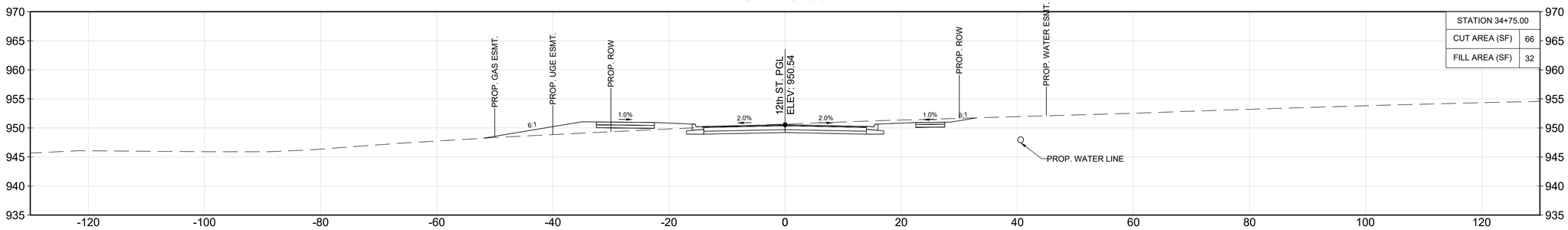
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SHEET TITLE
12TH STREET
CROSS SECTIONS

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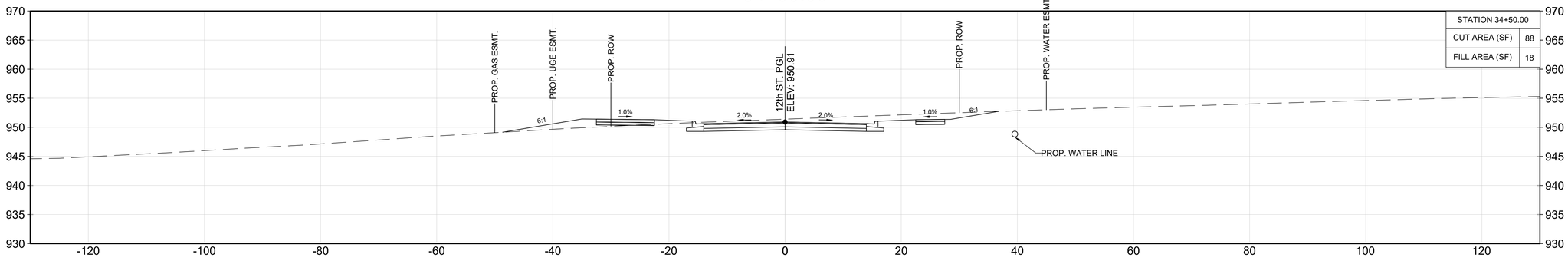
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34+75.00



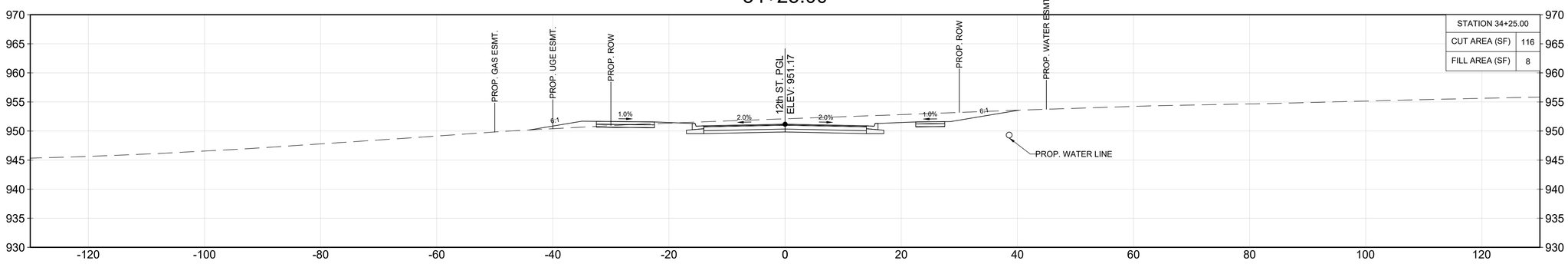
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CUT AREA (SF)	66
FILL AREA (SF)	32

34+50.00



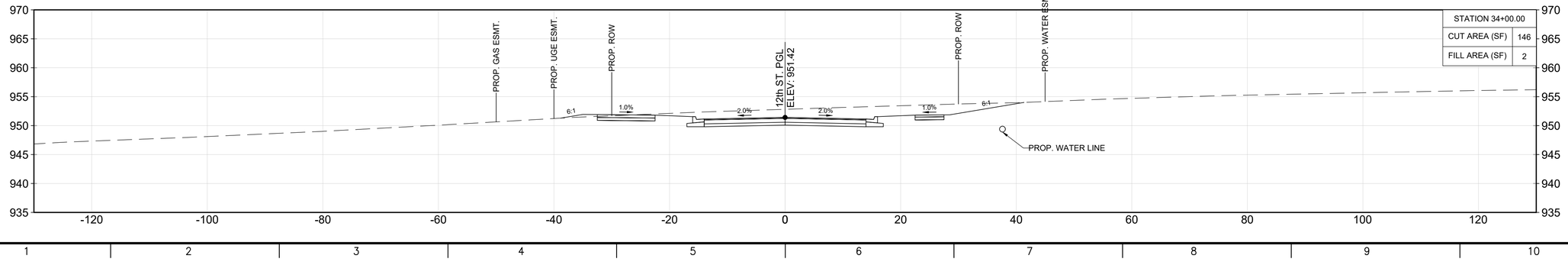
STATION 34+50.00	
CUT AREA (SF)	88
FILL AREA (SF)	18

34+25.00



STATION 34+25.00	
CUT AREA (SF)	116
FILL AREA (SF)	8

34+00.00



STATION 34+00.00	
CUT AREA (SF)	146
FILL AREA (SF)	2

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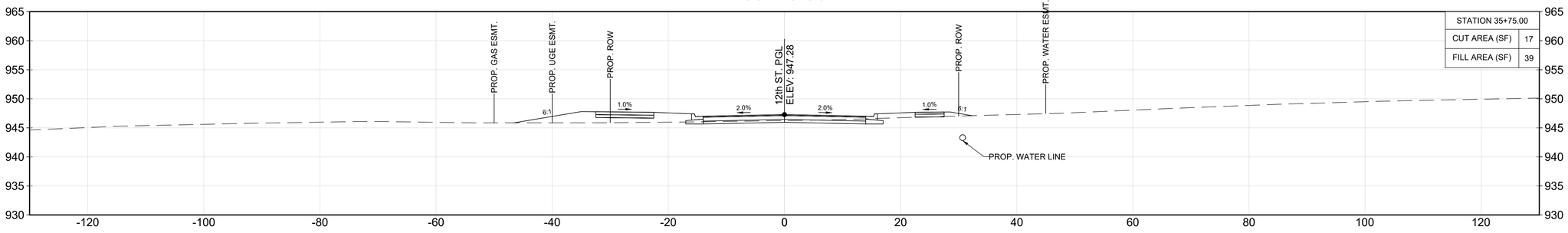
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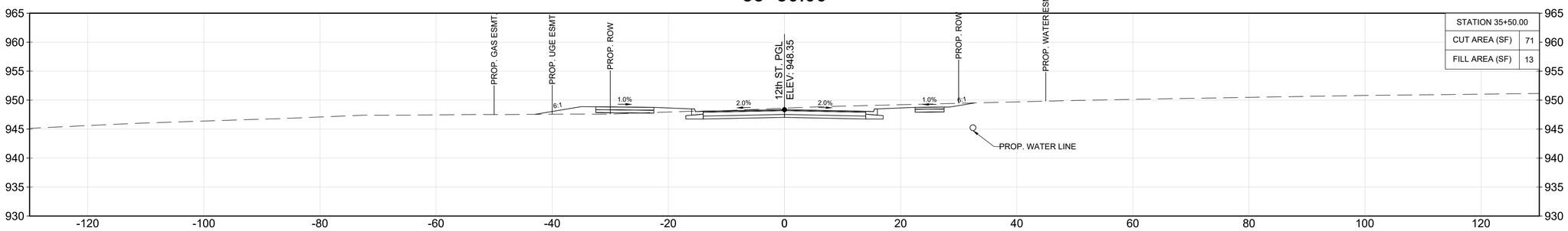
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35+75.00



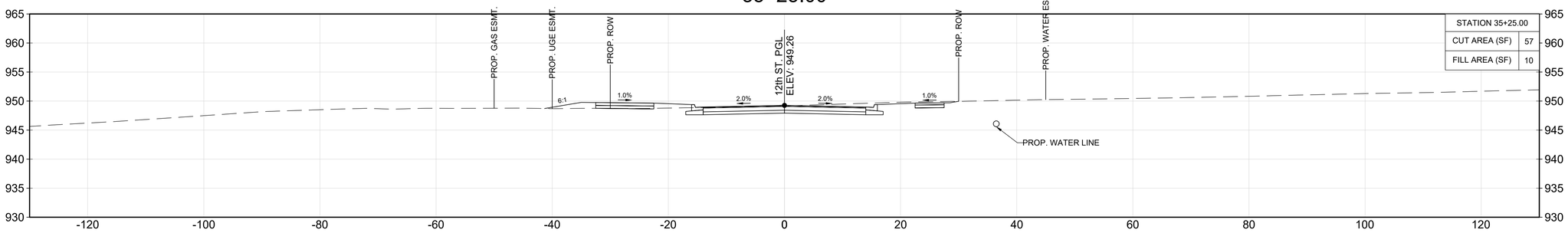
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CUT AREA (SF)	17
FILL AREA (SF)	39

35+50.00



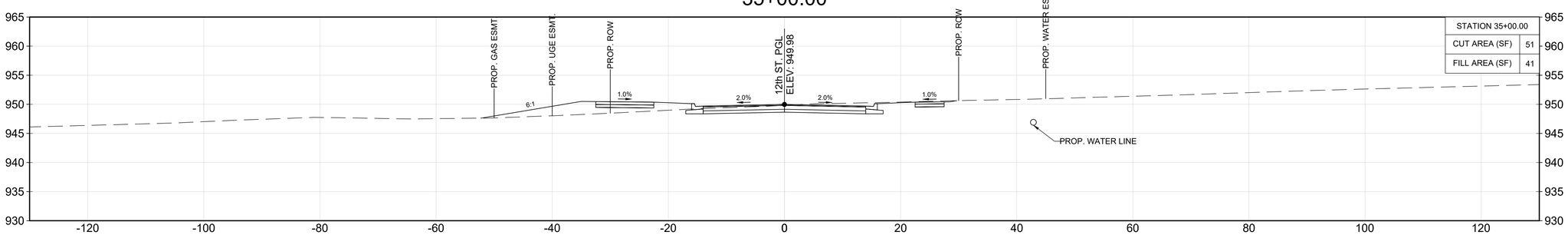
STATION 35+50.00	
CUT AREA (SF)	71
FILL AREA (SF)	13

35+25.00



STATION 35+25.00	
CUT AREA (SF)	57
FILL AREA (SF)	10

35+00.00



STATION 35+00.00	
CUT AREA (SF)	51
FILL AREA (SF)	41

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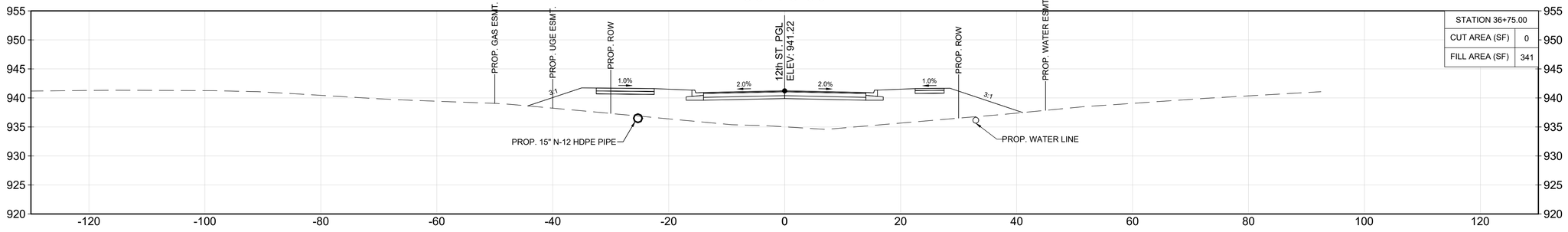
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SHEET TITLE
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SHEET NO:
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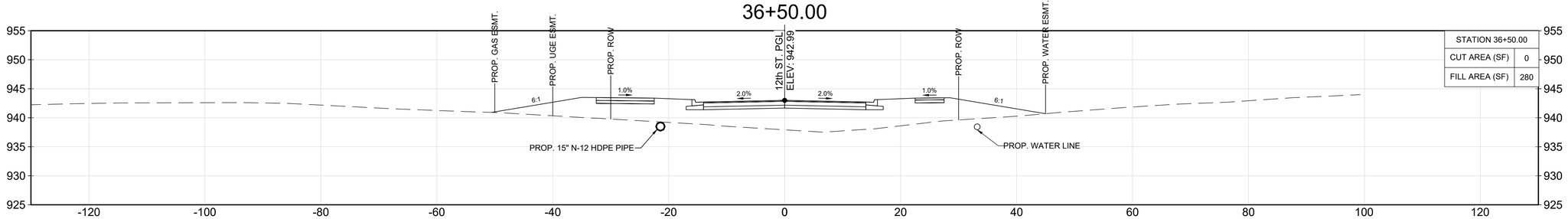
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36+75.00



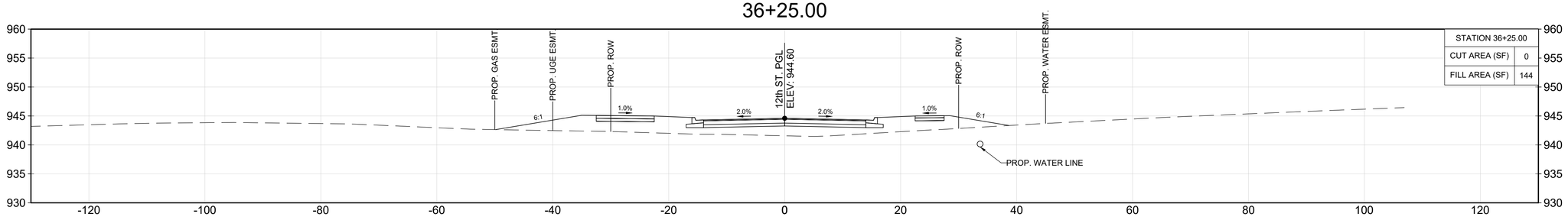
STATION 36+75.00	
CUT AREA (SF)	0
FILL AREA (SF)	341

36+50.00



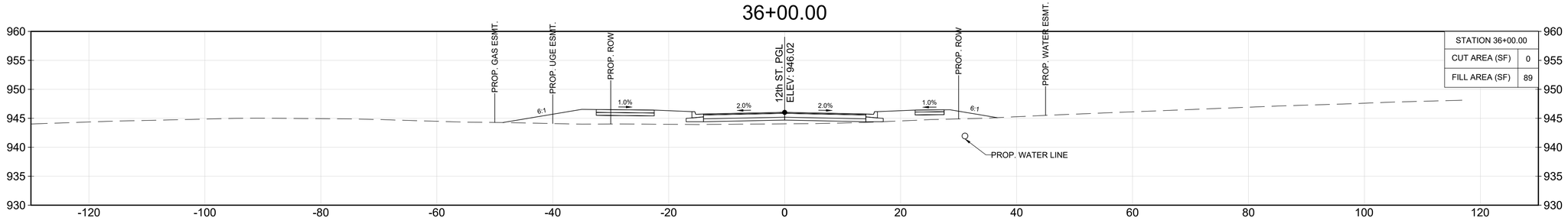
STATION 36+50.00	
CUT AREA (SF)	0
FILL AREA (SF)	280

36+25.00



STATION 36+25.00	
CUT AREA (SF)	0
FILL AREA (SF)	144

36+00.00



STATION 36+00.00	
CUT AREA (SF)	0
FILL AREA (SF)	89

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SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

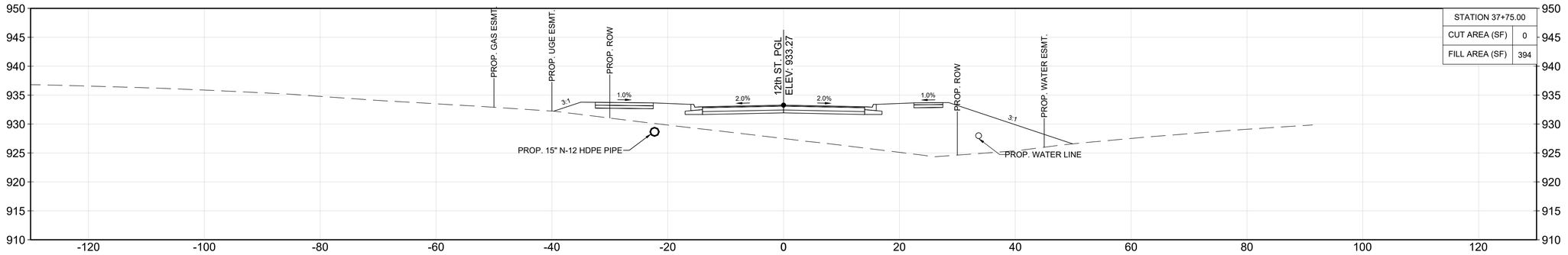
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

SHEET NO:
114 of 126

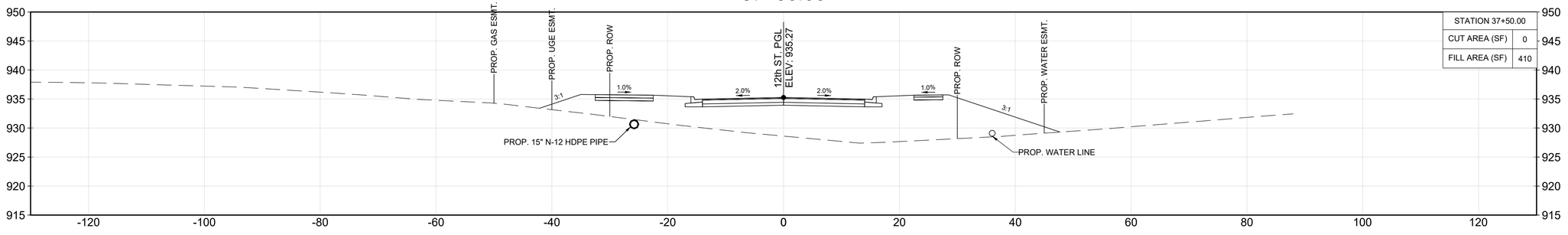
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37+75.00



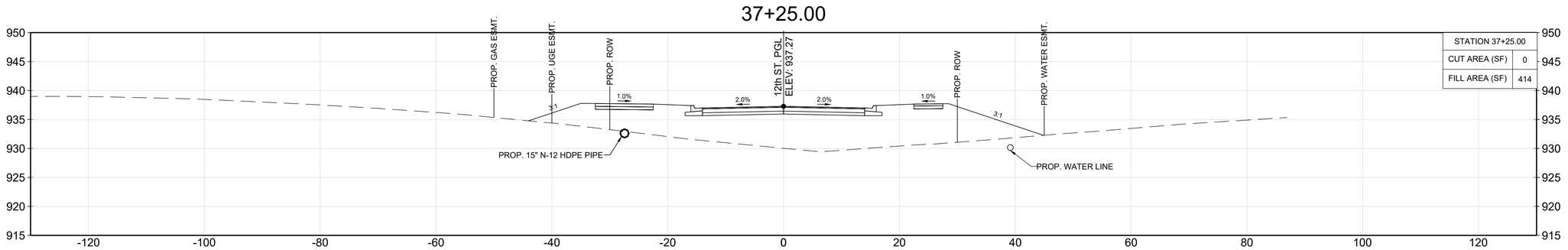
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CUT AREA (SF)	0
FILL AREA (SF)	394

37+50.00



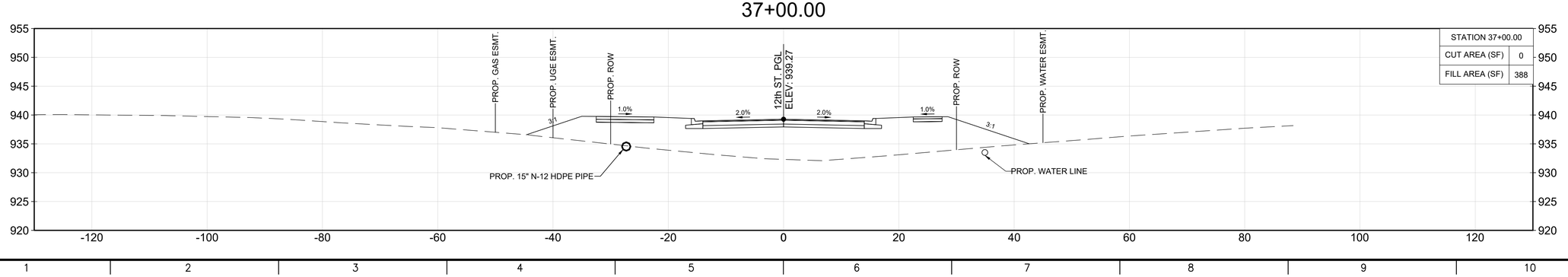
STATION 37+50.00	
CUT AREA (SF)	0
FILL AREA (SF)	410

37+25.00



STATION 37+25.00	
CUT AREA (SF)	0
FILL AREA (SF)	414

37+00.00



STATION 37+00.00	
CUT AREA (SF)	0
FILL AREA (SF)	388

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1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

NO.	DESCRIPTION	DATE	BY
REV.			

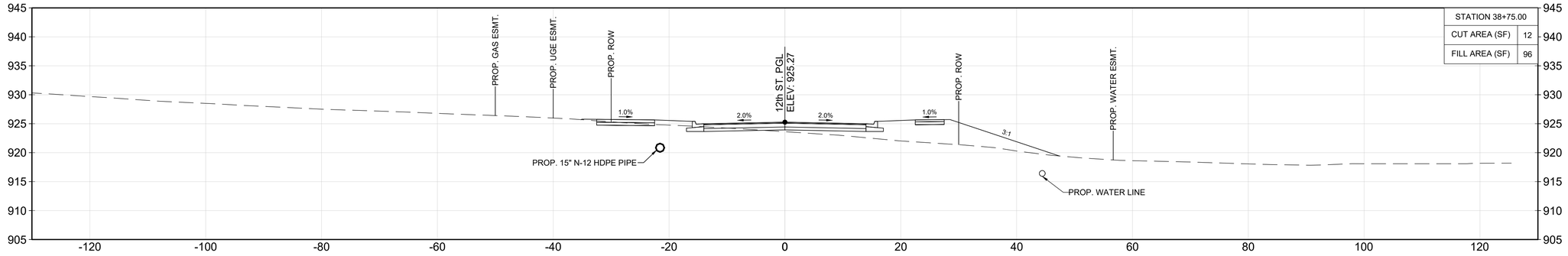
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

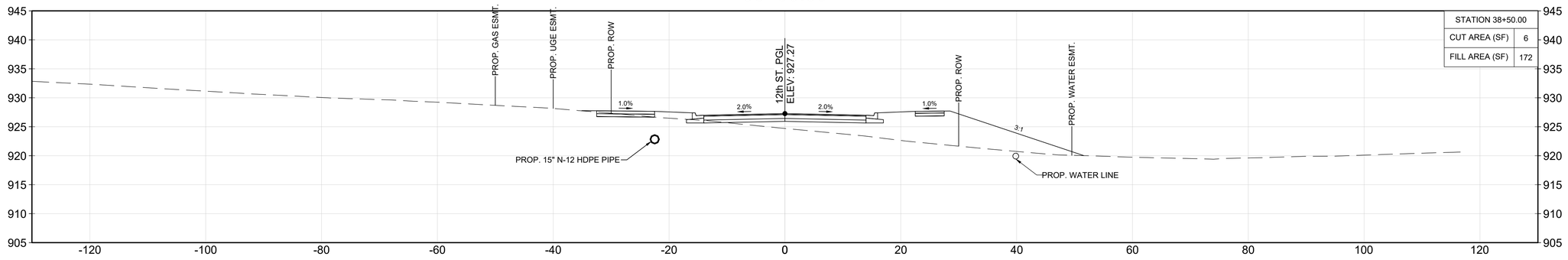
SHEET NO:
115 of 126

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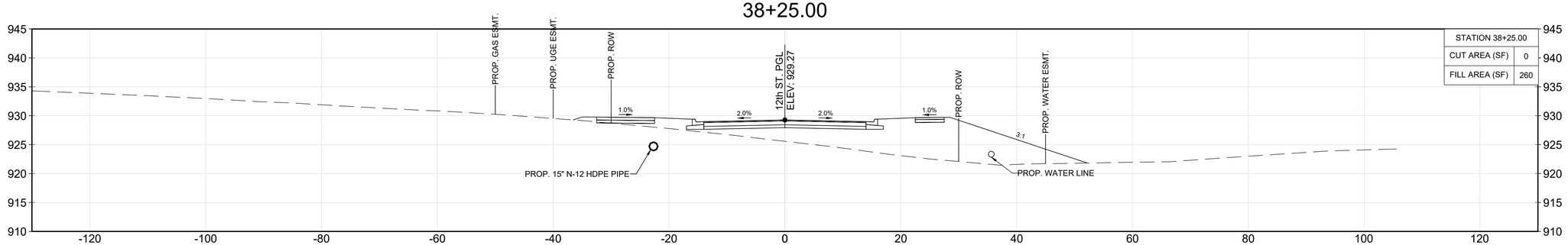
38+75.00



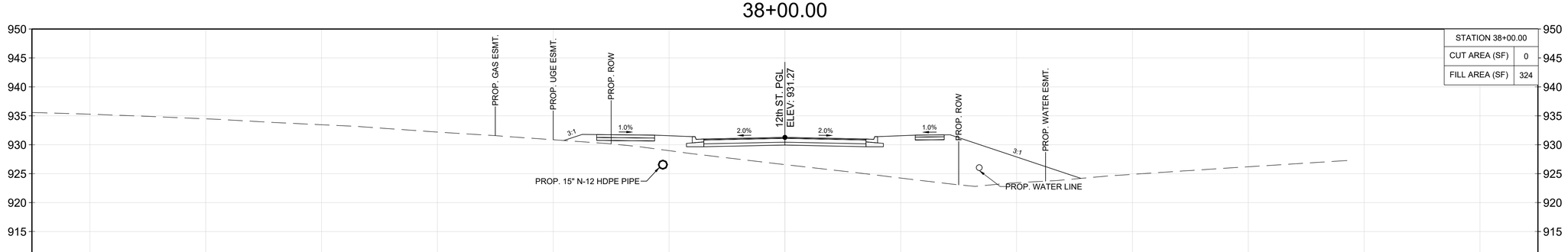
38+50.00



38+25.00



38+00.00



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CITY OF BLUE SPRINGS, MO.

BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
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DATE:	1/20/2026

SHEET TITLE

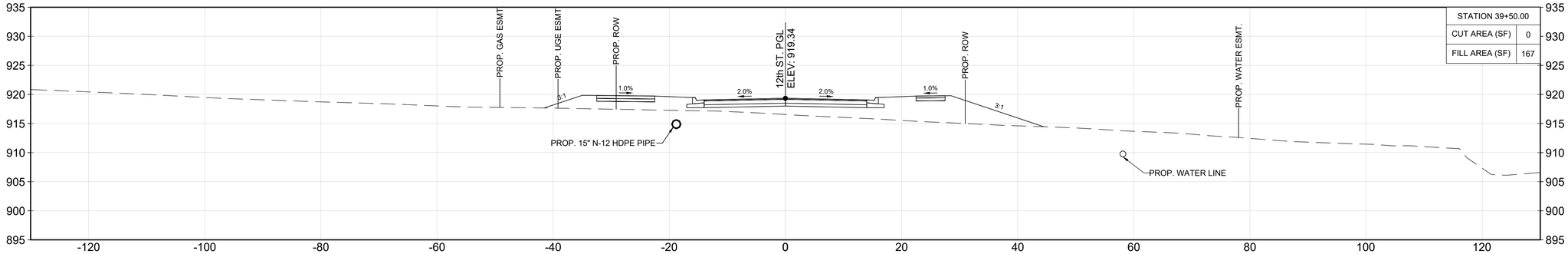
12TH STREET
CROSS SECTIONS

SHEET NO:

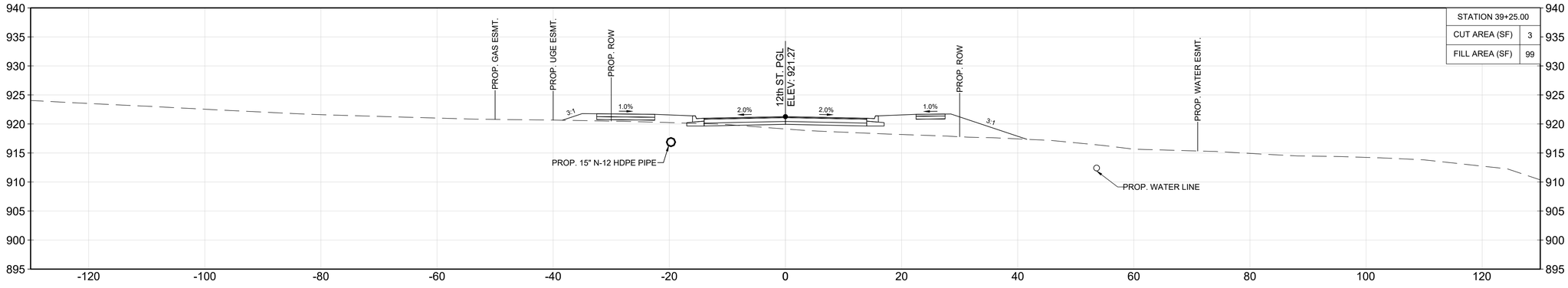
116 of 126

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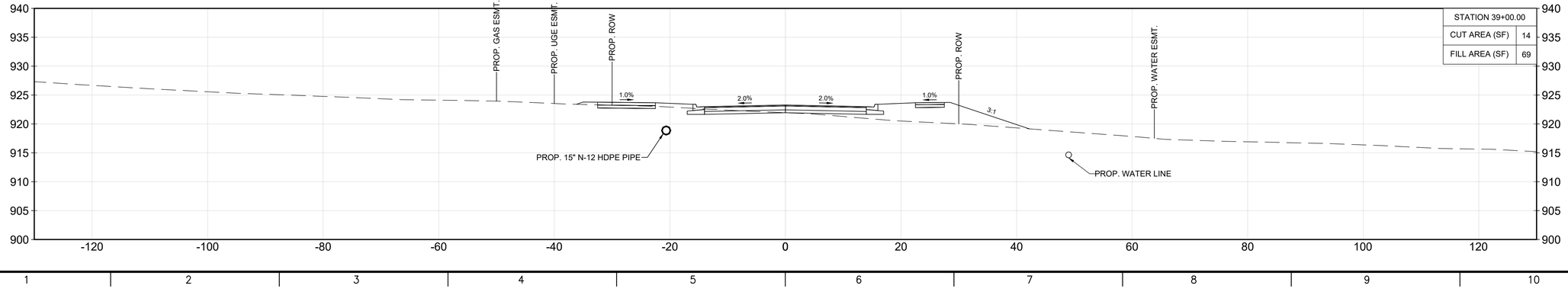
39+50.00



39+25.00



39+00.00



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PROJECT NAME
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CITY OF BLUE SPRINGS, MO.

BY	DESCRIPTION	DATE	REV.

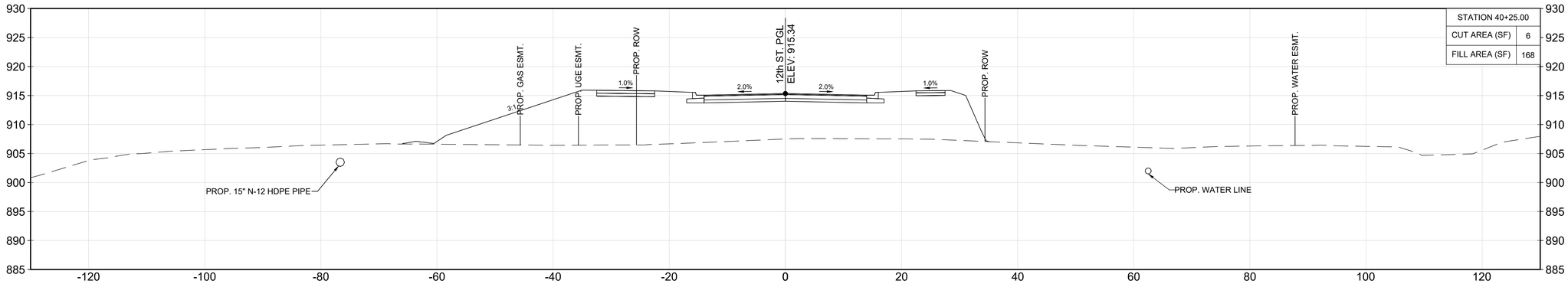
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SHEET TITLE
12TH STREET
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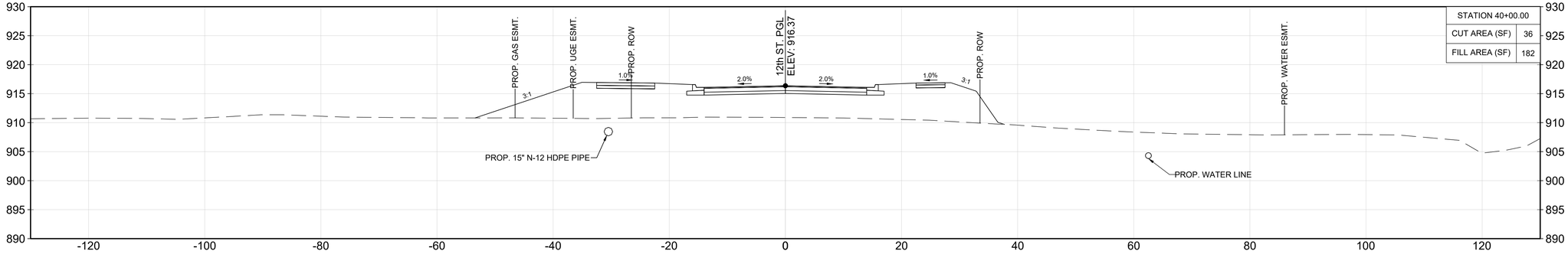
SHEET NO:
117 of 126

1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-XSECT_01.dwg

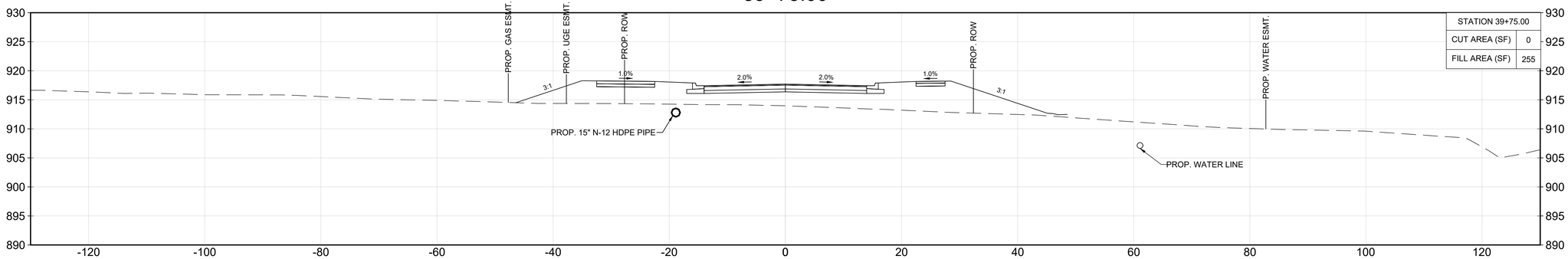
40+25.00



40+00.00



39+75.00



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REV.	DATE	DESCRIPTION	BY

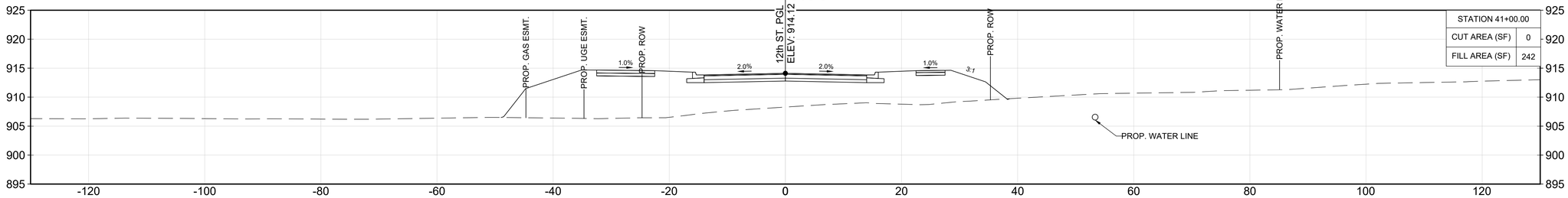
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

SHEET NO:
118 of 126

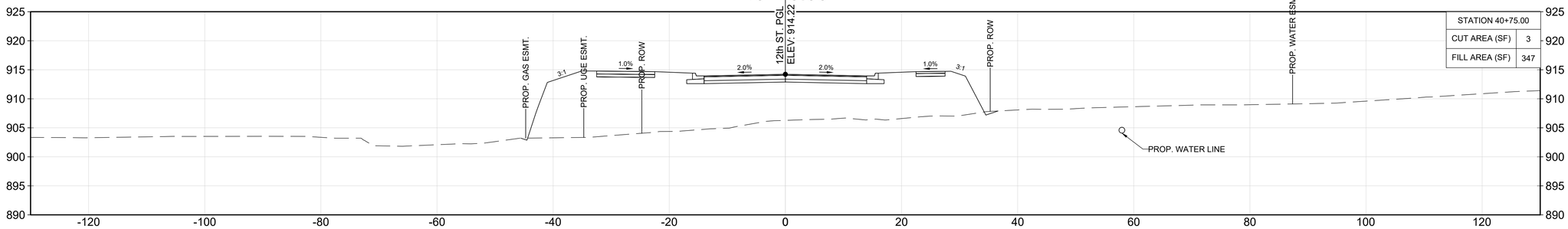
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1/20/2026

41+00.00



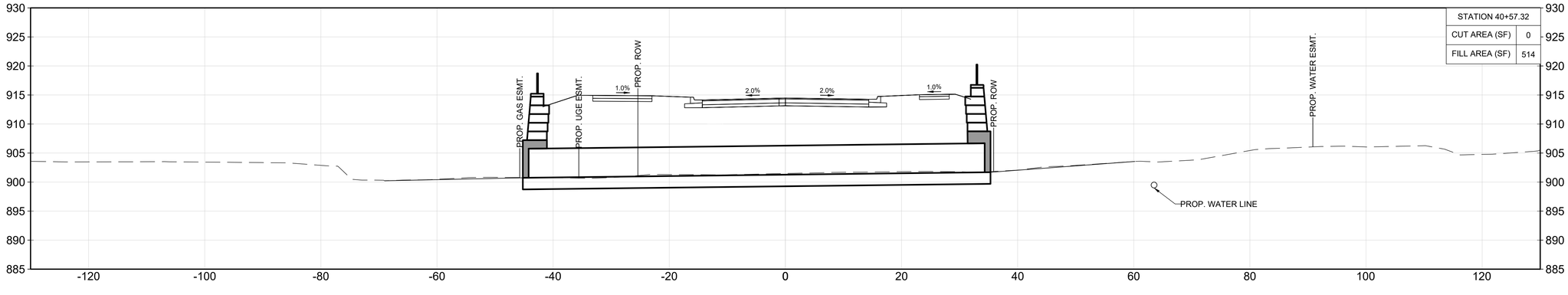
STATION 41+00.00	
CUT AREA (SF)	0
FILL AREA (SF)	242

40+75.00



STATION 40+75.00	
CUT AREA (SF)	3
FILL AREA (SF)	347

40+57.32



STATION 40+57.32	
CUT AREA (SF)	0
FILL AREA (SF)	514

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PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

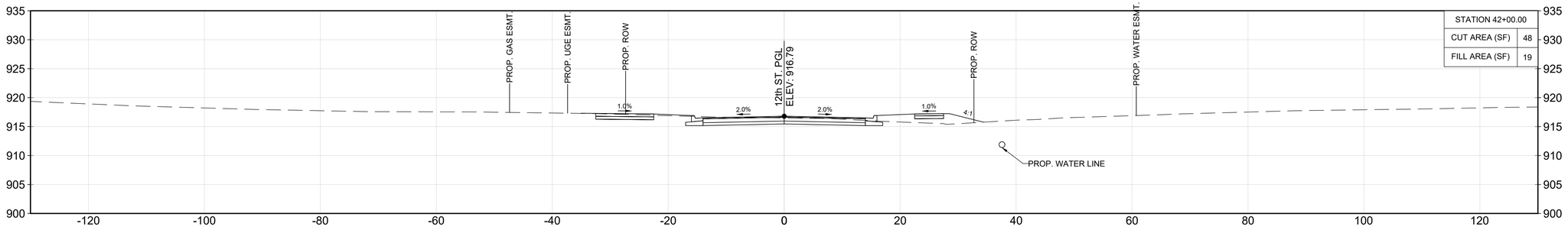
PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

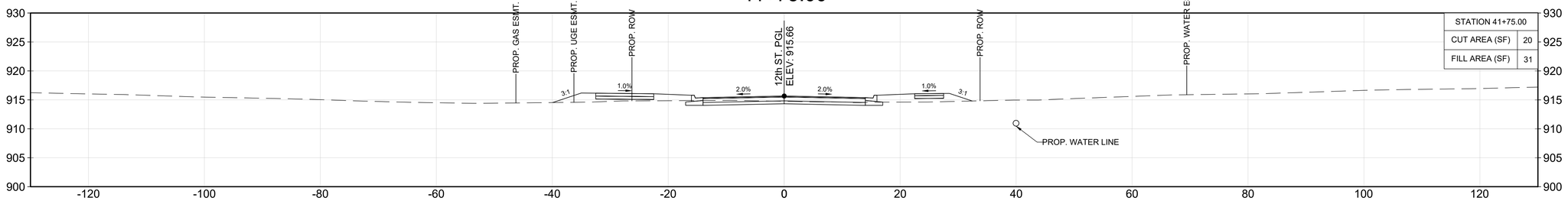
SHEET NO:
119 of 126

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1/20/2026

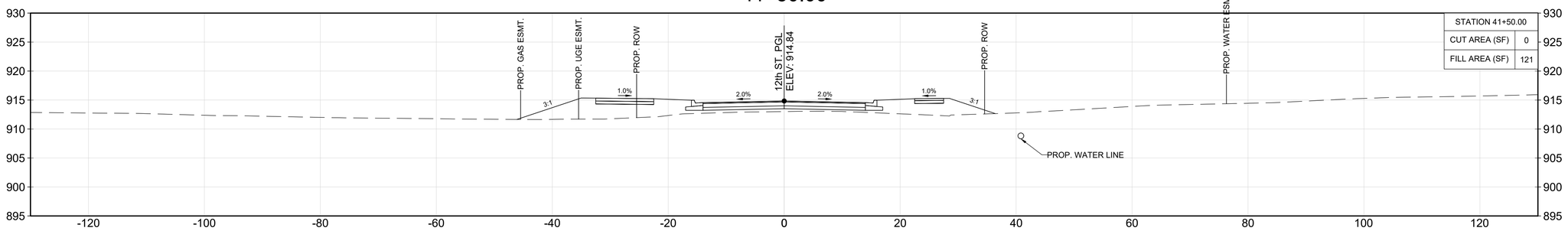
42+00.00



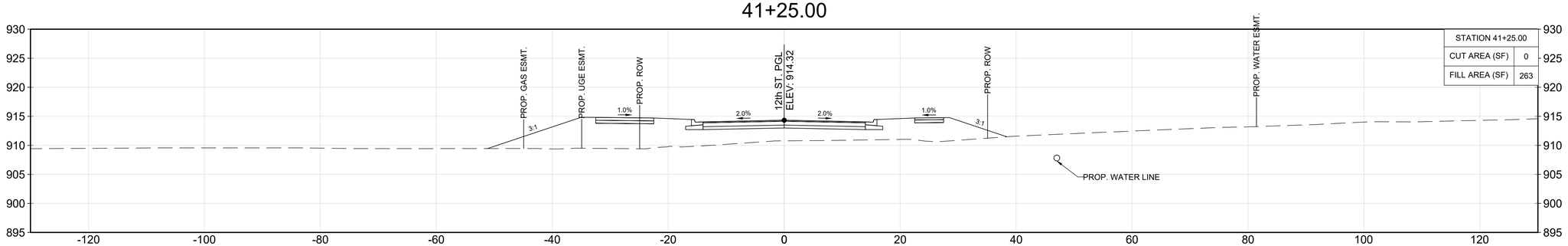
41+75.00



41+50.00



41+25.00



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REV.	DATE	DESCRIPTION	BY

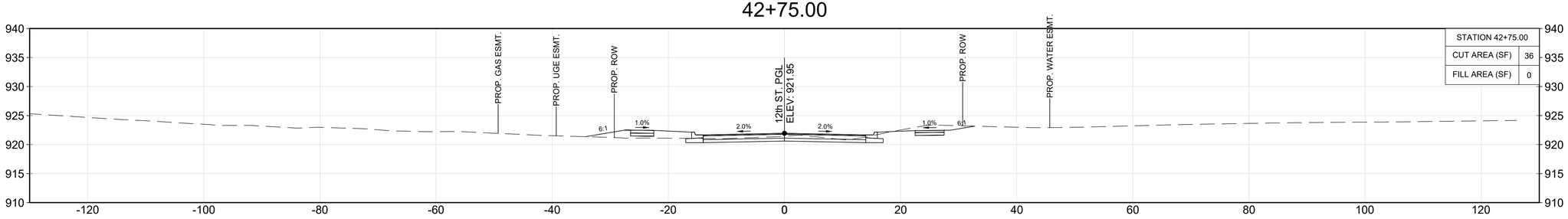
PROJECT NO:	2400101800
DESIGNED BY:	WLC
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DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

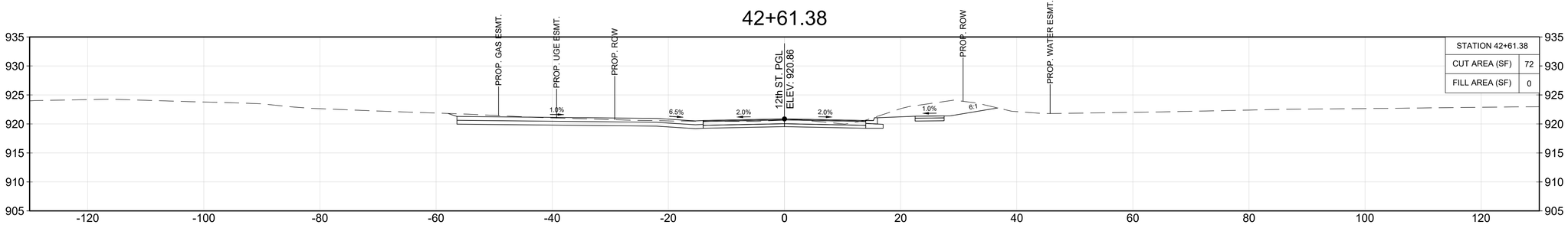
SHEET NO:
120 of 126

1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-XSECT_01.dwg

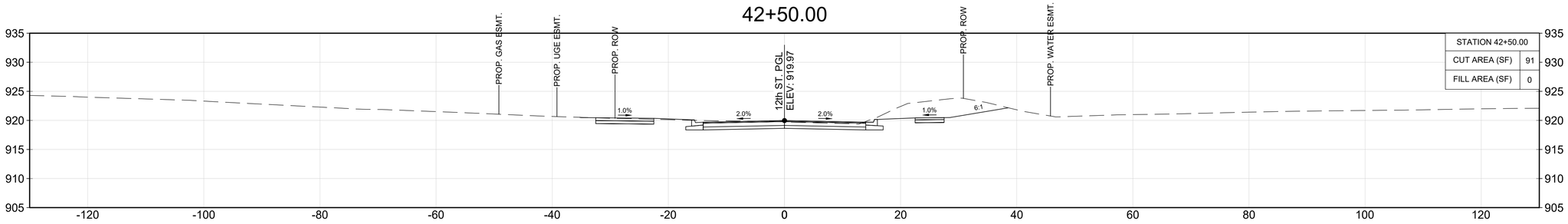
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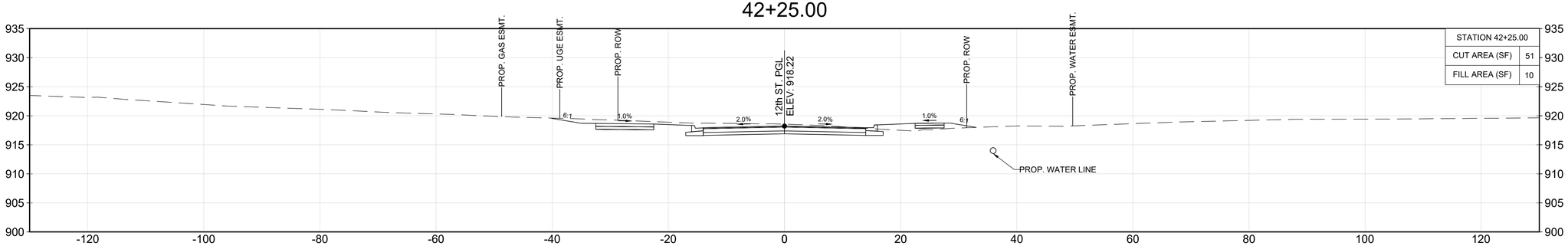
42+61.38



42+50.00



42+25.00



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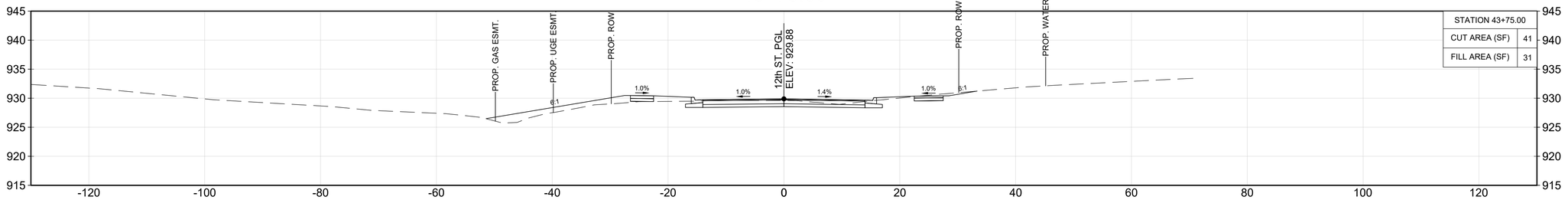
PROJECT NO:	2400101800
DESIGNED BY:	WLC
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CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET
CROSS SECTIONS

SHEET NO:
121 of 126

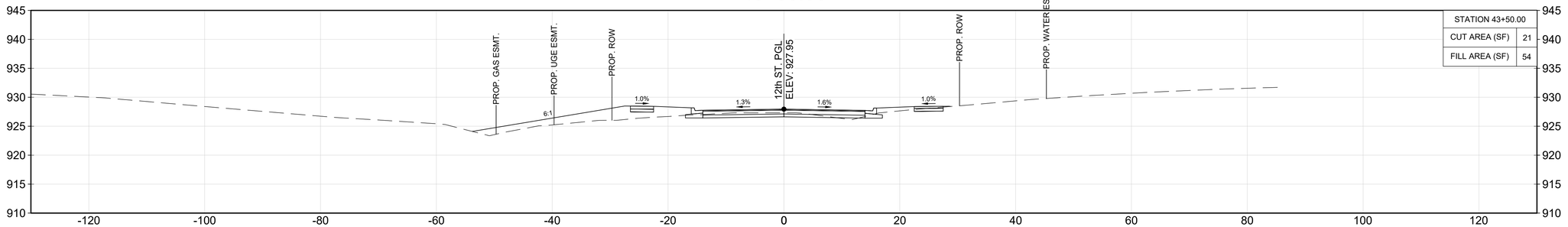
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43+75.00



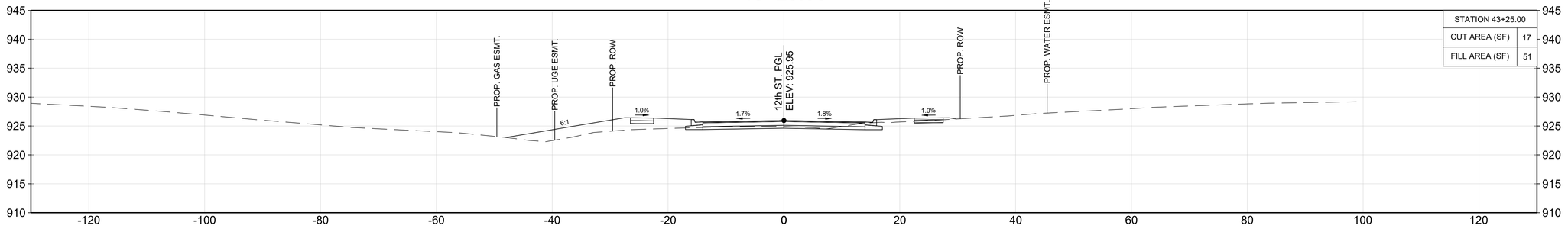
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CUT AREA (SF)	41
FILL AREA (SF)	31

43+50.00



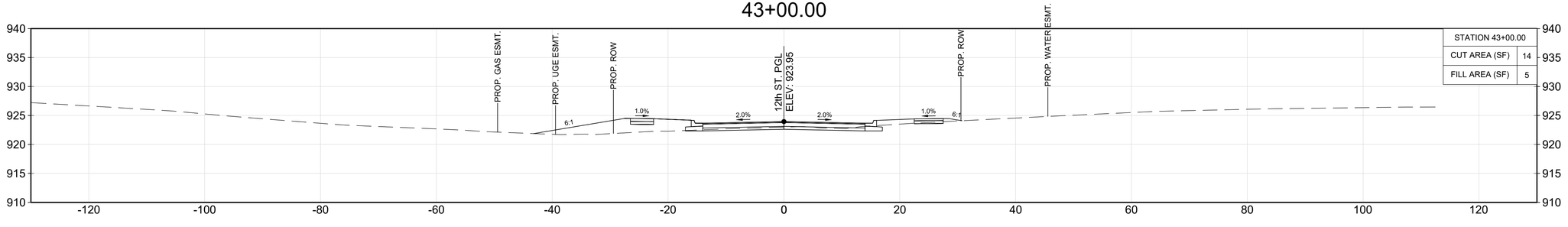
STATION 43+50.00	
CUT AREA (SF)	21
FILL AREA (SF)	54

43+25.00



STATION 43+25.00	
CUT AREA (SF)	17
FILL AREA (SF)	51

43+00.00



STATION 43+00.00	
CUT AREA (SF)	14
FILL AREA (SF)	5

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PROJECT NAME
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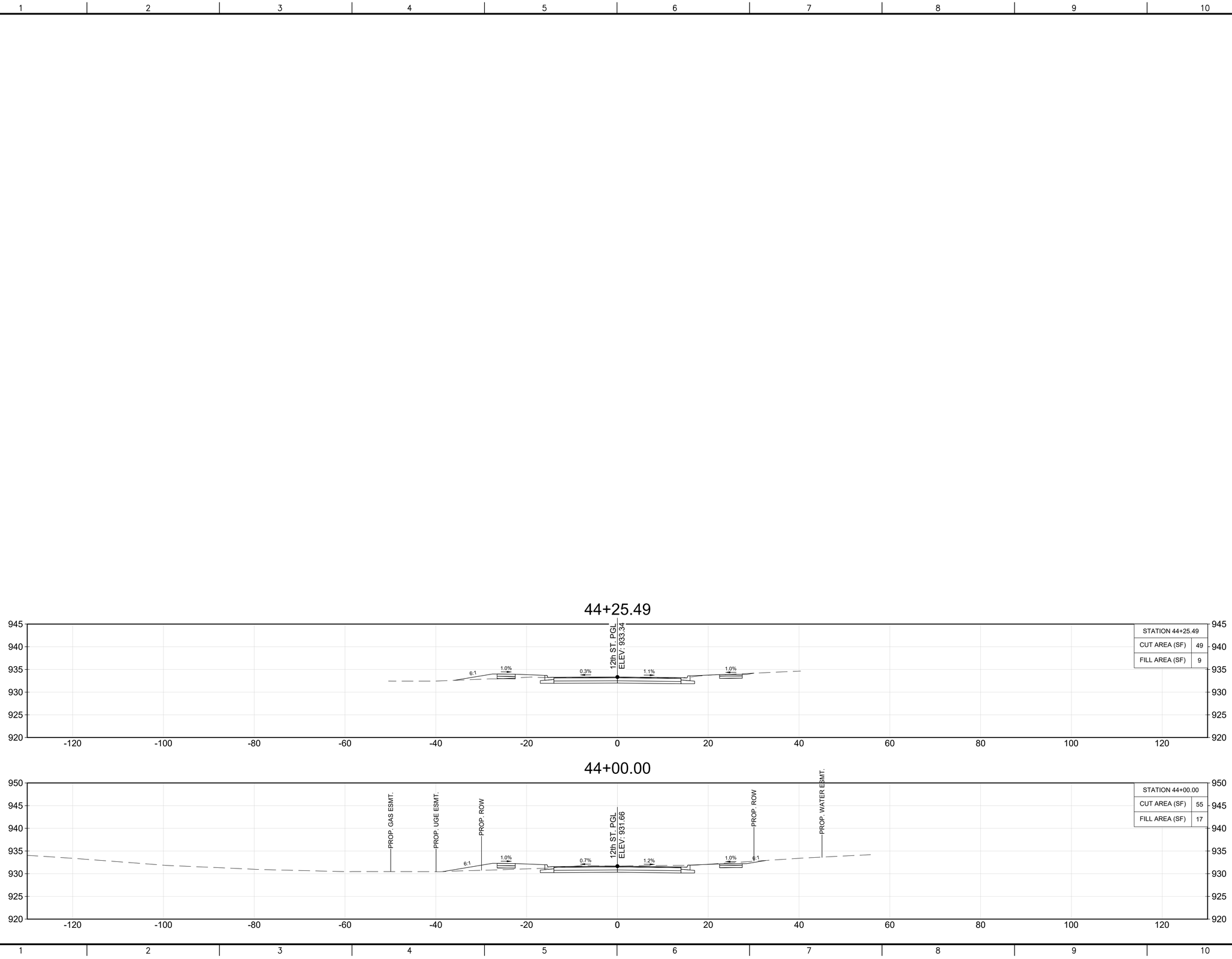
REV.	DATE	DESCRIPTION	BY

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

SHEET TITLE
12TH STREET CROSS SECTIONS

SHEET NO:
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1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-XSECT_01.dwg



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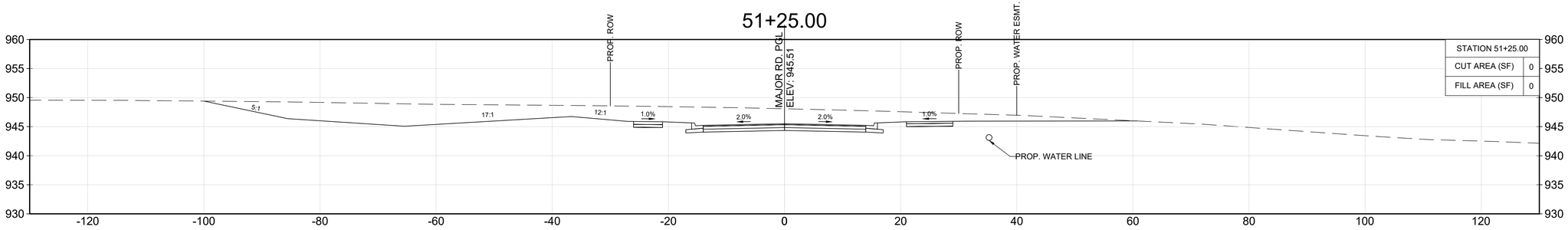
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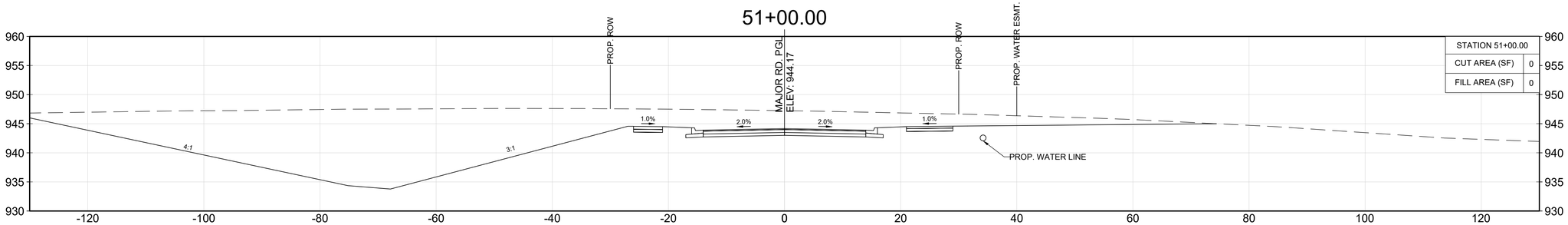
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CROSS SECTIONS

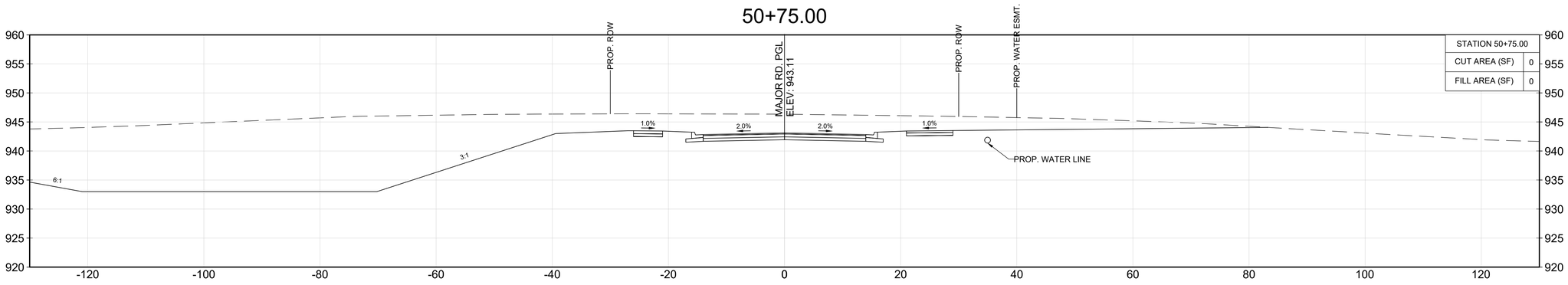
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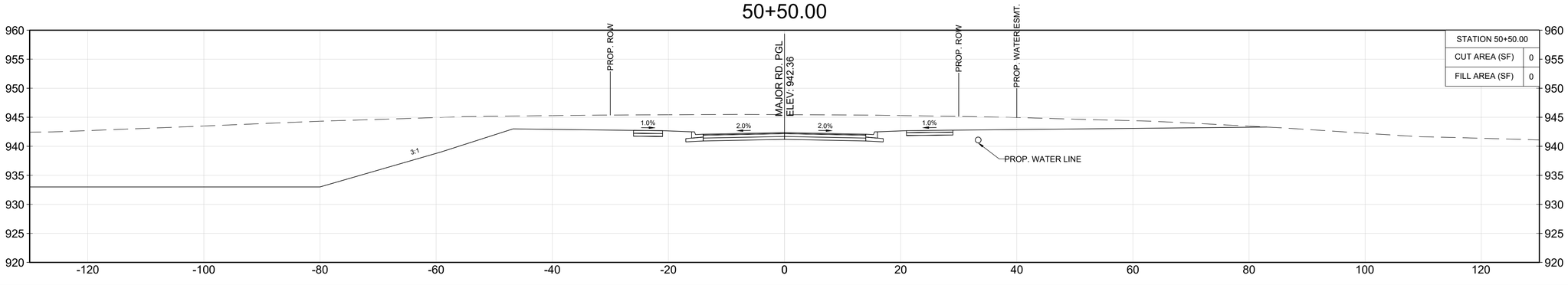
123 of 126

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WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE 816-333-4100
FAX 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS
Stantec

SEAL
STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/20/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY

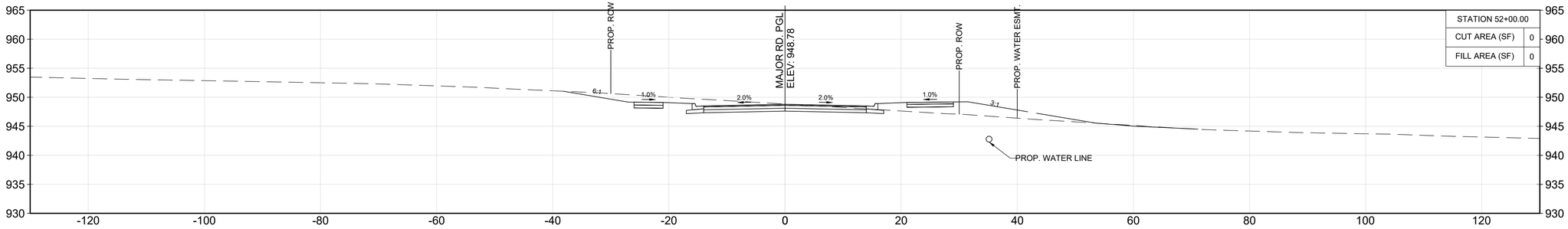
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DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/20/2026

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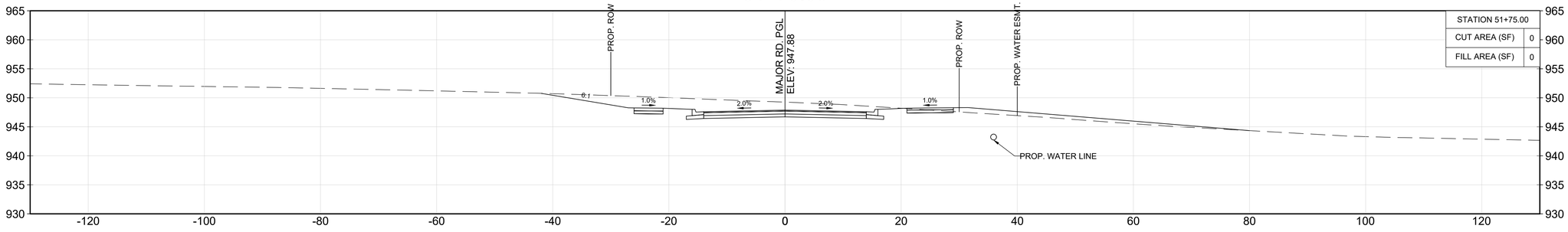
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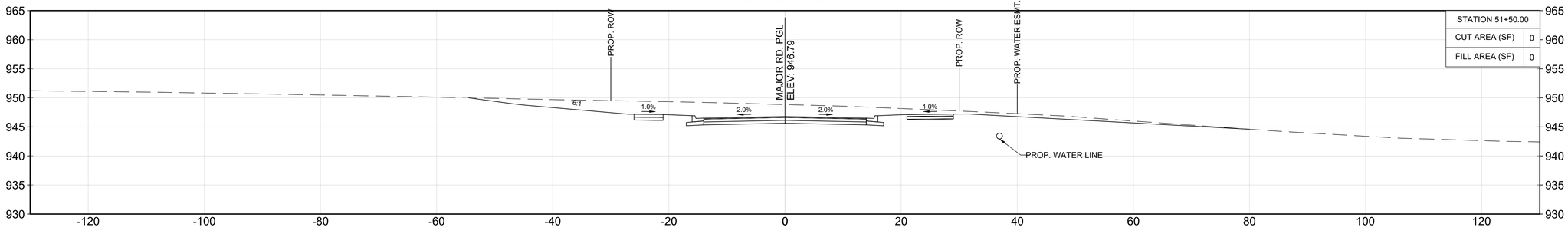
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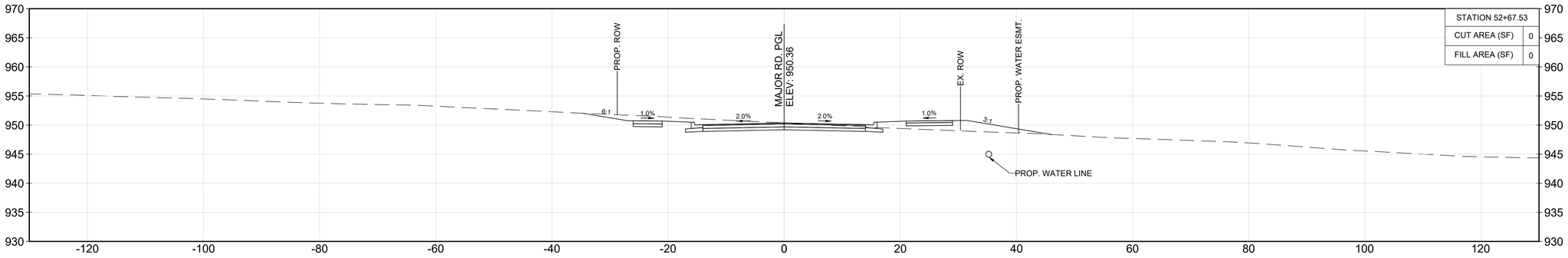
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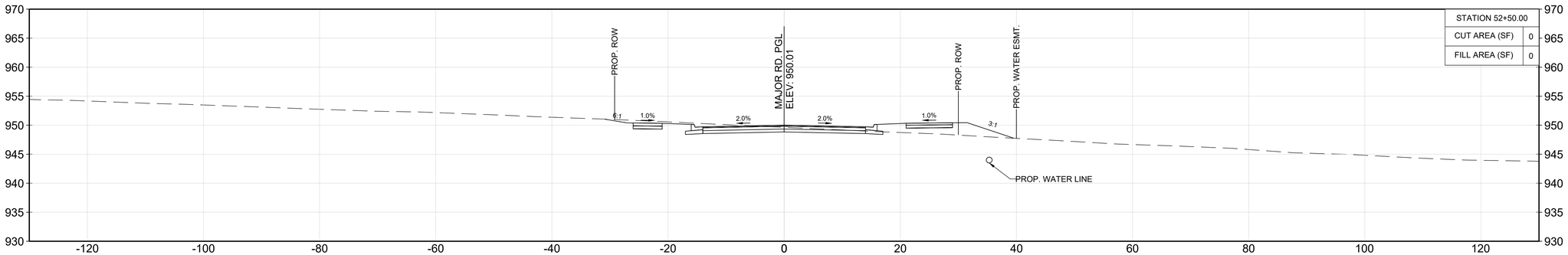
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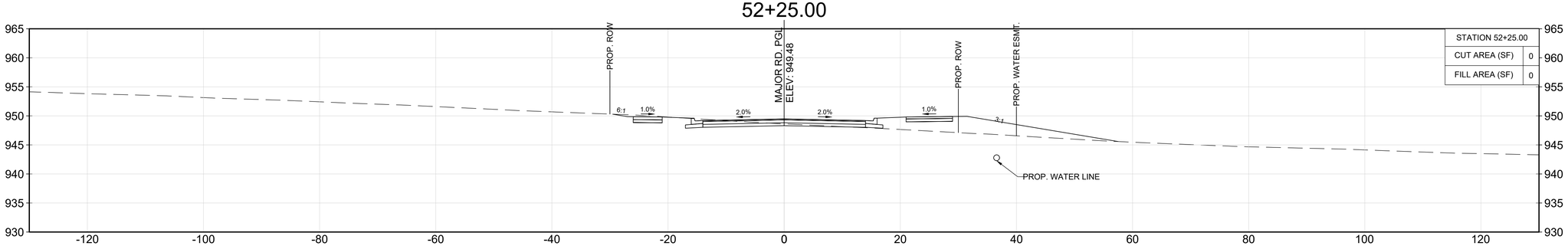
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SHEET TITLE
MAJOR ROAD CROSS SECTIONS

SHEET NO:
126 of 126

1/20/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\3_Sheets - roadway\2400101800-XSECT_01.dwg

WILSON &COMPANY
HIGHER RELATIONSHIPS

800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-701-3100
FAX: 816-942-3013
www.wilsonco.com

January 28, 2026

Re: 12th Street Extension - ADDENDUM NO. 1

City of Blue Springs
12th Street Extension
WCI File: 24-00-101-800

To All Prospective Bidders:

The Contract Documents for the referenced project are hereby amended in the following particulars only, with all other conditions remaining unchanged.

A. PROJECT MANUAL

1. Section 00300, Bid Form
REVISE quantities of Bid Item No(s). 52, 53, and 54 to reflect addition of conduit for future fiber installation. Revised Bid Form attached shall supersede original.

REVISE Bid Alternate No.1 language on Page IB-9 to reflect correct base bid item number replacements.

ADDITION A pre-bid meeting is to be held on February 4th at 10 A.M. located in the Conference Room at Carson Ross Community Center, 425 NE Mock Ave, Blue Springs, Missouri 64014.

ADDITION APWA 2300 and 2400 Standard Technical Specifications shall be added (by reference) to the Project Manual.

B. DRAWINGS

1. Sheet No. 2, General Notes & Quantities
REVISE Bid Item No(s). 52, 53, and 54 have been updated to reflect the addition of conduit for future fiber installation. Revised Summary of Quantities (Sheet 2) attached shall supersede original.

2. Sheet No. 63 through 83 Electrical Sheets
REVISE Sheet No(s). 63 through 68 to reflect addition of fiber conduit installation for future use. Revised electrical sheets attached shall supersede originals.

3. Sheet No. 85A and 85B, Sign Mounting & Post Details
ADDITION of standard details for sign mounting and post installation. New detail sheets are attached to this Addendum.

This ADDENDUM is hereby made a part of the Bidding Documents to the same extent as though contained in the original documents. Work to be included shall not be limited to narrative description contained herein but shall also include adjustments or revisions to other work not mentioned, in order to accomplish the Work described.

Each Bidder shall acknowledge receipt of this ADDENDUM in the space provided on the Bid Form.

WILSON & COMPANY

Darren Meyer, PE
Project Manager
816.556.3628
Darren.Meyer@wilsonco.com

ARTICLE 10
BID FORM PROPOSAL

PROJECT NUMBER 2400101800 BID TIME 2:00 PM

PROJECT LOCATION Blue Springs, MO BID DATE February 17, 2026

BIDDER NAME _____

TO: City of Blue Springs ("Owner")

In response to the Invitation for Bids for Project No. 12th Street Extension, and in accordance with the Instructions to Bidders and other Bidding Documents, the undersigned Bidder declares that he has had an opportunity to examine the site of the Work and has carefully examined the Contract Documents therefore, including the Addenda identified below, and on the basis thereof, and being fully familiar with the local conditions affecting the Work, and upon written notice of award of contract, acknowledges and agrees to provide all labor, material, equipment, tools, management and supervision, safety and technical services, insurance, bonds and incidentals necessary or required for the faithful performance of the Contract Work in accordance with the above-referenced documents in a safe, timely and workmanlike manner for the following Base Bid Price:

BASE BID: _____ Dollars ($_____)
(Amount in Words)

The Base Bid (12th Street Extension) amount is more fully itemized as follows:

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED PRICE
1	Mobilization	LS	1		
2	Removal of Existing Structures	LS	1		
3	Clearing and Grubbing	LS	1		
4	Contractor Furnished Staking	LS	1		
5	Unclassified Excavation	CY	20,235		
6	Embankment	CY	21,830		
7	12' x 5' Single Radius Aluminum Arch (W/ Reinforced Conc. Strip Foundations)	EA	2		
8	Reinforced Concrete Headwall (W/ From Liner)	EA	4		
9	Modular Block Retaining Wall (W/Stain)	FSF	5,168		
10	Connection to Existing Water Main (STA: 10+00)	LS	1		
11	12" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	3,415		
12	8" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	101		
13	4" PVC Water Service Line (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	21		
14	2" PVC Water Service Line (w/ Temporary Blowoff Assemblly)	LF	175		
15	Gate Valve	EA	11		
16	Fire Hydrant Assembly	EA	3		
17	Backflow Preventor Assembly & Manhole	LS	1		
18	Remove & Reset Existing 15" Flared End Section (w/ Toe Wall)	LS	1		
19	15" Storm Pipe (N-12 HDPE)	LF	1,041		
20	18" Storm Pipe (N-12 HDPE)	LF	228		
21	24" Storm Pipe (N-12 HDPE)	LF	707		

22	36” Storm Pipe (N-12 HDPE)	LF	166		
23	4’ x 4’ Junction Box	EA	1		
24	4.5’ x 4’ Junction Box	EA	1		
25	5.5’ x 4’ Junction Box	EA	2		
26	4’ x 4’ Curb Inlet	EA	15		
27	5’ x 3’ Curb Inlet	EA	1		
28	4.5’ x 4’ Curb Inlet	EA	1		
29	6’ x 4’ Curb Inlet	EA	1		
30	7’ x 4’ Curb Inlet	EA	1		
31	5’ x 5’ Detention Pond Outlet Structure	EA	2		
32	15” RC Flared End Section (W/ Toe Wall)	EA	4		
33	24” RC Flared End Section (W/ Toe Wall)	EA	3		
34	36” RC Flared End Section (W/ Toe Wall)	EA	1		
35	Concrete Arch	LF	39		
36	Riprap (D50 = 9”) (TH = 18”)	SY	256		
37	Riprap (D50 = 18”) (TH = 27”)	SY	354		
38	Riprap (D50 = 24”) (TH = 36”)	SY	212		
39	Compaction of Subgrade	STA	34		
40	MoDOT Type 5 Aggregate Base (6”)	SY	14,174		
41	MoDOT Type 5 Aggregate Base (4”)	SY	5,102		
42	Concrete Curb & Gutter (Combined)	LF	6,971		
43	ADA Curb Ramp (W/ Landing)	EA	13		
44	Concrete Flume	EA	1		
45	Asphaltic Concrete Surface (Type 5-01) (2”) (Roadway)	SY	11,850		
46	Asphaltic Concrete Base (Type 3-01) (8”) (Roadway)	SY	11,850		
47	Asphaltic Concrete Surface (Type 5-01) (4”) (Shared-Use Path)	SY	2,774		
48	Concrete Driveway (8” Uniform) (AE)	SY	655		
49	Sidewalk Construction (4”) (AE)	SY	1,425		
50	Electrical Service Connection (Includes Electrical Rack)	LS	1		
1 51	Street Light (Includes Foundation, Pole, Fixture, Wiring, & Conduit)	EA	24		
52	Underground Conduit (1-1/2” SCH40 PVC)	LF	8,600		
53	Electrical Pull Box	EA	34		
54	Electrical Wire	LF	10,425		
55	Permanent Restoration	AC	7		
56	Erosion Control	LS	1		
57	Permanent Pavement Markings	LS	1		
58	Permanent Signage	LS	1		
1 59	Wall Mounted Pedestrian Fence	LF	512		
				Total Base Bid	

Bid Alternate NO. 1 (Replaces Bid Items 45-47) 1

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED PRICE
1 60	Concrete Pavement (8" Uniform) (AE) (Roadway)	SY	11,850		
61	Concrete Pavement (5" Uniform) (AE) (Shared-Use Path)	SY	2,774		

By submitting this Bid, the Bidder agrees to waive any claim it has or may have against the Owner or Engineer, and their respective employees, arising out of or in connection with the administration, evaluation or recommendation of any bid(s).

Addenda

The undersigned Bidder acknowledges the following Addenda, if any:

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

GENERAL NOTES

1. THE STANDARD SPECIFICATIONS AND DESIGN CRITERIA OF THE CITY OF BLUE SPRINGS, KANSAS CITY METROPOLITAN CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION (RECENT VERSION), AND JACKSON COUNTY PWSD 13 STANDARD SPECIFICATIONS SHALL GOVERN THE CONSTRUCTION OF ALL PUBLIC IMPROVEMENTS FOR THIS PROJECT. WHERE CONFLICTING INFORMATION EXISTS, THE MOST STRINGENT SHALL PREVAIL
2. THE CONTRACTOR SHALL NOT WORK ON SATURDAYS, SUNDAYS, OR HOLIDAYS ON PORTIONS OF WORK UNLESS REQUESTED AT LEAST FORTY EIGHT(48) HOURS IN ADVANCE AND WHEN APPROVED BY THE CITY ENGINEER.
3. ALL EXISTING UTILITIES INDICATED ON THESE IMPROVEMENT PLANS ARE ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE DESIGN ENGINEER; HOWEVER, ALL EXISTING UTILITIES MAY NOT BE SHOWN. UTILITIES DAMAGED BY THE CONTRACTOR WHILE LOCATING OR DURING CONSTRUCTION SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR. THE CONTRACTOR, PRIOR TO CONSTRUCTION, SHALL VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES. THE REPAIR OF ANY DAMAGE TO SAID UTILITIES SHALL BE AT THE COST OF THE CONTRACTOR. ANY UTILITIES FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED. ENCROACHMENTS SUCH AS TELEPHONE, POWER, AND CABLE T.V. POLES SHALL BE MOVED BY THE UTILITY OWNER AND COORDINATED BY THE CONTRACTOR AFTER WRITTEN APPROVAL FROM THE OWNER, UNLESS OTHERWISE NOTED.
4. ALL BACKFILL SHALL BE TAMPED OR COMPACTED AS SPECIFIED PER THE CONTRACT SPECTIFICATIONS.
5. ALL SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED ON THE PLANS SHALL BE IN PLACE PRIOR TO COMMENCING ANY LAND DISTURBANCE ACTIVITIES ON THE SITE. CONTRACTOR SHALL BE REQUIRED TO SIGN AND ABIDE BY STORMWATER POLLUTION PREVENTION PLAN (SWPPP). CONTRACTOR SHALL ABIDE BY THE MISSOURI CLEAN WATER LAW, INCLUDING ALL RULES, REGULATIONS, ORDERS AND DECISIONS.
6. CONTRACTOR SHALL CLEAR AND GRUB ALL TREES WITHIN THE GRADING LIMITS UNLESS OTHERWISE NOTED. REMOVAL OF A TREE INCLUDES REMOVAL OF ALL BRANCHES, ROOTS, AND BRUSH WITHIN THE CANOPY LIMITS OF THE TREE. THE CONTRACTOR IS REQUIRED TO EXERCISE PARTICULAR CARE DURING EXCAVATION TO PREVENT UNNECESSARY DAMAGE TO TREES, RETAINING WALLS, STRUCTURES, UTILITIES, ETC. IN THE VICINITY OF CONSTRUCTION. ONLY THOSE TREES IN DIRECT CONFLICT WITH CONSTRUCTION OPERATIONS SHALL BE REMOVED, AS AGREED UPON BETWEEN THE CONTRACTOR AND CITY REPRESENTATIVE. ALL TREES THAT ARE TO BE SAVED SHALL BE MARKED BY THE CONTRACTOR AND SHALL BE FENCED AT THE DRIP LINE WITH T POSTS AND ORANGE CONSTRUCTION FENCING.
7. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS, CODES AND ORDINANCES. OPEN BURNING OF DEBRIS SHALL NOT BE PERMITTED.
8. CONTRACTOR SHALL STRIP TOPSOIL AND VEGETATION A MINIMUM OF 6" AND STOCKPILE FOR USE AS TOPSOIL WHERE VEGETATION IS TO BE REESTABLISHED. ALL TOPSOIL WORK SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.
9. ALL EXISTING CONCRETE PAVEMENT, CURB & GUTTER, DRIVEWAYS, SIDEWALKS OR BITUMINOUS SURFACING TO BE REMOVED SHALL BE SAW CUT TO THE NEAT LINES SHOWN ON THE PLANS OR TO THE NEAREST JOINT AS DIRECTED BY THE CITY. ADDITIONAL REMOVAL MAY BE ORDERED BY THE CITY. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO "REMOVAL OF EXISTING STRUCTURES".
10. EXCESS SOIL OR ROCK MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF SITE BY THE CONTRACTOR. THIS WORK IS INCIDENTAL AND NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.
11. THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND ELEVATIONS SHALL BE CONFIRMED BY THE CONTRACTOR AT THE JOB SITE. IF THE CONTRACTOR FINDS ANY DIMENSIONS TO BE IN ERROR OR IN QUESTION, THE ENGINEER SHALL BE PROMPTLY CONTACTED FOR CLARIFICATION PRIOR TO THE CONTINUATION OF THE WORK.
12. ALL PORTLAND CEMENT CONCRETE EXPOSED TO AMBIENT AIR SHALL BE KCMMB 4K MIX, INCLUDING INVERTS OF STORM STRUCTURES.
13. ALL EXISTING DRAINAGE TILES, FOUNDATION DRAINS, SUMP PUMP DRAINS, AND / OR ROOF DRAINS ENCOUNTERED OR DAMAGED DURING CONSTRUCTION ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION, PROPERLY REROUTED AND/OR CONNECTED TO THE STORM SEWER SYSTEM. THE EXTENSION, RESTORATION OR REROUTING OF THESE TILES OR DRAINS SHALL BE CONSIDERED SUBSIDIARY TO THE CONSTRUCTION OF THE PROPOSED STORM SEWERS.
14. ALL STORM SEWER PIPE LENGTHS SHOWN ON THE PLANS ARE MEASURED FROM INSIDE FACE OF DOWNSTREAM STRUCTURE TO INSIDE FACE OF UPSTREAM STRUCTURES, (FOR BIDDING AND PAYMENT PURPOSE ONLY).
15. ALL SIGNS IN CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED AND REPLACED, AND SHALL BE CONSIDERED SUBSIDIARY TO "PERMANENT SIGNAGE".
16. DRIVEWAYS, SIDEWALKS, STREETS AND OTHER AREAS DAMAGED BY THE CONTRACTOR SHALL BE RESTORED, AT THE CONTRACTORS EXPENSE, TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING BEFORE DAMAGE OCCURRED.
17. THE CONTRACTORS IS RESPONSIBLE FOR THE PROTECTION OF ALL PROPERTY CORNERS AND SECTION CORNERS. ANY PROPERTY CORNERS OR SECTION CORNERS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A REGISTERED LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
18. ALL STORM SEWER STRUCTURES USED FOR THE PROJECT SHALL BE PRECAST. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CASTING OF STRUCTURES.
19. ALL EXISTING FENCING, WALKS, ETC. THAT ARE DISTURBED BY THE CONTRACTOR'S OPERATION SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL CONDITION. CONTRACTOR SHALL SATISFY HIMSELF BY SITE VISIT AS TO THE EXTENT AND NATURE OF SUCH WORK IN PREPARING HIS BID. THIS WORK SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
20. ALL DISTURBED AREAS SHALL BE RESTORED WITH TOPSOIL, SEED (DRILLED) & MULCH. ANY AREAS DISTURBED OUTSIDE OF THE LIMITS SHOWN ON THE PLANS SHALL BE SEEDED AT NO ADDITIONAL COST.
21. ACCESS TO PROPERTIES SHALL BE MAINTAINED AT ALL TIMES. IF CONSTRUCTION ACROSS A DRIVEWAY IS TO TAKE MORE THAN 24 HOURS, ONE HALF OF THE DRIVE SHALL REMAIN IN SERVICE UNTIL THE OTHER HALF IS RECONSTRUCTED AND IN SERVICE OR ALTERNATE ACCESS PROVIDED.
22. ALL FENCING WITHIN THE WORK LIMITS SHALL BE PROTECTED OR RESTORED TO PRIOR CONDITIONS UPON COMPLETION OF THE WORK, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE PLANS. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING FOR ANY RESIDENTS WHO OWN PETS OR WHO OTHERWISE REQUEST TEMPORARY FENCING. CONTRACTOR SHALL COORDINATE THE TEMPORARY FENCING LOCATION WITH THE RESIDENT, CITY, AND ENGINEER. TEMPORARY FENCING SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
23. THE CONTRACTOR SHALL MAINTAIN DRAINAGE DURING CONSTRUCTION.
24. ALL EQUIPMENT USED BY THE CONTRACTOR HAVING METAL TRACKS SHALL NOT BE DRIVEN OVER CITY STREETS OTHER THAN THOSE BEING DISRUPTED BY STORM SEWER TRENCHING. SUCH EQUIPMENT MUST BE TRANSPORTED.
25. CONTRACTOR SHALL NOTIFY EACH IMPACTED PROPERTY OWNER OF THE ANTICIPATED CONSTRUCTION ACTIVITY 48 HOURS PRIOR TO BEGINNING WORK. THE NOTIFACTION METHOD SHALL BE OF SUITABLE MEANS, AND APPROVED BY THE CITY ENGINEER.
26. THE LOCATION POINT FOR ALL STORM SEWER STRUCTURES SHALL BE CENTER OF STRUCTURE AS INDICATED ON PLAN SHEETS.
27. ALL WORK REQUIRED TO COMPLETE THE PROJECT BUT WHICH IS NOT SPECIFICALLY CALLED OUT IN A PAY ITEM SHALL BE SUBSIDIARY TO OTHER PAY ITEMS.
28. ANY REMOVAL OF TREES THAT ARE 3" OR LARGER IN DIAMETER SHALL OCCUR DURING WINTER INACTIVE SEASON, (NOV.15TH TO MARCH 31ST OR THE MOST UP TO DATE RANGE PUBLISHED BY THE U.S. FISH AND WILDLIFE) AS TO LIMIT ANY POTENTIAL IMPACT TO ENDANGERED BAT ROOSTING HABITAT.
29. IF CONTRACTOR ENCOUNTERS EVIDENCE OF DEPOSITS OF HISTORICAL OR ARCHAEOLOGICAL CONDITIONS, CONTRACTOR SHALL IMMEDIATELY: (i) SECURE OR OTHERWISE ISOLATE SUCH CONDITION; (ii) STOP ALL WORK IN CONNECTION WITH SUCH CONDITION AND IN ANY AREA AFFECTED THEREBY (EXCEPT IN AN EMERGENCY); AND (iii) NOTIFY OWNER AND ENGINEER (AND PROMPTLY THEREAFTER CONFIRM SUCH NOTICE IN WRITING). OWNER SHALL NOTIFY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AND THE MISSOURI STATE HISTORIC PRESERVATION OFFICE. NO FURTHER DISTURBANCE OF THE DEPOSITS SHALL ENSUE UNTIL THE CONTRACTOR HAS BEEN NOTIFIED BY THE OWNER THAT HE MAY PROCEED. THE OWNER WILL ISSUE A NOTICE TO PROCEED ONLY AFTER THE STATE OFFICIAL HAS SURVEYED THE FIND AND MADE A DETERMINATION TO THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AND THE OWNER. COMPENSATION TO THE CONTRACTOR, IF ANY, FOR LOST TIME OR CHANGES IN CONSTRUCTION TO AVOID THE FIND, SHALL BE DETERMINED IN ACCORDANCE WITH CHANGED CONDITIONS OR CHANGE ORDER PROVISIONS OF THE CONTRACT DOCUMENTS. IF OWNER AND CONTRACTOR CANNOT AGREE AS TO ENTITLEMENT TO OR ON THE AMOUNT OR EXTENT, IF ANY, OF ANY ADJUSTMENT IN CONTRACT PRICE OR CONTRACT TIMES, OR BOTH, AS A RESULT OF SUCH WORK STOPPAGE OR SUCH SPECIAL.
30. IF WATER SEEPAGE IS ENCOUNTERED DURING EXCAVATION, USE OF TEMPORARY DEWATERING TECHNIQUES MAY BE NECESSARY AT NO ADDITIONAL COST TO THE CITY.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
BASE BID			
1	Mobilization	1	LS
2	Removal of Existing Structures	1	LS
3	Clearing and Grubbing	1	LS
4	Contractor Furnished Staking	1	LS
5	Unclassified Excavation	20,235	CY
6	Embankment	21,830	CY
7	12' x 5' Single Radius Aluminum Arch (w/ Reinforced Conc. Strip Foundations)	2	EA
8	Reinforced Concrete Headwall (w/ Form Liner)	4	EA
9	Modular Block Retaining Wall (w/ Stain)	5,168	FSF
10	Connection to Existing Water Main (STA: 10+00)	1	LS
11	12" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	3,415	LF
12	8" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	101	LF
13	4" PVC Water Service Line (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	21	LF
14	2" PVC Water Service Line (w/ Temporary Blowoff Assembly)	175	LF
15	Gate Valve	11	EA
16	Fire Hydrant Assembly	3	EA
17	Backflow Preventor Assembly & Manhole	1	LS
18	Remove & Reset Existing 15" Flared End Section (w/ Toe Wall)	1	LS
19	15" Storm Pipe (N-12 HDPE)	1,041	LF
20	18" Storm Pipe (N-12 HDPE)	228	LF
21	24" Storm Pipe (N-12 HDPE)	707	LF
22	36" Storm Pipe (N-12 HDPE)	166	LF
23	4' x 4' Junction Box	1	EA
24	4.5' x 4' Junction Box	1	EA
25	5.5' x 4' Junction Box	2	EA
26	4' x 4' Curb Inlet	15	EA
27	5' x 3' Curb Inlet	1	EA
28	4.5' x 4' Curb Inlet	1	EA
29	6' x 4' Curb Inlet	1	EA
30	7' x 4' Curb Inlet	1	EA
31	5' x 5' Detention Pond Outlet Structure	2	EA
32	15" RC Flared End Section (w/ Toe Wall)	4	EA
33	24" RC Flared End Section (w/ Toe Wall)	3	EA
34	36" RC Flared End Section (w/ Toe Wall)	1	EA
35	Concrete Arch	39	LF
36	Riprap (D50 = 9") (TH = 18")	256	SY
37	Riprap (D50 = 18") (TH = 27")	354	SY
38	Riprap (D50 = 24") (TH = 36")	212	SY
39	Compaction of Subgrade	34	STA
40	MoDOT Type 5 Aggregate Base (6")	14,174	SY
41	MoDOT Type 5 Aggregate Base (4")	5,102	SY
42	Concrete Curb & Gutter (Combined)	6,971	LF
43	ADA Curb Ramp (w/ Landing)	13	EA
44	Concrete Flume	1	EA
45	Asphaltic Concrete Surface (Type 5-01) (2") (Roadway)	11,850	SY
46	Asphaltic Concrete Base (Type 3-01) (8") (Roadway)	11,850	SY
47	Asphaltic Concrete Surface (Type 5-01) (4") (Shared-Use Path)	2,774	SY
48	Concrete Driveway (8" Uniform) (AE)	655	SY
49	Sidewalk Construction (4") (AE)	1,425	SY
50	Electrical Service Connection (Includes Electrical Rack)	1	LS
51	Street Light (Includes Foundation, Pole,Wiring, & Conduit)	24	EA
52	Underground Conduit (1-1/2" SCH80 PVC)	8,600	LF
53	Electrical Pull Box	34	EA
54	Electrical Wire	10,425	LF
55	Permanent Restoration	7	AC
56	Erosion Control	1	LS
57	Permanent Pavement Markings	1	LS
58	Permanent Signage	1	LS
59	Wall Mounted Pedestrian Fence	512	LF
BID ALTERNATE NO. 1 (REPLACE BID ITEMS 45-47)			
60	Concrete Pavement (8" Uniform) (AE) (Roadway)	11,850	SY
61	Concrete Pavement (5" Uniform) (AE) (Shared-Use Path)	2,774	SY

1

1

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-941-3150
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS

SEAL

STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/28/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY
1	01/23/2026	ADDENDUM NO.1	DJM

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	1/27/2026

SHEET TITLE

SUMMARY OF QUANTITIES

SHEET NO:

2 OF 126

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1/27/2026

GENERAL NOTES:

1. COORDINATE POLE, FOUNDATION, POWER SOURCES, AND CONDUIT LOCATIONS WITH ALL OTHER DISCIPLINES, CITY OF BLUE SPRINGS, AND EXISTING CONDITIONS.
2. ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO THE 2023 NATIONAL ELECTRICAL CODE AND CITY OF BLUE SPRINGS STANDARDS.
3. REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION OR FABRICATION OF THE AFFECTED WORK.
4. COORDINATE CONSTRUCTION SEQUENCE WITH ALL DISCIPLINES.
5. PROVIDE HEAVY DUTY WEATHER-TIGHT JUNCTION AND PULL BOXES AS REQUIRED FOR CONDUCTOR PULLING AND SPLICING.
6. CITY OF BLUE SPRINGS SHALL PROVIDE TRANSFORMER. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TRANSFORMER SECONDARY OVERCURRENT PROTECTION AND ALL CONDUIT AND WIRING ON LOAD SIDE OF TRANSFORMER SECONDARY OVERCURRENT PROTECTIVE DEVICE INCLUDING THE CONNECTION TO SECONDARY OVERCURRENT PROTECTIVE DEVICE, AS SHOWN.
7. ALL LUMINARIES, POLES, AND BASES SHALL MEET CITY OF BLUE SPRINGS 2023 ENGINEERING STANDARDS AND SPECIFICATIONS.
8. COORDINATE EXACT LOCATION OF TRANSFORMER AND POINT OF SERVICES WITH EVERGY AND THE CITY OF BLUE SPRINGS.
9. FIXTURE SHALL BE LOCATED BY THE OFFSET AND STATIONING ON THE LUMINAIRE INFORMATION TABLE OR AS SHOWN ON PLANS. FOUNDATION ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR. TOP OF THE FOUNDATION SHALL BE 2-INCHES ABOVE THE FINAL GRADE.
10. THE ENGINEER SHALL COORDINATE THE REVIEW OF LIGHTING MATERIALS WITH CITY OF BLUE SPRINGS.
11. CONTRACTOR SHALL COORDINATE FINAL LOCATION, CONDUIT ROUTING, AND PULL BOX LOCATIONS TO STAY WITHIN PROJECT LIMITS OF CONSTRUCTION (LOC) LINES.
12. CONTRACTOR IS RESPONSIBLE FOR MAKING ALL DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.
13. FUSE EACH LUMINAIRE AT POLE WITH 20 AMP HH FUSE.
14. WIRE SIZES SHOWN ON THE PLAN DRAWINGS ARE A MINIMUM SIZE. LARGER CONDUCTORS MAY BE USED AT THE CONTRACTORS DISCRETION.
15. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE. ACTUAL CONDUIT ROUTING WILL BE DETERMINED IN THE FIELD BY THE ENGINEER AND THE CONTRACTOR.
16. ALL CABLE AND VOLTAGE DROP CALCULATIONS ARE BASED ON COPPER CONDUCTORS.
17. CIRCUITS SHALL INCLUDE A GROUND CONDUCTOR. GROUND CONDUCTOR SHALL BE THE SAME SIZE AS THE PHASE CONDUCTORS.
18. FOUNDATIONS, SEE LIGHT POLE FOUNDATION DETAIL, SHEET 64.
19. PROVIDE PULL ROPE FOR ALL FIBER OPTIC CONDUITS.
20. MAINTAIN A MINIMUM OF 6" SEPARATION BETWEEN POWER AND FIBER CONDUITS.
21. CONDUITS SHALL HAVE A MINIMUM OF 24" BURIAL DEPTH UNDER LANDSCAPING AND A MINIMUM OF 36" BURIAL DEPTH UNDER ROADWAYS.

LEGEND:

LIGHT POLE

SCH40 PVC ELECTRICAL CONDUIT(S) AND CONDUCTOR PER THE LIGHTING PLANS. SEE NOTES 20 AND 21.

SCH40 PVC FIBER OPTIC CONDUIT(S). CONDUCTORS PROVIDED BY OTHERS. SEE NOTES 19 THRU 21

PULL BOX, POLYMER CONCRETE W/OPEN BOTTOM

CONDUIT CALLOUTS:

CKT: CIRCUIT NO.
N: NUMBER OF CONDUCTORS (NOTE 17)
S: SIZE OF CONDUCTORS
#: CONDUIT SIZE

TABULATION OF STREET LIGHTING ITEMS

DETAIL NO.	ITEM DESCRIPTION	UNIT	PROJECT TOTALS
	LIGHT POLE, FIXTURES, FOUNDATION, WIRING AND CONDUIT	LS	24
	PRECAST PULL BOXES (TYPE: S, 12"X12"X12")	EACH	24
	PRECAST PULL BOXES (TYPE: M, 13"X24"X12")	EACH	10
	POWER FEED, METER PEDESTAL, CONTROLLER CABINET ASSEMBLY	LS	1
	UNDERGROUND CONDUIT IN TRENCH (LIGHTING 1.5" SCH40 PVC)	LF	5225
	UNDERGROUND CONDUIT IN TRENCH (FIBER OPTIC 1.5" SCH40 PVC)	LF	3375
	WIRING IN CONDUIT, 2-#10 AWG PLUS GROUND PER CIRCUIT (LIGHTING)	LF	4325
	WIRING IN CONDUIT, 2-#8 AWG PLUS GROUND PER CIRCUIT (LIGHTING)	LF	6100

1/26/2026 W:\Projects\2400101800013_Disciplines_SHEETS\6_sheets - electrical\2400101800-Elec General Notes & Legend.dwg

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

RATIO Series
AREA/SITE LIGHTER

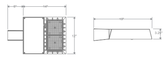
MICRO STRIKE STRIKE

FEATURES

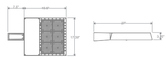
- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as retail, commercial and campus parking lots
- Featuring Strike and Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual comfort standard
- Compact and lightweight design with low EPA
- 3G rated for high vibration applications including bridges and overpasses
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™ and 7-Pin with networked controls
- Best in class surge protection available



RAR1



RAR2



CONTROL TECHNOLOGY

SERVICE PROGRAMS

	Weight	EPA at 0
RAR1	13.5 lbs / 6.1 kg	.45ft² / .13m2
RAR2	24 lbs / 10.9 kg	.55ft² / .17m2

SPECIFICATIONS

CONSTRUCTION
- Rectilinear form mimics the traditional shoebox form factor keeping a similar but updated style and appearance, ideal for retrofit applications
- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish

OPTICS
- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 80, 160, 320 or 480 midpower LEDs
- 3000K, 4000K or 5000K (70 CRI) CCT
- Zero uplight at 0 degrees of tilt
- Field rotatable optics

INSTALLATION
- Standard square arm mount, compatible with B3 drill pattern
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option or accessory for square and round poles.
- Knuckle arm fitter option available for 2-3/8" OD tenon. Max tilt of 60 degrees with 4 degree adjustable increments. (Restrictions apply for 7-pin options)

ELECTRICAL
- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/ IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

CONTROLS
- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0- 10 V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor

CERTIFICATIONS
- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Not all product variations on this page are DLC Qualified. Refer to www.designlights.org for the most up-to-date list.
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications
- Fixture is IP66 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-5) and Trade Agreements Act (FAR 52.225-11). See Buy America(n) Solutions (link to https://www.currentlighting.com/resources/america-solutions)

WARRANTY
- 5 year limited warranty
- See HLI Standard Warranty for additional information

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DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

SSSH Series Poles
SQUARE STRAIGHT STEEL

Gray Shading = Service Program Limit of 15 poles S10

ORDERING INFORMATION

Example: SSSH25–40A–2L–S2–DBT–UL

SSSH – Height – Shaft – Thickness – Mounting – Drill Pattern – Finish – Options

Series	Height	Shaft	Thickness	Mounting	Drill Pattern	Finish	Options
SSSH Square Straight Steel Pole EXO	Reference page 3 Ordering matrix	Reference page 3 Ordering matrix	Reference page 3 Ordering matrix: A - .125" Wall; B - .188" Wall; C - .250" Wall	1 Single arm mount; 2 Two fixtures at 180˚; 2L Two fixtures at 90˚; 3T Three fixtures at 90˚; 4 Four fixtures at 90˚; TA Tenon (2.38" OD x 4" Tall); TB Tenon (2.88" OD x 4" Tall); TC Tenon (3.5" OD x 6" Tall); TR¹ Removable Tenon (2.38" x 4"); OT Open Top (includes pole cap)	B3 2 bolt (2-1/2" spacing). Ratio; S2 2 bolt (3-1/2" spacing); UDP Universal Drill Pattern	BLT Black Matte Textured; BLS Black Gloss Smooth; DBT Dark Bronze Matte Textured; DBS Dark Bronze Gloss Smooth; GTT Graphite Matte Textured; LGT Light Grey Matte Textured; LGS Light Grey Gloss Smooth; PSS Platinum Silver Smooth; WHT White Matte Textured; WHS White Gloss Smooth; VGT Verde Green Textured; Color Option: CC Custom Color#	GFP 20 Amp GFCI Receptacle and Cover; EHH² Extra Handhole; COS³ .5" Coupling; CO7³ .75" Coupling; C20³ 2" Coupling; MPB⁴ Mid-pole Luminaire Bracket; VM1⁵ Mode vibration dampener; VM2⁵ 2nd mode vibration dampener; LAB Less Anchor Bolts; UL UL Certified

Accessories (Order Separately)

- VM2S08 Field-installed 2nd mode vibration dampener - 8 ft
- VM2S12 Field-installed 2nd mode vibration dampener - 12 ft
- VM2S16 Field-installed 2nd mode vibration dampener - 16 ft
- VM2S20 Field-installed 2nd mode vibration dampener - 20 ft
- VM2S25 Field-installed 2nd mode vibration dampener - 25 ft
- SSSHSTK4KIT Pole Cap and anchor bolt kit

1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the "TR" notation. Example: SSSH25-40A-1-S2-TR-DB.
2 Custom colors available; RAL number preferable
3 Specify option location using logic found on page 3 (Option Orientation).
4 VM1 recommended on poles 20' and taller with EPA of less than 1.
5 There will be a weld witness mark on the side of the pole with the Factory installed VM2

MOUNTING ORIENTATION

Denotes handhole location



STOCKED POLE ORDERING LOGIC

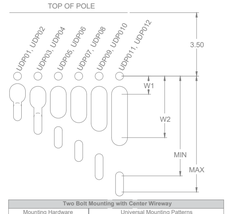
Catalog #	Description
SSSH20-40A-4-HV-DB-WPO	Square Steel pole, 20', 4" square cross-section, 1/8" wall thickness, Dark Bronze Matte Textured paint. Pole only, no anchor bolts, base cover or pole cap included.
SSSH25-40A-4-HV-DB-WPO	Square Steel pole, 25', 4" square cross-section, 1/8" wall thickness, Dark Bronze Matte Textured paint. Pole only, no anchor bolts, base cover or pole cap included.
SSSHSTK4KIT	Stock kit includes anchor bolts, template, base cover and plastic pole cap. Must be ordered separately from pole.

Note: the HV drill pattern is a combination of the S2 pattern and B3 pattern.

DRILL PATTERNS

UNIVERSAL DRILL PATTERN (UDP)

TOP OF POLE



Two Bolt Mounting with Center Wireway						
Mounting Hardware	Universal Mounting Patterns					
3/8" or less	UDP01	UDP03	UDP05	UDP07	UDP09	UDP011
7/16" to 1/2"	UDP02	UDP04	UDP06	UDP08	UDP010	UDP012
"Min" Attachment Dimension	1.69	2.25	3.00	3.75	4.50	5.50
"Max" Attachment Dimension	2.24	2.99	3.75	4.49	5.49	6.00
W1 (Wireway min)	0.85	1.00	1.00	1.00	1.00	1.00
W2 (Wireway max)	1.05	1.36	1.88	2.13	2.60	3.00

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DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

RATIO Series
AREA/SITE LIGHTER MICRO STRIKE

Gray Shading = Service Program Limit of 15 luminaires S10

MICRO STRIKE OPTICS - ORDERING GUIDE

Example: RAR1-80L-25-3K7-2-UNV-ASQ-BL-NXW-BC

CATALOG #:

ORDERING INFORMATION

Series	# LEDs - Wattage	CCT/CRI	Distribution	Optics Rotation	Voltage
RAR1 Ratio Area Size 1 - Micro Strike	80L-25 25W - 3,000 Lumens	3K7/5000K, 70 CRI	2 IES TYPE II	Blank for no rotation	120 120V
	80L-39 39W -5,200 Lumens	4K7/4000K, 70 CRI	3 IES TYPE III	L Optic rotation left	208 208V
	80L-50 50W - 6,000 Lumens	5K7/5000K, 70 CRI	4W IES TYPE IV	R Optic rotation right	240 240V
	160L-70 70W - 9,000 Lumens		4F IES TYPE IV Forward		277 277V
	160L-100 100W - 12,000 Lumens		5QWIES TYPE V		347 347V
	160L-115 115W - 15,000 Lumens				480 480V
	160L-135 135W - 18,000 Lumens				
RAR2 Ratio Area Size 2 - Micro Strike	320L-110 110W - 15,000 Lumens				
	320L-140 140W - 18,000 Lumens				
	320L-165 165W - 21,000 Lumens				
	480L-185 185W - 24,000 Lumens				
	480L-210 210W - 27,000 Lumens				
	480L-240 240W - 30,000 Lumens				
	480L-255 255W - 36,000 Lumens				
	480L-295 295W - 42,000 Lumens				
	480L-340 340W - 48,000 Lumens				

Mounting	Color	Control Options Network	Options
ASQ Arm mount for square pole/flat surface	BLT Black Matte Textured	NXW916F NX Networked Wireless Enabled Integral NXSMP2 LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	BC Backlight control
ASQU Universal arm mount for square pole/flat surface- Does not include round pole adapt or B3 drill pattern	BLS Black Gloss Smooth	NXW540F NX Networked Wireless Enabled Integral NXSMP2 HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	F Fusing⁷
Mounting Round Poles	DBT Dark Bronze Matte Textured	NXW Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without SMSor	TB Terminal block
A_ Arm mount for round pole1 B3 drill pattern	DBS Dark Bronze Gloss Smooth	**Control Options Other**	2PF2 power feed with 2 drivers2
A_U Universal arm mount for round pole1	GTT Graphite Matte Textured	SCP_F Programmable occupancy sensor	
Mounting Other	LGS Light Grey Gloss Smooth	7PR 7-Pin twist lock receptacle	
WB Wall bracket	PSS Platinum Silver Smooth	7PR-SC 7-Pin receptacle with shorting cap	
MAF Mast arm fitter for 2-3/8" OD horizontal arm	WHT White Matte Textured	7PR-MD40F Low voltage sensor for 7PR	
K Knuckle	WHS White Gloss Smooth	7PR-TL 7-Pin PCR with photocontrol	
	VGT Verde Green Textured	ADD AutoDim Timer Based Dimming	
	Color Option	ADT AutoDim Time of Day Dimming	
	CC Custom Color	BTS-14F Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360˚ Lens	
		BTS-40F Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360˚ Lens	
		BTSO-12F Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360˚ Lens	

Notes:
1 Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
2 Not available with 25, 50, 255, 295 & 340W configurations
3 At least one SCPREMOTE required to program SCP motion sensor
4 Replace "_" with 8F or 40F lens
5 Must specify voltage
6 Networked Controls cannot be combined with other control options
7 Not available with 2PF option
8 BTS and BTSO available for 50 Watts or higher and only on 120-277 voltage

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DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

SSSH Series Poles
SQUARE STRAIGHT STEEL

Gray Shading = Service Program Limit of 15 poles S10

ORDERING INFORMATION (CONTINUED)

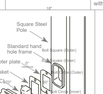
CATALOG NUMBER	HEIGHT FEET	HEIGHT METERS	NOMINAL SHAFT DIMENSIONS	WALL THICKNESS	BOLT CIRCLE (SUGGESTED)	BOLT CIRCLE (RANGE)	BASE PLATE SQUARE	ANCHOR BOLT SIZE	BOLT PROJECTION	POLE WEIGHT (LBS)
SSSH10-40A	10	3.0	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	77
SSSH12-40A	12	3.7	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	90
SSSH14-40A	14	4.3	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	103
SSSH16-40A	16	4.9	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	116
SSSH18-40A	18	5.5	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	129
SSSH20-40A	20	6.1	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	142
SSSH25-40A	25	7.6	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	175
SSSH14-40B	14	4.3	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	152
SSSH16-40B	16	4.9	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	171
SSSH18-40B	18	5.5	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	190
SSSH20-40B	20	6.1	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	209
SSSH25-40B	25	7.6	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	257
SSSH30-40B	30	9.1	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	304
SSSH15-50B	16	4.9	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	219
SSSH18-50B	18	5.5	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	243
SSSH20-50B	20	6.1	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	267
SSSH25-50B	25	7.6	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	327
SSSH30-50B	30	9.1	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	387
SSSH25-50C	25	7.6	5" square	.25"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	427
SSSH30-50C	30	9.1	5" square	.25"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	507
SSSH20-60B	20	6.1	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	329
SSSH25-60B	25	7.6	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	404
SSSH30-60B	30	9.1	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	479
SSSH35-60B	35	10.7	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	554
SSSH40-60B	40	12.2	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	629

Notes:
• Factory supplied template must be used when setting anchor bolts. Current will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.
• For more information about pole vibration and vibration dampeners, please consult factory.
• Unwrap poles immediately upon receipt to avoid condensation build up and possible corrosion. There will be a weld witness mark on the side of the pole with the Factory installed VM2.

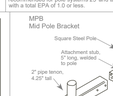
EHH Extra handhole



C05 / C07 / C20 Coupling

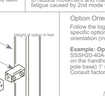


VM1 1st mode vibration dampener



Field Installed Pole Top dampener designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

VM2¹ 2nd mode vibration dampener



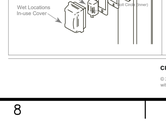
Field Installed pole mounted dampener designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

VM2SXX Field-installed 2nd mode vibration dampener

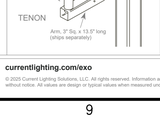


Field installed, internal dampener designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

GFI 20 Amp GCFI Receptacle & Cover



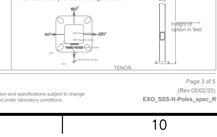
MPB Mid Pole Bracket



Option Orientation

Follow the logic below when ordering location options. For example, if you want the fixture oriented on (degrees) and its height (in feet).

Example: Option C05 should be ordered as: SSSH20-40A-TA-DB-C05-0-15 | .5" coupling on the handhole side of pole, 15' up from the pole base| 1" spacing required between option. Consult factory for other configurations.



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1-28-26
NUMBER PE-2020013488
PROFESSIONAL ENGINEER

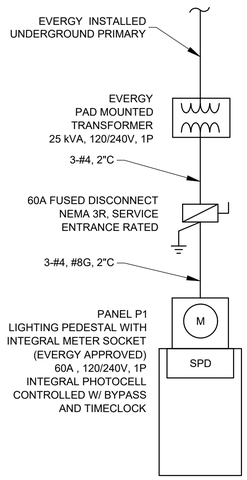
PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY
1	01/23/2026	ADDENDUM NO.1	CAS

PROJECT NO: 2400101800
DESIGNED BY: CAS
DRAWN BY: CAS
CHECKED BY: JTR
DATE: 10/1/2025

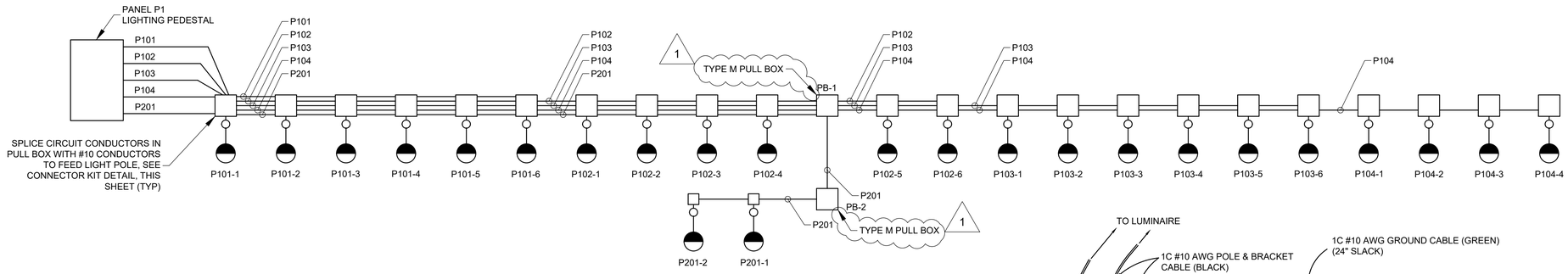
SHEET TITLE
ELECTRICAL GENERAL NOTES AND LEGEND

SHEET NO:
63 OF 126



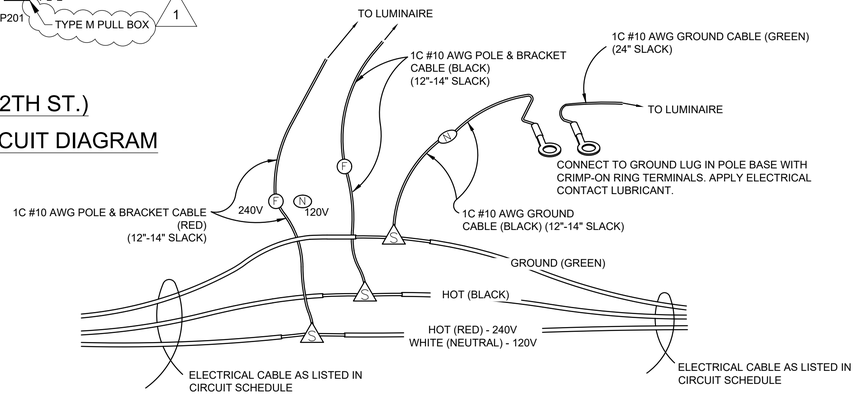
P1 (@ 12TH ST.)

LIGHTING SINGLE LINE DIAGRAM



P1 (@ 12TH ST.)

LIGHTING CIRCUIT DIAGRAM



ELECTRICAL CONNECTOR LEGEND

- (F) BREAK-AWAY FUSED ELECTRICAL CONNECTOR WITH 8 OR 2 AMP FUSE
- (N) BREAK-AWAY NON-FUSED ELECTRICAL CONNECTOR WITH GROUND/NEUTRAL "SLUG"
- (S) SPLICE KIT

ELECTRICAL CONNECTOR NOTES:

1. THE SPECIFIED CABLE SLACK SHALL BE PROVIDED ON EACH SIDE OF THE FUSED AND UN-FUSED CONNECTORS.
2. ADDITIONAL SLACK SHALL BE PROVIDED FOR THE FEEDER SUCH THAT WHEN EXTENDED UPWARD, THE TOP OF THE CONNECTORS ARE NO LESS THAN 1" AND NO MORE THAN 3" ABOVE THE TOP OF THE HAND HOLE OPENING.
3. ALL CONNECTIONS AND SPLICES SHALL BE SUBMERSIBLE RATED FOR USE BELOW GRADE.

(LUMINAIRE, 120V OR 240V)

ELECTRICAL CONNECTOR KIT SCHEMATIC

PANEL P1 SCHEDULE

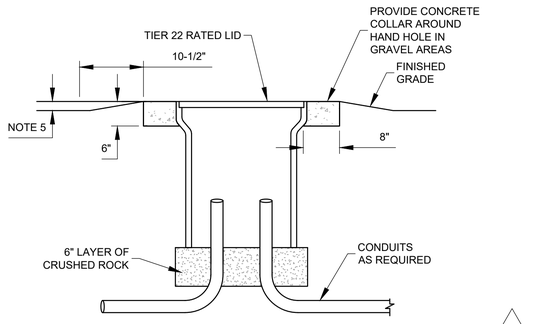
120/240 VOLTS, 1 PHASE, 3 WIRE — 60 AMPERES — MAIN CIRCUIT BREAKER 10,000 AIC
LOCATION - 12TH ST. AND WYATT — EMD = 3 kVA — ENCLOSURE - NEMA 3R PEDESTAL

DEMAND LOAD	DEMAND FACTOR	CONNECT LOAD	LOAD	BKR	CKT	PH	CKT	BKR	LOAD	CONNECT LOAD	DEMAND FACTOR	DEMAND LOAD
2.5	1.0	2.5	LIGHT CIRCUIT P101	20/2	1	A	2	20/2	LIGHT CIRCUIT P102	2.5	1.0	2.5
2.5	1.0	2.5			3	B	4			2.5	1.0	2.5
2.5	1.0	2.5	LIGHT CIRCUIT P103	20/2	5	A	6	20/2	LIGHT CIRCUIT P104	1.7	1.0	1.7
2.5	1.0	2.5			7	B	8			1.7	1.0	1.7
0.9	1.0	0.9	LIGHT CIRCUIT P201	20/2	9	A	10	30/2	SPD			
0.9	1.0	0.9			11	B	12					
5.9	A	5.9	PANEL	10.1	A		10.1	PANEL		4.2	A	4.2
5.9	B	5.9	CONNECTED AMPS	10.1	B		10.1	DEMAND AMPS		4.2	B	4.2

EST MAX DEMAND = VOLTS x MAX DEMAND AMPS = 240 x 10 = 3 kVA
MINIMUM AMPACITY = 1.25 x MAX DEMAND AMPS = 1.25 x 10 = 13 AMPS

LUMINAIRE INFORMATION TABLE

POLE NUMBER	ALIGNMENT	LCC	PROPOSED STATION	OFFSET	LUMINAIRE TYPE	POLE TYPE
P101-1	12TH ST	PANEL P1	10+47	19'-0"	A	1
P101-2	12TH ST	PANEL P1	11+53	19'-0"	A	1
P101-3	12TH ST	PANEL P1	13+07	19'-0"	A	1
P101-4	12TH ST	PANEL P1	14+70	19'-0"	A	1
P101-5	12TH ST	PANEL P1	16+35	19'-0"	A	1
P101-6	12TH ST	PANEL P1	18+16	19'-0"	A	1
P102-1	12TH ST	PANEL P1	19+55	19'-0"	A	1
P102-2	12TH ST	PANEL P1	21+36	18'-0"	A	1
P102-3	12TH ST	PANEL P1	23+16	19'-0"	A	1
P102-4	12TH ST	PANEL P1	24+85	19'-0"	A	1
P102-5	12TH ST	PANEL P1	25+15	19'-0"	A	1
P102-6	12TH ST	PANEL P1	27+38	19'-0"	A	1
P103-1	12TH ST	PANEL P1	28+92	19'-0"	A	1
P103-2	12TH ST	PANEL P1	30+56	19'-0"	A	1
P103-3	12TH ST	PANEL P1	32+14	19'-0"	A	1
P103-4	12TH ST	PANEL P1	33+73	19'-0"	A	1
P103-5	12TH ST	PANEL P1	35+49	19'-0"	A	1
P103-6	12TH ST	PANEL P1	37+23	19'-0"	A	1
P104-1	12TH ST	PANEL P1	38+88	19'-0"	A	1
P104-2	12TH ST	PANEL P1	40+75	19'-0"	A	1
P104-3	12TH ST	PANEL P1	42+24	19'-0"	A	1
P104-4	12TH ST	PANEL P1	44+06	19'-0"	A	1
P201-1	MAJOR RD	PANEL P1	50+39	18'-0"	A	1
P201-2	MAJOR RD	PANEL P1	52+06	18'-0"	A	1

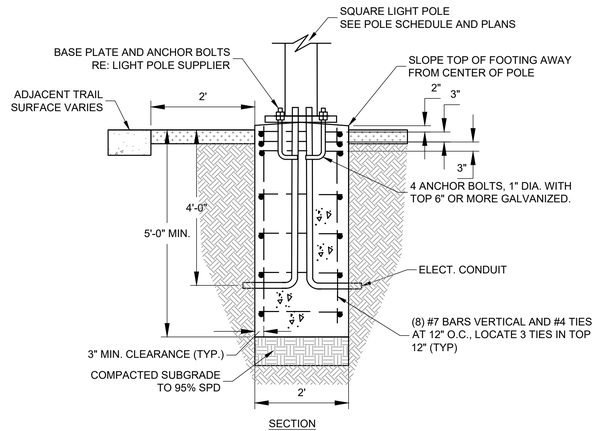


1

PULL BOX NOTES:

1. PROVIDE TAMPER PROOF LID WITH 'ELECTRIC' DESIGNATION FOR POWER PULL BOXES AND 'FIBER OPTIC' DESIGNATION FOR FIBER PULL BOXES.
2. PROVIDE MINIMUM 12"W x 12"L x 12"D PULL BOX. CONTRACTOR IS RESPONSIBLE TO PROVIDE LARGER BOXES TO ACCOMMODATE CONDUIT AS NEEDED. POLYMER CONCRETE OPEN BOTTOM TIER 22 RATED PULL BOX OR APPROVED EQUAL.
3. PROVIDE PULL ROPE IN EMPTY CONDUITS.
4. LABEL WIRE IN POWER PULL BOXES WITH THE CIRCUIT NUMBERS.
5. 2" IN GRAVEL AREAS; FLUSH WITH GRADE IN SIDEWALK AND TURF AREA.

TYPICAL PULL BOX DETAIL



TYPICAL LIGHT POLE FOUNDATION DETAIL

POLE SCHEDULE

TYPE	POLE	ARM	DESCRIPTION	DESIGN	
				MANUFACTURER/CAT	MOUNTING
1	35' SQUARE	N/A	35' SQUARE STRAIGHT STEEL POLE	EXO OUTDOOR LIGHTING/CAT#SSSH35-60B	SQUARE STEEL BASE W/ COVER AND ANCHOR BOLTS SEE FOUNDATION DETAIL, THIS SHEET

LUMINAIRE SCHEDULE

TYPE	LAMP	VOLTAGE	WATTAGE	DESCRIPTION	DESIGN	
					MANUFACTURER / CAT NO.	MOUNTING
A	LED	240	100	RATIO AREA SIZE 1 LIGHT FIXTURE, LED, TYPE II DISTRIBUTION	RAR1-160L-100-3K7-2-UNV-ASQ-DBT-BC	35' MOUNTING HEIGHT

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MARC T. HESS
1-28-26
NUMBER PE-2020013488
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

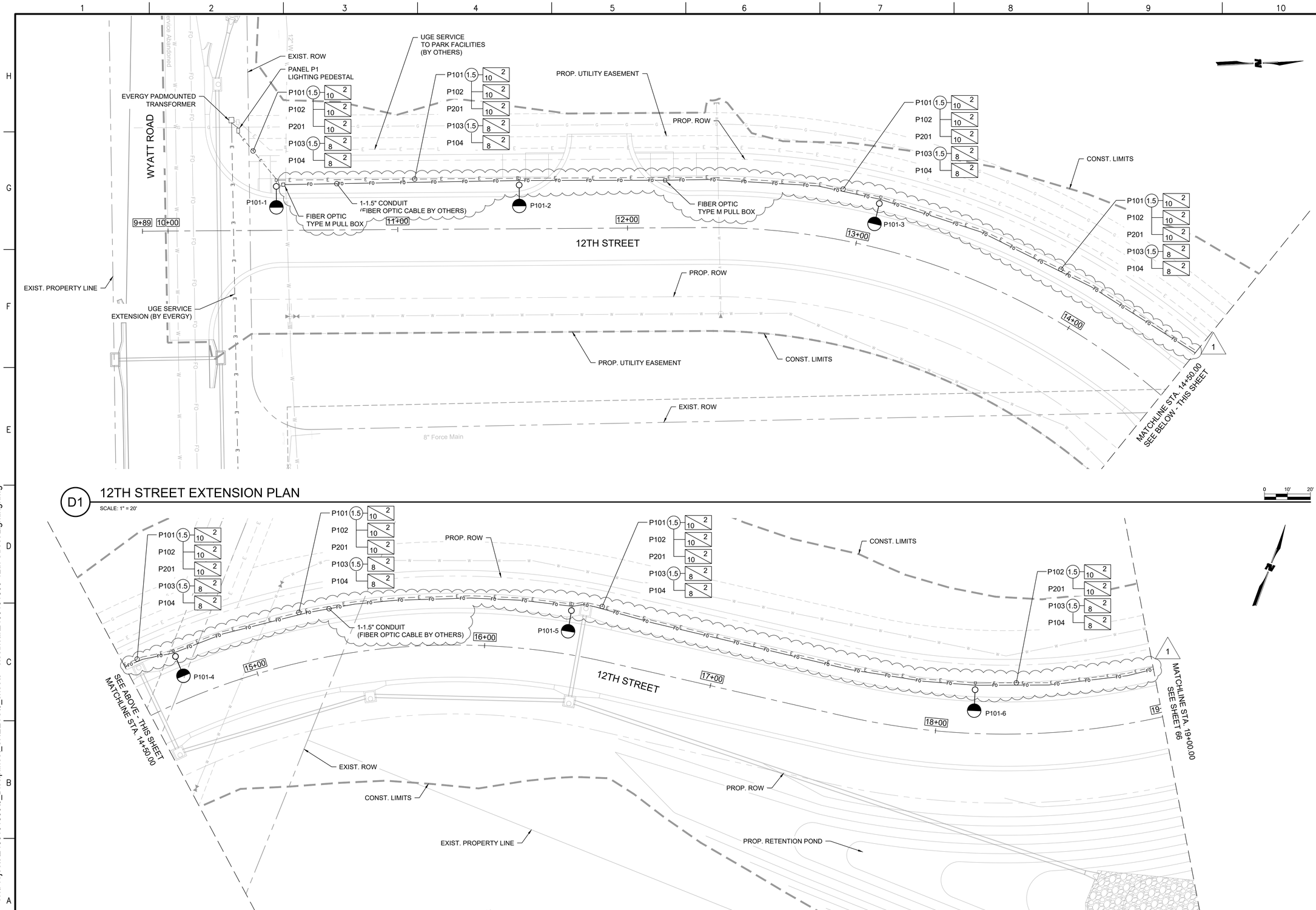
BY	DESCRIPTION	DATE	REV.

PROJECT NO:	2400101800
DESIGNED BY:	CAS
DRAWN BY:	CAS
CHECKED BY:	JTR
DATE:	10/1/2025

SHEET TITLE
ELECTRICAL SINGLE-LINE DIAG. AND SCHEDULES

SHEET NO:
64 OF 126

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1/26/2026



D1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

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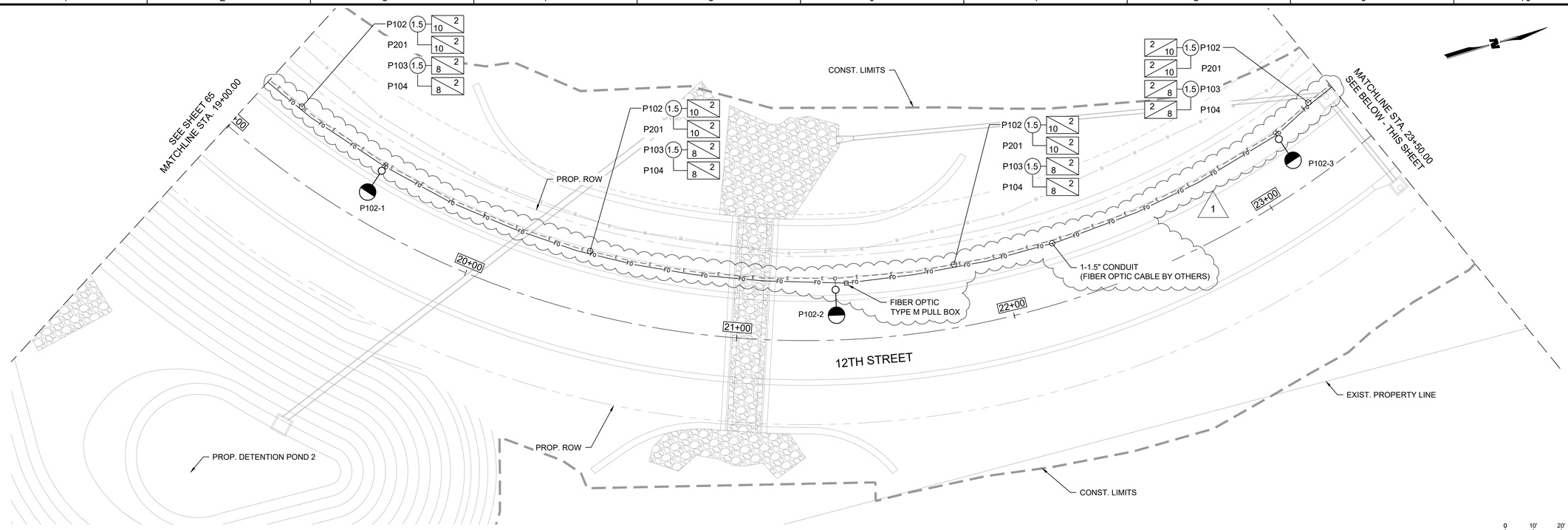
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LIGHTING PLAN

SHEET NO:

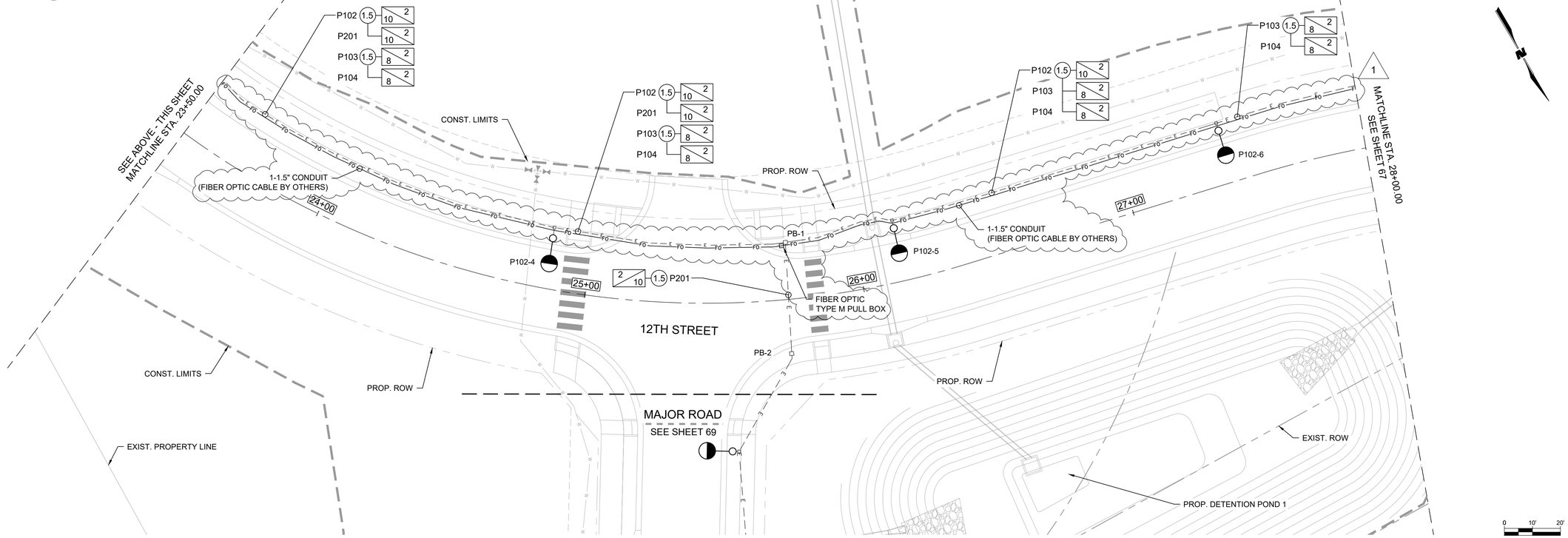
65 OF 126

1/26/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\6_sheets - electrical\2400101800-12th Street Lighting.dwg



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

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12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

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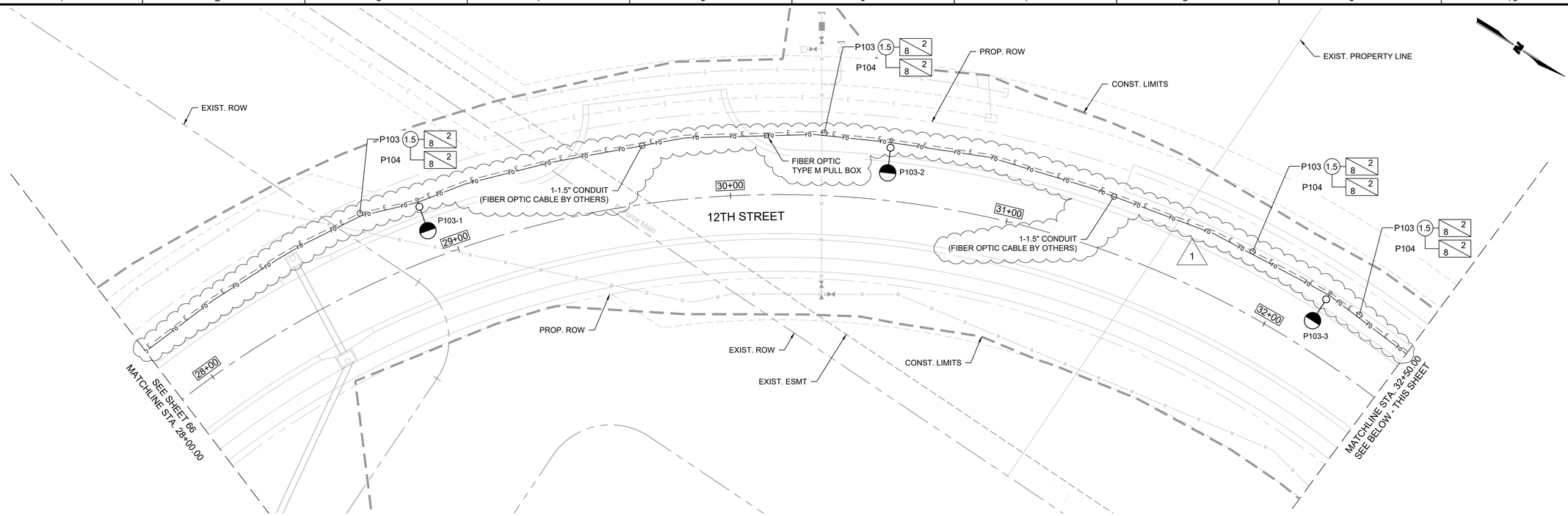
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DATE:	10/1/2025

SHEET TITLE

LIGHTING PLAN

SHEET NO:

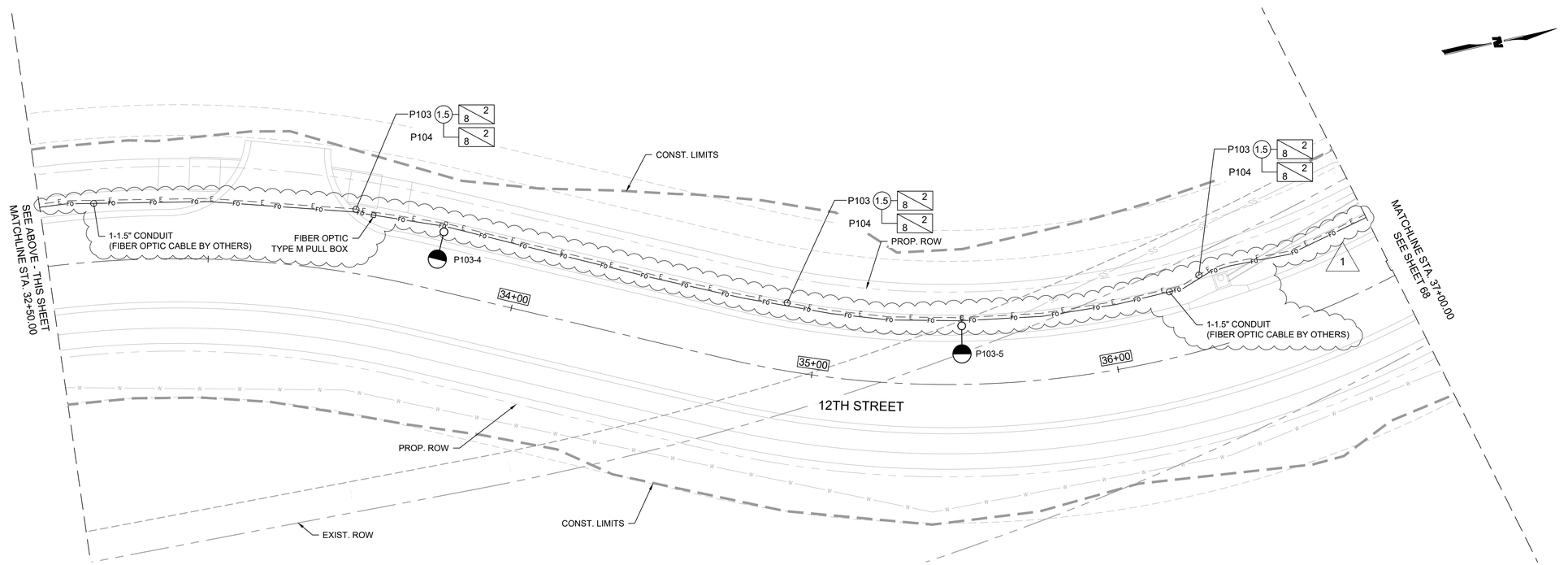
66 OF 126



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'

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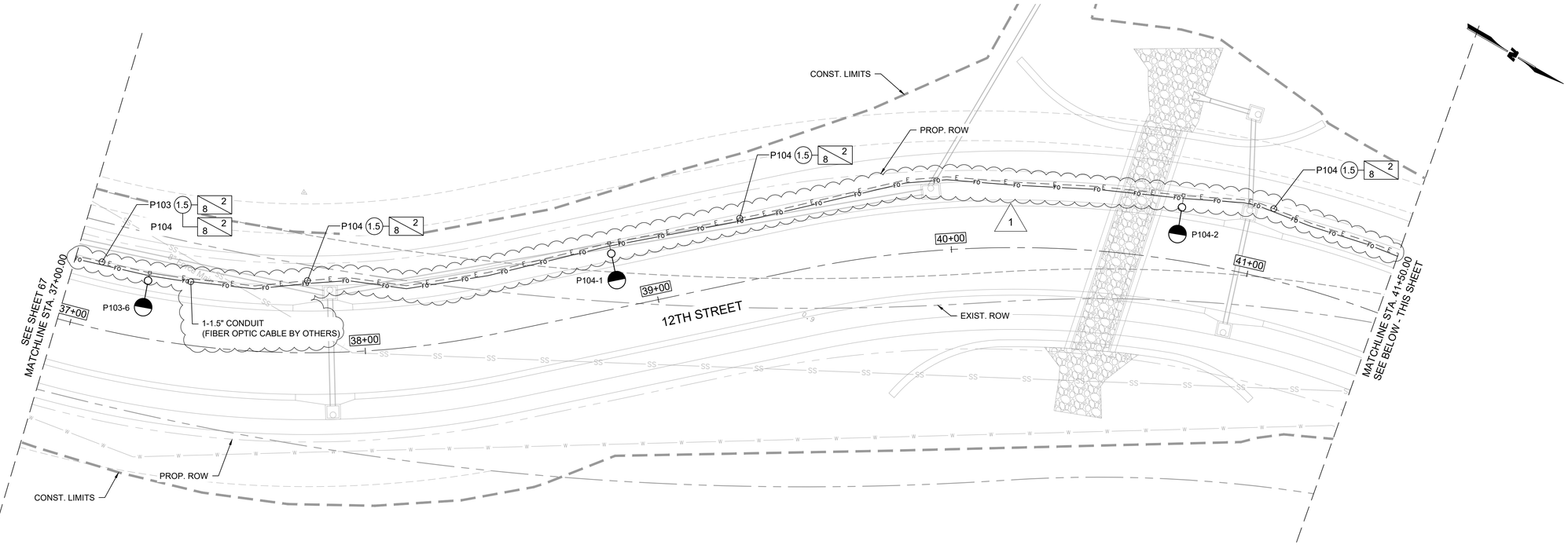
LIGHTING PLAN

SHEET NO:

67 OF 126

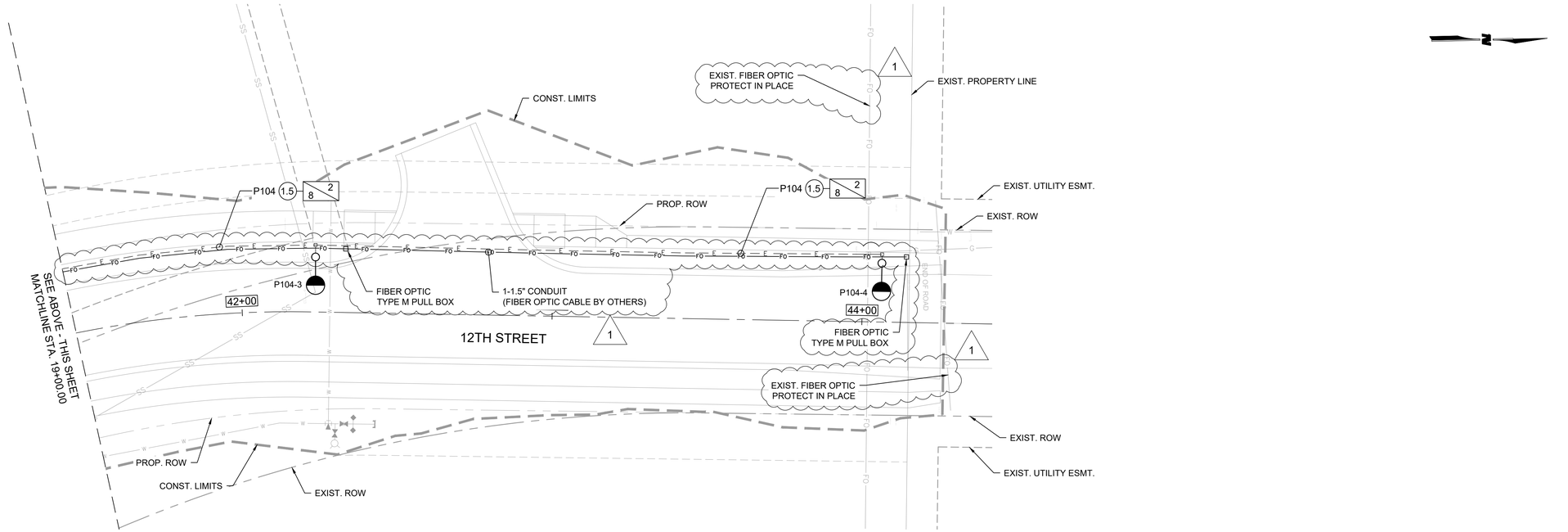
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1/26/2026



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

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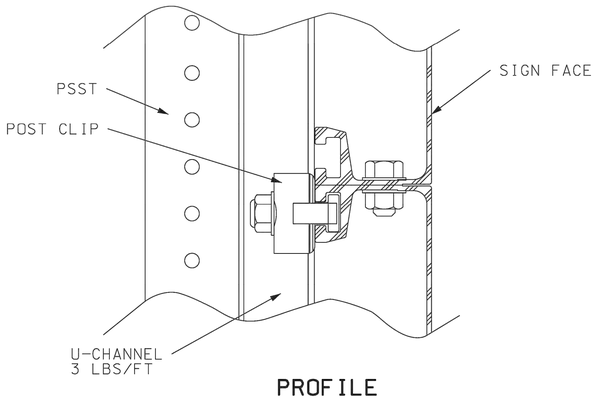
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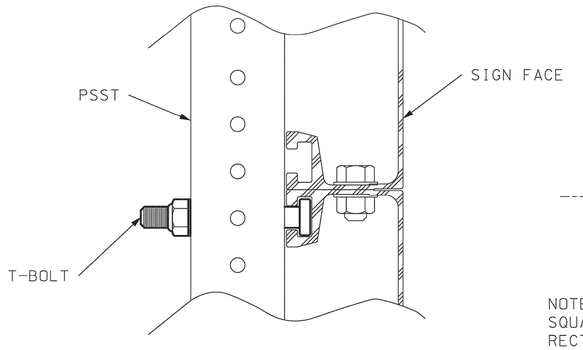
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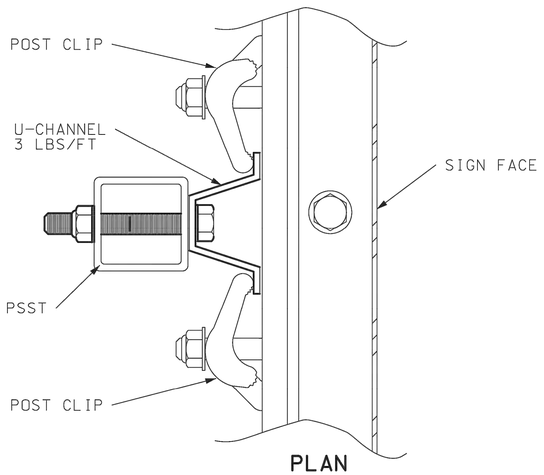
1/26/2026



PROFILE

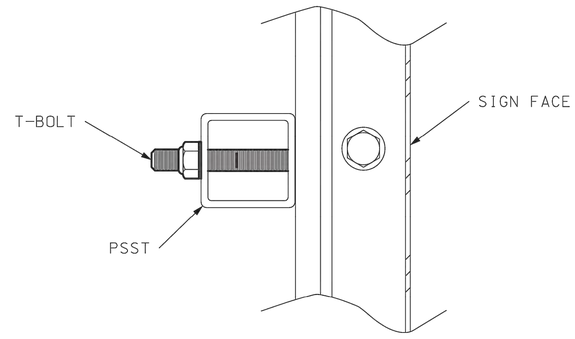


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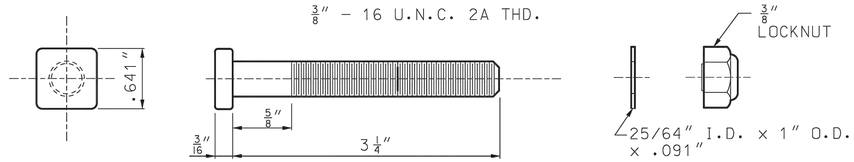
PLAN

POST CLIP METHOD

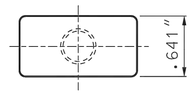


PLAN

T-BOLT METHOD



NOTE:
SQUARE BOLT HEAD SHOWN MAY BE REPLACED WITH RECTANGULAR BOLT HEAD WITH THE NARROW DIMENSION EQUAL TO .641".



BOLT – $1\frac{3}{4}$ x $\frac{3}{8}$ ALUMINUM
BOLT – $3\frac{1}{4}$ x $\frac{3}{8}$ ALUMINUM
HEX LOCKNUT – $\frac{3}{8}$" ALUMINUM
WASHER – ALUMINUM

T-BOLT DETAIL

NOTES: – ALUMINUM BOLTS SHALL BE ASTM B 211, 2024-T4 OR 6061-T6
– ALUMINUM FLAT WASHERS SHALL BE ASTM B 209, ALCLAD 2024-T4 OR 2024-T4
– ALUMINUM LOCK NUTS (NYLON INSERT) SHALL BE ASTM B 211 OR 2017-T4

NOTES:

FOR THE GENERAL NOTES, SEE SHEET 1.

FOR MOUNTING HEIGHT AND OFFSET DETAILS, SEE SHEET 11.

FOR POST CLIP DETAILS, SEE STANDARD PLAN 903.02.

ALTERNATE PSST MOUNTING HARDWARE USE SHALL BE ON APPROVED LIST.

EXTRUDED PANEL MOUNTING DETAIL

NUMBER OF BOLTS TO ATTACH STEEL CHANNEL TO PSST POST	
SIGN HEIGHT	NO. OF BOLTS PER PSST POST USED
1′	2
2′	3
3′	4
4′	5
5′	6
6′	7
7′	8

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NUMBER PE-2024000077
1/28/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY
1	01/23/2026	ADDENDUM NO.1	DJM

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	01/27/2026

SHEET TITLE
SIGN MOUNTING DETAILS

SHEET NO:
85A OF 126

MoDOT
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
JONATHAN A. NELSON
NUMBER PE-2008019578
PROFESSIONAL ENGINEER
JONATHAN A. NELSON - CIVIL
MO-PE-2008019578

SIGN MOUNTING DETAILS
PERFORATED SQUARE STEEL TUBE (PSST)

DATE EFFECTIVE: 7/1/2025
DATE PREPARED: 3/17/2025

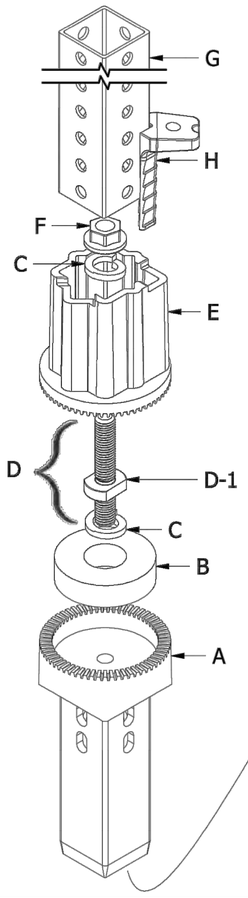
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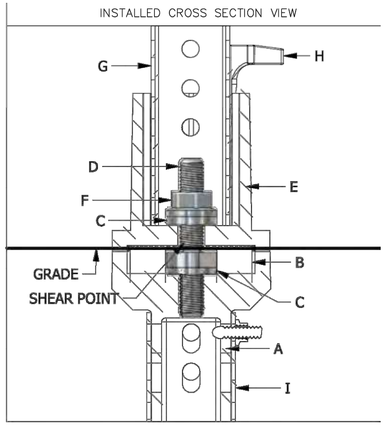
SHEET NO.
9 OF 12

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1/27/2026

*OR APPROVED EQUAL

KLEEN BREAK MODEL 425
FOR CONCRETE INSTALLATIONS *
REFER TO HTTP: /WWW.X-SQRD.COM FOR INSTALLATION DETAILS

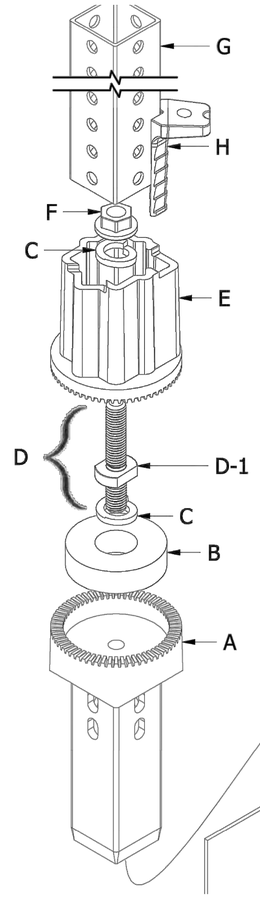


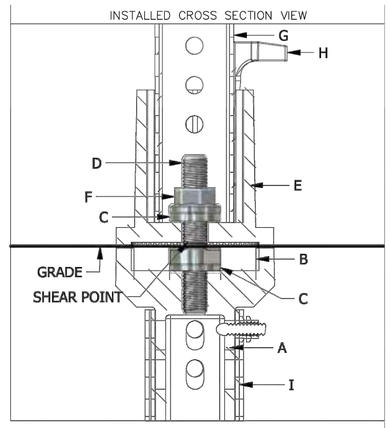


PARTS LIST

A	BOTTOM HALF COUPLER
B	RUBBER BUSHING
C	LOCK WASHER
D	5/8"-11 x 4" SHEAR BOLT
D-1	SHOULDER
E	TOP HALF COUPLER
F	5/8"-11 SERRATED FLANGE NUT
G	SIGN SUPPORT
H	SIGN SUPPORT LOCKING WEDGE
I	2-1/4" x 12ga. ANCHOR EXTENSION (optional) (includes corner bolt & nut)

KLEEN BREAK MODEL 425
FOR SOIL INSTALLATIONS *
REFER TO HTTP: /WWW.X-SQRD.COM FOR INSTALLATION DETAILS





PARTS LIST

A	BOTTOM HALF COUPLER
B	RUBBER BUSHING
C	LOCK WASHER
D	5/8"-11 x 4" SHEAR BOLT
D-1	SHOULDER
E	TOP HALF COUPLER
F	5/8"-11 SERRATED FLANGE NUT
G	SIGN SUPPORT
H	SIGN SUPPORT LOCKING WEDGE
I	2-1/4" x 12ga. ANCHOR EXTENSION (optional) (includes corner bolt & nut)
J	SOIL STABILIZER SLEEVE

SIGN POST INSTALLATION

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO. 64131
PHONE: 816-941-3130
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS

SEAL

STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
1/28/2026
PROFESSIONAL ENGINEER

PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY
1	01/23/2026	ADDENDUM NO.1	DJM

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	01/27/2026

SHEET TITLE
SIGN POST DETAILS

SHEET NO:
85B OF 126

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1/27/2026

WILSON &COMPANY
HIGHER RELATIONSHIPS

800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO 64131
PHONE: 816-701-3100
FAX: 816-942-3013
www.wilsonco.com

February 13, 2026

Re: 12th Street Extension - ADDENDUM NO. 2

City of Blue Springs
12th Street Extension
WCI File: 24-00-101-800

To All Prospective Bidders:

The following questions were proposed by prospective bidders and answered as follows:

A. CLARIFICATIONS

1. **Q:** Above from page 201 of the Project Manual. Only Type 5 and 6 should be used for the roadways and a written request to use Type 1 for base and Type 3 for surface. The bid sheet is showing Type 3 for base material. Are we supposed to bid the Type 3 from the plans or the Type 5 from the specs?

   A: Type 3-01 should be used as the mix for the base material for your bid. It is noted that the specification indicates a written request, but it also states unless specified otherwise in the Plans.

2. **Q:** Regarding the above project, will the scope include any of the following: Boring, Tunneling, Directional Drilling, Steel Casing. If so, what are the size and quantity of each?

   A: The means and methods of waterline/conduit installation is up to the Contractor and those means and methods should be considered subsidiary to the applicable bid items that are being installed. There is no required Steel Casing on the project.

3. **Q:** What is the pavement marking material specs? Thermoplastic? Also, I'm not seeing a Line Item for Traffic Control.

   A: Pavement Marking material specifications should follow APWA 2306 and Supplemental City Specifications. The material shall be **Preformed Thermoplastic**. A bid item has been added for Traffic Control and shall follow APWA 2305 Maintenance of Traffic.

4. The pre-bid construction agenda and sign-in sheet has been attached to this addendum.

The Contract Documents for the referenced project are hereby amended in the following particulars only, with all other conditions remaining unchanged.

B. PROJECT MANUAL

1. Section 00300, Bid Form

   REVISE Bid Item No. 54 Electrical Wire from 10,425 linear feet to 5,255 linear feet.

   REVISE Bid Item No. 53 Electrical Pull Box from 34 each to 10 each.

ADDITION Tracer Wire Bid Item No. 55 and Traffic Control Bid Item No. 61.

REVISE Subsequent Bid Item No(s) due to the addition of Tracer Wire Bid Item No. 55 and Traffic Control Bid Item No. 61.

C. DRAWINGS

1. Sheet No. 2, General Notes & Quantities
   REVISE Bid Item No(s). 53 through 63 updated pertaining to revisions and additions noted in Section B. Project Manual. Revised Summary of Quantities (Sheet 2) attached shall supersede original.

2. Sheet No. 63 through 69 Electrical Sheets
   REVISE Sheet No(s). 63 through 69 to reflect revisions to electrical wire, circuits, and luminaires. Revised Electrical Sheets attached shall supersede Addendum No. 1 sheets.

This ADDENDUM is hereby made a part of the Bidding Documents to the same extent as though contained in the original documents. Work to be included shall not be limited to narrative description contained herein but shall also include adjustments or revisions to other work not mentioned, in order to accomplish the Work described.

Each Bidder shall acknowledge receipt of this ADDENDUM in the space provided on the Bid Form.

WILSON & COMPANY

Darren Meyer, PE
Project Manager
816.556.3628
Darren.Meyer@wilsonco.com

ARTICLE 10
BID FORM PROPOSAL

PROJECT NUMBER 2400101800 BID TIME 2:00 PM

PROJECT LOCATION Blue Springs, MO BID DATE February 17, 2026

BIDDER NAME _____

TO: City of Blue Springs ("Owner")

In response to the Invitation for Bids for Project No. 12th Street Extension, and in accordance with the Instructions to Bidders and other Bidding Documents, the undersigned Bidder declares that he has had an opportunity to examine the site of the Work and has carefully examined the Contract Documents therefore, including the Addenda identified below, and on the basis thereof, and being fully familiar with the local conditions affecting the Work, and upon written notice of award of contract, acknowledges and agrees to provide all labor, material, equipment, tools, management and supervision, safety and technical services, insurance, bonds and incidentals necessary or required for the faithful performance of the Contract Work in accordance with the above-referenced documents in a safe, timely and workmanlike manner for the following Base Bid Price:

BASE BID: _____ Dollars ($_____)
(Amount in Words)

The Base Bid (12th Street Extension) amount is more fully itemized as follows:

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED PRICE
1	Mobilization	LS	1		
2	Removal of Existing Structures	LS	1		
3	Clearing and Grubbing	LS	1		
4	Contractor Furnished Staking	LS	1		
5	Unclassified Excavation	CY	20,235		
6	Embankment	CY	21,830		
7	12' x 5' Single Radius Aluminum Arch (W/ Reinforced Conc. Strip Foundations)	EA	2		
8	Reinforced Concrete Headwall (W/ From Liner)	EA	4		
9	Modular Block Retaining Wall (W/Stain)	FSF	5,168		
10	Connection to Existing Water Main (STA: 10+00)	LS	1		
11	12" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	3,415		
12	8" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	101		
13	4" PVC Water Service Line (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	LF	21		
14	2" PVC Water Service Line (w/ Temporary Blowoff Assemblly)	LF	175		
15	Gate Valve	EA	11		
16	Fire Hydrant Assembly	EA	3		
17	Backflow Preventor Assembly & Manhole	LS	1		
18	Remove & Reset Existing 15" Flared End Section (w/ Toe Wall)	LS	1		
19	15" Storm Pipe (N-12 HDPE)	LF	1,041		
20	18" Storm Pipe (N-12 HDPE)	LF	228		
21	24" Storm Pipe (N-12 HDPE)	LF	707		

22	36” Storm Pipe (N-12 HDPE)	LF	166		
23	4’ x 4’ Junction Box	EA	1		
24	4.5’ x 4’ Junction Box	EA	1		
25	5.5’ x 4’ Junction Box	EA	2		
26	4’ x 4’ Curb Inlet	EA	15		
27	5’ x 3’ Curb Inlet	EA	1		
28	4.5’ x 4’ Curb Inlet	EA	1		
29	6’ x 4’ Curb Inlet	EA	1		
30	7’ x 4’ Curb Inlet	EA	1		
31	5’ x 5’ Detention Pond Outlet Structure	EA	2		
32	15” RC Flared End Section (W/ Toe Wall)	EA	4		
33	24” RC Flared End Section (W/ Toe Wall)	EA	3		
34	36” RC Flared End Section (W/ Toe Wall)	EA	1		
35	Concrete Arch	LF	39		
36	Riprap (D50 = 9”) (TH = 18”)	SY	256		
37	Riprap (D50 = 18”) (TH = 27”)	SY	354		
38	Riprap (D50 = 24”) (TH = 36”)	SY	212		
39	Compaction of Subgrade	STA	34		
40	MoDOT Type 5 Aggregate Base (6”)	SY	14,174		
41	MoDOT Type 5 Aggregate Base (4”)	SY	5,102		
42	Concrete Curb & Gutter (Combined)	LF	6,971		
43	ADA Curb Ramp (W/ Landing)	EA	13		
44	Concrete Flume	EA	1		
45	Asphaltic Concrete Surface (Type 5-01) (2”) (Roadway)	SY	11,850		
46	Asphaltic Concrete Base (Type 3-01) (8”) (Roadway)	SY	11,850		
47	Asphaltic Concrete Surface (Type 5-01) (4”) (Shared-Use Path)	SY	2,774		
48	Concrete Driveway (8” Uniform) (AE)	SY	655		
49	Sidewalk Construction (4”) (AE)	SY	1,425		
50	Electrical Service Connection (Includes Electrical Rack)	LS	1		
51	Street Light (Includes Foundation, Pole, Fixture, Wiring, & Conduit)	EA	24		
52	Underground Conduit (1-1/2” SCH40 PVC)	LF	8,600		
53	Electrical Pull Box	EA	10		
54	Electrical Wire	LF	5,225		
55	Tracer Wire	LF	3,375		
56	Permanent Restoration	AC	7		
57	Erosion Control	LS	1		
58	Permanent Pavement Markings	LS	1		
59	Permanent Signage	LS	1		
60	Wall Mounted Pedestrian Fence	LF	512		

61	Traffic Control	LS	1		
				Total Base Bid	

Bid Alternate NO. 1 (Replaces Bid Items 45-47)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENDED PRICE
62	Concrete Pavement (8" Uniform) (AE) (Roadway)	SY	11,850		
63	Concrete Pavement (5" Uniform) (AE) (Shared-Use Path)	SY	2,774		

By submitting this Bid, the Bidder agrees to waive any claim it has or may have against the Owner or Engineer, and their respective employees, arising out of or in connection with the administration, evaluation or recommendation of any bid(s).

Addenda

The undersigned Bidder acknowledges the following Addenda, if any:

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

Addendum No.: _____ dated _____ pages _____

GENERAL NOTES

1. THE STANDARD SPECIFICATIONS AND DESIGN CRITERIA OF THE CITY OF BLUE SPRINGS, KANSAS CITY METROPOLITAN CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION (RECENT VERSION), AND JACKSON COUNTY PWSD 13 STANDARD SPECIFICATIONS SHALL GOVERN THE CONSTRUCTION OF ALL PUBLIC IMPROVEMENTS FOR THIS PROJECT. WHERE CONFLICTING INFORMATION EXISTS, THE MOST STRINGENT SHALL PREVAIL
2. THE CONTRACTOR SHALL NOT WORK ON SATURDAYS, SUNDAYS, OR HOLIDAYS ON PORTIONS OF WORK UNLESS REQUESTED AT LEAST FORTY EIGHT(48) HOURS IN ADVANCE AND WHEN APPROVED BY THE CITY ENGINEER.
3. ALL EXISTING UTILITIES INDICATED ON THESE IMPROVEMENT PLANS ARE ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE DESIGN ENGINEER; HOWEVER, ALL EXISTING UTILITIES MAY NOT BE SHOWN. UTILITIES DAMAGED BY THE CONTRACTOR WHILE LOCATING OR DURING CONSTRUCTION SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR. THE CONTRACTOR, PRIOR TO CONSTRUCTION, SHALL VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES. THE REPAIR OF ANY DAMAGE TO SAID UTILITIES SHALL BE AT THE COST OF THE CONTRACTOR. ANY UTILITIES FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED. ENCROACHMENTS SUCH AS TELEPHONE, POWER, AND CABLE T.V. POLES SHALL BE MOVED BY THE UTILITY OWNER AND COORDINATED BY THE CONTRACTOR AFTER WRITTEN APPROVAL FROM THE OWNER, UNLESS OTHERWISE NOTED.
4. ALL BACKFILL SHALL BE TAMPED OR COMPACTED AS SPECIFIED PER THE CONTRACT SPECTIFICATIONS.
5. ALL SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED ON THE PLANS SHALL BE IN PLACE PRIOR TO COMMENCING ANY LAND DISTURBANCE ACTIVITIES ON THE SITE. CONTRACTOR SHALL BE REQUIRED TO SIGN AND ABIDE BY STORMWATER POLLUTION PREVENTION PLAN (SWPPP). CONTRACTOR SHALL ABIDE BY THE MISSOURI CLEAN WATER LAW, INCLUDING ALL RULES, REGULATIONS, ORDERS AND DECISIONS.
6. CONTRACTOR SHALL CLEAR AND GRUB ALL TREES WITHIN THE GRADING LIMITS UNLESS OTHERWISE NOTED. REMOVAL OF A TREE INCLUDES REMOVAL OF ALL BRANCHES, ROOTS, AND BRUSH WITHIN THE CANOPY LIMITS OF THE TREE. THE CONTRACTOR IS REQUIRED TO EXERCISE PARTICULAR CARE DURING EXCAVATION TO PREVENT UNNECESSARY DAMAGE TO TREES, RETAINING WALLS, STRUCTURES, UTILITIES, ETC. IN THE VICINITY OF CONSTRUCTION. ONLY THOSE TREES IN DIRECT CONFLICT WITH CONSTRUCTION OPERATIONS SHALL BE REMOVED, AS AGREED UPON BETWEEN THE CONTRACTOR AND CITY REPRESENTATIVE. ALL TREES THAT ARE TO BE SAVED SHALL BE MARKED BY THE CONTRACTOR AND SHALL BE FENCED AT THE DRIP LINE WITH T POSTS AND ORANGE CONSTRUCTION FENCING.
7. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS, CODES AND ORDINANCES. OPEN BURNING OF DEBRIS SHALL NOT BE PERMITTED.
8. CONTRACTOR SHALL STRIP TOPSOIL AND VEGETATION A MINIMUM OF 6" AND STOCKPILE FOR USE AS TOPSOIL WHERE VEGETATION IS TO BE REESTABLISHED. ALL TOPSOIL WORK SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.
9. ALL EXISTING CONCRETE PAVEMENT, CURB & GUTTER, DRIVEWAYS, SIDEWALKS OR BITUMINOUS SURFACING TO BE REMOVED SHALL BE SAW CUT TO THE NEAT LINES SHOWN ON THE PLANS OR TO THE NEAREST JOINT AS DIRECTED BY THE CITY. ADDITIONAL REMOVAL MAY BE ORDERED BY THE CITY. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO "REMOVAL OF EXISTING STRUCTURES".
10. EXCESS SOIL OR ROCK MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF SITE BY THE CONTRACTOR. THIS WORK IS INCIDENTAL AND NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.
11. THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND ELEVATIONS SHALL BE CONFIRMED BY THE CONTRACTOR AT THE JOB SITE. IF THE CONTRACTOR FINDS ANY DIMENSIONS TO BE IN ERROR OR IN QUESTION, THE ENGINEER SHALL BE PROMPTLY CONTACTED FOR CLARIFICATION PRIOR TO THE CONTINUATION OF THE WORK.
12. ALL PORTLAND CEMENT CONCRETE EXPOSED TO AMBIENT AIR SHALL BE KCMMB 4K MIX, INCLUDING INVERTS OF STORM STRUCTURES.
13. ALL EXISTING DRAINAGE TILES, FOUNDATION DRAINS, SUMP PUMP DRAINS, AND / OR ROOF DRAINS ENCOUNTERED OR DAMAGED DURING CONSTRUCTION ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION, PROPERLY REROUTED AND/OR CONNECTED TO THE STORM SEWER SYSTEM. THE EXTENSION, RESTORATION OR REROUTING OF THESE TILES OR DRAINS SHALL BE CONSIDERED SUBSIDIARY TO THE CONSTRUCTION OF THE PROPOSED STORM SEWERS.
14. ALL STORM SEWER PIPE LENGTHS SHOWN ON THE PLANS ARE MEASURED FROM INSIDE FACE OF DOWNSTREAM STRUCTURE TO INSIDE FACE OF UPSTREAM STRUCTURES, (FOR BIDDING AND PAYMENT PURPOSE ONLY).
15. ALL SIGNS IN CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED AND REPLACED, AND SHALL BE CONSIDERED SUBSIDIARY TO "PERMANENT SIGNAGE".
16. DRIVEWAYS, SIDEWALKS, STREETS AND OTHER AREAS DAMAGED BY THE CONTRACTOR SHALL BE RESTORED, AT THE CONTRACTORS EXPENSE, TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING BEFORE DAMAGE OCCURRED.
17. THE CONTRACTORS IS RESPONSIBLE FOR THE PROTECTION OF ALL PROPERTY CORNERS AND SECTION CORNERS. ANY PROPERTY CORNERS OR SECTION CORNERS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A REGISTERED LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
18. ALL STORM SEWER STRUCTURES USED FOR THE PROJECT SHALL BE PRECAST. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CASTING OF STRUCTURES.
19. ALL EXISTING FENCING, WALKS, ETC. THAT ARE DISTURBED BY THE CONTRACTOR'S OPERATION SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL CONDITION. CONTRACTOR SHALL SATISFY HIMSELF BY SITE VISIT AS TO THE EXTENT AND NATURE OF SUCH WORK IN PREPARING HIS BID. THIS WORK SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
20. ALL DISTURBED AREAS SHALL BE RESTORED WITH TOPSOIL, SEED (DRILLED) & MULCH. ANY AREAS DISTURBED OUTSIDE OF THE LIMITS SHOWN ON THE PLANS SHALL BE SEEDED AT NO ADDITIONAL COST.
21. ACCESS TO PROPERTIES SHALL BE MAINTAINED AT ALL TIMES. IF CONSTRUCTION ACROSS A DRIVEWAY IS TO TAKE MORE THAN 24 HOURS, ONE HALF OF THE DRIVE SHALL REMAIN IN SERVICE UNTIL THE OTHER HALF IS RECONSTRUCTED AND IN SERVICE OR ALTERNATE ACCESS PROVIDED.
22. ALL FENCING WITHIN THE WORK LIMITS SHALL BE PROTECTED OR RESTORED TO PRIOR CONDITIONS UPON COMPLETION OF THE WORK, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE PLANS. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING FOR ANY RESIDENTS WHO OWN PETS OR WHO OTHERWISE REQUEST TEMPORARY FENCING. CONTRACTOR SHALL COORDINATE THE TEMPORARY FENCING LOCATION WITH THE RESIDENT, CITY, AND ENGINEER. TEMPORARY FENCING SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
23. THE CONTRACTOR SHALL MAINTAIN DRAINAGE DURING CONSTRUCTION.
24. ALL EQUIPMENT USED BY THE CONTRACTOR HAVING METAL TRACKS SHALL NOT BE DRIVEN OVER CITY STREETS OTHER THAN THOSE BEING DISRUPTED BY STORM SEWER TRENCHING. SUCH EQUIPMENT MUST BE TRANSPORTED.
25. CONTRACTOR SHALL NOTIFY EACH IMPACTED PROPERTY OWNER OF THE ANTICIPATED CONSTRUCTION ACTIVITY 48 HOURS PRIOR TO BEGINNING WORK. THE NOTIFACTION METHOD SHALL BE OF SUITABLE MEANS, AND APPROVED BY THE CITY ENGINEER.
26. THE LOCATION POINT FOR ALL STORM SEWER STRUCTURES SHALL BE CENTER OF STRUCTURE AS INDICATED ON PLAN SHEETS.
27. ALL WORK REQUIRED TO COMPLETE THE PROJECT BUT WHICH IS NOT SPECIFICALLY CALLED OUT IN A PAY ITEM SHALL BE SUBSIDIARY TO OTHER PAY ITEMS.
28. ANY REMOVAL OF TREES THAT ARE 3" OR LARGER IN DIAMETER SHALL OCCUR DURING WINTER INACTIVE SEASON, (NOV.15TH TO MARCH 31ST OR THE MOST UP TO DATE RANGE PUBLISHED BY THE U.S. FISH AND WILDLIFE) AS TO LIMIT ANY POTENTIAL IMPACT TO ENDANGERED BAT ROOSTING HABITAT.
29. IF CONTRACTOR ENCOUNTERS EVIDENCE OF DEPOSITS OF HISTORICAL OR ARCHAEOLOGICAL CONDITIONS, CONTRACTOR SHALL IMMEDIATELY: (i) SECURE OR OTHERWISE ISOLATE SUCH CONDITION; (ii) STOP ALL WORK IN CONNECTION WITH SUCH CONDITION AND IN ANY AREA AFFECTED THEREBY (EXCEPT IN AN EMERGENCY); AND (iii) NOTIFY OWNER AND ENGINEER (AND PROMPTLY THEREAFTER CONFIRM SUCH NOTICE IN WRITING). OWNER SHALL NOTIFY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AND THE MISSOURI STATE HISTORIC PRESERVATION OFFICE. NO FURTHER DISTURBANCE OF THE DEPOSITS SHALL ENSUE UNTIL THE CONTRACTOR HAS BEEN NOTIFIED BY THE OWNER THAT HE MAY PROCEED. THE OWNER WILL ISSUE A NOTICE TO PROCEED ONLY AFTER THE STATE OFFICIAL HAS SURVEYED THE FIND AND MADE A DETERMINATION TO THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AND THE OWNER. COMPENSATION TO THE CONTRACTOR, IF ANY, FOR LOST TIME OR CHANGES IN CONSTRUCTION TO AVOID THE FIND, SHALL BE DETERMINED IN ACCORDANCE WITH CHANGED CONDITIONS OR CHANGE ORDER PROVISIONS OF THE CONTRACT DOCUMENTS. IF OWNER AND CONTRACTOR CANNOT AGREE AS TO ENTITLEMENT TO OR ON THE AMOUNT OR EXTENT, IF ANY, OF ANY ADJUSTMENT IN CONTRACT PRICE OR CONTRACT TIMES, OR BOTH, AS A RESULT OF SUCH WORK STOPPAGE OR SUCH SPECIAL.
30. IF WATER SEEPAGE IS ENCOUNTERED DURING EXCAVATION, USE OF TEMPORARY DEWATERING TECHNIQUES MAY BE NECESSARY AT NO ADDITIONAL COST TO THE CITY.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
BASE BID			
1	Mobilization	1	LS
2	Removal of Existing Structures	1	LS
3	Clearing and Grubbing	1	LS
4	Contractor Furnished Staking	1	LS
5	Unclassified Excavation	25,420	CY
6	Embankment	20,340	CY
7	12' x 5' Single Radius Aluminum Arch (w/ Reinforced Conc. Strip Foundations)	2	EA
8	Reinforced Concrete Headwall (w/ Form Liner)	4	EA
9	Modular Block Retaining Wall (w/ Stain)	5,168	FSF
10	Connection to Existing Water Main (STA: 10+00)	1	LS
11	12" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	3,415	LF
12	8" PVC Water Main (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	101	LF
13	4" PVC Water Service Line (Includes Fittings, Tees, Bends, Restraints, Caps, Etc.)	21	LF
14	2" PVC Water Service Line (w/ Temporary Blowoff Assembly)	175	LF
15	Gate Valve	11	EA
16	Fire Hydrant Assembly	3	EA
17	Backflow Preventor Assembly & Manhole	1	LS
18	Remove & Reset Existing 15" Flared End Section (w/ Toe Wall)	1	LS
19	15" Storm Pipe (N-12 HDPE)	1,041	LF
20	18" Storm Pipe (N-12 HDPE)	228	LF
21	24" Storm Pipe (N-12 HDPE)	707	LF
22	36" Storm Pipe (N-12 HDPE)	166	LF
23	4' x 4' Junction Box	1	EA
24	4.5' x 4' Junction Box	1	EA
25	5.5' x 4' Junction Box	2	EA
26	4' x 4' Curb Inlet	15	EA
27	5' x 3' Curb Inlet	1	EA
28	4.5' x 4' Curb Inlet	1	EA
29	6' x 4' Curb Inlet	1	EA
30	7' x 4' Curb Inlet	1	EA
31	5' x 5' Detention Pond Outlet Structure	2	EA
32	15" RC Flared End Section (w/ Toe Wall)	4	EA
33	24" RC Flared End Section (w/ Toe Wall)	3	EA
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38	Riprap (D50 = 24") (TH = 36")	212	SY
39	Compaction of Subgrade	34	STA
40	MoDOT Type 5 Aggregate Base (6")	14,174	SY
41	MoDOT Type 5 Aggregate Base (4")	5,102	SY
42	Concrete Curb & Gutter (Combined)	6,971	LF
43	ADA Curb Ramp (w/ Landing)	13	EA
44	Concrete Flume	1	EA
45	Asphaltic Concrete Surface (Type 5-01) (2") (Roadway)	11,850	SY
46	Asphaltic Concrete Base (Type 3-01) (8") (Roadway)	11,850	SY
47	Asphaltic Concrete Surface (Type 5-01) (6") (Shared-Use Path)	2,774	SY
48	Concrete Driveway (8" Uniform) (AE)	655	SY
49	Sidewalk Construction (4") (AE)	1,425	SY
50	Electrical Service Connection (Includes Electrical Rack)	1	LS
51	Street Light (Includes Foundation, Pole, & Fixture)	24	EA
52	Underground Conduit (1-1/2" SCH80 PVC)	8,600	LF
53	Electrical Pull Box	10	EA
54	Electrical Wire	5,225	LF
55	Tracer Wire	3,375	LF
56	Permanent Restoration	7	AC
57	Erosion Control	1	LS
58	Permanent Pavement Markings	1	LS
59	Permanent Signage	1	LS
60	Wall Mounted Pedestrian Fence	512	LF
61	Traffic Control	1	LS
BID ALTERNATE NO. 1 (REPLACES BID ITEMS 45 - 47)			
62	Concrete Pavement (8" Uniform) (AE) (Roadway)	11,850	SY
63	Concrete Pavement (5" Uniform) (AE) (Shared-Use Path)	2,774	SY

1 2 3

WILSON & COMPANY
800 EAST 101ST TERRACE, SUITE 200
KANSAS CITY, MO. 64131
PHONE: 816-943-4100
FAX: 816-942-3013
www.wilsonco.com
Cert. of Authority # 2003007599

CONSULTANTS

SEAL

STATE OF MISSOURI
DARREN JOHN MEYER
NUMBER PE-2024000077
2/13/2026
PROFESSIONAL ENGINEER

PROJECT NAME

12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY
2	02/13/2026	ADDENDUM NO. 2	JAR
1	01/23/2026	ADDENDUM NO.1	DJM

PROJECT NO:	2400101800
DESIGNED BY:	WLC
DRAWN BY:	ARW
CHECKED BY:	DJM
DATE:	2/13/2026

SHEET TITLE

SUMMARY OF QUANTITIES

SHEET NO:

2 OF 128

W:\Projects\2400101800\3_Disciplines_SHEETS\1_Sheets - general\2400101800-GENNOTES-QUAN.dwg
2/13/2026

GENERAL NOTES:

1. COORDINATE POLE, FOUNDATION, POWER SOURCES, AND CONDUIT LOCATIONS WITH ALL OTHER DISCIPLINES, CITY OF BLUE SPRINGS, AND EXISTING CONDITIONS.
2. ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO THE 2023 NATIONAL ELECTRICAL CODE AND CITY OF BLUE SPRINGS STANDARDS.
3. REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION OR FABRICATION OF THE AFFECTED WORK.
4. COORDINATE CONSTRUCTION SEQUENCE WITH ALL DISCIPLINES.
5. PROVIDE HEAVY DUTY WEATHER-TIGHT JUNCTION AND PULL BOXES AS REQUIRED FOR CONDUCTOR PULLING AND SPLICING.
6. CITY OF BLUE SPRINGS SHALL PROVIDE TRANSFORMER. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TRANSFORMER SECONDARY OVERCURRENT PROTECTION AND ALL CONDUIT AND WIRING ON LOAD SIDE OF TRANSFORMER SECONDARY OVERCURRENT PROTECTIVE DEVICE INCLUDING THE CONNECTION TO SECONDARY OVERCURRENT PROTECTIVE DEVICE, AS SHOWN.
7. ALL LUMINARIES, POLES, AND BASES SHALL MEET CITY OF BLUE SPRINGS 2023 ENGINEERING STANDARDS AND SPECIFICATIONS.
8. COORDINATE EXACT LOCATION OF TRANSFORMER AND POINT OF SERVICES WITH EVERGY AND THE CITY OF BLUE SPRINGS.
9. FIXTURE SHALL BE LOCATED BY THE OFFSET AND STATIONING ON THE LUMINAIRE INFORMATION TABLE OR AS SHOWN ON PLANS. FOUNDATION ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR. TOP OF THE FOUNDATION SHALL BE 2-INCHES ABOVE THE FINAL GRADE.
10. THE ENGINEER SHALL COORDINATE THE REVIEW OF LIGHTING MATERIALS WITH CITY OF BLUE SPRINGS.
11. CONTRACTOR SHALL COORDINATE FINAL LOCATION, CONDUIT ROUTING, AND PULL BOX LOCATIONS TO STAY WITHIN PROJECT LIMITS OF CONSTRUCTION (LOC) LINES.
12. CONTRACTOR IS RESPONSIBLE FOR MAKING ALL DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THEREOTO.
13. FUSE EACH LUMINAIRE AT POLE WITH 5 AMP HH FUSE. (2)
14. WIRE AND CONDUIT SIZES SHOWN ON THE PLAN DRAWINGS ARE A MINIMUM SIZE. LARGER CONDUCTORS OR CONDUIT MAY BE USED AT THE CONTRACTORS DISCRETION.
15. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE. ACTUAL CONDUIT ROUTING WILL BE DETERMINED IN THE FIELD BY THE ENGINEER AND THE CONTRACTOR.
16. ALL CABLE AND VOLTAGE DROP CALCULATIONS ARE BASED ON COPPER CONDUCTORS.
17. CIRCUITS SHALL INCLUDE A GROUND CONDUCTOR. GROUND CONDUCTOR SHALL BE THE SAME SIZE AS THE PHASE CONDUCTORS.
18. FOUNDATIONS, SEE LIGHT POLE FOUNDATION DETAIL, SHEET 64.
19. PROVIDE PULL TAPE WITH MIN. 2500LBS RATING AND #14 TRACE WIRE FOR ALL FIBER OPTIC CONDUITS. (2)
20. MAINTAIN A MINIMUM OF 12" SEPARATION BETWEEN POWER AND FIBER CONDUITS.
21. CONDUITS SHALL HAVE A MINIMUM OF 24" BURIAL DEPTH UNDER LANDSCAPING AND A MINIMUM OF 36" BURIAL DEPTH UNDER ROADWAYS.

LEGEND:

LIGHT POLE

E — SCH40 HDPE ELECTRICAL CONDUIT AND CONDUCTOR PER THE LIGHTING PLANS. SEE NOTES 20 AND 21. (2)

FO — SCH40 HDPE ORANGE FIBER OPTIC CONDUIT. FIBER PROVIDED BY OTHERS. SEE NOTES 19 THRU 21

PULL BOX, POLYMER CONCRETE W/OPEN BOTTOM

CONDUIT CALLOUTS:

CKT (#) (N / S)

CKT: CIRCUIT NO.
N: NUMBER OF CONDUCTORS (NOTE 17)
S: SIZE OF CONDUCTORS
#: CONDUIT SIZE

TABULATION OF STREET LIGHTING ITEMS

DETAIL NO.	ITEM DESCRIPTION	UNIT	PROJECT TOTALS
	LIGHT POLE, FIXTURES, FOUNDATION, WIRING AND CONDUIT	LS	24
	PRECAST PULL BOXES (TYPE: M, 11"X18"X12")	EACH	10
	POWER FEED, METER PEDESTAL, CONTROLLER CABINET ASSEMBLY	LS	1
	UNDERGROUND CONDUIT IN TRENCH (LIGHTING 1.5" SCH40 HDPE)	LF	5225
	UNDERGROUND CONDUIT IN TRENCH (FIBER 1.5" SCH40 HDPE)	LF	3375
	WIRING IN CONDUIT, 2-#4 AWG PLUS GROUND PER CIRCUIT (LIGHTING)	LF	5225
	WIRING IN CONDUIT, 1-#14 AWG (FIBER CONDUIT TRACING)	LF	3375

(2)

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2/13/2026

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

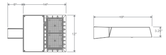
RATIO Series
AREA/SITE LIGHTER

FEATURES

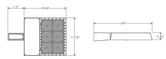
- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as retail, commercial and campus parking lots
- Featuring Strike and Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual comfort standard
- Compact and lightweight design with low EPA
- 3G rated for high vibration applications including bridges and overpasses
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™ and 7-Pin with networked controls
- Best in class surge protection available



RAR1



RAR2



CONTROL TECHNOLOGY

SERVICE PROGRAMS

	Weight	EPA at 0
RAR1	13.5 lbs / 6.1 kg	.45ft² / .13m2
RAR2	24 lbs / 10.9 kg	.55ft² / .17m2

SPECIFICATIONS

CONSTRUCTION
- Rectilinear form mimics the traditional shoebox form factor keeping a similar but updated style and appearance, ideal for retrofit applications
- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish

OPTICS
- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 80, 160, 320 or 480 midpower LEDs
- 3000K, 4000K or 5000K (70 CRI) CCT
- Zero uplight at 0 degrees of tilt
- Field rotatable optics

INSTALLATION
- Standard square arm mount, compatible with B3 drill pattern
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option or accessory for square and round poles.
- Knuckle arm fitter option available for 2-3/8" OD tenon. Max tilt of 60 degrees with 4 degree adjustable increments. (Restrictions apply for 7-pin options)

ELECTRICAL
- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/ IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

CONTROLS
- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0- 10 V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor

CERTIFICATIONS
- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Not all product variations on this page are DLC Qualified. Refer to www.designlights.org for the most up-to-date list.
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications
- Fixture is IP66 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-5) and Trade Agreements Act (FAR 52.225-11). See Buy America(n) Solutions (link to https://www.currentlighting.com/resources/america-solutions)

WARRANTY
- 5 year limited warranty
- See HLI Standard Warranty for additional information

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DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

RATIO Series
AREA/SITE LIGHTER MICRO STRIKE

Gray Shading = Service Program Limit of 15 luminaires (S10)

MICRO STRIKE OPTICS - ORDERING GUIDE

CATALOG #:

Example: RAR1-80L-25-3K7-2-UNV-ASQ-BL-NXW-BC

ORDERING INFORMATION

Series		# LEDs - Wattage		CCT/CRI		Distribution		Optics Rotation		Voltage	
RAR1	Ratio Area Size 1 - Micro Strike	80L-25	25W - 3,000 Lumens	5K7/5000K, 70 CRI		2	IES TYPE II	Blank for no rotation		UNV	Universal-120-277V
		80L-39	39W -5,200 Lumens	4K7/4000K, 70 CRI		3	IES TYPE III	L	Optic rotation left	120	120V
		160L-70	70W - 9,000 Lumens	3K7/3000K, 70 CRI		4W	IES TYPE IV	R	Optic rotation right	208	208V
		160L-115	115W - 15,000 Lumens			4F	IES TYPE IV Forward			240	240V
		160L-135	135W - 18,000 Lumens			5QWIES TYPE V				277	277V
RAR2	Ratio Area Size 2 - Micro Strike	320L-110	110W - 15,000 Lumens							347	347V
		320L-140	140W - 18,000 Lumens							480	480V
		320L-165	165W - 21,000 Lumens								
		480L-185	185W - 24,000 Lumens								
		480L-210	210W - 27,000 Lumens								
		480L-240	240W - 30,000 Lumens								
		480L-255	255W - 36,000 Lumens								
		480L-295	295W - 42,000 Lumens								
		480L-340	340W - 48,000 Lumens								

Mounting		Color		Control Options Network		Options	
ASQ	Arm mount for square pole/flat surface	BLT	Black Matte Textured	NXW16F	NX Networked Wireless Enabled Integral NXSMPS2 LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	BC	Backlight control
ASQU	Universal arm mount for square pole/flat surface- Does not include round pole adapt or B3 drill	BLS	Black Gloss Smooth			FU	Fusing1
		DBT	Dark Bronze Matte Textured	NXW540F	NX Networked Wireless Enabled Integral NXSMPS2 HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	TB	Terminal block
Mounting Round Poles		DBS	Dark Bronze Gloss Smooth			2PF2	2 power feed with 2 drivers2
A_	Arm mount for round pole1 B3 drill pattern	GTT	Graphite Matte Textured	NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without SMSce		
A_U	Universal arm mount for round pole1	LGS	Light Grey Gloss Smooth	Control Options Other			
Mounting Other		PSS	Platinum Silver Smooth	SCP_F	Programmable occupancy sensor		
WB	Wall bracket	WHT	White Matte Textured	7PR	7-Pin twist lock receptacle		
MAF	Mast arm fitter for 2-3/8" OD horizontal arm	WHS	White Gloss Smooth	7PR-SC	7-Pin receptacle with shorting cap		
K	Knuckle	VGT	Verde Green Textured	7PR-MD40F	Low voltage sensor for 7PR		
		Color Option		7PR-TL	7-Pin PCR with photocontrol		
		CC	Custom Color	ADD	AutoDim Timer Based Dimming		
				ADT	AutoDim Time of Day Dimming		
				BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens		
				BTS-40F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens		
				BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens		

Notes:
1 Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
2 Not available with 25, 50, 255, 295 & 340W configurations
3 At least one SCPREMOTE required to program SCP motion sensor
4 Replace "_" with 8F or 40F lens
5 Must specify voltage
6 Networked Controls cannot be combined with other control options
7 Not available with 2PF option
8 BTS and BTSO available for 50 Watts or higher and only on 120-277 voltage

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DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

SSSH Series Poles
SQUARE STRAIGHT STEEL

Gray Shading = Service Program Limit of 15 poles (S10)

ORDERING INFORMATION

Example: SSSH25–40A–2L–S2–DBT–UL

SSSH – Height – Shaft – Thickness – Mounting – Drill Pattern – Finish – Options

Series	Height	Shaft	Thickness	Mounting	Drill Pattern	Finish	Options
SSSH Square Straight Steel Pole EXO	Reference page 3 Ordering matrix	Reference page 3 Ordering matrix	Reference page 3 Ordering matrix A - .125" Wall B - .188" Wall C - .250" Wall	1 Single arm mount 2 Two fixtures at 180˚ 2L Two fixtures at 90˚ 3T Three fixtures at 90˚ 4 Four fixtures at 90˚ TA Tenon (2.38" OD x 4" Tall) TB Tenon (2.88" OD x 4" Tall) TC Tenon (3.5" OD x 6" Tall) TR* Removable Tenon (2.38" x 4") OT Open Top (includes pole cap)	B3 2 bolt (2-1/2" spacing). Ratio S2 2 bolt (3-1/2" spacing) UDP Universal Drill Pattern	BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Gloss Smooth GTT Graphite Matte Textured LGT Light Grey Matte Textured LGS Light Grey Gloss Smooth PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VGT Verde Green Textured Color Option CC Custom Color#	GFP 20 Amp GFCI Receptacle and Cover EHH# Extra Handhole COS* .5" Coupling CO7* .75" Coupling C20* 2" Coupling MPB* Mid-pole Luminaire Bracket VM1* Mode vibration dampener VM2* 2nd mode vibration dampener LAB Less Anchor Bolts UL UL Certified

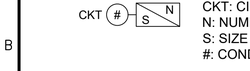
Accessories (Order Separately)

- VM2S08 Field-installed 2nd mode vibration dampener - 8 ft
- VM2S12 Field-installed 2nd mode vibration dampener - 12 ft
- VM2S16 Field-installed 2nd mode vibration dampener - 16 ft
- VM2S20 Field-installed 2nd mode vibration dampener - 20 ft
- VM2S25 Field-installed 2nd mode vibration dampener - 25 ft
- SSSHSTK4KIT Pole Cap and anchor bolt kit

1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the "TR" notation. Example: SSSH25-40A-A1-S2-TR-DB.
2 Custom colors available; RAL number preferable
3 Specify option location using logic found on page 3 (Option Orientation).
4 VM1 recommended on poles 20' and taller with EPA of less than 1.
5 There will be a weld witness mark on the side of the pole with the Factory installed VM2

MOUNTING ORIENTATION

Denotes handhole location



STOCKED POLE ORDERING LOGIC

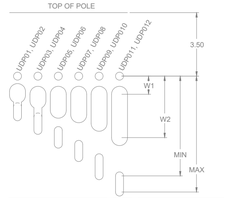
Catalog #	Description
SSSH20-40A-4-HV-DB-WPO	Square Steel pole, 20', 4" square cross-section, 1/8" wall thickness, Dark Bronze Matte Textured paint. Pole only, no anchor bolts, base cover or pole cap included.
SSSH25-40A-4-HV-DB-WPO	Square Steel pole, 25', 4" square cross-section, 1/8" wall thickness, Dark Bronze Matte Textured paint. Pole only, no anchor bolts, base cover or pole cap included.
SSSHSTK4KIT	Stock kit includes anchor bolts, template, base cover and plastic pole cap. Must be ordered separately from pole.

Note: the HV drill pattern is a combination of the S2 pattern and B3 pattern.

DRILL PATTERNS

UNIVERSAL DRILL PATTERN (UDP)

TOP OF POLE



Two Bolt Mounting with Center Wireway						
Mounting Hardware	Universal Mounting Patterns					
3/8" or less	UDP01	UDP03	UDP05	UDP07	UDP09	UDP11
7/16" to 1/2"	UDP02	UDP04	UDP06	UDP08	UDP10	UDP12
"Min" Attachment Dimension	1.69	2.25	3.00	3.76	4.50	5.50
"Max" Attachment Dimension	2.24	2.99	3.75	4.49	5.49	6.00
W1 (Wireway min)	0.85	1.00	1.00	1.00	1.00	1.00
W2 (Wireway max)	1.05	1.36	1.88	2.13	2.60	3.00

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DATE: LOCATION:
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SSSH Series Poles
SQUARE STRAIGHT STEEL

Gray Shading = Service Program Limit of 15 poles (S10)

ORDERING INFORMATION (CONTINUED)

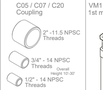
CATALOG NUMBER	HEIGHT FEET	HEIGHT METERS	NOMINAL SHAFT DIMENSIONS	WALL THICKNESS	BOLT CIRCLE (SUGGESTED)	BOLT CIRCLE (RANGE)	BASE PLATE SQUARE	ANCHOR BOLT SIZE	BOLT PROJECTION	POLE WEIGHT (LBS)
SSSH10-40A	10	3.0	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	77
SSSH12-40A	12	3.7	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	90
SSSH14-40A	14	4.3	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	103
SSSH16-40A	16	4.9	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	116
SSSH18-40A	18	5.5	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	129
SSSH20-40A	20	6.1	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	142
SSSH25-40A	25	7.6	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	175
SSSH14-40B	14	4.3	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	152
SSSH16-40B	16	4.9	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	171
SSSH18-40B	18	5.5	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	190
SSSH20-40B	20	6.1	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	209
SSSH25-40B	25	7.6	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	257
SSSH30-40B	30	9.1	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	304
SSSH15-50B	16	4.9	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	219
SSSH18-50B	18	5.5	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	243
SSSH20-50B	20	6.1	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	267
SSSH25-50B	25	7.6	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	327
SSSH30-50B	30	9.1	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	387
SSSH25-50C	25	7.6	5" square	.25"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	427
SSSH30-50C	30	9.1	5" square	.25"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	507
SSSH20-60B	20	6.1	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	329
SSSH25-60B	25	7.6	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	404
SSSH30-60B	30	9.1	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	479
SSSH35-60B	35	10.7	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	554
SSSH40-60B	40	12.2	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	5.0	629

Notes:
- Factory supplied template must be used when setting anchor bolts. Current will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.
- For more information about pole vibration and vibration dampeners, please consult factory.
- Unwrap poles immediately upon receipt to avoid condensation build up and possible corrosion. There will be a weld witness mark on the side of the pole with the Factory installed VM2.

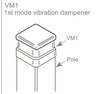
EHH Extra handhole



C05 / C07 / C20 Coupling



VM1 1st mode vibration dampener



Field Installed Pole Top dampener designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

VM2 2nd mode vibration dampener



VIBRATION DAMPER
Field installed, internal dampener designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

VM2SXX Field-installed 2nd mode vibration dampener

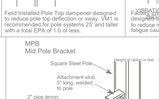


Field installed, internal dampener designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

GFI 20 Amp GCFI Receptacle & Cover



MPB Mid Pole Bracket



Option Orientation

Follow the logic below when ordering location specific options. For each option, specify the orientation (in degrees) and its height (in feet).

Example: Option C05 should be ordered as: SSSH20-40A-TA-DB-COS-0-15 | .5" coupling on the handhole side of pole, 15' up from the pole base| 1˚ spacing required between option. Consult factory for other configurations.



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CONSULTANTS

SEAL

STATE OF MISSOURI
MARC T. HESS
2-13-26
NUMBER PE-2020013488
PROFESSIONAL ENGINEER

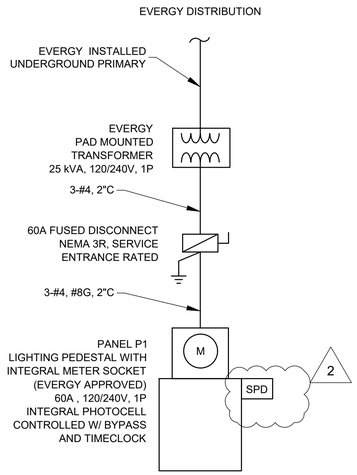
PROJECT NAME
12TH STREET EXTENSION
CITY OF BLUE SPRINGS, MO.

REV.	DATE	DESCRIPTION	BY
2	02/13/2026	ADDENDUM NO. 2	CAS
1	01/23/2026	ADDENDUM NO.1	CAS

PROJECT NO: 2400101800
DESIGNED BY: CAS
DRAWN BY: CAS
CHECKED BY: JTR
DATE: 10/1/2025

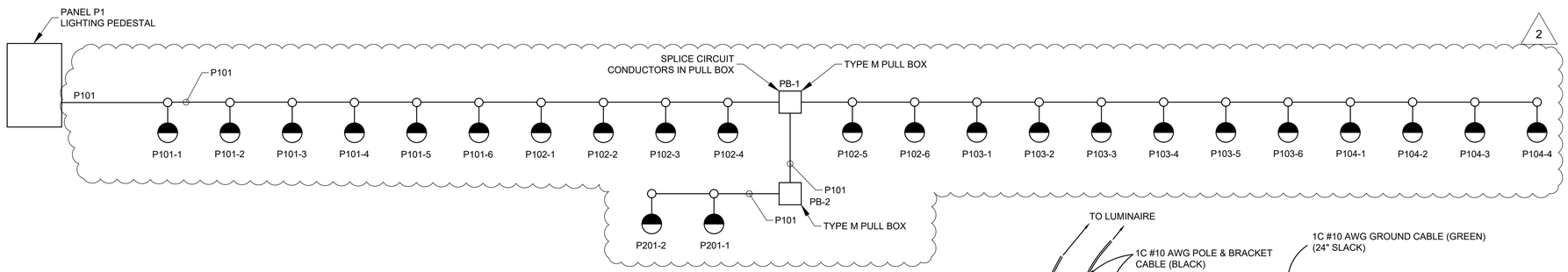
SHEET TITLE
ELECTRICAL GENERAL NOTES AND LEGEND

SHEET NO:
63 OF 128



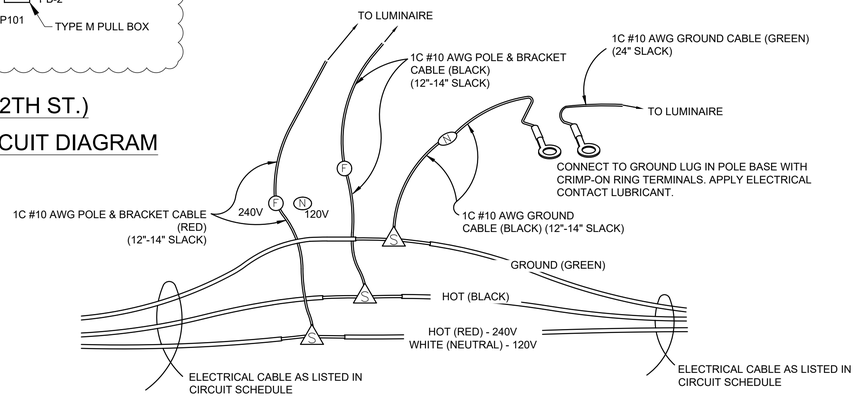
P1 (@ 12TH ST.)

LIGHTING SINGLE LINE DIAGRAM



P1 (@ 12TH ST.)

LIGHTING CIRCUIT DIAGRAM



ELECTRICAL CONNECTOR LEGEND

- (F) BREAK-AWAY FUSED ELECTRICAL CONNECTOR WITH 8 OR 2 AMP FUSE
- (N) BREAK-AWAY NON-FUSED ELECTRICAL CONNECTOR WITH GROUND/NEUTRAL "SLUG"
- (S) SPLICE KIT

ELECTRICAL CONNECTOR NOTES:

1. THE SPECIFIED CABLE SLACK SHALL BE PROVIDED ON EACH SIDE OF THE FUSED AND UN-FUSED CONNECTORS.
2. ADDITIONAL SLACK SHALL BE PROVIDED FOR THE FEEDER SUCH THAT WHEN EXTENDED UPWARD, THE TOP OF THE CONNECTORS ARE NO LESS THAN 1" AND NO MORE THAN 3" ABOVE THE TOP OF THE HAND HOLE OPENING.
3. ALL CONNECTIONS AND SPLICES SHALL BE SUBMERSIBLE RATED FOR USE BELOW GRADE.

PANEL P1 SCHEDULE

120/240 VOLTS, 1 PHASE, 3 WIRE — 60 AMPERES — MAIN CIRCUIT BREAKER 10,000 AIC
LOCATION - 12TH ST. AND WYATT — EMD = 2 kVA — ENCLOSURE - NEMA 3R — PEDESTAL

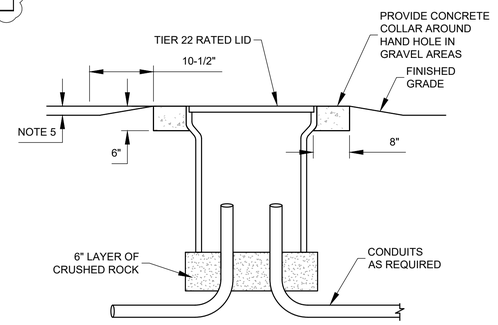
DEMAND LOAD	DEMAND FACTOR	CONNECT LOAD	LOAD	BKR	CKT	PH	CKT	BKR	LOAD	CONNECT LOAD	DEMAND FACTOR	DEMAND LOAD
7.0	1.0	7.0	LIGHT CIRCUIT P101	20/2	1	A	2		SPACE	0.0	1.0	0.0
7.0	1.0	7.0			3	B	4		SPACE	0.0	1.0	0.0
7.0	A	7.0	PANEL		7.0	A	7.0	PANEL		0.0	A	0.0
7.0	B	7.0	CONNECTED AMPS		7.0	B	7.0	DEMAND AMPS		0.0	B	0.0

EST MAX DEMAND = VOLTS x MAX DEMAND AMPS = 240 x 7 = 2 kVA

MINIMUM AMPACITY = 1.25 x MAX DEMAND AMPS = 1.25 x 7 = 9 AMPS

LUMINAIRE INFORMATION TABLE

POLE NUMBER	ALIGNMENT	LCC	PROPOSED STATION	OFFSET	LUMINAIRE TYPE	POLE TYPE
P101-1	12TH ST	PANEL P1	10+47	19'-0"	A	1
P101-2	12TH ST	PANEL P1	11+53	19'-0"	A	1
P101-3	12TH ST	PANEL P1	13+07	19'-0"	A	1
P101-4	12TH ST	PANEL P1	14+70	19'-0"	A	1
P101-5	12TH ST	PANEL P1	16+35	19'-0"	A	1
P101-6	12TH ST	PANEL P1	18+16	19'-0"	A	1
P102-1	12TH ST	PANEL P1	19+55	19'-0"	A	1
P102-2	12TH ST	PANEL P1	21+36	18'-0"	A	1
P102-3	12TH ST	PANEL P1	23+16	19'-0"	A	1
P102-4	12TH ST	PANEL P1	24+85	19'-0"	A	1
P102-5	12TH ST	PANEL P1	25+15	19'-0"	A	1
P102-6	12TH ST	PANEL P1	27+38	19'-0"	A	1
P103-1	12TH ST	PANEL P1	28+92	19'-0"	A	1
P103-2	12TH ST	PANEL P1	30+56	19'-0"	A	1
P103-3	12TH ST	PANEL P1	32+14	19'-0"	A	1
P103-4	12TH ST	PANEL P1	33+73	19'-0"	A	1
P103-5	12TH ST	PANEL P1	35+49	19'-0"	A	1
P103-6	12TH ST	PANEL P1	37+23	19'-0"	A	1
P104-1	12TH ST	PANEL P1	38+88	19'-0"	A	1
P104-2	12TH ST	PANEL P1	40+75	19'-0"	A	1
P104-3	12TH ST	PANEL P1	42+24	19'-0"	A	1
P104-4	12TH ST	PANEL P1	44+06	19'-0"	A	1
P201-1	MAJOR RD	PANEL P1	50+39	18'-0"	A	1
P201-2	MAJOR RD	PANEL P1	52+06	18'-0"	A	1



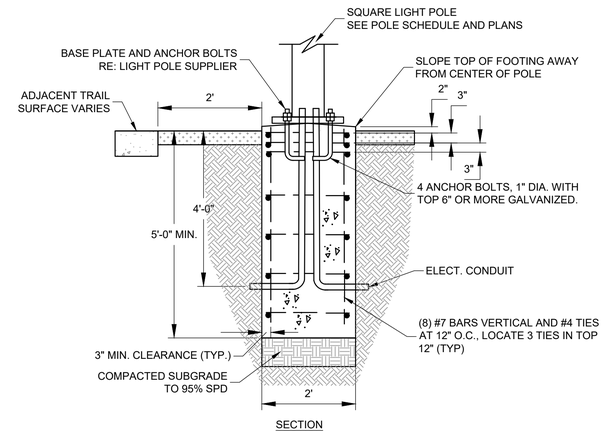
PULL BOX NOTES:

1. PROVIDE TAMPER PROOF LID WITH 'ELECTRIC' DESIGNATION FOR POWER PULL BOXES AND 'FIBER OPTIC' DESIGNATION FOR FIBER PULL BOXES.
2. PROVIDE MINIMUM 12"W x 12"L x 12"D PULL BOX. CONTRACTOR IS RESPONSIBLE TO PROVIDE LARGER BOXES TO ACCOMMODATE CONDUIT AS NEEDED. POLYMER CONCRETE OPEN BOTTOM TIER 22 RATED PULL BOX OR APPROVED EQUAL.
3. PROVIDE PULL TAPE WITH MIN. 2500LBS RATING AND #14 TRACE WIRE FOR ALL FIBER OPTIC CONDUITS.
4. LABEL WIRE IN POWER PULL BOXES WITH THE CIRCUIT NUMBERS.
5. INSTALL FLUSH WITH GRADE IN SIDEWALK AND TURF AREAS. CONCRETE COLLAR NOT REQUIRED IN DIRT/GRASS.

TYPICAL PULL BOX DETAIL

(LUMINAIRE, 120V OR 240V)

ELECTRICAL CONNECTOR KIT SCHEMATIC



TYPICAL LIGHT POLE FOUNDATION DETAIL

POLE SCHEDULE

TYPE	POLE	ARM	DESCRIPTION	DESIGN	
				MANUFACTURER/CAT	MOUNTING
1	35' SQUARE	N/A	35' SQUARE STRAIGHT STEEL POLE	EXO OUTDOOR LIGHTING/CAT#SSSH35-60B	SQUARE STEEL BASE W/ COVER AND ANCHOR BOLTS SEE FOUNDATION DETAIL, THIS SHEET

LUMINAIRE SCHEDULE

TYPE	LAMP	VOLTAGE	WATTAGE	DESCRIPTION	DESIGN	
					MANUFACTURER / CAT NO.	MOUNTING
A	LED	240	70	RATIO AREA SIZE 1 LIGHT FIXTURE, LED, TYPE II DISTRIBUTION	RAR1-160L-70-3K7-2-UNV-ASQ-DBT-BC	35' MOUNTING HEIGHT

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CONSULTANTS

SEAL

STATE OF MISSOURI — MARC T. HESS — NUMBER PE-2020013488 — 2-13-26 — PROFESSIONAL ENGINEER

PROJECT NAME: 12TH STREET EXTENSION CITY OF BLUE SPRINGS, MO.

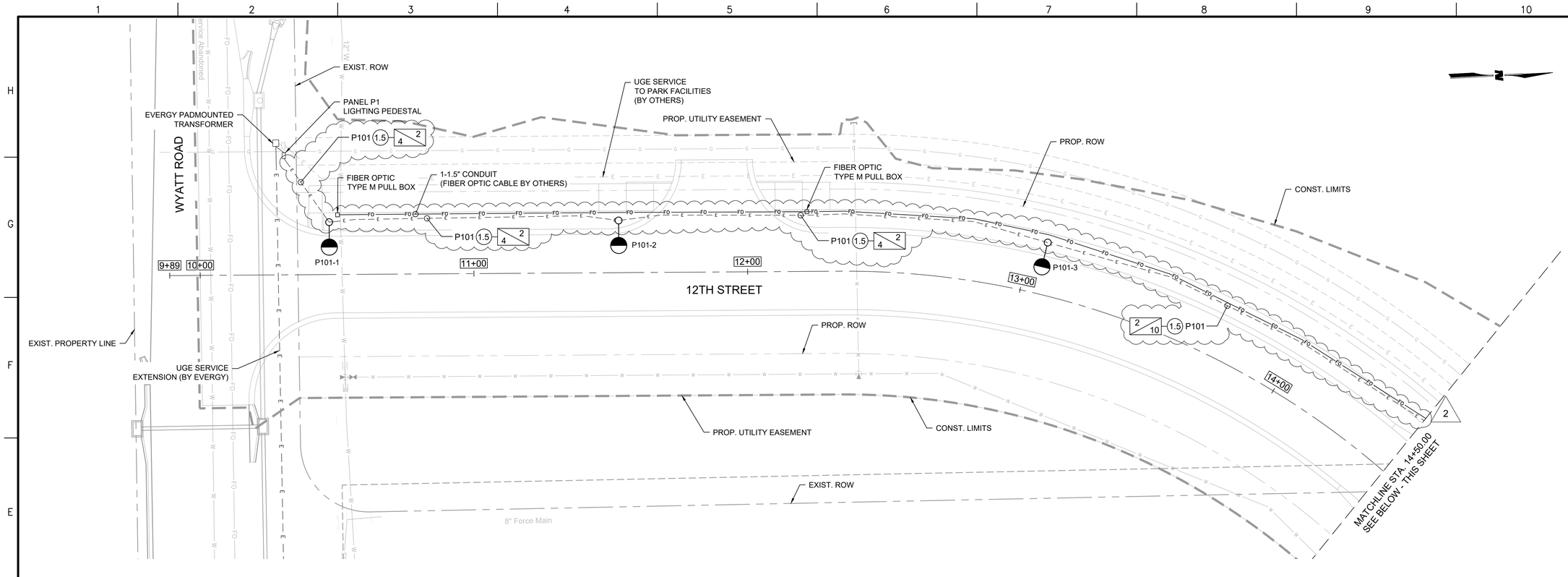
BY	DESCRIPTION	DATE	REV.
CAS	ADDENDUM NO. 2	02/13/2026	2
CAS	ADDENDUM NO.1	01/23/2026	1

PROJECT NO:	2400101800
DESIGNED BY:	CAS
DRAWN BY:	CAS
CHECKED BY:	JTR
DATE:	10/1/2025

SHEET TITLE: ELECTRICAL SINGLE-LINE DIAG. AND SCHEDULES

SHEET NO: 64 OF 128

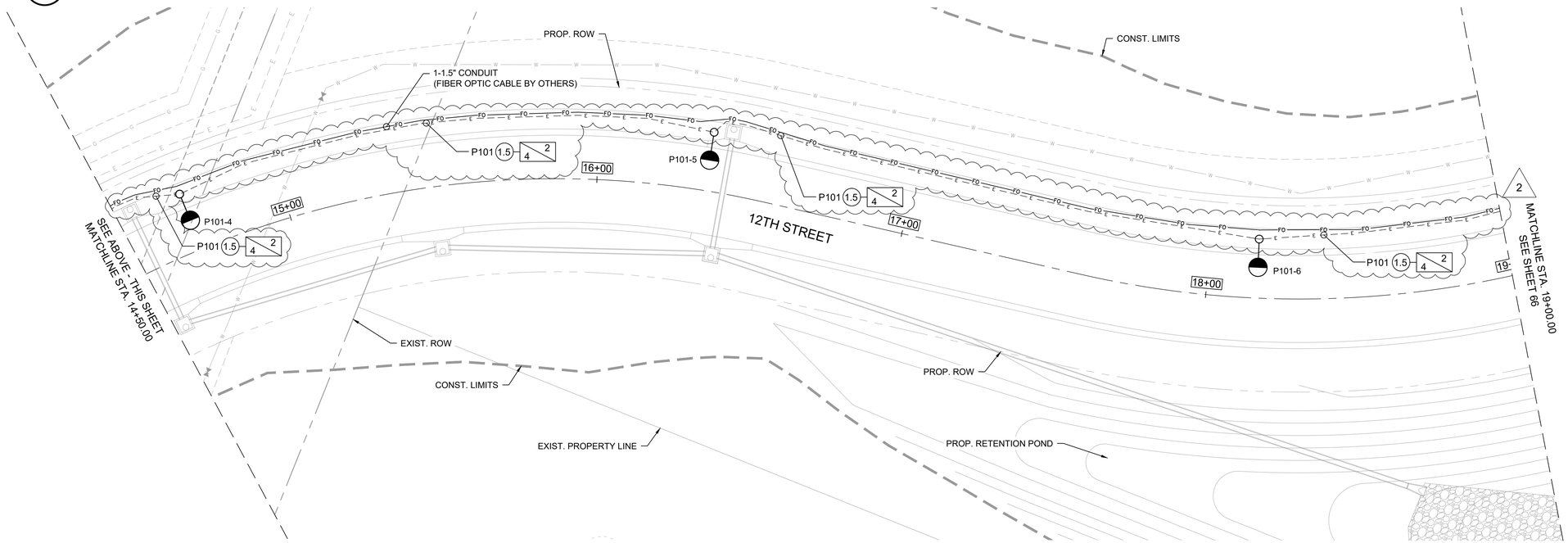
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D1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'

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SHEET TITLE

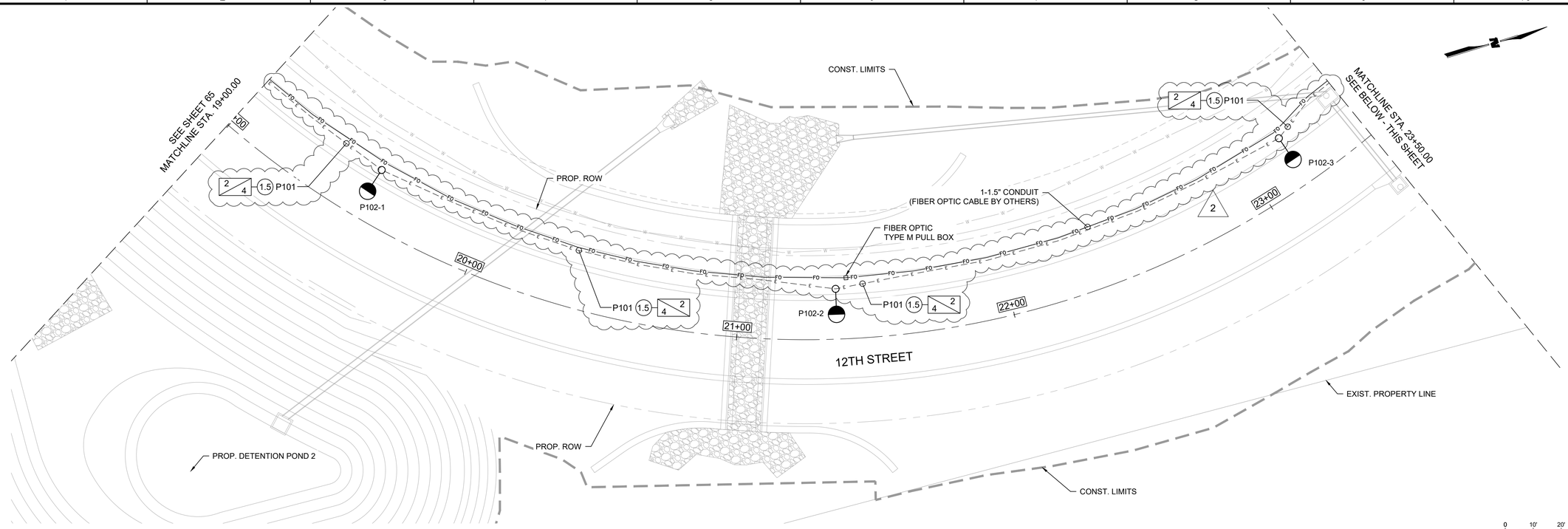
LIGHTING PLAN

SHEET NO:

65 OF 128

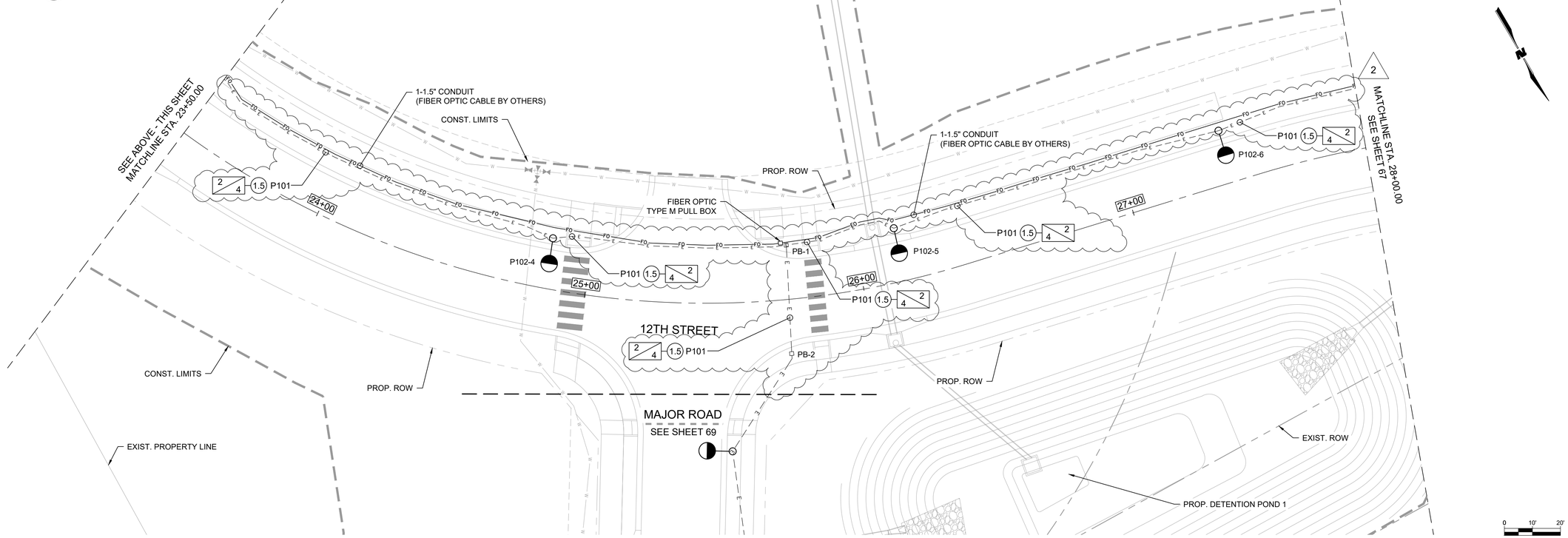
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2/13/2026



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

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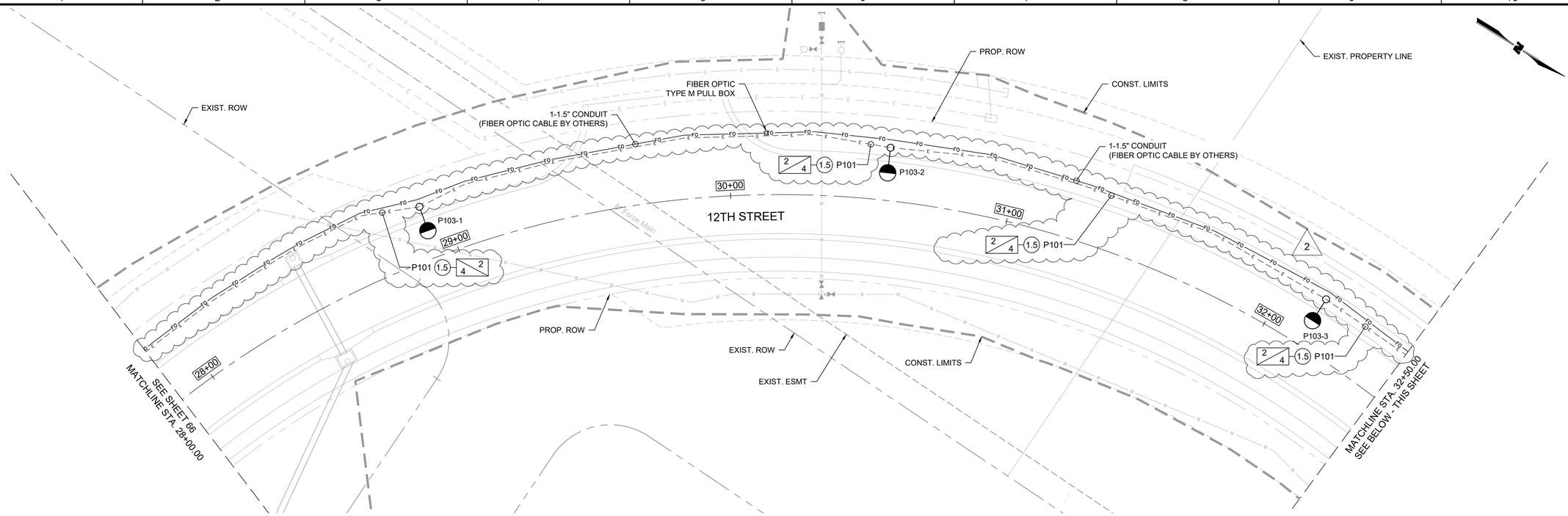
PROJECT NO:	2400101800
DESIGNED BY:	CAS
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SHEET TITLE

LIGHTING PLAN

SHEET NO:

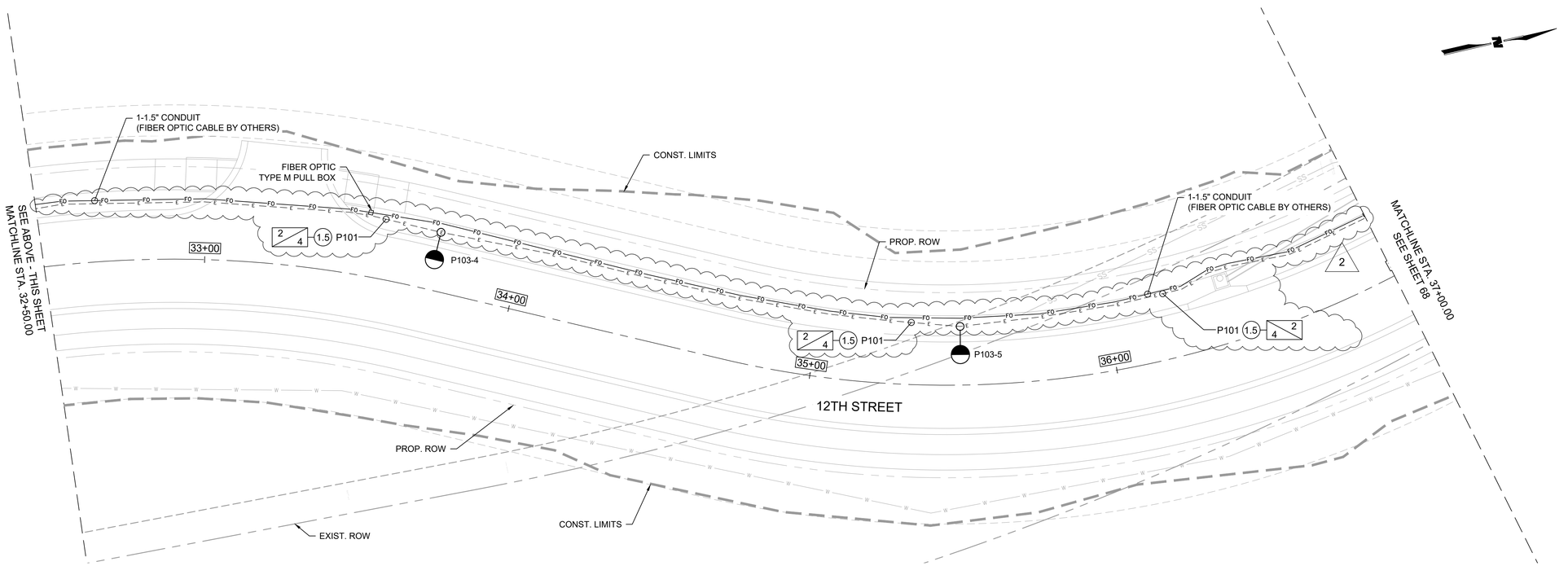
66 OF 128



E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

0 10' 20'

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2/13/2026

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2-13-26
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PROJECT NAME

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CITY OF BLUE SPRINGS, MO.

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2	02/13/2026	ADDENDUM NO. 2	CAS
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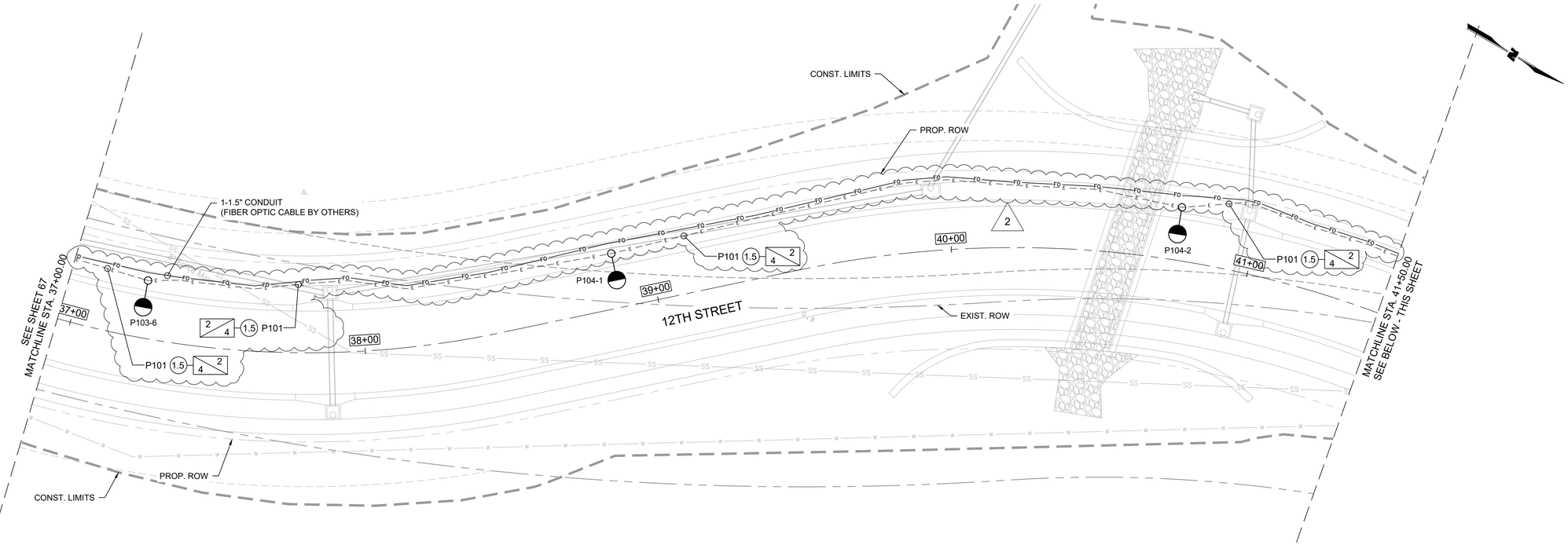
PROJECT NO:	2400101800
DESIGNED BY:	CAS
DRAWN BY:	CAS
CHECKED BY:	JTR
DATE:	10/1/2025

SHEET TITLE

LIGHTING PLAN

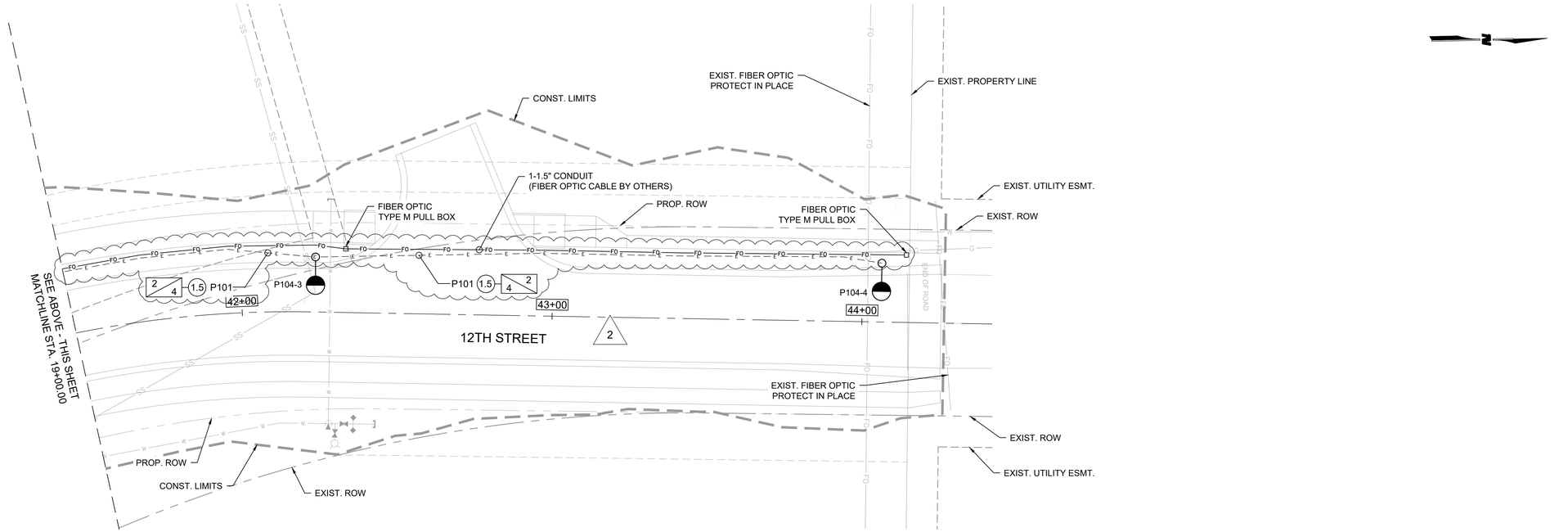
SHEET NO:

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E1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'



A1 12TH STREET EXTENSION PLAN

SCALE: 1" = 20'

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2-13-26
PROFESSIONAL ENGINEER

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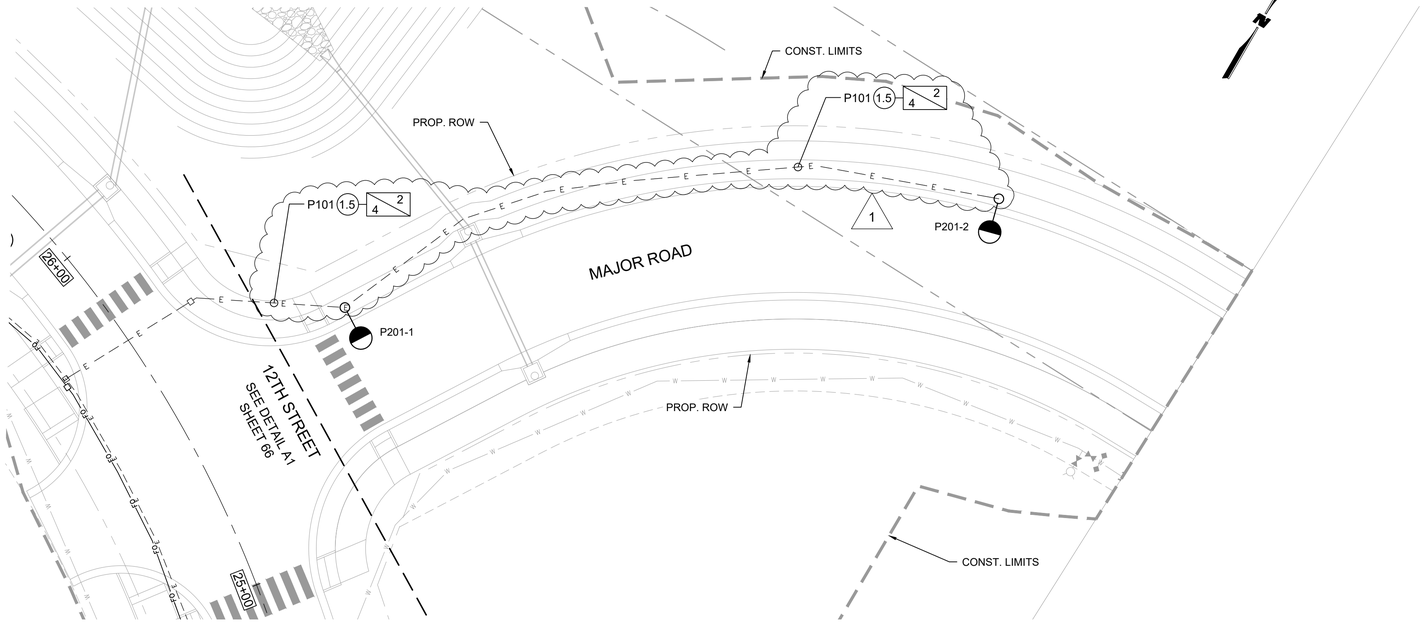
LIGHTING PLAN

SHEET NO:

68 OF 128

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2/13/2026



E1 MAJOR RD PLAN

SCALE: 1" = 20'

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CONSULTANTS

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NUMBER PE-2020013488
2-13-26
PROFESSIONAL ENGINEER

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REV.	DATE	DESCRIPTION	BY
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DESIGNED BY:	CAS
DRAWN BY:	CAS
CHECKED BY:	JTR
DATE:	10/1/2025

SHEET TITLE

LIGHTING PLAN

SHEET NO:

69 OF 128

2/13/2026 W:\Projects\2400101800\3_Disciplines_SHEETS\6_sheets - electrical\2400101800-12th Street Lighting.dwg

CITY OF BLUE SPRINGS, MO

Pre-Bid Agenda
12th Street Extension
Wednesday, February 4, 2026, 10:00 A.M.
Carson Ross Community Center Conference Room
425 NE Mock Ave, Blue Springs, MO 64014

1. **Introductory Remarks**
   A. Introductions

2. **Review of Bidding Procedures**
   A. Bidding Documents can be obtained from Nick Weber (nweber@cochraneng.com)

   B. Bidding Questions deadline is **4:00 P.M., February 12, 2026**. All questions regarding the project shall be submitted to Darren Meyer (Darren.meyer@wilsonco.com).

   C. Bid Submittal Forms – Article 10 Bid Form Proposal and associated forms.

   D. Bid Security five percent (5%) of bid amount.

   E. State Wage Rates apply.

   F. This project is not funded through either state or federal programs.

   G. Sealed Bids are due by **2:00 P.M., February 17, 2026,** and will be received at City Hall, 903 W. Main Street. At that time, the bids received will be publicly opened and read aloud at City Hall.

3. **Contract Times**
   A. The Notice to Proceed is expected to be issued, and Contract Times under the Contract shall commence to run no later than **March 20, 2026**.

   B. The Work on the Project shall be **substantially completed within 270 Calendar Days after the Notice to Proceed** and completed and ready for final payment within 75 Calendar Days after Substantial Completion.

4. **Special Provisions**

   A. **Job Special Provision A, 4.0 Tree Clearing Restriction**. Any required tree clearing for 3" caliper size or larger must be completed prior to **April 1, 2026.**

   B. **Job Special Provision G, Modular Block Retaining Wall (w/ Stain).** Contractor to provide field mock-up of Redi-Rock Kingstone Modular Blocks with 3 stain options (Ozark Bluffs Beige, Sorrel Canyon Rose, or San Clemente Cliffs by Exact Match Masonry Staining LLC) to be approved and selected by the City and Landscape Architect.

   C. Water Line related construction to follow Public Water Supply District No. 13 of Jackson County Standard Specifications as outline in Job Special Provision I.

5. **Addenda**

- Final Addendum will be issued by **Friday, February 13, 2026**, by 5:00 P.M., if necessary.
  - **Clarification:** Bid Alternate No. 1. Concrete Pavement (roadway and shared-use path) to replace Base Bid asphalt pavement. Contractor shall provide a jointing plan for approval prior to construction. Jointing plans to be considered subsidiary to Bid Alternate Item Nos. 60 – 61.

6. **Open Discussion**

- Adjacent Projects:
  - Redwood Development – Sanitary Sewer Gravity Main (Ongoing)
  - SW Park

- Questions?

The City of Blue Springs Missouri

SIGN-IN

12TH STREET EXTENSION

City of Blue Springs, MO

PRE-BID CONFERENCE

February 4th, 2026; 10:00am

	NAME	COMPANY	PHONE NO.	E-MAIL ADDRESS
1	RYAN MCMASTER	AMINO BROTHERS CO. INC.	913.334.2330	ryan C aminobros.com
2	MATT BARBOUR	RADMACHER BROTHERS	816-540-3619	M.BARBOUR@RBENMIDWEST.com
3	TODD BLACK	CONTECH	913-216-3818	todd.black@conteches.com
4	Justin Stuart	City of Blue Springs	816-228-0105	jstuart@bluespringsgov.com
5	Dennis Dovel	City of Blue Springs	816-228-0265	ddovel@bluespringsgov.com
6	TOBY WILLIAMS	COCHRAN ENGINEERING	816-207-5771	twilliams@cochraneng.com
7	Nick Weber	Cochran Engineering	816-207-5771	nweber@Cochraneng.Com
8	Kelly VanEllers	STANTEC	816.260.9127	kelly.vanellers@stantec.com
9	Jesus Rodriguez	Wilson & Company	816 392 5353	Jesus.Rodriguez@wilsonco.com
10	Darren Meyer	Wilson & Company	816 556 3628	Darren.Meyer@wilsonco.com
11				
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25				

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 20, 2026

SUBMITTED BY: Dennis Dovel

DEPARTMENT: Public Works

STRATEGIC PLAN PRIORITY: Infrastructure

ITEM TYPE: Contract

CONTRACT NUMBER: 2024-166
Task Order #22

ITEM DESCRIPTION

Adopt a Resolution approving a task contract in the amount of $259,237 with SC Engineering, LLC dba Cochran (Cochran) for construction administration, inspections and geotechnical services for the 12th Street extension, Project ST-55 Bonds. This is approved as CIP ST-55 12th Street.

BACKGROUND

The City of Blue Springs Strategic Plan 2025-2030 identifies "Infrastructure and Balanced Growth" as a priority focus area, with the stated goals of expanding and growing the City strategically as well as build and maintain infrastructure throughout the community. A critical aspect of the City's efforts is the expansion of 12th Street from SW Southcrest Drive to Wyatt Road. This Project will open up a new corridor allowing for residential, commercial and recreational development in the southern boundaries of the community. The construction of the road will lead to the development of Southwest Park with construction to begin in late 2026.

On October 21, 2024, City Council approved an On-Call Consulting Services Contract with SC Engineering, LLC dba Cochran (Cochran) for engineering consulting services.

The City and Cochran along with Stantec Consulting Services and Wilson Engineering have been working together to design the 12th Street expansion project in conjunction with the design of Southwest Park. The task order is for Cochran to provide construction administration services, daily inspections, geotechnical testing and coordinate redline changes in the field.

Staff recommends approval of this Task Order in the amount of $259,237.00 to proceed with the construction administration, daily inspections and geotechnical testing for the expansion of 12th Street from SW Southcrest Drive to Wyatt Road.

FINANCIAL IMPACT

INFORMATION	DETAIL
Contractor:	SC Engineering LLC dbs Cochran
Amount of Request/ Contract:	$259,237
Amount Budgeted:	$4,936,584
Budget Year:	FY 2025-26
Funding Source/Account #:	310-72000-543100 Project # ST-55 Bonds
Account Balance:	$4,475,555.72 Date: 2/24/2026
Additional Funds Needed:	$ 259,237
Funding Source/Account #:	310-72000-543100 Project # ST-49 Bonds

PROJECT TIMELINE

INFORMATION	DETAIL
Estimated Start Date	March 16, 2026

Estimated End Date	March 1, 2027
Years and Months Contract in effect	1 year
Number of times renewable	0

STAFF RECOMMENDATION

Staff recommends approval.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: N/A

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Task Order Contract

REVIEWED BY

Requesting Director: Dennis Dovel

Legal: Jennifer Baird

Administration: George Schmitz

City Administrator: Christine Cates

Budget: Lori Turner

SUPPORTING DOCUMENTS

Document	**Required**	**If not required, explain**
Certificate of Insurance:	Yes	On File
E-Verify:	Yes	On File
Bond:	No	
IRS Form W-9	Yes	Finance Review: February 24, 2026
Bid/RFP/RFQ and Tabulation	N/A	Task Order

Bid Waiver: (less than three bids)	N/A	Task Order
Contractor address and email:	Yes	SC Engineering, LLC, dba Cochran ATTN: David Christensen 618 SW 3rd Street Lee's Summit, MO 64063 david@cochraneng.com
Project Exemption Certificate needed:	N/A	

A RESOLUTION APPROVING TASK ORDER #22 TO CONTRACT 2024-166 WITH SC ENGINEERING, LLC DBA COCHRAN FOR CONSTRUCTION ADMINISTRATION, INSPECTIONS AND GEOTECHNICAL TESTING FOR THE EXPANSION OF 12TH STREET

WHEREAS, OSHA requirements under Section 292.675, RSMo 2009, require:

a. Any contractor for any public body for purposes of construction of public works and any subcontractor (any person entering into a subcontract with a contractor for construction of public works which employs "on-site employees" for purposes of completion of the contract) to such contractor shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the department which is at least as stringent as an approved OSHA program, unless such employees have previously completed the required program. All employees who have not previously completed the program are required to complete the program within sixty days of beginning work on such construction project.

b. Any employee found on a work site subject to this section without documentation of the successful completion of the required course shall be afforded twenty days to produce such documentation before being subject to removal from the project.

c. The contractor to whom the contract is awarded and any subcontractor under such contractor shall require all on-site employees to complete the above referenced ten-hour training program or such employees must hold documentation of prior completion of the program. Said contractor and subcontractor(s) shall comply with

Section 292.675, RSMo 2009, in all respects as required in relation to work done pursuant to this contract.

d. The contractor shall forfeit as a penalty to the public body on whose behalf the contract is made or awarded, two thousand five hundred dollars plus one hundred dollars for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training. The penalty shall not begin to accrue until the time period referenced in subparagraphs a and b above have elapsed.

e. The public body awarding the contract shall withhold and retain therefrom all sums and amounts due and owing as a result of any violations of this section when making payments to the contractor under the contract. The contractor may withhold from any subcontractor sufficient sums to cover any penalties the public body has withheld from the contractor resulting from the subcontractor's failure to comply with the terms of this section. If the payment has been made to the subcontractor without withholding, the contractor may recover the amount of the penalty resulting from the fault of the subcontractor in an action maintained in the circuit court in the county in which the public works project is located from the subcontractor.

f. “On-site employees” are defined as laborers, workmen, drivers, equipment operators, and craftsmen employed by contractors and subcontractors to be directly engaged in construction at the site of the public works. "Directly engaged in construction" shall mean work performed in the actual erection of the structure or completion of the improvement constituting the public works. In addition, employees working at a nearby or adjacent facility used by the contractor or subcontractor for construction of the public works shall be deemed "on-site employees." Persons engaged

solely in the transportation of materials, fuel, or equipment to the site of the public works shall not be deemed to be "directly engaged in construction;" and

WHEREAS, not less than the prevailing hourly rate of wages for work of a similar character in this locality, as established and amended at any time by the Department of Labor and Industrial Relations of the State of Missouri, shall be paid to all workers performing work under this Contract; and

WHEREAS, the Public Works Department prepared specifications and secured quotations for construction administration, inspections and geotechnical testing for the 12th Street expansion project; and

WHEREAS, the Department utilized the on-call services entered into with SC Engineering LLC dba Cochran on October 21, 2024 by Resolution 90-2024 and now recommends that the City award a contract to SC Engineering LLC dba Cochran, for work based on scope of services in the amount of $259,237.00.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BLUE SPRINGS, MISSOURI, as follows:

Section 1. The City Administrator is hereby authorized to enter into Task Order #22 to Contract 2024-166 with SC Engineering LLC dba Cochran for construction administration, inspections and geotechnical testing for the 12th Street expansion project in the amount of $259,237.00. A copy of the proposed Contract is attached hereto as Exhibit “A” and is incorporated herein.

Section 2. City staff is directed to perform all tasks necessary to implement said contract.

Section 3. Scrivener's Errors. Typographical errors and other matters of a similar nature that do not affect the intent of this Resolution, as determined by the City Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

EXHIBIT A

BLUE SPRINGS
MISSOURI

TASK ORDER

EFFECTIVE DATE: March 16, 2026

TERMINATION DATE: March 1, 2027

CONTRACT NUMBER: 2024-166

TASK ORDER NUMBER: 22

City	Consultant
City of Blue Springs 903 West Main Street Blue Springs, MO 64015	SC Engineering, LLC, dba Cochran 618 SE 3rd Street Lee's Summit, MO 64063
Department: Dennis Dovel	Attention: David Christensen, Vice President
Phone: (816) 228-0265	Phone: (816) 207-5771

This Task Order is entered into as the date last signed by the parties and is between SC Engineering, LLC, dba Cochran ("Consultant") and the City of Blue Springs, Missouri ("City").

WHEREAS, the City has engaged Consultant to provide engineering services pursuant to an Agreement for On-Call Consulting Services, pursuant to which the City may task the Consultant to provide additional professional engineering services on a project-specific basis by acknowledging a separate Task Order.

NOW, THEREFORE, in consideration of the promises and mutual covenants between the parties and for other good and valuable consideration the receipt of which is acknowledged by the parties, they agree as follows:

1. Incorporation of Base Agreement. This Task Order is subject to all terms and conditions contained in the Agreement for On-Call Consulting Services, that are not inconsistent with the specific terms contained herein, and the Agreement for On-Call Consulting Services between the parties is incorporated herein as if set forth in full by this reference.

2. Scope of Services. The Scope of Services pursuant to this Task Order are as contained in Exhibit 1.

3. Term. Consultant shall begin work pursuant to this Task Order upon its Effective Date and all work shall be completed by Month Day, Year.

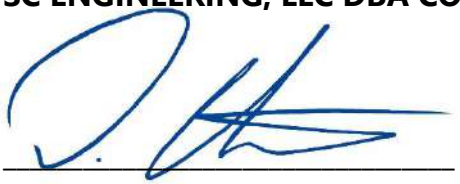
4. Compensation. Unless compensation is set forth in this Task Order, compensation shall be as provided in the Agreement for On-Call Consulting Services between the parties.

5. Additional Terms and Conditions. If any, attached to this Task Order as Exhibit 2.

IN WITNESS WHEREOF, the Consultant and the City have executed this Task Order as of the Effective Date.

SIGNATURES

SC ENGINEERING, LLC DBA COCHRAN



David Christensen, Vice President

CITY OF BLUE SPRINGS

_____

Christine Cates, City Administrator

APPROVED AS TO FORM

_____

City Attorney

EXHIBIT 1

Task Order #22 - Scope of Services

12th Street Extension – Construction Inspection – Lump Sum Proposal:

The purpose of this Lump Sum Proposal is to provide Construction Inspection Services for the ***12th Street Extension Project***. These services will be performed in accordance with Wilson and Company's Engineers Cost Estimate, dated January 20, 2026

SCOPE OF SERVICES:

A. Construction Phase:

1. Serve as the City's representative for administering the terms of the construction contract.
2. Attend a preconstruction conference to discuss project details with the successful contractor.
3. Provide on-site inspection services to inspect the Contractor's progress and quality of work and to determine if the work conforms to the contract documents.
4. Reject work not conforming to the project documents.
5. Prepare change orders for issuance by the City as necessary and assure that proper approvals are made prior to work being performed.
6. Measure and document quantities, and review monthly estimates for payments due the Contractor.

7. Inspect materials, review material certifications furnished by the Contractor, perform field testing, sample materials as required, and provide laboratory testing.

FEE:

1. The total amount of fee to be paid for the Scope of Services, Item A – "Construction Phase Services" as outlined in this proposal shall be a lump sum fee of $259,237.00.

BLUE SPRINGS
MISSOURI

CITY COUNCIL

March 2, 2026

EXHIBITS FOR PUBLIC HEARING

BROOKSIDE ESTATES

AMENDED PLANNED UNIT DEVELOPMENT CONCEPT PLAN

(PUDC-10-25-9711)

EXHIBIT #1 City Council Information Form dated February 24, 2026 with the following attachments: Staff Report with Attachments; Affidavit of Publication in the Examiner on February 7, 2026, 185 ft Notification Map, Property Owners within 185 ft of the site, Copy of letter sent to said property owners- Blue Springs Code of Ordinances (by reference), 2014 Comprehensive Plan (by reference), and Bill approving the Amended Planned Unit Development Concept Plan for Brookside Estates.

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 24, 2026
ITEM TYPE: Public Hearing / Ordinance
SUBMITTED BY: Shantele Frie
CONTRACT NUMBER: N/A
DEPARTMENT: City Development
STRATEGIC PLAN PRIORITY: Balanced Growth

ITEM DESCRIPTION

A public hearing is being held at the request of the Applicant, Clint Loumaster, for consideration to approve the Amended Planned Unit Development Concept Plan to develop a 75-lot single-family subdivision for Brookside Estates on 29.25 +/- acre property located west of SW 7 Highway, north and south of SW Brookside Drive (PUDC-10-25-9711). Upon conclusion of the public hearing, a Bill approving the Amended Planned Unit Development Concept Plan will be ready for introduction and readings.

BACKGROUND

The applicant, Clint Loumaster, is requesting approval of an amendment to the Planned Unit Development Concept Plan for the development of 75 single-family residential homes and a walking trail on 29.25 +/- acres west of SW 7 Highway, both north and south of SW Brookside Drive. The subject property is located between the planned commercial frontage lots along SW 7 Highway and "The Estates at Chapman Farms." Approximately 17.24 +/- acres is located north of SW Brookside Drive, and 12.17 +/-

acres is located south of SW Brookside Drive.

The original Brookside Estates development was approved in 2007 for a 93-lot single-family residential subdivision.

On April 5, 2021, the City Council approved a Planned Unit Development Concept Plan (PUDC-02-21-7699) for an 80-lot single-family residential subdivision. The approved plan included homes that were more than one step below the adjacent subdivision in product type. The approval subsequently expired after two years due to inactivity.

In 2024, the applicant submitted a request to amend the development to allow an 80-lot single-family subdivision with a minimum livable floor area of 1,100 square feet. This proposal was denied due to concerns related to density and the proposed minimum livable floor area.

FINANCIAL IMPACT

INFORMATION	DETAIL
Contractor:	N/A

PROJECT TIMELINE

INFORMATION	DETAIL
Estimated Start Date	March 3, 2026

STAFF RECOMMENDATION

Staff recommends approval of the PUD Concept Plan (PUDC-10-25-9711) with the following conditions:

1. Approval based on the representations of any drawing presented as part of this application does not waive any requirement or development standard contained in the UDC, unless modified by the Amended Planned Unit Development:

    a. Established minimum lot standards that deviate from the "SF-7" zoning district standards, as outlined in the table under "Brookside Estates-Non-conforming lots which include reductions to the minimum lot width frontage at Building Line. Lots 13, 14, 15, 16, 47, 48, 50, and 63.

2. The following items shall be included and approved with the PUD Final Plan:

    a. Final building designs for single-family houses meeting the architectural design requirements included in the PUD Concept Plan.

    b. Final Landscape Plan addressing landscaping on all tracts and street trees.

    c. Final illustrative plan for amenities.

3. The following items shall be included on the Final Plat for each development phase:

    a. A Limits of No Access shall be delineated and dedicated on all lots and tracts adjacent to SW Mason School Road and SW Brookside Drive.

    b. The minimum livable floor area classification of 1,400-sf must be noted on the Final Plat.

    c. Easements are required over all storm detention and storm water quality best management practices on the Final Plat.

4. The following items shall be completed prior to approval of the Final Plat:

a. A PUD Final Plan shall be submitted and approved by the Planning Commission

b. A Sidewalk Plan compliant with the Americans with Disabilities Act (ADA) shall be submitted with final construction plans.

c. A Storm Water Drainage Study must be submitted and approved by the Engineering Division of Public Works before approval of the Final Plat by City Council.

d. All public improvements, unless stated otherwise, shall be completed prior to the approval of the Final Plat.

e. All sidewalk improvements adjacent to tracts are required to be installed.

f. Landscape buffers and amenities shall be installed or financially guaranteed before approval of the Final Plat.

g. As-builts and 2-year maintenance bonds on the street, storm sewers, and sanitary sewers shall be submitted before approval of the Final Plat by the City Council.

h. A sealed letter by a Registered Professional Engineer in the State of Missouri stating the detention basin has been improved per the approved plans. It will function as designed and shall be submitted before approval of the Final Plat by the City Council.

i. A letter of Final Acceptance from Public Water Supply District 13 stating water lines have been fully completed and all documentation has been provided to the District must be submitted before approval of the Final Plat by the City Council.

5. The following items shall be provided prior to the issuance of any building permits within the development:

    a. Drafts of the proposed Declaration of Restrictions and the Homes Association Declaration are required to be submitted and recorded with the Final Plat. Declarations must address the maintenance of all open space tracts and trails.

    b. A Final Plat shall be approved by the City Council and recorded at Jackson County.

6. The following items shall be provided prior to the issuance of a Certificate of Occupancy for each lot:

    a. Sidewalk improvements adjacent to each lot.

    b. A minimum of 45 Plant units and street tree shall be installed.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: Planning Commission

Date: February 23, 2026

Action: Recommended approval of the PUD Concept Plan: 8 Aye, 0 No

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Staff Report with Attachments; Affidavit of Publication in the Examiner on February 7, 2026, 185 ft Notification Map, Property Owners within 185 ft of the site, Copy of letter sent to said property owners, Blue Springs Code of Ordinances (by reference), 2014 Comprehensive Plan (by reference)

2. Bill approving the Amended Planned Unit Development Concept Plan for Brookside Estates.

REVIEWED BY

Requesting Director: Nic Hutchison

Legal: James Newell

Administration: George Schmitz

City Administrator: Christine Cates

Budget: N/A

PLANNING APPLICATION REVIEW STAFF REPORT

Project Information

Meeting Dates:

Planning Commission: February 23, 2026

City Council Date: March 2, 2026

Project Name: Brookside Estates

Site Location: West of SW 7 HWY., both north and south of SW Brookside Drive

Applicant: Clint Loumaster, PE Atlas Land Consulting

Property Owner: Brian Mertz

Staff Planner: Shantele Frie, Planner III

Project Request:

PUDC-10-25-9711; Amendment to the existing Planned Unit Development Concept Plan for the development of 75 single-family residential homes and a walking trail.

PP-10-25-9712; Preliminary Plat for 75 single-family residential lots and four (4) open space tracts on 29.25 +/- acres.

Project Description:

The applicant, Clint Loumaster, is requesting approval of an amendment to the Planned Unit Development Concept plan and a Preliminary Plat for 29.25 +/- acres west of SW 7 HWY, both north and south of SW Brookside Drive. The subject property is located between the planned commercial frontage lots along SW 7 Highway and The Estates at Chapman Farms. Approximately 17.24 +/- acres is located north of SW Brookside Drive, and 12.17 +/- acres is located south of SW Brookside Drive. The property is currently zoned "SF-7/PUD/R-O" (Single-Family/Planned Unit Development/Restricted Overlay).

The Chapman Farms PUD was originally approved under the 1996 Unified Development Code (UDC). In accordance with City regulations, amendments to a PUD approved under a prior version of the UDC may be reviewed under the regulations in effect at the time of the original approval, unless the applicant specifically requests review under the currently adopted UDC. No such request has been made; therefore, this amendment is being reviewed under the current UDC standards.

Staff Recommendation:

Staff recommends approval of the Amended PUD Concept Plan and Preliminary Plat with conditions identified at the end of the staff report.

Previous Actions:

Date	Review Body	Action
03/17/2003	City Council	Approved Annexation (A-6-2002) that included the Chapman Farms Development by Ord. No 3554
05/10/2004	Planning Commission	Approved Comprehensive Plan Amendment (CPA-M-1-2004)
06/07/2004	City Council	Approved the Rezoning (R-4-2004) from "AG" (Agriculture-County) to "SF-7/PUD/R-O" (Single-Family/Planned Unit Development/Restricted Overlay) by Ord. No. 3790 and the Planned Unit Development

		Concept Plan (PUDC-2-2004) by Ord. No. 3789 for the Chapman Farms development.
08/23/2004	Planning Commission	Approved a "Developer's/For Sale Only" Preliminary Plat (04-07-16).
11/15/2004	City Council	Approved a "Developer's/For Sale Only" Final Plat for Chapman Farms 1st Plat, Lots 1-35 by Ord. No. 3840
12/10/2007	Planning Commission	Approved a Preliminary Plat (PP-12-10-2007) for Brookside Estates at Chapman Farms. The approval expired due to no further development action taken during the two-year approval period.
12/17/2007	Planning Commission	Denied a Preliminary Plat (PP-01-20-7210) for Earhart Estates at Chapman Farms. Also, recommended denial of a Rezoning (R-01-20-7212) to rezone a portion of the property from "SF-7/PUD/R-O" (Single-Family/Planned Unit Development/Restricted-Overlay) to "MF-14/PUD/R-O" (Moderate Density Multi-Family/Planned Unit Development/Restricted-Overlay) and recommended denial of an Amended PUD Concept Plan (PUDC-01-20-7211) for an apartment complex and single-family lots. The requests were withdrawn prior to City Council consideration.
07/13/2020	Planning Commission	Denied a Preliminary Plat (PP-05-20-7330) for Earhart Estates at Chapman Farms.
07/20/2020	City Council	Denied a Rezoning (RZ-05-20-8328) to rezone a portion of the property from "SF-7/PUD/R-O" (Single-Family/Planned Unit Development/Restricted-Overlay) to "MF-10/PUD/R-O" (Low Density Multi-Family/Planned Unit Development/Restricted-Overlay) and denied an Amended PUD Concept Plan (PUDC-05-20-7329) for an apartment complex and single-family lots.
03/22/2021	Planning Commission	Approved a Preliminary Plat (PP-02-21-7660) for Brookside Estates at Chapman Farms for 80 single-family lots and six (6) tracts. The approval expired because no

		further development action was taken during the two-year approval period.
04/05/2021	City Council	Approved an Amended PUD Concept Plan (PUDC-02-21-7669) by Ord. No. 4988 for Brookside Estates at Chapman Farms for 80 single-family lots and six (6) tracts. The approval expired because no further development action was taken during the two-year approval period.
06/10/2024	Planning Commission	Denied an amended Planned Unit Development Concept plan (PUDC-04-24-9128) to develop an 80-lot single-family residential Brookside Estates at Chapman Farms.
06/17/2024	City Council	Denied Planned Development Concept Plan and Preliminary Plat (PUDC-04-24-9128 and PP-04-24-9129) at City Council on June 17, 2024.

Future Applications:

The Amended PUD Concept Plan and Preliminary Plat will be reviewed concurrently. Future required applications include the PD Final Plan and Final Plat. The Final Plat must be approved and recorded in Jackson County prior to the issuance of building permits.

Adjacent Properties:

Direction	**Current Zoning**	**Current Land Use(s)**
North:	"AG" (Agriculture-County) & "MF-14/PUD/R-O" (Moderate Density Multi-Family/Planned Unit Development/Restricted Overlay)	Detached Housing & Attached Housing Orchards at Chapman Farms

South:	"SF-7" (Single-Family Residential)	Undeveloped/Colbern Farms
East:	"CB" (Central Business) & "SO" (Service Office) & "GB" (General Business)	Undeveloped/Outside City Limits
West:	"SF-7/PUD/R-O" (Single-Family/Planned Unit Development/Restricted)	Detached Housing/ Estates at Chapman Farms

PUD CONCEPT PLAN & ANALYSIS

A concept plan or general development plan is a conceptual or generalized development plan for the entire area included either under the rezoning area or a previously approved concept plan area that requires an amendment. The purpose of a concept plan or general development plan is to allow preliminary review of a proposed development plan before substantial technical work has been undertaken.

Planned Unit Development Regulations:

Per the 1996 Unified Development Code, Section 407.110, PUD regulations are intended to encourage innovative land planning and site design concepts that achieve a high level of environmental sensitivity, energy efficiency, aesthetics, high-quality development, and other community goals by:

a. Reducing or eliminating inflexibility that sometimes results from the strict application of zoning standards that were designed primarily for individual lots

b. Allowing greater freedom in selecting the means to provide access, light open space, and design amenities

c. Promoting quality urban design and environmentally sensitive development by allowing development to take advantage of special site characteristics, locations, and land uses

d. A pattern of development that preserves trees, outstanding natural topography, geologic features, and prevents soil erosion

e. A creative approach to the use of land and related physical development

f. An efficient use of land resulting in smaller networks of utilities and streets, and thereby lower housing costs

g. An environment of stable character that is compatible with surrounding development; and

h. Enhancement of the quality of development in recognition of the level of public investments in the neighborhood.

It is the intent of the Unified Development Code that the gross density within a residential Planned Unit Development (PUD) does not exceed the gross density permitted in the underlying zoning district. The subject property is zoned SF-7/PUD, which permits a maximum gross density of 5.0 dwelling units per acre, calculated based on the site's gross area.

The applicant proposes 75 dwelling units on approximately 29.25 +/- acres, resulting in a gross density of 2.56 dwelling units per acre. This proposed density is well below the maximum permitted density under the SF-7 zoning district standards.

For comparison, the previously approved concept plan allowed up to 97 dwelling units, equating to approximately 3.32 dwelling units per acre. The current proposal represents a reduction in both the total number of dwelling units and overall density. As such, the amendment decreases the gross density of SF-7/PUD zoned land within the Chapman Farms PUD and remains consistent with the density limitations established by the Unified Development Code.

Modifications Requested:

Per the 1996 Unified Development Code, Section 407.110, Planned Unit Development Regulations, is intended to reduce or eliminate the inflexibility that sometimes results from the strict application of zoning standards. The base zoning district standards and regulations shall control development with a PUD unless modifications are specifically approved as part of the PUD. The applicant is requesting the following modification to the base zoning district regulations for the (SF-7/PUD/R-O) "Single-Family/Planned Unit Development/Restricted Overlay" zoning district (per the 1996 UDC):

i. Established minimum lot standards that deviate from the "SF-7" zoning district standards, as outlined in the table under "Brookside Estates-Non-conforming lots which include reductions to the minimum lot width frontage at Building Line.

Preliminary Plat Requirements:

The proposed Preliminary Plat meets the minimum standards described in Unified Development Code Section 403.050 and the submittal requirements set forth in the Preliminary Plat application, except for the modifications requested through the Planned Unit Development.

Preservation:

The 29.25+/- acre property is currently undeveloped and consists of existing brush, shrubbery, and trees. The existing creek and stream buffer running north-south through the property will be maintained by the developer.

Phasing:

The development is proposed to be completed in a single phase for Lots 1-75.

Streets & Sidewalks:

Access to the development will be provided from SW Mason School Road and SW Brookside Drive. Both SW Mason School Road and SW Brookside Drive are classified as

minor collector streets. A 5-ft sidewalk is required on both sides of SW Brookside Drive and on the south side of SW Mason School Road. All new streets will be local streets with a 50-ft. right-of-way and a minimum of 5-ft. sidewalks on at least one side. On some blocks, sidewalks will be provided on both sides (SW Orchard Ct.) to provide additional pedestrian connections to amenities.

A Limit of No Access is required to be delineated and dedicated on all lots and tracts adjacent to SW Mason School Road and SW Brookside Drive on the Final Plat. Sidewalks adjacent to tracts must be installed before approval of the Final Plat for each development phase. Sidewalks along lot frontages are required to be installed before issuance of a Certificate of Occupancy for each lot.

Traffic:

A Traffic Impact Study is not needed based on the current traffic volumes, anticipated trip generation, traffic control devices, and the traffic signals at SW Brookside Drive and MO-7 Highway.

Stormwater:

A Preliminary Stormwater Management Plan has been prepared by a professional engineer licensed in the State of Missouri and has been submitted to Public Works for review. Prior to construction, A Final Stormwater Management Plan, also prepared and sealed by a Missouri-Licensed Professional Engineer, will be required and subject to approval.

The development must comply with all City Stormwater detention and water quality requirements. Detention and water quality requirements. Detention and water-quality design shall adhere to the APWA Section 5600 standards. Water quality Best Management Practices (BMPs) should be designed in accordance with the procedures outlined in the MARC BMP Manual.

A regional detention basin has been constructed south of the subject property and is intended to provide detention for this development. All overland flow routes and detention areas associated with the project shall be contained within dedicated drainage easements in accordance with City Standards.

Sanitary Sewer:

This property is part of the sewer NID and has the capacity to convey flows generated by this development, but the developer is responsible for extending the sewer within the property to serve this site. An engineer or surveyor will need to determine if the inverted elevations of the sewer are suitable for this development to utilize this sanitary sewer.

Land Use & Density:

The proposed land use of the property is "Detached Housing," which is defined as "the use of a lot for only one (1) principal dwelling unit that is not connected to any other dwelling unit. Typical formats include estates, large lot, and neighborhood lot." The proposed use is for the development of seventy-five (75) single-family homes. The proposed density is approximately 2.56 units per acre.

Building Typology:

The building type standards are being reviewed under the 2015 UDC as a "Detached House—Neighborhood Lot." Through the PUD Concept plan process, the applicant is proposing the following development standards for each, with modifications highlighted in yellow:

Standard	**Requirement**	**Proposed**
Min. Lot Size	7,200-SF	7,234-SF
Min. Lot Width	65-ft for standard lots 50-ft for cul-de-sac lots	Average Lot width-74 ft Average 51-ft for cul-de-sac lots Non-conforming Lots: Lot 13, 14, 15, 16, 47, 48, 49, 50, and 63
Front Setback	25-ft	25-ft
Corner Side Setback	25-ft Corner Side	25-ft

Side Setback	8-ft	8-ft
Rear Setback	15-ft	15-ft
Building Coverage	40% Max	40% Max
Building Height	35-ft	35-ft

The applicant is requesting frontage-width reductions at the building line for Lots 13, 14, 15, 16, 47, 48, 49, 50, and 63 due to site constraints associated with the existing stream buffer that runs along the property from east to west. The presence of the stream buffer limits the developable area and affects the overall lot layout, necessitating adjustments to frontage widths to maintain buildable lot configurations while preserving the required buffer area. The requested modifications are intended to accommodate the natural feature without encroachment into the protected stream corridor, while still allowing for orderly subdivision design and consistent development within the PUD framework.

Parking:

Single-Family Detached Housing requires two (2) off-street parking spaces per dwelling unit. The elevations provided show two and three-car garages, which will meet the off-street parking requirement. Parking in the driveway will provide extra parking spaces and exceed the minimum requirement. Vehicular parking is required and proposed as follows:

Land Use	Required	Provided
Detached Housing	2 spaces per dwelling units	>2 spaces provided

Open Space:

The development includes an 8-foot-wide trail within the stream buffer, running north-south through the center of the site. The trail provides connectivity to the existing Estates at Chapman Farms trail system to the west, as well as to the north and south of SW Brookside Drive, enhancing pedestrian access and neighborhood integration.

Landscape buffers exceeding minimum code requirements are provided along the east and south property lines where the development abuts commercially zoned properties.

Landscape buffers are not required along the north and west property lines, as these areas are adjacent to existing single-family residential properties. Additionally, a tract has been provided along SW Mason School Road to serve as a landscape buffer, consistent with other developments along Mason School Road, including Chapman Farms.

Street trees are required at a minimum ratio of one (1) tree per lot or tract. For lots or tracts with frontage greater than 100 feet, one (1) street tree is required for every fifty (50) feet of frontage, in accordance with City standards. **Illustrative details of amenities must be provided with the PUD Final Plan. A final landscape plan must be submitted for review and approval with the PUD Final Plan and must address landscaping in common tracts and street trees. The minimum number of plant units to meet landscape buffer requirements must also be provided.**

All required open-space amenities must be installed before the building is occupied. Additional open space details will be reviewed through the PD Final Plan/Site Plan Design Review process.

Open Space	Description
Tract A-1.06 Acres	**8 ft paved walking trail**
Tract B- 3.50 Acres	**Stream Buffer with dedicated drainage easement** **8 ft paved walking trail**
Tract C- 3.90 Acres	**Stream Buffer with dedicated drainage easements** **8ft paved walking trail**
Tract D-0.08 Acres	**Open Space**
Tract E-0.02 Acres	**Conveyance Tract for Separate Transaction- Building Structure**

Architectural Character:

Conceptual front elevations have been provided for the single-family houses. Proposed houses are generally single-story with front-loaded garages (primarily two-car, with one

three-car option that could be accommodated on the widest lots). Architectural styles predominantly ranch-style houses with a mix of craftsman and farmhouse design elements. As included with the PUD Concept Plan, the following architectural design requirements are proposed to apply to single-family homes within the subdivision:

1. At least 50% of the houses will have front porches

2. Garage doors will be decorative in nature and have some type of trim pattern that will differ from adjacent houses.

3. Front elevations will have a mixture of materials to keep front elevations creative and unique. Materials used include, but are not limited to, lap siding, board and batten, shake shingles, rock, and stone. Front elevations without rock or stone will include all cement board siding.

4. When rock and stone are used on front elevations, there will be a 2-ft return on the side walls with the same material to reduce a one-dimensional look and it can be seen while passing by the house.

5. The use of transom windows at the top of side walls will be used when the opportunity is provided, such as in garages, pantries, and other areas, to provide additional natural lighting and provide a design element to the side exteriors of the houses.

6. Decorative accents and exterior design features, such as shutters, accent lighting, decorative trim, etc., will be used when appropriate.

7. Design elements will be used to provide texture to the front elevation of the houses to give each house personality while maintaining a cohesive look to the subdivision.

8. The use of metal on eyebrows and other elements of the front elevation will be used to give subtle distinctions from the asphalt shingles and roof finishes.

9. Decorative front doors with a mixture of designs, finishes, and trim patterns will be provided.

10. A mixture of materials will be used for beams and posts on front porches.

Overall, the proposed homes demonstrate varied elevations, balanced proportions, and a complementary material palette that supports a cohesive, visually consistent single-family subdivision.

Final architectural designs meeting the architectural design standards shall be provided for review and approval with the PUD Final Plan. Staff requests that the design standards include additional details for front porches, including minimum sizes and setback variations (e.g., recessed porches, porches that project beyond the front garage wall, etc.).

Minimum Livable Floor Area:

Per the 1996 UDC, Section 407.140, Minimum Livable Floor Area Standards, subdivisions are to be classified to minimize differences in dwelling sizes within and between adjacent residential developments. The applicant is proposing a minimum livable floor area Classification G (1,400 sq ft). Classifications of adjacent subdivisions have been provided:

Adjacent Subdivision	**Min. Classification (ex. Ranch)**	**Min Classification All other houses**
Estates at Chapman Farms (Amended 1st Plat)	Ranch style with three-car garage (Class "F"-1,700 sq ft)	(Class "C"-All other houses) 1,000 sq ft first floor with a total of 2,300 sq ft
Estates at Chapman Farms (2nd Plat)	Ranch style with three-car garage (Class "F"-1,700 sq ft)	(Class "C"-All other houses) 1,000 sq ft first floor with a total of 2,300 sq ft

The proposed minimum livable floor area is consistent with the surrounding subdivisions and remains within one step of adjacent developments. The proposed square footage complies with City standards and maintains compatibility with the established residential character of the area.

Signage:

Signage is not depicted on the submitted plans. Should monument signage be proposed at a later date, it will be subject to the administrative sign permitting process. If the proposed signage does not comply with the Sign Code requirements, the applicant may submit a request for a Master/Alternative Sign Plan for review and approval.

Review Criteria

A Planned Unit Development Concept Plan shall be reviewed according to the following criteria:

1. The plan represents an improvement over what could have been accomplished through strict application of otherwise applicable base zoning district standards based on the purpose and intent of the UDC.

    a. Staff finds that the PUD framework provides enhanced site design flexibility, allows for preservation and integration of the stream corridor as functional open space with trail connectivity, and establishes coordinated architectural and landscaping standards that promote a cohesive neighborhood character. Additionally, the provision of expanded landscape buffers adjacent to commercially zoned properties and the incorporation of pedestrian connectivity to the existing trail network further advance the purpose and intent of the Unified Development Code

(UDC) by supporting compatible land use transitions, enhanced amenities, and thoughtful community design.

2. The existing or proposed utility services are adequate for the proposed development.

    a. Staff finds that the existing and proposed utility services are adequate to support the proposed development. The project will connect to available city water and sanitary sewer infrastructure, and capacity has been reviewed in coordination with the appropriate service providers. Final Utility design, including extensions and necessary improvements, will be subject to engineering review and approval to ensure compliance with City standards and to confirm adequate service for the development.

3. The PUD Concept Plan is in conformance with the PUD standards of Section 407.110 and any standards required as a result of an overlay district.

    a. Staff finds that the proposed PUD Concept Plan is in conformance with the applicable Planned Unit Development standards set forth in Section 407.110 of the Unified Development Code. The plan demonstrates compliance with required submittal elements, design flexibility provisions, open space integration, and development pattern standards consistent with the intent of the PUD regulations. Additionally, the proposal meets all applicable requirements associated with any overlay district regulations affecting the property.

4. The development is consistent with and implements the planning goals and objectives of the City, as contained in the Comprehensive Plan and other adopted policy resolutions.

a. Staff finds that the proposed development is consistent with and advances the planning goals and objectives of the City as outlined in the Comprehensive Plan and other adopted policy documents. The project supports planned residential growth within the designated growth area, promotes neighborhood connectivity through integrated pedestrian infrastructure, and provides appropriate transitions between adjacent land uses. The development pattern, infrastructure coordination, and site design reflect the City's objectives for balanced growth, quality neighborhood design, and long-term community sustainability.

5. The Planned Unit Development Concept Plan is consistent with good general planning practice, and the development will promote the general welfare of the city.

    a. Staff finds that the proposed Planned Unit Development (PUD) Concept Plan is consistent with sound general planning principles, including coordinated site design, appropriate land use transitions, infrastructure integration, and pedestrian connectivity. The development promotes the general welfare of the City by supporting orderly growth, enhancing neighborhood character, and ensuring compatibility with surrounding properties in a manner consistent with adopted planning policies and standards.

Approval of a Concept Plan shall constitute acceptance of the overall planning concepts and development parameters. An approved Concept Plan shall lapse and be of no further force and effect if a Final Plan (or a Final Plan for a designated phase of the Concept Plan) has not been approved within two (2) years of the date of approval of the Concept Plan.

Review Criteria

A Preliminary Plat shall be reviewed based on the following criteria:

1. The application is in accordance with the Comprehensive Plan and any official plan or program development under the guidance of the Comprehensive Plan. In particular, the physical patterns, the arrangement of streets, blocks, lots, and open spaces, and public realm investments reflect the plan's principles and concepts.

    a. Staff finds that the application is consistent with the Comprehensive Plan and any official plans or programs adopted under its guidance. The proposed physical layout, including the arrangements of streets, blocks, lots, and open spaces, reflects the development patterns and design principles outlined in the Comprehensive Plan. The integration of pedestrian connectivity, coordinated public realm elements, and organized subdivision design supports the City's long-range vision for orderly growth and cohesive neighborhood development.

2. Compliance with the requirements of this Development Code. In particular, the blocks and lots proposed meet all development and site design standards under the existing or proposed zoning.

    a. Staff finds that the proposed development complies with the applicable requirements of the Unified Development Code. The configuration of blocks and lots has been designed to meet the development and site design standards of the existing or proposed zoning district, including lot dimensions, setbacks, access, and infrastructure requirements. The layout

demonstrates that each lot can support compliant development in accordance with City standards.

3. Any phasing proposed in the application is clearly indicated and demonstrates a logical and coordinated approach to development, including coordination with existing and potential development on adjacent property.

    a. Staff finds that any proposed phasing of the development is clearly identified and reflects a logical and coordinated approach to implementation. The phasing plan demonstrates appropriate sequencing of infrastructure, utilities, and public improvements and ensures compatibility and coordination with existing and potential future development on adjacent properties.

4. Any impacts identified by specific studies or technical reports, including a preliminary review of stormwater, are mitigated with generally accepted and sound planning, engineering, and urban design solutions that reflect long-term solutions and sound fiscal investments.

    a. Staff finds that any impacts identified through submitted studies and technical reports, including the preliminary stormwater review, have been addressed through generally accepted and sound planning, engineering, and urban design practices. The proposed mitigation measures reflect long-term, sustainable solutions and responsible fiscal investment, consistent with City standards and best practices.

5. The application does not deter any existing or future development on adjacent property from meeting the goals and policies of the Comprehensive Plan.

a. Staff finds that the proposed application does not hinder existing or anticipated future development, nor does it conflict with the goals and policies of the Comprehensive Plan. The proposal remains consistent with the City's adopted long-range planning objectives.

6. The design does not impede the construction of future public infrastructure within the area.

    a. Staff finds that the proposed design will not impede the construction or extension of existing or future public infrastructure within the area. The development layout allows for appropriate coordination with planned improvements and does not restrict future infrastructure expansion.

7. The recommendations of professional staff.

    a. Staff recommends approval of the Preliminary Plat with conditions.

Approval of the preliminary plat shall constitute acceptance of the subdivision's overall planning concepts and shall be a prerequisite to the filing of a final plat. After approval of the preliminary plat, the applicant may proceed with the construction plans and submit the proposed final plat for review and approval.

Staff Recommendations:

Staff recommends approval of the (Amended)/Planned Unit Development Concept Plan application with the following conditions:

1. Approval based on the representations of any drawing presented as part of this application does not waive any requirement or development standard contained in the UDC, unless modified by the Amended Planned Unit Development:

a. Established minimum lot standards that deviate from the "SF-7" zoning district standards, as outlined in the table under "Brookside Estates-Non-conforming lots which include reductions to the minimum lot width frontage at Building Line. Lots 13, 14,15, 16, 47, 48, 50, and 63.

2. The following items shall be included and approved with the PUD Final Plan:

   a. Final building designs for single-family houses meeting the architectural design requirements included in the PUD Concept Plan.

   b. Final Landscape Plan addressing landscaping on all tracts and street trees.

   c. Final illustrative plan for amenities.

Staff recommends approval of the Preliminary Plat application with the following conditions:

2. Approval by the Planning Commission based on the representations of any drawings presented as Approval based on the representations of any drawings presented as part of this application does not waive any requirement or development standard contained in the UDC, unless modified by the Amended Planned Unit Development:

   a. Established minimum lot standards that deviate from the "SF-7" zoning district standards, as outlined in the table under "Brookside Estates-Non-conforming lots which include reductions to the minimum lot width frontage at Building Line. Lots 13, 14,15, 16, 47, 48, 50, and 63.

3. Approval of this Preliminary Plat is rescinded if the amended PUD Concept Plan (PUDC-10-15-9711) request is denied by City Council.

4. The following items shall be included on the Final Plat for each development phase:

    a. A Limits of No Access shall be delineated and dedicated on all lots and tracts adjacent to SW Mason School Road and SW Brookside Drive.

    b. The minimum livable floor area classification of 1,400-sf must be noted on the Final Plat

    c. Easements are required over all storm detention and storm water quality best management practices on the Final Plat.

5. The following items shall be completed prior to approval of the Final Plat:

    a. A PUD Final Plan shall be submitted and approved by the Planning Commission.

    b. An ADA Sidewalk Plan shall be submitted with final construction plans.

    c. All sidewalk improvements adjacent to tracts are required to be installed.

    d. All public improvements, unless stated otherwise, shall be completed prior to approval of the Final Plat.

    e. A Storm Water Drainage Study must be submitted and approved by the Engineering Division of Public Works prior to approval of the Final Plat by City Council.

    f. Landscape buffers and amenities shall be installed or financially guaranteed prior to approval of the Final Plat.

g. As-builts and 2-year maintenance bonds on the street, storm sewers, and sanitary sewers shall be submitted prior to approval of the Final Plat by the City Council.

h. A sealed letter by a Registered Professional Engineer in the State of Missouri stating the detention basin has been improved per the approved plans and will function as designed shall be submitted prior to approval of the Final Plat by the City Council.

i. A letter of Final Acceptance from Public Water Supply District 13 stating water lines have been fully completed and all documentation has been provided to the District must be submitted prior to approval of the Final Plat by the City Council.

6. The following items shall be provided prior to the issuance of any building permits within the development:

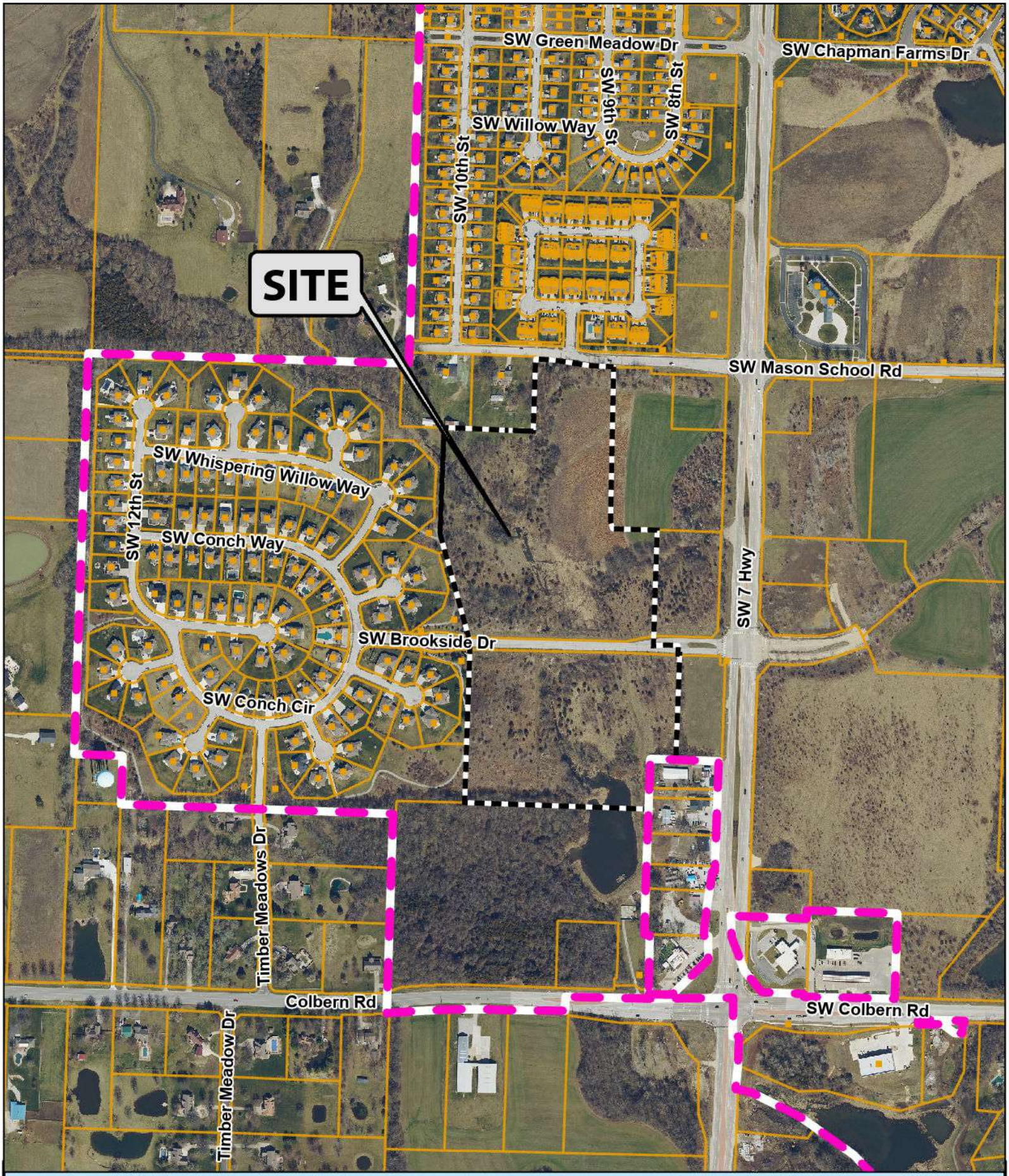
    a. Drafts of the proposed Declaration of Restrictions and the Homes Association Declaration are required to be submitted and recorded with the Final Plat. Declarations must address the maintenance of all open space tracts and trails.

    b. A Final Plat shall be approved by the City Council and recorded at Jackson County.

7. The following items shall be provided prior to the issuance of a Certificate of Occupancy for each lot:

    a. Sidewalk improvements adjacent to each lot.

    b. A minimum of 45 Plant units and street tree shall be installed.



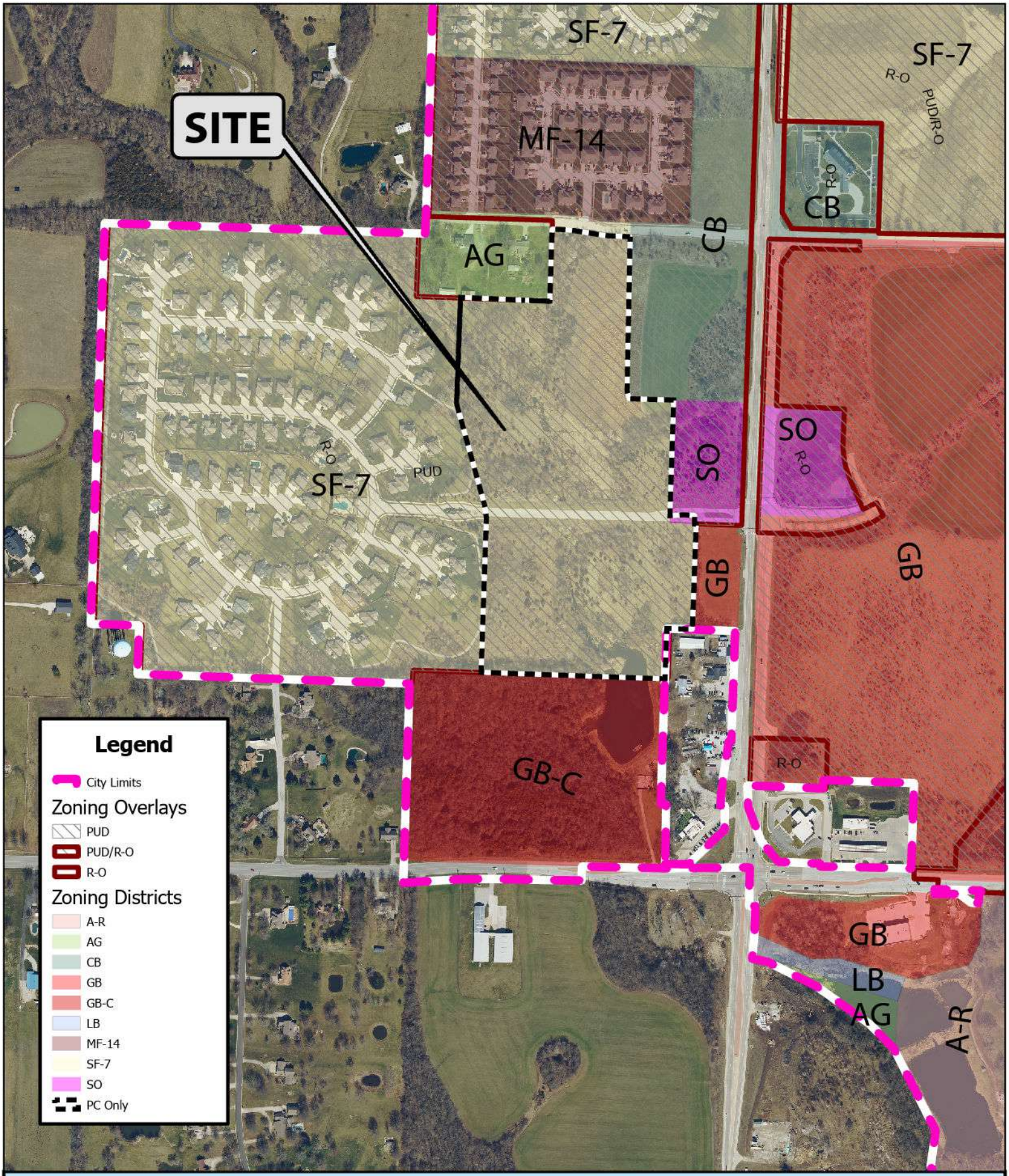
The City of Blue Springs Missouri

PUDC-10-25-9711 / PP-10-25-9712
Parcel # 54-420-98-03-01-0-00-000 &
54-420-06-99-00-0-00-000
AERIAL LOCATION MAP

N

1" = 500'

Date: 10/15/25



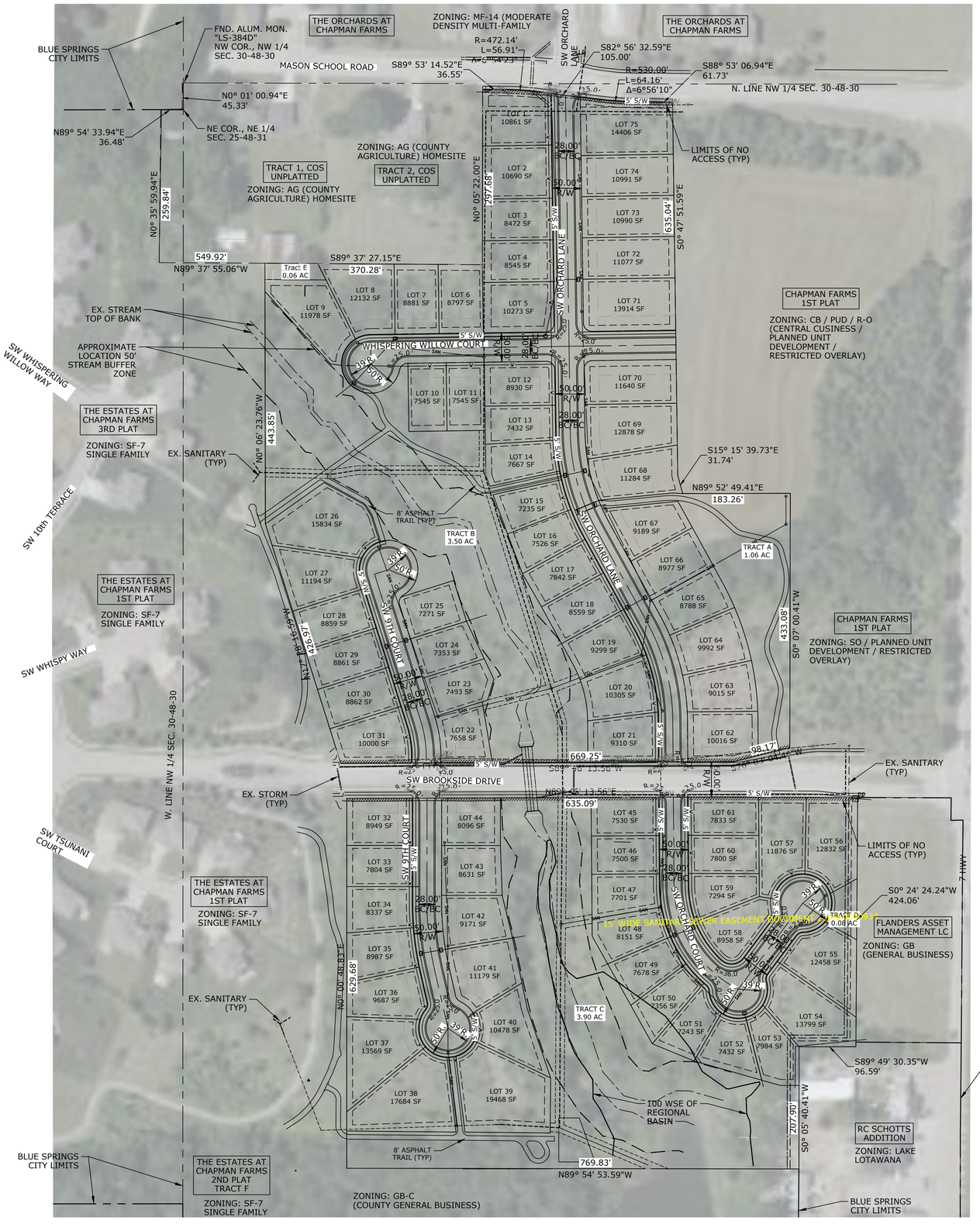
The City of Blue Springs Missouri

PUDC-10-25-9711 / PP-10-25-9712
Parcel # 54-420-98-03-01-0-00-000 &
54-420-06-99-00-0-00-000
SITE LOCATION AND ZONING MAP

N

1" = 500'

Date: 10/15/25



PROJECT SUMMARY:

EXISTING ZONING: SF-7 / PUD / R-0 (SINGLE FAMILY)
PROPOSED ZONING: SF-7 / PUD / R-0 (SINGLE FAMILY)
EXISTING LAND USE: VACANT LOT / AG
TOTAL BOUNDARY AREA: 29.25 ACRES
STREET TYPE: LOCAL - NEIGHBORHOOD STREET
BUILDING TYPES: SINGLE FAMILY HOUSE
FRONTAGE TYPE: N/A
MINIMUM LOT SIZE AND WIDTH: 7,200-S.F. & 65-FT. WIDE TO 120-FT., MIN. 50 FT. (As Measured at Building Line) FOR LOTS FRONTING ON THE RADIUS OF A CUL-DE-SAC
MINIMUM LIVABLE FLOOR AREA CLASSIFICATION: I
MINIMUM LIVABLE FLOOR AREA 1,400 SQ. FT.
REQUIRED SETBACKS: FRONT / CORNER SIDE: 25', SIDE: 8', REAR 15'
OPEN & CIVIC SPACE: TRAIL / GREENWAY
OPEN & CIVIC SPACE % TO TOTAL AREA: 25%
AREA - LOTS: 75 (527,466 S.F. / 17.29 ACRES)
AREA - OPEN & CIVIC SPACE: 4 TRACTS (346,018 S.F. / 7.94 ACRES)
AREA - RIGHT-OF-WAY: 5 STREETS (173,002 S.F. / 3.97 ACRES)
TOTAL AREA - SUBDIVISION: (1,274,130 S.F. / 29.25 ACRES)

NOTES:

1. TRACTS A, B, C & D ARE INTENDED FOR OPEN SPACE AND SHALL BE OWNED AND MAINTAINED BY THE BROOKSIDE OWNER'S ASSOCIATION.
2. TRACTS B & C ARE ADDITIONALLY DEDICATED AS DRAINAGE EASEMENTS.
3. TRACT E IS INTENDED TO BE CONVEYED BY A SEPARATE TRANSACTION.
4. LOTS 1 - 75 WILL BE CONSTRUCTED IN THE FIRST PHASE.
5. A MIN. 5FT. ADA COMPLIANT SIDEWALK IS REQUIRED ALONG BOTH SIDE OD SW BROOKSIDE DRIVE AND ALONG THE SOUTH SIDE OF SW MASON SCHOOL ROAD AND ALONG ONE SIDE OF ALL OTHER PROPOSED STREETS.
6. ACCORDING TO THE F.E.M.A. FLOOD INSURANCE RATE MAP NUMBER 29095C0434G, REVISED JANUARY 20, 2017, THIS TRACT GRAPHICALLY LIES IN OTHER AREAS, ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AND ZONE X (FUTURE BASE FLOOD), DEFINED AS AREAS OF 1% ANNUAL CHANCE FLOOD BASED ON FUTURE CONDITIONS HYDROLOGY. NO BASE FLOOD ELEVATIONS DETERMINED.
7. THIS DEVELOPMENT SHALL BE OPEN FOR ALL AGES.
8. MAINTENANCE OF EACH LOT WILL BE PROVIDED BY INDIVIDUAL LOT OWNER.
9. NO CONSTRUCTION OR DISTURBANCE OF ANY TYPE, INCLUDING CLEARING, GRUBBING, STRIPPING, FILL, EXCAVATION LINEAR GRADING, PAVING, OR BUILDING IS ALLOWED IN THE STREAM BUFFER ZONE EXCEPT BY PERMISSION OF THE CITY ENGINEER.
10. THERE ARE APPROX. 2,227.96 LINEAR FEET OF PROPOSED TRAILS AS SHOWN.

LOT SIZE SUMMARY	
NUMBER OF LOTS	75
MINIMUM LOT SIZE	7,234 SQ. FT.
MAXIMUM LOT SIZE	19,468 SQ. FT.
AVERAGE LOT SIZE	9,754 SQ. FT.
MAXIMUM LOT WIDTH	108 LF
MINIMUM LOT WIDTH	51 LF (Cul-de-sac Lot)*
AVERAGE LOT WIDTH	74 LF

* - WIDTH OF CUL-DE-SAC LOTS IS TAKEN AT THE BUILDING SETBACK LINE PER UDO SECTION 411.02C

BUILDING STANDARDS SUMMARY	
MINIMUM FRONT SETBACK	25 FEET
MINIMUM CORNER SIDE SETBACK	25 FEET
MINIMUM SIDE SETBACK	8 FEET
MIMUMUM REAR SETBACK	15 FEET
MAXIMUM BUILDING COVERAGE	40%
MAXIMUM BUILDING HEIGHT	35 FEET

Brookside Estates - Non conforming Lots		
Lot	Frotage at R/W	Frontage at BL
13	59.38	60.51
14	53.25	57.07
15	53.35	57.12
16	48.3	59.59
47	56.82	60.82
48	53.18	59
49	53.18	58.95
50	45.18	58.99
63	62.82	67.86

LEGEND

CATV Ped.	CABLE TV PEDESTAL
P.P.	POWER POLE
	GUY ANCHOR
EMH	ELECTRICAL MANHOLE
	ELECTRICAL TRANSFORMER
G.M.	GAS METER
	CURB INLET
SSMH	SANITARY SEWER MANHOLE
C.O.	SANITARY CLEANOUT
L.P.	LIGHT POLE
	BORING HOLE
	SIGN
Tel. Ped.	TELEPHONE PEDESTAL
T.S.	TRAFFIC SIGNAL POST
TMH	TRAFFIC MANHOLE
U/E	UTILITY EASEMENT
S/E	SANITARY EASEMENT
B/L	BUILDING LINE
F.H.	FIRE HYDRANT
W.M.	WATER METER
FO	FIBER OPTIC LINE
FP	FIRE PROTECTION LINE
G	GAS LINE
OHP	OVER HEAD ELECTRIC
OHT	OVER HEAD TELEPHONE
	RIGHT-OF-WAY LINE
SAN	SANITARY SEWER
UG Elec	UNDERGROUND ELECTRIC
UGT	UNDERGROUND TELECOM
W	WATER LINE
	UTILITY EASEMENT
	BUILDING LINE
	CENTERLINE ROADS
	PLAT BOUNDARY
	EX. CREEK CENTERLINE
	PROPOSED STORM SEWERS
	EXISTING STORM SEWERS
SAN	EX. SANITARY SEWER
	LIMITS OF NO ACCESS



100 50 0 100
SCALE: 1 INCH = 100 FEET

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atlaslandconsulting.com
14500 Parallel Road, Unit A, Belton KS 66007
KS ENG.COA # 33115
KS SURV.COA # 363
MO ENG.COA # 2024038434
MO SUR.COA # 2002014231

CLINT LOUMASTER, PE

PUD CONCEPT PLAN

BROOKSIDE ESTATES
CITY OF BLUE SPRINGS,
JACKSON COUNTY, MISSOURI

NO.	DATE	BY	QD	REVISION
	10/31/25			City Comments
	01/12/26			City Comments

PREPARED FOR:
Brookside Properties Development, LLC
KANSAS CITY, MO. 64152

PROJECT #: 25-047E
ISSUE DATE: 10/09/2025

SHEET NAME
PUD CONCEPT PLAN

1 of 4

2/18/2026 3:05 PM CLINTLOUMASTER
CAD FILE : S:\Atlas Land Consulting\2025\Engineering\25-047E - Mertz Blue Springs Subdivision\Civil3D\Production Drawings\PUD Concept Plan\25-047 PUD Concept Plan.dwg



PLAN 1 ELEVATION



PLAN 2 ELEVATION

11/3/2025 9:35 AM GREGNEMECHEK
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KS ENG COA: #3315
KS SUR COA: #363
MO ENG COA: #2022014084
MO SUR COA: #2022014231

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14500 Parallel Road, Unit R, Basehor KS 66007

CLINT LOUMASTER, PE

PUD CONCEPT PLAN

BROOKSIDE ESTATES
CITY OF BLUE SPRINGS,
JACKSON COUNTY, MISSOURI

NO.	BY	QD	DATE	REVISION
			10/31/25	City Comments
			01/12/26	City Comments

PREPARED FOR:
Brookside Properties
Development, LLC
KANSAS CITY, MO. 64152

PROJECT #: 25-047E
ISSUE DATE: 10/09/2025

SHEET NAME
PLAN ELEVATIONS



PLAN 3 ELEVATION



PLAN 4 ELEVATION

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atlaslandconsulting.com
14500 Parallel Road, Unit A, Bonner KS 66007
KS ENG COA # 3315
KS SURVEY COA # 263
MO ENG COA # 2023014234
MO SUR COA # 2023014231
CLINT LOUMASTER, PE

PUD CONCEPT PLAN

BROOKSIDE ESTATES
CITY OF BLUE SPRINGS,
JACKSON COUNTY, MISSOURI

NO.	BY	DATE	REVISION
			01/12/26 City Comments
			10/31/25 City Comments

PREPARED FOR:
Brookside Properties
Development, LLC
KANSAS CITY, MO. 64152

PROJECT #: 25-047E
ISSUE DATE: 10/09/2025

SHEET NAME
PLAN ELEVATIONS

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PLAN 5 ELEVATION

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atlaslandconsulting.com
14500 Parallel Road / Unit A, Bakerfield MO 65609
KS ENG COA # 3315
KS SURVEY COA # 363
MO ENG COA # 2023014231
MO SUR COA # 2023014231

CLINT LOUMASTER, PE

PUD CONCEPT PLAN

BROOKSIDE ESTATES
CITY OF BLUE SPRINGS,
JACKSON COUNTY, MISSOURI

NO.	BY	DATE	REVISION
			10/31/25 City Comments
			01/12/26 City Comments

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UTILITIES

THE INFORMATION CONCERNING LOCATIONS OF UNDERGROUND UTILITIES SHOWN HEREON WHICH ARE NOT VISIBLE FROM THE SURFACE, HAS BEEN TAKEN FROM THE RECORDS AND FIELD LOCATIONS OF VARIOUS UTILITY COMPANIES AND HAS NOT BEEN VERIFIED BY THIS COMPANY. THESE LOCATIONS ARE NOT TO BE INTERPRETED AS ACCURATE OR EXACT.

PRELIMINARY PLAT

BROOKSIDE ESTATES

PART OF THE NW 1/4 OF SECTION 30, TOWNSHIP 48N, RANGE 30W IN THE CITY OF BLUE SPRINGS, JACKSON COUNTY MISSOURI

811 Know what's **below.** **Call** before you dig.

Kansas One Call 811 or
1-800-DIG-SAFE(800-344-7233)

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KS: (800) 344-7233

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KS ENG.COA # 3315
KS SURV.COA # 343
MO ENG.COA # 2025038564
MO SURV.COA # 2022014231
CLINT LOUMASTER, PE

LEGAL DESCRIPTION

TRACT I: (NORTH OF SW BROOKSIDE DRIVE)

ALL THAT PART OF THE FOLLOWING DESCRIBED PROPERTY LYING NORTH OF BROOKSIDE DRIVE:

LOT 34, CHAPMAN FARMS - 1ST PLAT, LOTS 1 - 35, IN BLUE SPRINGS, JACKSON COUNTY, MISSOURI, EXCEPT THAT PART CONVEYED TO THE STATE OF MISSOURI IN GENERAL WARRANTY DEED RECORDED MARCH 28, 2006 AS DOCUMENT NO. 2006E0000941, AND EXCEPT THAT PART CONVEYED TO THE CITY OF BLUE SPRINGS, MISSOURI BY GENERAL WARRANTY DEED RECORDED NOVEMBER 6, 2007 AS DOCUMENT NO. 2007E0142933. AND EXCEPT THAT PART, IF ANY, TAKEN OR USED FOR ROADS.

TRACT II: (SOUTH OF SW BROOKSIDE DRIVE)

ALL THAT PART OF THE FOLLOWING DESCRIBED PROPERTY LYING SOUTH OF BROOKSIDE DRIVE:

LOT 34, CHAPMAN FARMS - 1ST PLAT, LOTS 1 - 35, IN BLUE SPRINGS, JACKSON COUNTY, MISSOURI, EXCEPT THAT PART CONVEYED TO THE STATE OF MISSOURI IN GENERAL WARRANTY DEED RECORDED MARCH 28, 2006 AS DOCUMENT NO. 2006E0000941, AND EXCEPT THAT PART CONVEYED TO THE CITY OF BLUE SPRINGS, MISSOURI BY GENERAL WARRANTY DEED RECORDED NOVEMBER 6, 2007 AS DOCUMENT NO. 2007E0142933. AND EXCEPT THAT PART, IF ANY, TAKEN OR USED FOR ROADS.

VICINITY MAP
Section 30, Township 48N, Range 30W
Scale : 1" = 2000'

INDEX OF SHEETS

1	COVER SHEET
2	GENERAL LAYOUT
3	SITE PLAN
4	SITE PLAN
L1	LANDSCAPE PLAN
L2	LANDSCAPE PLAN

Utility Contacts

Electric Service	Evergy (888)471-5275	Telecommunications	AT&T (800)288-2020
Gas	Spire (800)582-1234		Comcast Cable (816)795-1100
Water	City of Blue Springs Utility Billing (816)622-4444		Century Link (877)862-9343
Wastewater	City of Blue Springs Utility Billing (816)622-4444		

OWNER/DEVELOPER

BROOKSIDE DEVELOPMENT PROPERTIES, LLC
7607 NW JOHN ANDERS ROAD
KANSAS CITY, MO 64152
CONTACT - BRIAN MERTZ
PHONE - (816) 616-9016
EMAIL - bmertz1975@gmail.com

ENGINEER

ATLAS LAND CONSULTING
14500 PARALLEL ROAD, UNIT R
BASEHOR, KS 66007
CONTACT - CLINT LOUMASTER
(913) 662-5050 (OFFICE)
(913) 449-5002 (CELL)

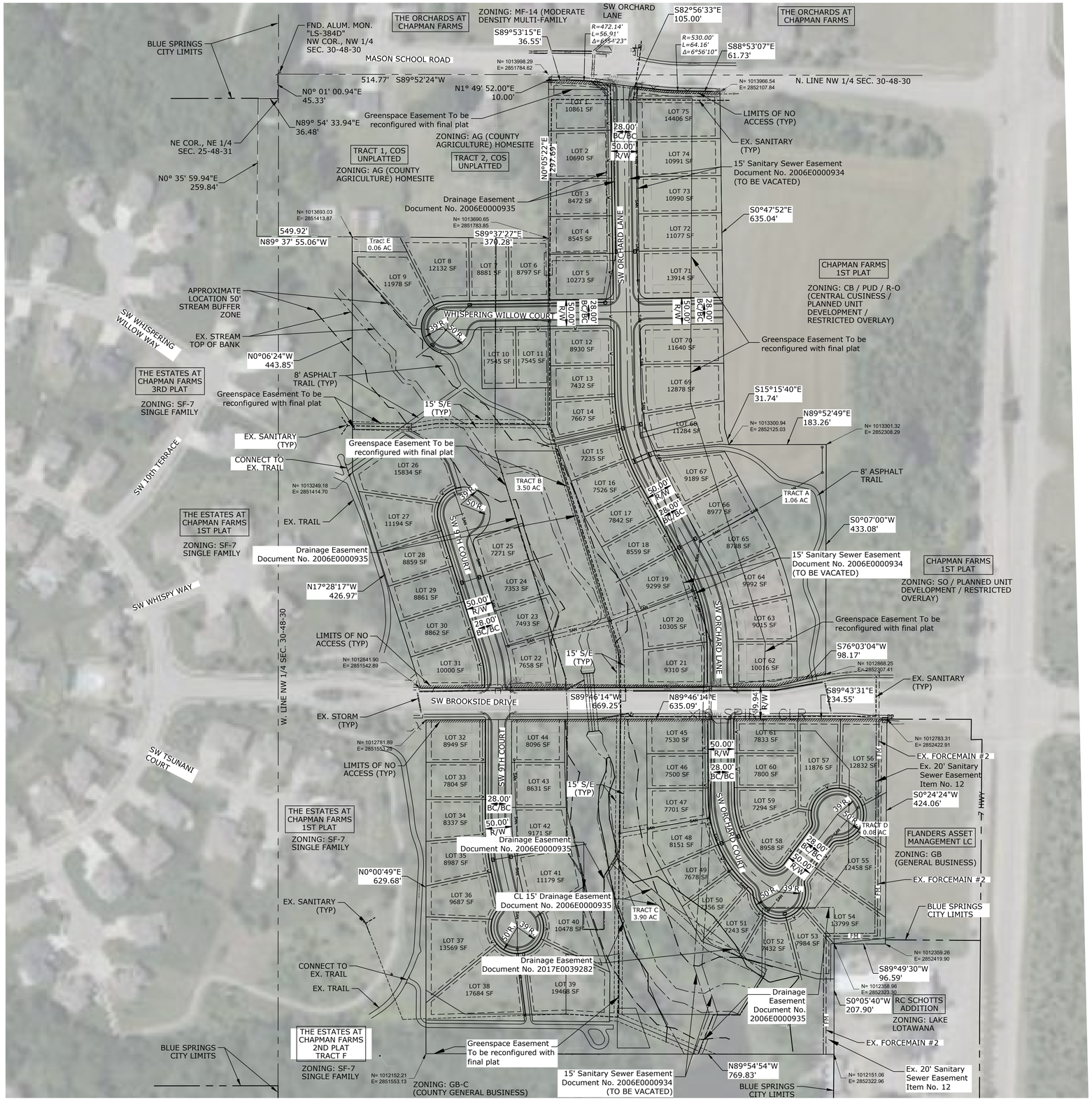
NO.	BY	DATE	REVISION
		10/31/25	CITY COMMENTS
		01/12/26	CITY COMMENTS

PREPARED FOR:
Brookside Properties Development, LLC
KANSAS CITY, MO. 64152

PROJECT #: 25-047E
ISSUE DATE: 10/09/2025

SHEET NAME
COVER SHEET

1/12/2026 2:38 PM GREGNEMECHEK
CAD FILE : S:\Atlas Land Consulting\2025\Engineering\25-047E - Mertz Blue Springs Subdivision\Civil3D\Production Drawings\Preliminary Plat\25-047 Cover Sheet.dwg



1/27/2026 5:03 PM CLINTLOUMASTER
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PROJECT SUMMARY:

EXISTING ZONING: SF-7 / PUD / R-0 (SINGLE FAMILY)
PROPOSED ZONING: SF-7 / PUD / R-0 (SINGLE FAMILY)
EXISTING LAND USE: VACANT LOT / AG
TOTAL BOUNDARY AREA: 29.25 ACRES
STREET TYPE: LOCAL - NEIGHBORHOOD STREET
BUILDING TYPES: SINGLE FAMILY HOUSE
FRONTAGE TYPE: N/A
MINIMUM LOT SIZE AND WIDTH: 7,200-S.F. & 65-FT. WIDE TO 120-FT., MIN. 50 FT. (As Measured at Building Line) FOR LOTS FRONTING ON THE RADIUS OF A CUL-DE-SAC
MINIMUM LIVABLE FLOOR AREA CLASSIFICATION: I
MINIMUM LIVABLE FLOOR AREA 1,400 SQ. FT.
REQUIRED SETBACKS: FRONT / CORNER SIDE: 25', SIDE: 8', REAR 15'
OPEN & CIVIC SPACE: TRAIL / GREENWAY
OPEN & CIVIC SPACE % TO TOTAL AREA: 25%
AREA - LOTS: 75 (527,466 S.F. / 17.29 ACRES)
AREA - OPEN & CIVIC SPACE: 4 TRACTS (346,018 S.F. / 7.94 ACRES)
AREA - RIGHT-OF-WAY: 5 STREETS (173,002 S.F. / 3.97 ACRES)
TOTAL AREA - SUBDIVISION: (1,274,130 S.F. / 29.25 ACRES)

NOTES:

1. TRACTS A, B, C & D ARE INTENDED FOR OPEN SPACE AND SHALL BE OWNED AND MAINTAINED BY THE BROOKSIDE OWNER'S ASSOCIATION.
2. TRACTS B & C ARE ADDITIONALLY DEDICATED AS DRAINAGE EASEMENTS.
3. TRACT E IS INTENDED TO BE CONVEYED BY A SEPARATE TRANSACTION.
4. LOTS 1 - 75 WILL BE CONSTRUCTED IN THE FIRST PHASE.
5. A MIN. 5FT. ADA COMPLIANT SIDEWALK IS REQUIRED ALONG BOTH SIDE OD SW BROOKSIDE DRIVE AND ALONG THE SOUTH SIDE OF SW MASON SCHOOL ROAD AND ALONG ONE SIDE OF ALL OTHER PROPOSED STREETS.
6. ACCORDING TO THE F.E.M.A. FLOOD INSURANCE RATE MAP NUMBER 29095C0434G, REVISED JANUARY 20, 2017, THIS TRACT GRAPHICALLY LIES IN OTHER AREAS, ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AND ZONE X (FUTURE BASE FLOOD), DEFINED AS AREAS OF 1% ANNUAL CHANCE FLOOD BASED ON FUTURE CONDITIONS HYDROLOGY. NO BASE FLOOD ELEVATIONS DETERMINED.
7. THIS DEVELOPMENT SHALL BE OPEN FOR ALL AGES.
8. MAINTENANCE OF EACH LOT WILL BE PROVIDED BY INDIVIDUAL LOT OWNER.
9. NO CONSTRUCTION OR DISTURBANCE OF ANY TYPE, INCLUDING CLEARING, GRUBBING, STRIPPING, FILL, EXCAVATION LINEAR GRADING, PAVING, OR BUILDING IS ALLOWED IN THE STREAM BUFFER ZONE EXCEPT BY PERMISSION OF THE CITY ENGINEER.
10. THERE ARE APPROX. 2,227.96 LINEAR FEET OF PROPOSED TRAILS AS SHOWN.

LOT SIZE SUMMARY	
NUMBER OF LOTS	75
MINIMUM LOT SIZE	7,234 SQ. FT.
MAXIMUM LOT SIZE	19,468 SQ. FT.
AVERAGE LOT SIZE	9,754 SQ. FT.
MAXIMUM LOT WIDTH	108 LF
MINIMUM LOT WIDTH	51 LF (Cul-de-sac Lot)*
AVERAGE LOT WIDTH	74 LF

* - WIDTH OF CUL-DE-SAC LOTS IS TAKEN AT THE BUILDING SETBACK LINE PER UDO SECTION 411.02C

BUILDING STANDARDS SUMMARY	
MINIMUM FRONT SETBACK	25 FEET
MINIMUM CORNER SIDE SETBACK	25 FEET
MINIMUM SIDE SETBACK	8 FEET
MIMUMUM REAR SETBACK	15 FEET
MAXIMUM BUILDING COVERAGE	40%
MAXIMUM BUILDING HEIGHT	35 FEET

Brookside Estates - Non conforming Lots		
Lot	Frotage at R/W	Frontage at BL
13	59.38	60.51
14	53.25	57.07
15	53.35	57.12
16	48.3	59.59
47	56.82	60.82
48	53.18	59
49	53.18	58.95
50	45.18	58.99
63	62.82	67.86

LEGEND

CATV Ped.	CABLE TV PEDESTAL	F.H.	FIRE HYDRANT
P.P.	POWER POLE	W.M.	WATER METER
	GUY ANCHOR	FO FO	FIBER OPTIC LINE
EMH	ELECTRICAL MANHOLE	FP FP FP	FIRE PROTECTION LINE
	ELECTRICAL TRANSFORMER	G G G	GAS LINE
G.M.	GAS METER	OHP OHP	OVER HEAD ELECTRIC
	CURB INLET	OHT OHT	OVER HEAD TELEPHONE
SSMH	SANITARY SEWER MANHOLE		RIGHT-OF-WAY LINE
C.O.	SANITARY CLEANOUT	SAN SAN	SANITARY SEWER
L.P.	LIGHT POLE	UG Elec UG Elec	UNDERGROUND ELECTRIC
	BORING HOLE	UGT UGT	UNDERGROUND TELECOM
	SIGN	W W	WATER LINE
Tel. Ped.	TELEPHONE PEDESTAL		UTILITY EASEMENT
T.S.	TRAFFIC SIGNAL POST		BUILDING LINE
TMH	TRAFFIC MANHOLE		CENTERLINE ROADS
U/E	UTILITY EASEMENT		PLAT BOUNDARY
S/E	SANITARY EASEMENT		EX. CREEK CENTERLINE
B/L	BUILDING LINE		PROPOSED STORM SEWERS
			EXISTING STORM SEWERS
		SAN SAN	EX. SANITARY SEWER
			LIMITS OF NO ACCESS

100 50 0 100
SCALE: 1 INCH = 100 FEET

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atlaslandconsulting.com
14500 Parallel Road, Unit A, Bonner KS 66007
KS ENG.COA # 3315
KS SURV.COA # 363
MO ENG.COA # 2026039
MO SUR.COA # 2002014231
CLINT LOUMASTER, PE

NO.	BY	QD	DATE	REVISION
			10/31/25	CITY COMMENTS
			01/12/26	CITY COMMENTS

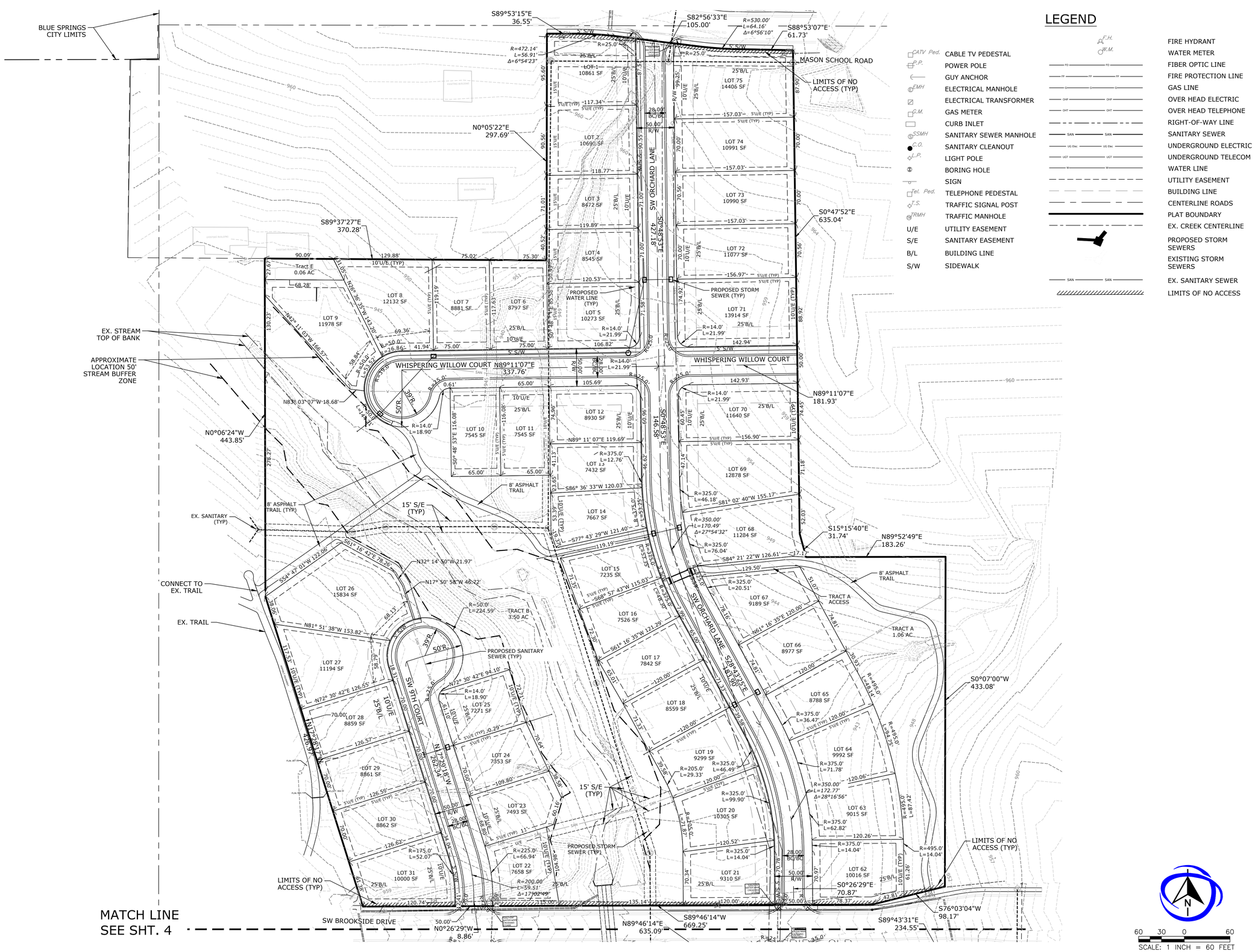
PRELIMINARY PLAT

BROOKSIDE ESTATES
CITY OF BLUE SPRINGS,
JACKSON COUNTY, MISSOURI

PREPARED FOR:
Brookside Properties Development, LLC
KANSAS CITY, MO. 64152

PROJECT #: 25-047E
ISSUE DATE: 10/09/2025

SHEET NAME
GENERAL LAYOUT



LEGEND

CATV Ped.	CABLE TV PEDESTAL
P.P.	POWER POLE
	GUY ANCHOR
EMH	ELECTRICAL MANHOLE
	ELECTRICAL TRANSFORMER
G.M.	GAS METER
	CURB INLET
SSMH	SANITARY SEWER MANHOLE
C.O.	SANITARY CLEANOUT
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B/L	BUILDING LINE
S/W	SIDEWALK

F.H.	FIRE HYDRANT
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	BUILDING LINE
	CENTERLINE ROADS
	PLAT BOUNDARY
	EX. CREEK CENTERLINE
	PROPOSED STORM SEWERS
	EXISTING STORM SEWERS
SAN	EX. SANITARY SEWER
	LIMITS OF NO ACCESS

60 30 0 60
SCALE: 1 INCH = 60 FEET

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KS SURV.COA # 363
MO ENG.COA # 2024038744
MO SUR.COA # 2002014231
CLINT LOUMASTER, PE

PRELIMINARY PLAT

BROOKSIDE ESTATES
CITY OF BLUE SPRINGS,
JACKSON COUNTY, MISSOURI

NO.	BY	DATE	REVISION
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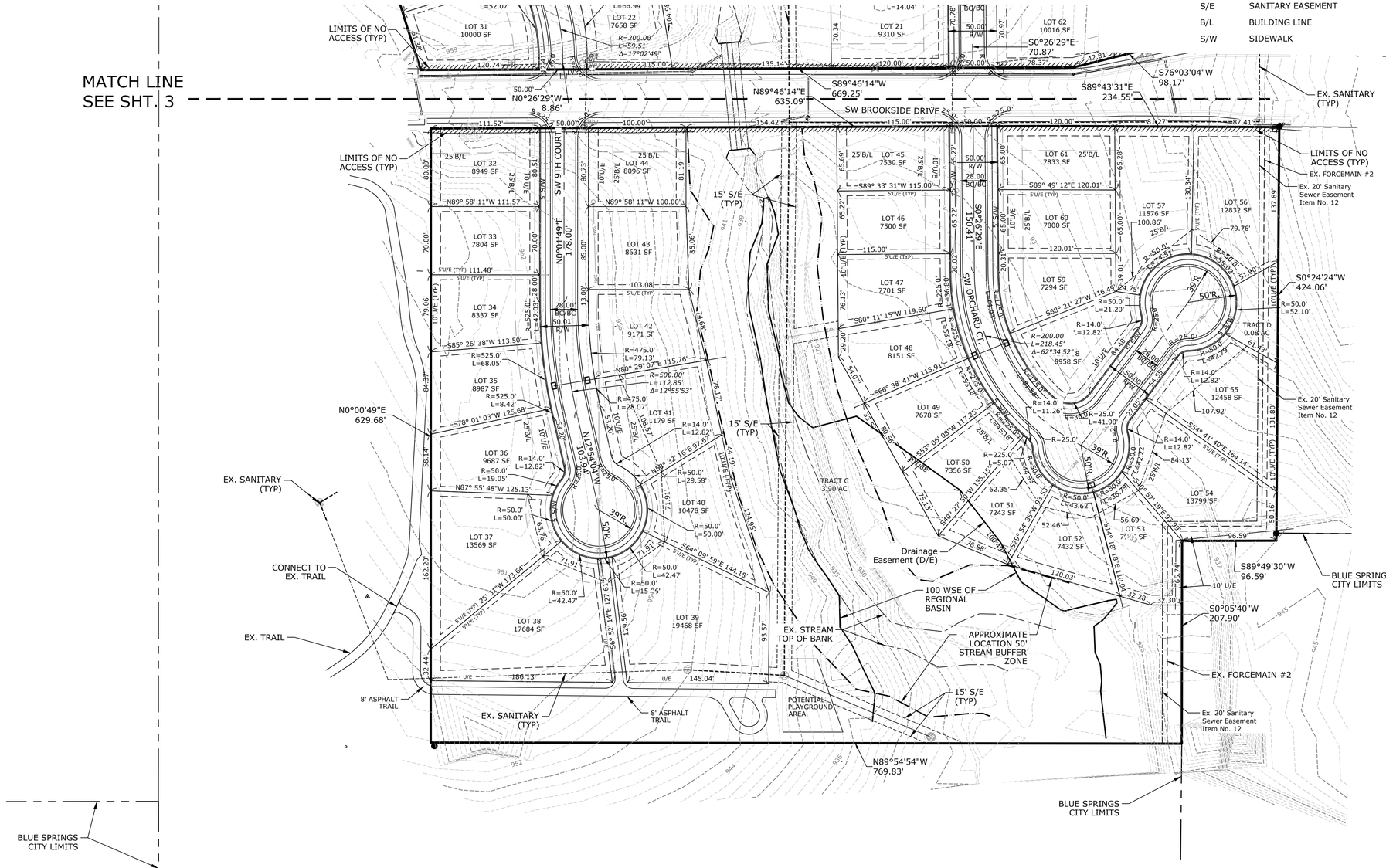
PREPARED FOR:
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SHEET NAME
SITE PLAN

3 of 4

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LEGEND

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P.P.	POWER POLE
	GUY ANCHOR
E.M.H	ELECTRICAL MANHOLE
	ELECTRICAL TRANSFORMER
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KS ENG COA #3315
KS SURVEY COA #363
MO ENG COA #2024038
MO SURV COA# #2022014231
CLINT LOUMASTER, PE

PRELIMINARY PLAT

BROOKSIDE ESTATES
CITY OF BLUE SPRINGS,
JACKSON COUNTY, MISSOURI

NO.	BY	QD	DATE	REVISION
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			01/12/26	CITY COMMENTS

PREPARED FOR:
Brookside Properties Development, LLC
KANSAS CITY, MO. 64152

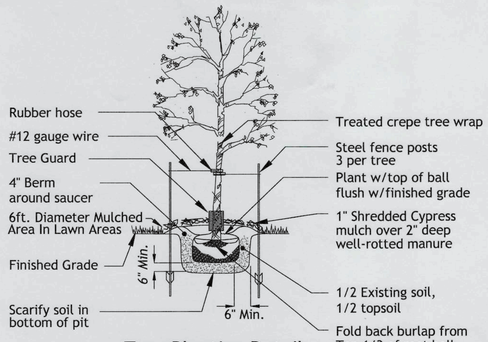
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SHEET NAME
SITE PLAN

4 of 4

2/18/2026 1:14 PM CLINTLOUMASTER
CAD FILE S:\Atlas Land Consulting\2025\Engineering\25-047E - Mertz Blue Springs Subdivision\Civil3D\Production Drawings\Preliminary Plat\25-047 Site Plan.dwg





Tree Planting Detail
No Scale

LANDSCAPE NOTES

CONTRACTOR REQUIRED TO LOCATE ALL UTILITIES BEFORE INSTALLATION TO BEGIN.

Contractor shall verify all landscape material quantities and shall report any discrepancies to the Landscape Architect prior to installation.

No plant material substitutions are allow without Landscape Architect or Owners approval.

Contractor shall guarantee all landscape work and plant material for a period of one year from date of acceptance of the work by the Owner. Any plant material which dies during the one year guarantee period shall be replaced by the contractor during normal planting seasons.

Contractor shall be responsible for maintenance of the plants until completion of the job and acceptance by the Owner.

All new manicured grass and new landscaped areas shall be irrigated and maintained in perpetuity.

All plant material shall be specimen quality stock as determined in the "American Standards For Nursery Stock" published by The American Association of Nurseryman, free of plant diseases and pest, of typical growth of the species and having a healthy, normal root system.

Sizes indicated on the plant list are the minimum, acceptable size. In no case will sizes less than specified be accepted.

All shrub beds within lawn areas to receive a manicured edge.

All shrub beds shall be mulched with 3" of shredded cedar mulch.

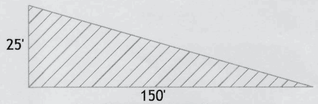
All disturbed areas to be fertilized & sodded with a Turf-Type-Tall Fescue seed blend.

Landscape Matrix Table

Parcel	Buffer Details			Calculations		Proposed Plant Units				Subtotals	
Location of Buffer	**Length (of property line)**	**Buffer Type**	**Buffer Width**	**Plant Unit Calcs**	**Existing Trees** (8pu)	**Shade Trees** (8 pu)	**Ornamental** (5 pu)	**Conifers** (5 pu)	**Shrubs** (1 pu)	**Total Proposed Units**	**Above/ Below Required**
MASON SCHOOL RD	219'	A	7'	2.19*45/100' =99 pu		5 @ 8 =40 pu	5 @ 5 =25 pu	7 @ 5 =35 pu	0	100	+1
NORTH SW BROOKSIDE DR	768'	A	7'	7.22'*45/100' =346 pu		27@ 8 =216 pu	10 @ 5 =50 pu	16@5 = 80pu	0	346	0
SOUTH SW BROOKSIDE DR	864'	A	7'	8.64*45/100' =389 pu		30@ 8 =240 pu	12 @ 5 =60 pu	18@5 = 90pu	0	390	+1
*Open Space Landscaping	265,444 ft.	NA	NA	265,444 / 500= 530 pu	TRACT B & C	0	0	0	0	0	0

Tree List

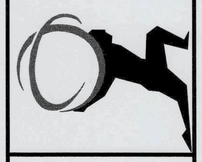
Symbol	Quantity	Common Name	Botanical Name	Size	Condition	Spacing
	22	River Birch	Betula Nigra 'Heritage'	2" cal	BB	As Shown
	38	Red Oak	Quercus Rubra	2" cal	BB	As Shown
	43	Swamp White Oak	Quercus Bicolor	2" cal	BB	As Shown
	34	October Glory Maple	Acer Rubrum 'October Glory'	2" cal	BB	As Shown
	41	Canaert Juniper	Juniperus Virginiana 'Canaertii'	6' hgt	BB	As Shown
	13	Amur Maple	Acer Ginnala 'Flame'	1 1/2"cal	BB	As Shown
	14	Prairiefire Crabapple	Malus Sp. 'Priariefire'	1 1/2"cal	BB	As Shown



SIGHT TRIANGLE



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14500 Parallel Road, Unit R, Basehor KS 66007
KS ENG CoA: #3175
KS SURVEY CoA: #343
MO ENG CoA: #2023014231
MO SURVEY CoA: #2023014231





BROOKSIDE ESTATES

CITY OF BLUE SPRINGS
JACKSON COUNTY, MISSOURI

NO.	BY	CD	DATE	REVISION

FOR PERMIT ONLY

PREPARED FOR:
Brookside Properties Development, LLC
Blue Springs, MO

PROJECT #: 25-047E
ISSUE DATE: 10-3-25

LANDSCAPE PLAN

L1

Received
02/02/2026 8:59:13 AM

THE EXAMINER

AFFIDAVIT OF PUBLICATION

State of Florida, County of Orange, ss:

I, Anjana Bhadoriya, of lawful age, being duly sworn upon oath depose and say that I am an agent of Column Software, PBC, duly appointed and authorized agent of the Publisher of Examiner, a publication that is a "legal newspaper" as that phrase is defined for the city of Independence, for the County of Jackson, in the state of Missouri, that this affidavit is Page 1 of 2 with the full text of the sworn-to notice set forth on the pages that follow, and that the attachment hereto contains the correct copy of what was published in said legal newspaper in consecutive issues on the following dates:

Publication Dates:

- Feb 7, 2026

Printer's Fee: $215.21

Anjana Bhadoriya

_____

Agent

VERIFICATION

State of Florida
County of Orange

JESSICA GORDON-THOMPSON
Notary Public - State of Florida
Commission # HH301656
Expires on August 17, 2026

Signed or attested before me on this: 02/09/2026

_____

Notary Public

Notarized remotely online using communication technology via Proof.

PUBLIC NOTICE

Amended Planned Unit Development Concept Plan PUDC-10-25-9711 "Brookside Estates at Chapman Farms" West of SW 7 HWY., North and South of SW Brookside Drive Parcel # 54-420-98-03-01-0-00-000 & Parcel #54-420-06-99-00-0-00-000

Notice is hereby given that a public hearing will be held by the Planning Commission of the City of Blue Springs on **Monday, February 23, 2026 at 6:30 p.m.** in the Council Chambers of the Howard L. Brown Public Safety Facility at 1100 SW Smith Street for the purpose of hearing interested parties and citizens on a request by the applicant, Clint Loumaster of Atlas Land Consulting, on behalf of the property owner, Brian Mertz, to approve an Amended Planned Unit Development (PUD) Concept Plan to develop a 75-lot (Single-Family Residential) on a 29.25 +/- acres generally located west of SW 7 Highway both North and South of SW Brookside Drive. Interested parties may view the application materials on file by contacting the Community Development Department via email at ComDevLegal@bluespringsgov.com or at City Hall at 903 W Main Street, Blue Springs, MO. The site is legally described as follows:

TRACT I: (NORTH OF SW BROOKSIDE DRIVE)

ALL THAT PART OF THE FOLLOWING DESCRIBED PROPERTY LYING NORTH OF BROOKSIDE DRIVE:

LOT 34, CHAPMAN FARMS - 1ST PLAT, LOTS 1 - 35, IN BLUE SPRINGS, JACKSON COUNTY, MISSOURI, EXCEPT THAT PART CONVEYED TO THE STATE OF MISSOURI IN GENERAL WARRANTY DEED RECORDED MARCH 28, 2006 AS DOCUMENT NO. 2006E0000941, AND EXCEPT THAT PART CONVEYED TO THE CITY OF BLUE SPRINGS, MISSOURI BY GENERAL WARRANTY DEED RECORDED NOVEMBER 6, 2007 AS DOCUMENT NO. 2007E0142933. AND EXCEPT THAT PART, IF ANY, TAKEN

OR USED FOR ROADS.

TRACT II: (SOUTH OF SW BROOKSIDE DRIVE)

ALL THAT PART OF THE FOLLOWING DESCRIBED PROPERTY LYING SOUTH OF BROOKSIDE DRIVE:

LOT 34, CHAPMAN FARMS - 1ST PLAT, LOTS 1 - 35, IN BLUE SPRINGS, JACKSON COUNTY, MISSOURI, EXCEPT THAT PART CONVEYED TO THE STATE OF MISSOURI IN GENERAL WARRANTY DEED RECORDED MARCH 28, 2006 AS DOCUMENT NO. 2006E0000941, AND EXCEPT THAT PART CONVEYED TO THE CITY OF BLUE SPRINGS, MISSOURI BY GENERAL WARRANTY DEED RECORDED NOVEMBER 6, 2007 AS DOCUMENT NO. 2007E0142933. AND EXCEPT THAT PART, IF ANY, TAKEN OR USED FOR ROADS.

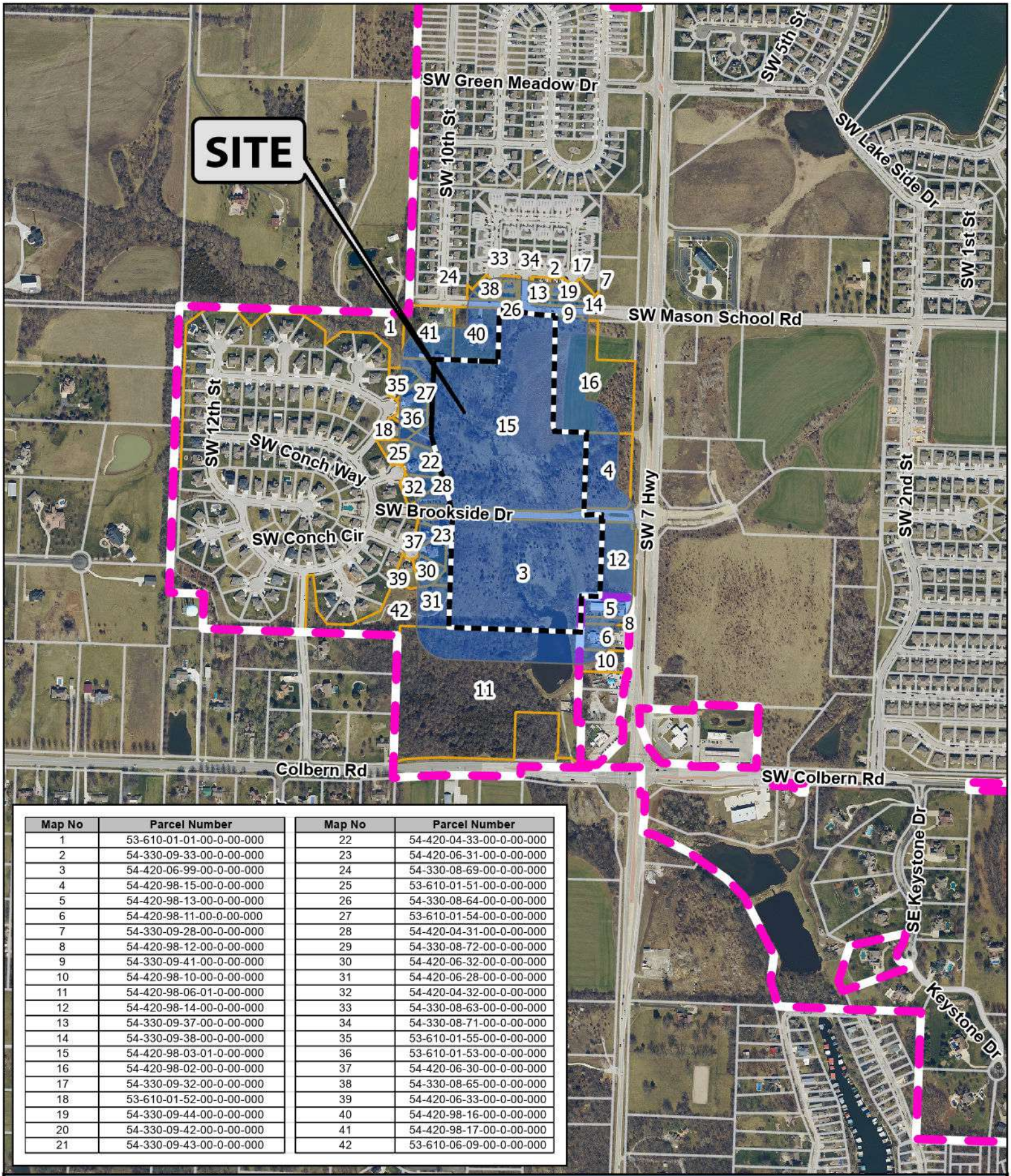
CITY OF BLUE SPRINGS
Planning Commission
By: Shantele Frie, Planner III

The City Council of the City of Blue Springs will also hold a public hearing on the above noted Amended Planned Unit Development Concept Plan PUDC-10-25-9711 on **Monday, March 2, 2026 at 6:00 p.m.** in the Council Chambers of the Howard L. Brown Public Safety Facility to consider the application and the recommendation of the Planning Commission.

CITY OF BLUE SPRINGS
City Council

Published in the Examiner, Feb 7, 2026

4271830



Map No	Parcel Number
1	53-610-01-01-00-0-00-000
2	54-330-09-33-00-0-00-000
3	54-420-06-99-00-0-00-000
4	54-420-98-15-00-0-00-000
5	54-420-98-13-00-0-00-000
6	54-420-98-11-00-0-00-000
7	54-330-09-28-00-0-00-000
8	54-420-98-12-00-0-00-000
9	54-330-09-41-00-0-00-000
10	54-420-98-10-00-0-00-000
11	54-420-98-06-01-0-00-000
12	54-420-98-14-00-0-00-000
13	54-330-09-37-00-0-00-000
14	54-330-09-38-00-0-00-000
15	54-420-98-03-01-0-00-000
16	54-420-98-02-00-0-00-000
17	54-330-09-32-00-0-00-000
18	53-610-01-52-00-0-00-000
19	54-330-09-44-00-0-00-000
20	54-330-09-42-00-0-00-000
21	54-330-09-43-00-0-00-000

Map No	Parcel Number
22	54-420-04-33-00-0-00-000
23	54-420-06-31-00-0-00-000
24	54-330-08-69-00-0-00-000
25	53-610-01-51-00-0-00-000
26	54-330-08-64-00-0-00-000
27	53-610-01-54-00-0-00-000
28	54-420-04-31-00-0-00-000
29	54-330-08-72-00-0-00-000
30	54-420-06-32-00-0-00-000
31	54-420-06-28-00-0-00-000
32	54-420-04-32-00-0-00-000
33	54-330-08-63-00-0-00-000
34	54-330-08-71-00-0-00-000
35	53-610-01-55-00-0-00-000
36	53-610-01-53-00-0-00-000
37	54-420-06-30-00-0-00-000
38	54-330-08-65-00-0-00-000
39	54-420-06-33-00-0-00-000
40	54-420-98-16-00-0-00-000
41	54-420-98-17-00-0-00-000
42	53-610-06-09-00-0-00-000

The City of Blue Springs Missouri

PUDC-10-25-9711 / PP-10-25-9712
Parcel # 54-420-98-03-01-0-00-000 &
54-420-06-99-00-0-00-000
185' LOCATION MAP

N

1" = 700'

Date: 10/15/25

1	53-610-01-01-00-0-00-000	9112 SW 10TH TER	BLUE SPRINGS	64064	THE ESTATES AT CHAPMAN FARMS HOMEOWNERS ASSOCIATION INC	9613 S LAKE SHORE DR LAKE LOTAWANA, MO 64086
2	54-330-09-33-00-0-00-000	810 SW IMPERIAL LN	BLUE SPRINGS	64064	CAAS PROPERTIES SERIES B LLC	14822 FAIRWAY CIR LEAWOOD, KS 66224
3	54-420-06-99-00-0-00-000	NO ADDRESS ASSIGNED BY CITY	BLUE SPRINGS	64064	DAK REALTY DEVCO LLC	9613 S LAKE SHORE DR LAKE LOTAWANA, MO 64086
4	54-420-98-15-00-0-00-000	NO ADDRESS ASSIGNED BY CITY	BLUE SPRINGS	64064	HANDY JEFFERY W & SHERRI L	9500 KEYSTONE DR LEES SUMMIT, MO 64086
5	54-420-98-13-00-0-00-000	9318 S M 7 HWY	LAKE LOTAWANA	64064	A DAY LLC	9512 S MAIN ENTRANCE DR LAKE LOTAWANA, MO 64086
6	54-420-98-11-00-0-00-000	9324 S M 7 HWY	LAKE LOTAWANA	64064	A DAY LLC	9512 LAKE LOTAWANA RD LAKE LOTAWANA, MO 64086
7	54-330-09-28-00-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64064	ABBA HOMES LLC	2501 NE 102ND TER KANSAS CITY, MO 64155
8	54-420-98-12-00-0-00-000	9322 S M 7 HWY	LAKE LOTAWANA	64064	A DAY LLC	9512 LAKE LOTAWANA RD LAKE LOTAWANA, MO 64086
9	54-330-09-41-00-0-00-000	800 SW IMPERIAL LN	BLUE SPRINGS	64064	COOPER ALEX	800 SW IMPERIAL LN BLUE SPRINGS, MO 64064
10	54-420-98-10-00-0-00-000	9400 S M 7 HWY	LAKE LOTAWANA	64064	A DAY LLC	9400 A MO 7 HWY LEES SUMMIT, MO 64064
11	54-420-98-06-01-0-00-000	801 SW COLBERN RD	BLUE SPRINGS	64064	SARAI JARNAIL S & MANJIT K	1405 SUNNY CREEK LN BLUE SPRINGS, MO 64014
12	54-420-98-14-00-0-00-000	9304 S M 7 HWY	BLUE SPRINGS	64064	FLANDERS ASSET MANAGEMENT LC	1401 MORAY CT PARK CITY, UT 84060
13	54-330-09-37-00-0-00-000	820 SW IMPERIAL LN	BLUE SPRINGS	64064	THE ORCHARDS AT CHAPMAN FARMS TNHM ASSOC	605 SW US HIGHWAY 40 BOX 328 BLUE SPRINGS, MO 64014
14	54-330-09-38-00-0-00-000	9024 SW ORCHARD LN	BLUE SPRINGS	64064	ABBA HOMES LLC	2501 NE 102ND TER KANSAS CITY, MO 64155
15	54-420-98-03-01-0-00-000	NO ADDRESS ASSIGNED BY CITY	BLUE SPRINGS	64064	DAK REALTY DEVCO LLC	9613 S LAKE SHORE DR LAKE LOTAWANA, MO 64086
16	54-420-98-02-00-0-00-000	NO ADDRESS ASSIGNED BY CITY	BLUE SPRINGS	64064	JAMES H DEEKEN REVOCABLE TRUST DTD 1/31/03	5050 MAIN ST APT 147 KANSAS CITY, MO 64112
17	54-330-09-32-00-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64064	ABBA HOMES LLC	2501 NE 102ND TER KANSAS CITY, MO 64155
18	53-610-01-52-00-0-00-000	9200 SW 10TH TER	BLUE SPRINGS	64064	COLLEY GARY & DEBRA L	9200 SW 10TH TER BLUE SPRINGS, MO 64064
19	54-330-09-44-00-0-00-000	806 SW IMPERIAL LN	BLUE SPRINGS	64064	LINDA L LITTON REVOCABLE LIVING TRUST DATED 10-31-2022	PO BOX 6471 LEES SUMMIT, MO 64064
20	54-330-09-42-00-0-00-000	802 SW IMPERIAL LN	BLUE SPRINGS	64064	MARTINEZ ERIK OJD	802 SW IMPERIAL LN BLUE SPRINGS, MO 64064
21	54-330-09-43-00-0-00-000	804 SW IMPERIAL LN	BLUE SPRINGS	64064	KOZICZKOWSKI ROBERT J & SHERI L	804 SW IMPERIAL LN BLUE SPRINGS, MO 64064
22	54-420-04-33-00-0-00-000	9200 SW WHISPY WAY	BLUE SPRINGS	64064	CLAYBURG MICHAEL JOHN & KRISTY	9200 SW WHISPY WAY LEES SUMMIT, MO 64064
23	54-420-06-31-00-0-00-000	9312 SW TSUNAMI CT	BLUE SPRINGS	64064	BACKOUS JAMIE & BRADLEY	9312 SW TSUNAMI CT LEES SUMMIT, MO 64064
24	54-330-08-69-00-0-00-000	9025 SW ORCHARD LN	BLUE SPRINGS	64064	ABBA HOMES LLC	2501 NE 102ND TER KANSAS CITY, MO 64155
25	53-610-01-51-00-0-00-000	9201 SW WHISPY WAY	BLUE SPRINGS	64064	JONES TODD & ELLEN	9201 SW WHISPY WAY BLUE SPRINGS, MO 64064
26	54-330-08-64-00-0-00-000	920 SW IMPERIAL LN	BLUE SPRINGS	64064	AGRAWAL OM P & HEM L	920 SW IMPERIAL LN LEES SUMMIT, MO 64064
27	53-610-01-54-00-0-00-000	9104 SW 10TH TER	BLUE SPRINGS	64064	SHILLCUTT AARON AKA SHILLCUTT AARON L & COURTNEY	9104 SW 10TH TER BLUE SPRINGS, MO 64064
28	54-420-04-31-00-0-00-000	1015 SW BROOKSIDE DR	BLUE SPRINGS	64064	THE ESTATES AT CHAPMAN FARMS HOMEOWNERS ASSOCIATION INC	9613 S LAKE SHORE DR LAKE LOTAWANA, MO 64086
29	54-330-08-72-00-0-00-000	910 SW IMPERIAL LN	BLUE SPRINGS	64064	ZHANG HONGYU & NIU YAFEN	6624 W 147TH TERRACE OVERLAND PARK, KS 66223
30	54-420-06-32-00-0-00-000	9313 SW TSUNAMI CT	BLUE SPRINGS	64064	WARD PETER & MICHAELA	9313 SW TSUNAMI CT BLUE SPRINGS, MO 64064
31	54-420-06-28-00-0-00-000	1010 SW BROOKSIDE DR	BLUE SPRINGS	64064	THE ESTATES AT CHAPMAN FARMS HOMEOWNERS ASSOCIATION INC	9613 S LAKE SHORE DR LAKE LOTAWANA, MO 64086
32	54-420-04-32-00-0-00-000	9204 SW WHISPY WAY	BLUE SPRINGS	64064	VASKO FAMILY TRUST DATED JULY 25, 2022	9204 SW WHISPY WAY BLUE SPRINGS, MO 64064
33	54-330-08-63-00-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64064	THE ORCHARDS AT CHAPMAN FARMS TOWNHOMES	2501 NE 102ND TER KANSAS CITY, MO 64154
34	54-330-08-71-00-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64064	THE ORCHARDS AT CHAPMAN FARMS TOWNHOMES	2501 NE 102ND TER KANSAS CITY, MO 64154
35	53-610-01-55-00-0-00-000	9100 SW 10TH TER	BLUE SPRINGS	64064	MARTIN ANN & ANDREW	9100 SW 10TH TER BLUE SPRINGS, MO 64064
36	53-610-01-53-00-0-00-000	9108 SW 10TH TER	BLUE SPRINGS	64064	HINES CARMEN M & COLIN D	9108 SW 10TH TER LEES SUMMIT, MO 64064
37	54-420-06-30-00-0-00-000	9308 SW TSUNAMI CT	BLUE SPRINGS	64064	HAAS RYAN H & BELTGENS NATALIE L	29203 E COLBURN RD GRAIN VALLEY, MO 64029
38	54-330-08-65-00-0-00-000	924 SW IMPERIAL LN	BLUE SPRINGS	64064	AGRAWAL OM P	891 HISHLANDS CIR LOS ALTOS, CA 94024
39	54-420-06-33-00-0-00-000	9309 SW TSUNAMI CT	BLUE SPRINGS	64064	HARRIS TREVOR K	9309 SW TSUNAMI CT BLUE SPRINGS, MO 64064
40	54-420-98-16-00-0-00-000	26101 SW MASON SCHOOL RD	BLUE SPRINGS	64064	STRAIGHT JOHN H & GWENDOLYN F	26101 SW MASON SCHOOL RD BLUE SPRINGS, MO 64064
41	54-420-98-17-00-0-00-000	26003 SW MASON SCHOOL RD	BLUE SPRINGS	64064	RHODES ERIC C & MARGARET DC	26003 SW MASON SCHOOL RD BLUE SPRINGS, MO 64064
42	53-610-06-09-00-0-00-000	1098 SW CONCH CIR	BLUE SPRINGS	64064	THE ESTATES AT CHAPMAN FARMS HOMEOWNERS ASSOCIATION INC	9613 S LAKE SHORE DR LAKE LOTAWANA, MO 64086

Blue Springs, Missouri
Community Development

January 30, 2026

Ref: Public Hearing: Amended Planned Unit Development Concept Plan | PUDC-10-25-9711
Brookside Estates at Chapman Farms
West of SW 7 Hwy and both North and South of SW Brookside Dr
Parcel # 54-420-98-03-01-0-00-000; 54-420-06-99-00-0-00-000

Dear Property Owner:

A Public Hearing will be held by the Planning Commission and the City Council of the City of Blue Springs to receive comments from interested parties and citizens relative to a request by the applicant, Clint Loumaster of Atlas Land Consulting for consideration to approve the Amended PUD Concept Plan to develop a 75-lot single-family subdivision ("Brookside Estates at Chapman Farms") on a 29.25+/- acre property located West of SW 7 Hwy and both North and South of SW Brookside Dr.

You are receiving this notice because County records indicate you own property within 185 feet of the boundary of the site in question.

Interested parties may view the application materials on file by contacting the Community Development Department via email at ComDevLegal@bluespringsgov.com or at City Hall at 903 W Main Street, Blue Springs, MO.

The hearing will be held in the Council Chambers in the Howard L. Brown Public Safety Building located at 1100 SW Smith Street, Blue Springs on the following dates:

Planning Commission – Monday, February 23, 2026 @ 6:30 p.m.
&
City Council – Monday, March 2, 2026 @ 6:00 p.m.

Your attendance and comments are welcome at these meetings. Questions concerning this matter may be directed to the Community Development Department at 816-228-0207.

Sincerely,

CITY OF BLUE SPRINGS
COMMUNITY DEVELOPMENT

Traci Breshears
Administrative Assistant

Introduced by Councilmember _____ BILL 5384

ORDINANCE_____

AN ORDINANCE APPROVING BROOKSIDE ESTATES AMENDED PLANNED UNIT DEVELOPMENT CONCEPT PLAN

WHEREAS, proper application having been made to approve an amended Planned Unit Development (PUD) Concept Plan for property hereinafter described; and

WHEREAS, after review of the amended Planned Unit Development Concept Plan with respect to such issues as density, impacting surrounding areas, and the adequacy of facilities and services, basic parameters are established for the development of the PUD project; and

WHEREAS, in accordance with Title IV, Unified Development Code (UDC) of the Municipal Code of the City of Blue Springs, Missouri, said application was referred to the Planning Commission for report and recommendation, and a public hearing was held on February 23, 2026, which Commission, after said hearing, recommended that the application for the amended Planned Unit Development Concept Plan be approved; and

WHEREAS, thereafter a public hearing was held by the City Council on March 2, 2026; and

WHEREAS, in accordance with Title IV, Unified Development Code of the Municipal Code of the City of Blue Springs, Missouri, it was determined the PUD Concept Plan was appropriate at the location herein described; and

WHEREAS, the City of Blue Springs, Missouri has regulated the development at this location by requiring that it be developed as a PUD Concept Plan; and

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF BLUE

SPRINGS, MISSOURI, as follows:

Section 1. The following described tract of real estate is hereby declared subject to the Brookside Estates PUD Concept Plan. The site is legally described as:

Legal Description:

TRACT I: (NORTH OF SW BROOKSIDE DRIVE) ALL THAT PART OF THE FOLLOWING DESCRIBED PROPERTY LYING NORTH OF BROOKSIDE DRIVE:

LOT 34, CHAPMAN FARMS - 1ST PLAT, LOTS 1 - 35, IN BLUE SPRINGS, JACKSON COUNTY, MISSOURI, EXCEPT THAT PART CONVEYED TO THE STATE OF MISSOURI IN GENERAL WARRANTY DEED RECORDED MARCH 28, 2006 AS DOCUMENT NO. 2006E0000941, AND EXCEPT THAT PART CONVEYED TO THE CITY OF BLUE SPRINGS, MISSOURI BY GENERAL WARRANTY DEED RECORDED NOVEMBER 6, 2007 AS DOCUMENT NO. 2007E0142933. AND EXCEPT THAT PART, IF ANY, TAKEN OR USED FOR ROADS.

TRACT II: (SOUTH OF SW BROOKSIDE DRIVE)

ALL THAT PART OF THE FOLLOWING DESCRIBED PROPERTY LYING SOUTH OF BROOKSIDE DRIVE: LOT 34, CHAPMAN FARMS - 1ST PLAT, LOTS 1 - 35, IN BLUE SPRINGS, JACKSON COUNTY, MISSOURI, EXCEPT THAT PART CONVEYED TO THE STATE OF MISSOURI IN GENERAL WARRANTY DEED RECORDED MARCH 28, 2006 AS DOCUMENT NO. 2006E0000941, AND EXCEPT THAT PART CONVEYED TO THE CITY OF BLUE SPRINGS, MISSOURI BY GENERAL WARRANTY DEED RECORDED NOVEMBER 6, 2007 AS DOCUMENT NO. 2007E0142933. AND EXCEPT THAT PART, IF ANY, TAKEN OR USED FOR ROADS.

Section 2. No land covered within this PUD designation, or contained within the area described by Section 1 of this Ordinance, may be developed except in compliance with the Brookside Estates Planned Unit Development Concept Plan approved herein by the City of Blue Springs or hereinafter revised, and the requirements of said PUD Concept Plan shall include any staff recommendations contained in the staff report and presented to the Planning Commission at its February 23, 2026 meeting and to the City Council at its March 2, 2026 meeting, and approved by the City Council as conditions of development passage by this Ordinance and of this PUD, and shall be deemed to include those conditions in additions to those contained in the UDC and in documents and drawings submitted to the Planning Commission and City Council and approved hereby, including the following conditions:

1. Approval based on the representations of any drawing presented as part of this application does not waive any requirement or development standard contained in the UDC, unless modified by the Amended Planned Unit Development:

    a. Established minimum lot standards that deviate from the "SF-7" zoning district standards, as outlined in the table under "Brookside Estates-Non-conforming lots which include reductions to the minimum lot width frontage at Building Line. Lots 13, 14,15, 16, 47, 48, 50, and 63.

2. The following items shall be included and approved with the PUD Final Plan:

a. Final building designs for single-family houses meeting the architectural design requirements included in the PUD Concept Plan.

b. Final Landscape Plan addressing landscaping on all tracts and street trees.

c. Final illustrative plan for amenities.

3. The following items shall be included on the Final Plat for each development phase:

    a. A Limits of No Access shall be delineated and dedicated on all lots and tracts adjacent to SW Mason School Road and SW Brookside Drive.

    b. The minimum livable floor area classification of 1,400-sf must be noted on the Final Plat

    c. Easements are required over all storm detention and storm water quality best management practices on the Final Plat.

4. The following items shall be completed prior to approval of the Final Plat:

    a. A PUD Final Plan shall be submitted and approved by the Planning Commission
    b. A Sidewalk Plan compliant with the Americans with Disabilities Act (ADA) shall be submitted with final construction plans.

c. All sidewalk improvements adjacent to tracts are required to be installed.

d. All public improvements, unless stated otherwise, shall be completed prior to approval of the Final Plat.

e. A Storm Water Drainage Study must be submitted and approved by the Engineering Division of Public Works prior to approval of the Final Plat by City Council.

f. Landscape buffers and amenities shall be installed or financially guaranteed prior to approval of the Final Plat.

g. As-builts and 2-year maintenance bonds on the street, storm sewers, and sanitary sewers shall be submitted prior to approval of the Final Plat by the City Council.

h. A sealed letter by a Registered Professional Engineer in the State of Missouri stating the detention basin has been improved per the approved plans and will function as designed shall be submitted prior to approval of the Final Plat by the City Council.

i. A letter of Final Acceptance from Public Water Supply District 13 stating water lines have been fully completed and all documentation has been provided to the District must be submitted prior to approval of the Final Plat by the City Council.

5. The following items shall be provided prior to the issuance of any building permits within the development:

a. Drafts of the proposed Declaration of Restrictions and the Homes Association Declaration are required to be submitted and recorded with the Final Plat. Declarations must address the maintenance of all open space tracts and trails.

b. A Final Plat shall be approved by the City Council and recorded at Jackson County.

6. The following items shall be provided prior to the issuance of a Certificate of Occupancy for each lot:

a. Sidewalk improvements adjacent to each lot.

b. A minimum of 45 Plant units and street tree shall be installed.

Section 3. The base zoning district standards, applicable overlay standards and other applicable regulations of the Unified Development Code shall control development within the PUD Concept Plan except those regulations that are modified and allowed in the Brookside Estates PUD Concept Plan.

Section 4. A Planned Unit Development Final Plan shall be submitted and approved prior to the issuance of any building permits for the PUD Final Plan area. Approval of the PUD Final Plan shall only be granted if it is substantial compliance with the approved Brookside Estates Concept Plan.

Section 5. That this Ordinance shall be in full force and effect from and after its passage and approval.

Section 6. Scrivener's Errors. Typographical errors and other matters of a similar nature that do not affect the intent of this Ordinance, as determined by the City

Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

1st Reading: _____

2nd Reading: _____

BLUE SPRINGS
MISSOURI

CITY COUNCIL

March 2, 2026

EXHIBITS FOR PUBLIC HEARING

EPIC RETAIL

GENERAL DEVELOPMENT PLAN

(GDP-12-25-9764)

EXHIBIT #1 City Council Information Form dated February 24, 2026 with the following attachments: Staff Report with attachments, Affidavits of Publication in The Examiner on February 7, 2026, 185 ft. Notification Map, Names/addresses of property owners within 185 ft. of site, Copy of letter sent to said property owners, and Bill approving the General Development Plan for Epic Retail

EXHIBIT 1
CITY COUNCIL
EPIC RETAIL
GENERAL DEVELOPMENT PLAN
(GDP-12-25-9764)
MARCH 2, 2026

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 24, 2026

ITEM TYPE: Public Hearing / Ordinance

SUBMITTED BY: Logan Day

CONTRACT NUMBER: N/A

DEPARTMENT: City Development

STRATEGIC PLAN PRIORITY: Balanced Growth

ITEM DESCRIPTION

A public hearing is being held at the request of the Applicant, Bart Fisher of Epic Concrete, Inc for consideration to approve a General Development Plan for Epic Retail located at 2850 NW 7 Highway, to allow a retail development on 0.65 acres of land (GDP-12-25-9764). Upon conclusion of the public hearing, a Bill approving the General Development Plan will be ready for introduction and readings.

BACKGROUND

The applicant, Bart Fisher of Epic Concrete Construction, Inc., on behalf of the property owner, is requesting approval of a General Development Plan for Epic Retail. The subject property consists of approximately 0.65 ± acres, is zoned "GB" (General Business), and is currently vacant. The site is part of the Casey's Subdivision Plat.

The proposed development includes approximately 28,200 square feet of retail space distributed among three buildings, along with associated site improvements necessary

to support the development, including parking, access, utilities, and landscaping. The development is classified as a "General Commercial Building" type which is defined as "a basic building type designed to accommodate retail, commercial, service or office functions in a variety of formats and scales."

PROJECT TIMELINE

INFORMATION	DETAIL
Estimated Start Date	March 2, 2026
Estimated End Date	N/A

STAFF RECOMMENDATION

Staff recommends approval of the General Development Plan with the following conditions:

1. Approval by the City Council based on the representations of any drawings presented as part of this application does not waive any requirement or development standard contained in the UDC.

2. A Site Plan Design Review is required to reviewed final building and site design, including landscaping.

3. Final building and site design must meet Non-Residential Design Standards per UDC 407.090 and any other applicable sections of the Unified Development Code.

4. At the time of Site Plan Design Review, a Micro Drainage Study shall be submitted. The study shall include supporting hydrologic and hydraulic modeling, verifying the proposed detention design, clearly delineated drainage areas, routing diagrams, and drainage maps. The report shall demonstrate no adverse

impact at the identified downstream points of interest by comparing existing and proposed conditions. All analyses and designs shall comply with the requirements of the City of Blue Springs Design and Construction Manual and applicable MARC standards.

5. At the time of Site Plan Design Review, and consistent with the approved Traffic Impact Study, the westbound approach at the intersection of Missouri Route 7 and NW Pink Hill Road shall be restriped to provide one (1) dedicated left-turn lane and one (1) shared through/right-turn lane, as identified in the study.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: Planning Commission

Date: February 23rd, 2026

Action: Recommend approval of General Development Plan: 7-aye, 1-no

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Staff Report with attachments; Affidavit of Publication in The Examiner on February 07, 2026, 185 ft. Notification Map; Names/addresses of property owners within 185 ft. of site; Copy of letter sent to said property owners

2. Bill approving the General Development Plan for Epic Retail

REVIEWED BY

Requesting Director: Nic Hutchison

Legal: James Newell

Administration: George Schmitz

City Administrator: Christine Cates

Budget: N/A

PLANNING APPLICATION REVIEW STAFF REPORT

Project Information

Meeting Dates:

Planning Commission: February 23rd, 2026

City Council Date: March 2nd, 2026

Project Name: Epic Retail

Site Location: 2850 NW 7 Hwy, Blue Springs, MO 64014

Applicant: Bart Fisher, Epic Concrete

Property Owner: J&M SARAI LLC

Staff Planner: Logan Day, Planner I

Project Request:

PP-12-25-9765; Preliminary Plat for a 1 lot commercial development on 3.49 (+/-) acres

GDP-12-25-9764; General Development Plan for a one lot commercial development on 3.49 (+/-) acres.

Project Description:

The applicant is requesting approval of a General Development Plan and Preliminary Plat for a proposed commercial development on approximately 3.49 acres, located at 2850 and 2800 NW 7 Highway..

Staff Recommendation:

Staff recommends **approval** of the General Development Plan and Preliminary Plat with conditions identified at the end of the staff report.

Previous Actions:

Date	Review Body	Action
March 9th, 1997	Planning Commission	Recommended approval for Casey's Addition 1st plat.
March 16, 1997	City Council	Approved Casey's Addition 1st plat.

Future Applications:

Future Applications include a Site Plan Design Review and Final Plat. The Final Plat must be approved and recorded at Jackson County prior to the issuance of building permits.

Adjacent Properties:

Direction	Current Zoning	Current Land Use(s)
North:	"GB" (General Business)	Gas Station (Casey's)
South:	"MF-14" (Moderate Density Multi-Family)	Multi-Family Housing

East:	"MF-14"(Moderate Density Multi-Family)	Multi-Family Housing
West:	"LI" (Light Industrial)	RV Dealer (VanDOit Vans)

Preliminary Plan & Plat Analysis

The purpose of the general development plan process is to ensure compliance with zoning and other development regulations and the achievement of quality development through the review of a general development plan that will represent the general development on the site. The general development plan will be approved by City Council to establish the framework for development on a property. A general development plan is a generalized development plan for the entire area proposed to be included within a proposed development. The purpose of a general development plan is to allow preliminary review of a proposed development before substantial technical work has been undertaken.

Platting is a process where a proposed division, or partition of land and property interests therein, is reviewed to ensure: development patterns in compliance with long-range comprehensive plans; coordinating infrastructure with existing, future and potential capital improvements; and that all lots are buildable, served with adequate public facilities, and capable of meeting the zoning and development standards.

Preliminary Plat Requirements:

The proposed Preliminary Plat meets the minimum standards described in UDC Section 403.050 and submittal requirements provided in the Preliminary Plat application. Land Use & Density

Building Typology:

The proposed development is classified as a "General Commercial Building" type which is defined as "a basic building type designed to accommodate retail, commercial, service or office functions in a variety of formats and scales. Variations of this type are based on the scale and intensity of the use and subject to lot and setback standards of the zoning district or any specific use limitations for the intended use."

General Commercial Building

Standard	Requirement	Proposed
Frontage Width	75 feet minimum	75 feet minimum
Lot Area	N/A	N/A
Front Setback	25 feet	25 feet
Side Setback	20 feet	20 feet
Corner Side	25 feet	25 feet
Rear Setback	25 feet	25 feet
Building Coverage	65% maximum	19%
Building Height	60 feet maximum	25 feet
Frontage Type	Terrace	Terrace

*height measured at average height between eaves and ridge line of gabled or hipped roof.

Architectural Character:

The site includes three (3) single story buildings. The buildings proposed have a stucco siding with brick veneer siding accents. **The buildings and site design are required to meet the Non-Residential Design standards in UDC Section 407.090. Final building and sire design will be reviewed through the Site Plan Design Review process.**

Parking:

Vehicular parking is required and proposed as follows:

Land Use	Required	Provided
Retail Sales and Services	113 spaces	117 spaces

Bike parking is required and proposed as follows:

Land Use	Required	Provided
Retail Sales and Services	11.3 spaces	12 spaces

The applicant is proposing 117 total spaces for the site and all parking stalls meet the minimum size requirements. The site only requires 113 parking spaces due to the total square footage of the retail spaces.

Streets & Sidewalks:

The proposed development includes two (2) points of vehicular access: one existing shared access drive with Casey's General Store along 7 Highway and one (1) additional proposed access drive along Hunters Drive.

Pedestrian Access:

The applicant is proposing a internal sidewalk; the sidewalks are all around the exterior of the building footprints. The internal sidewalks are comprised of a mixture of five (5) to six (6) foot sidewalks. A five (5) foot sidewalk meeting Americans with Disability Act regulations is required along 7 Highway and Hunters Drive.

Traffic:

Traffic Impact Study was done for this development, through said study it was identified that the westbound pavement markings at the intersection of Missouri Route 7 and NW Pink Hill Road would need to be configured as a dedicated turn left turn lane and a combined through movement and right turn lane. No other improvements were identified as a result of the proposed development.

Stormwater:

A Macro Drainage study has been approved by the City Engineer for this development. In the future Site Plan Design Review, a Macro Drainage shall be submitted with the construction drawings showing how detention shall be constructed with modelling to confirm the macro report along with specific drainage areas with a routing diagram and drainage maps. The report shall show reduction in site specific point of interest comparing the existing to proposed and meet all requirements of the City of Blue Springs Design and Construction Manual and MARC.

Sanitary Sewer:

Gravity sanitary sewer is located on MO-7 HWY on the west side of the development. An engineer or surveyor will need to determine if the sewer invert elevations are such for this development to utilize this sanitary sewer

Signage:

All signs must meet the Sign Code and will be reviewed administratively and must follow the appropriate permitting process. Following the approval of the Site Plan Design Review and Final Plat.

Frontage & Landscaping:

The applicant has submitted a conceptual landscape plan for the site. While a formal tree preservation plan is not proposed, the developer intends to preserve several existing trees and supplement the site with a mix of new trees and shrubs throughout the available green space.

A varying Type B buffer is proposed along the rear property line to accommodate site elements such as the grease interceptor and dumpster enclosure without encroaching into required landscaping areas. A more intensive 15-foot-wide Type B buffer is provided in a portion of the rear yard, which expands to a 25-foot-wide Type B buffer in other areas. Existing fencing along the rear property line will also be utilized to help meet buffer requirements.

Open Space:

Per the “GB”-General Business zoning district standards, designated open space is twelve (12) percent. The development is required to install open space landscaping within the parking areas

Phasing:

The site is proposed to be developed in a single phase.

Review Criteria

A General Development Plan shall be reviewed according to the following criteria:

1. The proposed general development plan is consistent with the Comprehensive Plan and all requirements of the UDC, unless modifications are requested and approved through the approval of the general development plan. Said modifications shall generally be minor and shall be clearly noted in the staff report.

    a. *The proposed general development plan is consistent with the Comprehensive Plan and all requirements of the UDC. The applicant has not requested any deviations or modifications to the UDC.*

2. The proposed general development plan is consistent with the current zoning on the property or conditional on the approval of an existing application for a Zoning Map amendment.

    a. *The proposed general development plan is consistent with the current zoning on the property and the proposed use is allowed by right in the General Business zoning district.*

3. The general development plan is in compliance with all applicable use, development and design standards set forth in the Code, unless alternative design standards have been approved for the development.

a. *The general development plan complies with all applicable use, development, and design standards set forth in this Code. No alternative development standards have been proposed.*

4. Adequate facilities and services exist or are planned by the project to serve the development at the time of construction.

a. *There are existing and planned facilities and services in place or proposed to serve the development.*

5. The general development plan is sensitive to the existing land uses and is compatible with the existing adjacent land use designations. Compatibility with the surrounding area is demonstrated by proposed improvements, including screening and buffering that has been provided to minimize impacts to adjacent uses.

a. *The general development plan is sensitive to the existing land uses and is compatible with the existing adjacent land use designations.*

6. The general development plan will provide for orderly physical growth of the City, and foster safe, convenient and walkable neighborhoods and shopping districts.

a. *The general development plan will provide for orderly physical growth of the City.*

Review Criteria

A Preliminary Plat shall be reviewed based on the following criteria:

1. The application is in accordance with the Comprehensive Plan and any official plan or program developed under the guidance of the Comprehensive Plan. In particular the physical patterns, arrangement of streets, blocks, lots and open spaces, and public realm investments reflect the principles and concepts of the plan.

a. *The proposed Preliminary Plat is in accordance with the Comprehensive Plan Designation of corridor reinvestment area.*

2. Compliance with the requirements of the Development Code. In particular the blocks and lots proposed are capable of meeting all development and site design standards under the existing or proposed zoning.

a. *The proposed plan is in compliance with the requirements of the Development Code.*

3. Any phasing proposed in the application is clearly indicated and demonstrates a logical and coordinated approach to development, including coordination with existing and potential development on adjacent property.

a. *The plan is proposed to be developed in one phase*

4. Any impacts identified by specific studies or technical reports, including a preliminary review of storm water, are mitigated with generally accepted and sound planning, engineering, and urban design solutions, that reflect long-term solutions and sound fiscal investments.

5. The application does not deter any existing or future development on adjacent property from meeting the goals and policies of the Comprehensive Plan.

a. *The application does not deter any existing or future development on adjacent properties. The redevelopment will hopefully spark development on adjacent vacant properties.*

6. The design does not impede the construction of future public infrastructure within the area.

a. *The design of the site does not impede the construction of future public infrastructure within the area.*

7. The recommendations of professional staff.

a. *Staff recommends approval of the Preliminary Plat with conditions*

Approval of the preliminary plat shall constitute acceptance of the overall planning concepts for the subdivision and is a prerequisite for the filing of a final plat. After approval of the preliminary plat the applicant may proceed with the construction plans and submit the proposed final plat for review and approval.

Staff Recommendations:

Staff recommends approval of the General Development Plan application with the following conditions:

Staff recommends approval of the General Development Plan application with the following conditions:

1. Approval by the City Council based on the representations of any drawings presented as part of this application does not waive any requirement or development standard contained in the UDC.

2. A Site Plan Design Review is required to review final building and site design, including landscaping.

3. Final building and site design must meet Non-Residential Design Standards per UDC 407.090 and any other applicable sections of the Unified Development Code.

4. At the time of Site Plan Design Review, a Micro Drainage Study shall be submitted. The study shall include supporting hydrologic and hydraulic modeling verifying the proposed detention design, clearly delineated drainage areas, routing diagrams, and drainage maps. The report shall demonstrate no adverse impact at identified downstream points of interest by comparing existing and proposed conditions. All analyses and design shall comply with the requirements of the City of Blue Springs Design and Construction Manual and applicable MARC standards.

5. At the time of Site Plan Design Review, and consistent with the approved Traffic Impact Study, the westbound approach at the intersection of Missouri Route 7 and NW Pink Hill Road shall be restriped to provide one (1) dedicated left-turn lane and one (1) shared through/right-turn lane, as identified in the study.

Staff recommends approval of the Preliminary Plat application with the following conditions:

1. Approval by the Planning Commission based on the representations of any drawings presented as part of this application does not waive any requirement or development standard contained in the UDC.

2. A 5-foot-wide sidewalk meeting Americans with Disability Act regulations is required along Hunters Drive and MO HWY 7.

3. Prior to Final Plat recording, all Public Works items must be complete and pass inspection. This includes but is not limited to recommendations from the Traffic Impact Study.

4. Easements shall be delineated, labeled, and dedicated for all storm detention and storm water quality best management practices on the Final Plat.

5. A Final Plat must be approved and recorded prior to the issuance of any building permits within the development.



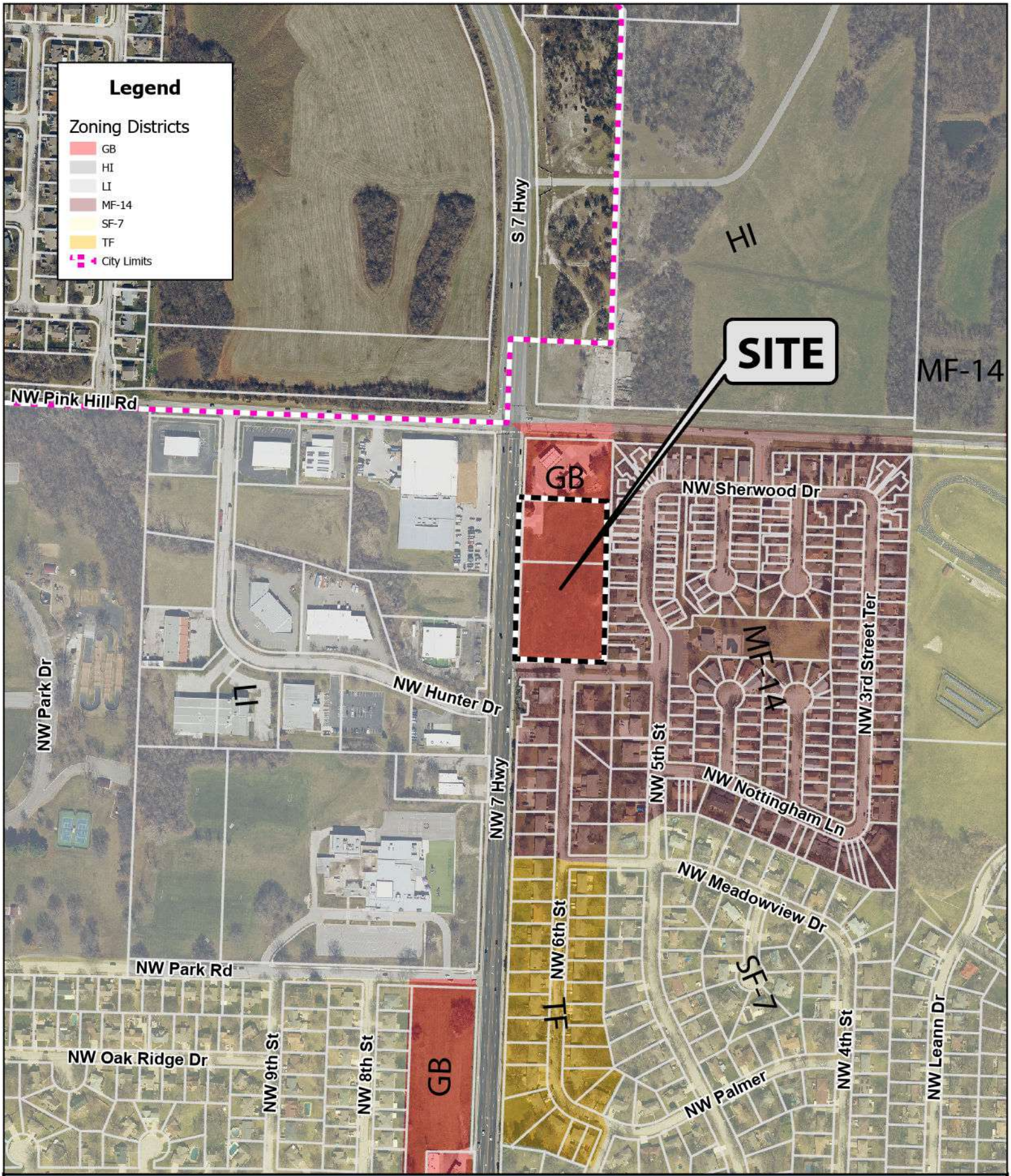
BLUE SPRINGS
MISSOURI

PP-12-25-009765 / GDP-12-25-009764
EPIC RETAIL
AERIAL LOCATION MAP

N

1" = 200'

Date: 01/20/26



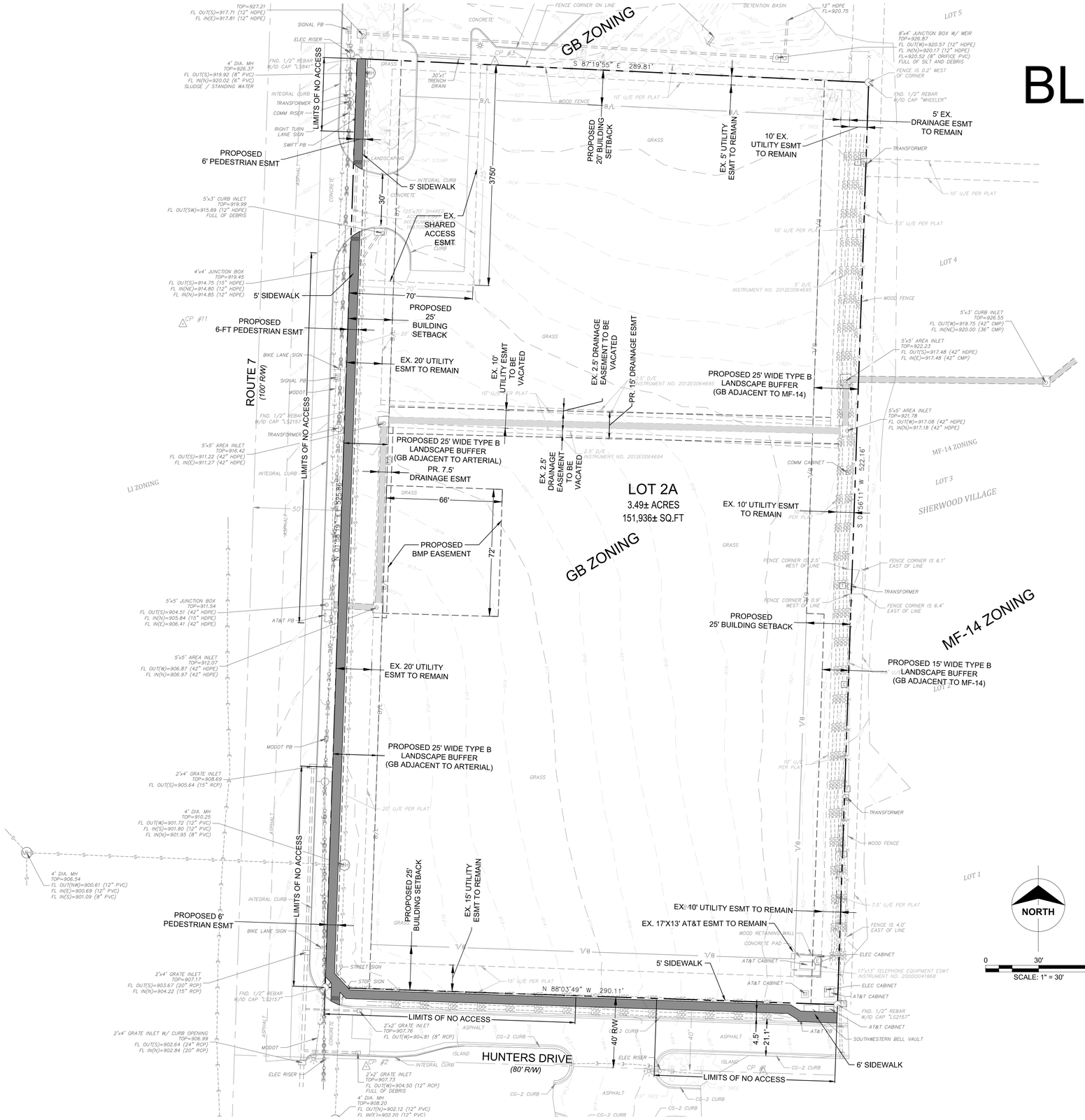
BLUE SPRINGS MISSOURI

PP-12-25-009765 / GDP-12-25-009764
EPIC RETAIL
SITE LOCATION AND ZONING MAP

N

1" = 400'

Date: 01/20/26

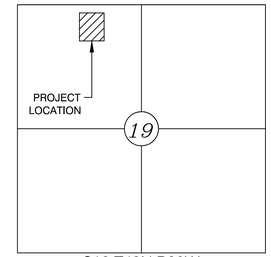


PRELIMINARY PLAT FOR
BLUE SPRING RETAIL

A REPLAT OF

CASEY'S ADDITION FIRST PLAT

SECTION 19, TOWNSHIP 49N, RANGE 30W
2800 & 2850 MO-7
BLUE SPRINGS, JACKSON COUNTY, MISSOURI 64014



S19 T49N R30W

VICINITY MAP

N.T.S.

PROPERTY OWNER
J & M SARAI LLC
320 NE DARTMORE CT
LEES SUMMIT MO 64064

PROPERTY DESCRIPTION:

LOTS 2 AND 3, CASEY'S ADDITION TO BLUE SPRINGS, MISSOURI, FIRST PLAT, ACCORDING TO THE PLAT THEREOF.

SITE DATA SUMMARY		
ZONING		
EXISTING	GB (GENERAL BUSINESS)	
PROPOSED	NO CHANGE	
LAND USE		
EXISTING	UNDEVELOPED	
PROPOSED	RETAIL & COMMERCIAL	
LAND AREA		
EXISTING	151,936± SF (3.49± AC)	
PROPOSED	NO CHANGE	
BUILDING SUMMARY		
NO. OF BUILDINGS		
GENERAL COMMERCIAL	3 BUILDINGS	
TOTAL BUILDING AREA		
EXISTING	0 SF (0 AC)	
PROPOSED	28,200 SF (AC)	
BUILDING COVERAGE		
MAX ALLOWED	65%	
PROPOSED		
SETBACKS		
FRONT	25-FT	
INTERIOR SIDE	20-FT	
CORNER SIDE	25-FT	
REAR	25-FT	
HEIGHT		
MAX ALLOWED	60-FT	
PROPOSED	25-FT	
OFF-STREET PARKING		
SCHEDULE A USE TYPE	RETAIL, SALES AND SERVICE	
REQUIRED SPACES	1 STALL/250 SF BUILDING AREA	
	REQUIRED	PROVIDED
TOTAL	113	117
ADA ACCESSIBLE	5	10
STANDARD	108	107
BICYCLE	11.3	12

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3200 S. State Route 291, Bldg. 1, Independence, MO 64057
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Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

PREPARED FOR
EPIC CONCRETE
12600 E 98th ST
KCMO 64138
816-861-3300

PRELIMINARY PLAT for
BLUE SPRING RETAIL
A COMMERCIAL DEVELOPMENT IN
BLUE SPRINGS, JACKSON COUNTY, MO

JADRIENNE S. RODELL-TIPTON, PE
PE-2021032725 (MISSOURI #)

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PROJECT #: 25-2327
ISSUE DATE: 11-17-2025
ISSUED FOR:
APPROVAL

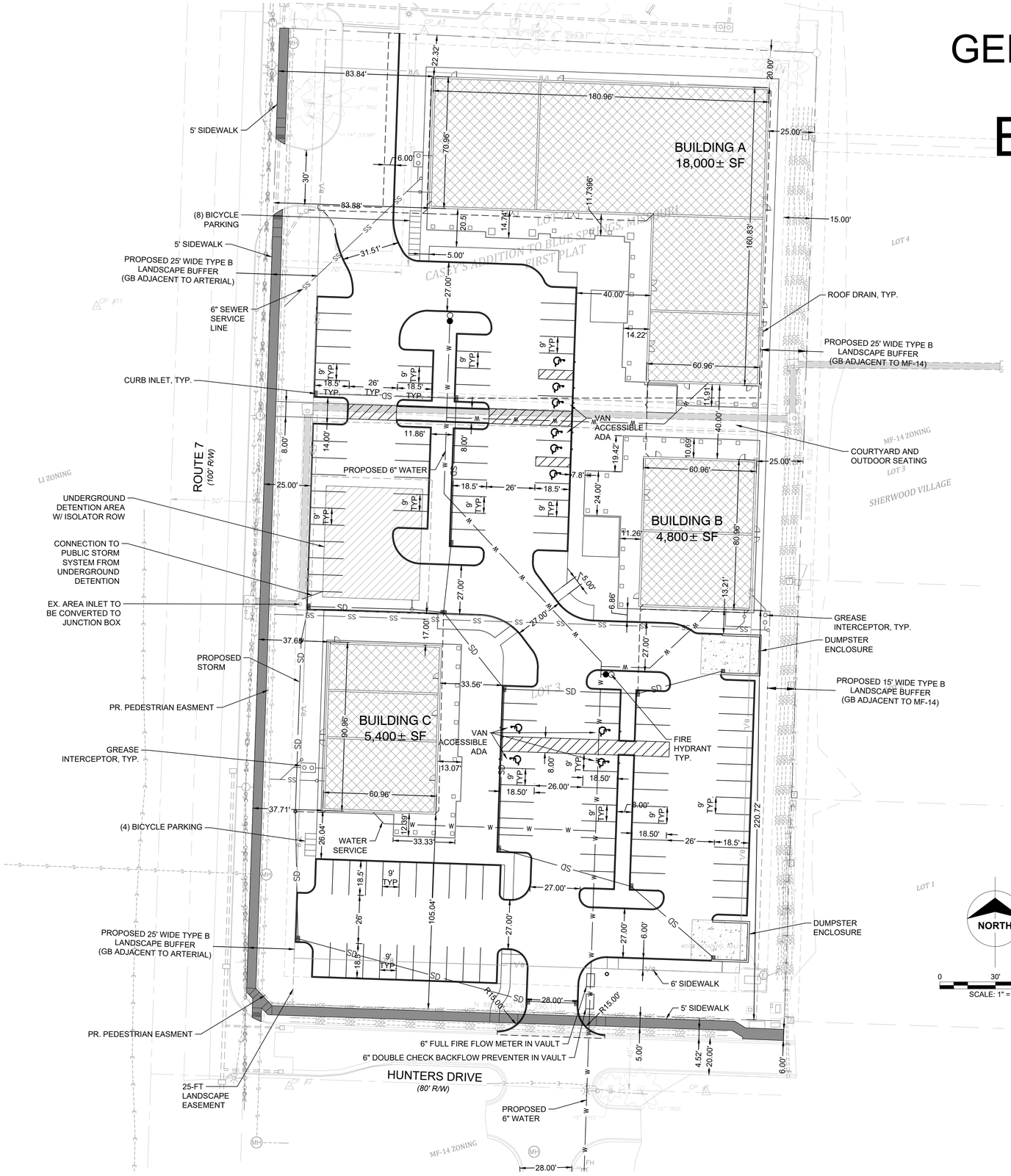
PRELIMINARY PLAT

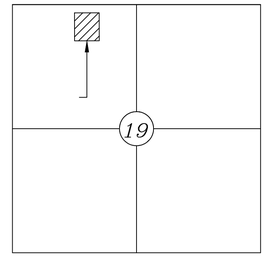
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GENERAL DEVELOPMENT PLAN AND PRELIMINARY PLAT FOR

BLUE SPRINGS RETAIL

A COMMERCIAL DEVELOPMENT IN
SECTION 19, TOWNSHIP 49N, RANGE 30W
2800 & 2850 MO-7
BLUE SPRINGS, JACKSON COUNTY, MISSOURI 64014





PAVEMENT

HEAVY DUTY CONCRETE PAVEMENT

CONCRETE SIDEWALK

TYPE CG-1 CURB & GUTTER

SEEDING

W W PROPOSED WATERLINE

SD PROPOSED PRIVATE STORM SEWER

SS PROPOSED SANITARY SEWER SERVICE LINE

PROPOSED ROOF DRAIN

PROPOSED CURB INLET (2'X3')

PROPOSED GRATE INLET (2'X2')

PROPERTY DESCRIPTION:

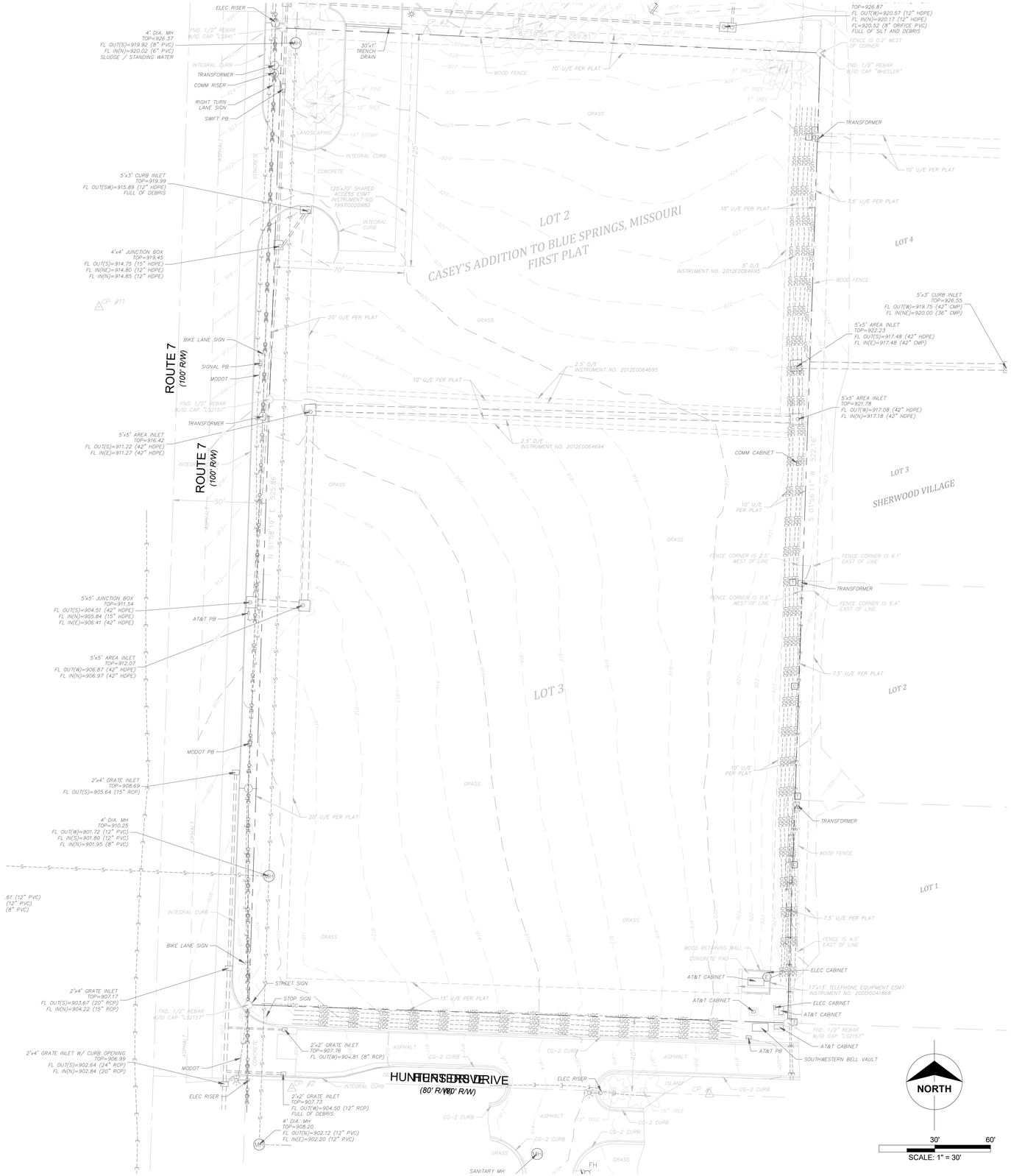
LOTS 2 AND 3, CASEY'S ADDITION TO BLUE SPRINGS, MISSOURI, FIRST PLAT, ACCORDING TO THE PLAT THEREOF.

NOTE:
ALL PROPOSED ON -SITE UTILITIES ARE PRIVATE

SITE DATA SUMMARY		
ZONING		
EXISTING	GB (GENERAL BUSINESS)	
PROPOSED	NO CHANGE	
LAND USE		
EXISTING	UNDEVELOPED	
PROPOSED	RETAIL & COMMERCIAL	
LAND AREA		
EXISTING	151,936± SF (3.49± AC)	
PROPOSED	NO CHANGE	
BUILDING SUMMARY		
NO. OF BUILDINGS		
GENERAL COMMERCIAL	3 BUILDINGS	
TOTAL BUILDING AREA		
EXISTING	0 SF (0 AC)	
PROPOSED	28,200 SF (0.647 AC)	
BUILDING COVERAGE		
MAX ALLOWED	65%	
PROPOSED	19%	
SETBACKS		
FRONT	25-FT	
INTERIOR SIDE	20-FT	
CORNER SIDE	25-FT	
REAR	25-FT	
HEIGHT		
MAX ALLOWED	60-FT	
PROPOSED	25-FT	
OFF-STREET PARKING		
SCHEDULE A USE TYPE	RETAIL, SALES AND SERVICE	
REQUIRED SPACES	1 STALL/250 SF BUILDING AREA	
	REQUIRED	PROVIDED
TOTAL	113	117
ADA ACCESSIBLE	5	10
STANDARD	108	107
BICYCLE	11.3	12

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LEGEND:

○	FOUND MONUMENT, AS NOTED
●	SET 1/2" REBAR WITH ID CAP "POWELL CWM MO-123 KS-36"
● PM	SET 5/8" REBAR WITH 2" ALUMINUM CAP STAMPED "POWELL CWM MO-123 KS-36"
FND.	FOUND
R	RECORD DIMENSION
M	MEASURED DIMENSION
RA	RADIUS
L	CURVE LENGTH
Δ	DELTA ANGLE
R/W	RIGHT-OF-WAY
℄	CENTERLINE
B/L	BUILDING SETBACK LINE
L/E	LANDSCAPE EASEMENT
U/E	UTILITY EASEMENT
SS/E	SANITARY SEWER EASEMENT
D/E	DRAINAGE EASEMENT
I.T.B.	INITIAL TANGENT BEARING
1400	STREET ADDRESS
ASPH.	ASPHALT
CONC.	CONCRETE
SWK	SIDEWALK
△	CONTROL POINT
● BM	BENCHMARK
● BH	BORE HOLE
TV	CABLE TV PEDESTAL
TV	CABLE TV VAULT/MANHOLE
C	COMMUNICATIONS MARKER POST
C	COMMUNICATIONS PEDESTAL
C	COMMUNICATIONS VAULT/MANHOLE
FO	FIBER OPTICS MARKER POST
FO	FIBER OPTICS PEDESTAL
FO	FIBER OPTICS VAULT/MANHOLE
T	TELEPHONE MARKER POST
T	TELEPHONE PEDESTAL
T	TELEPHONE VAULT/MANHOLE
G	GAS MARKER POST
G	GAS METER
G	GAS VALVE
	DECIDUOUS TREE
	EVERGREEN TREE
	BUSH/SHRUB
E	ELECTRICAL TRANSFORMER
E	ELECTRIC METER
E	ELECTRICAL VAULT/MANHOLE
	LIGHT POLE
PP	POWER POLE
	GUY ANCHOR
PB	PIPE BOLLARD
	SIGN
MB	MAILBOX
CO	SANITARY SEWER CLEANOUT
MH	SANITARY SEWER MANHOLE
D	STORM SEWER MANHOLE/JUNCTION BOX
U	UNKNOWN UTILITY MANHOLE
FH	FIRE HYDRANT
W	WATERLINE MARKER POST
W	WATER METER
	WATER VALVE
	YARD HYDRANT
—OHE—	EXISTING OVERHEAD ELECTRIC LINE
—E—	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING STORM SEWER LINE
—UGC—	EXISTING UNDERGROUND COMMUNICATION LINE
—S—	EXISTING SANITARY SEWER LINE
—G—	EXISTING GAS LINE
—W—	EXISTING WATER LINE
750	EXISTING CONTOUR

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MF-14 ZONING

MF-14 ZONING

15' LANDSCAPE EASEMENT

TYPE B(3) - LANDSCAPE BUFFER

GB ZONING

TYPE B - LANDSCAPE BUFFER

25' LANDSCAPE EASEMENT

7 HIGHWAY

NORTH

0 20' 40'

SCALE: 1" = 40'

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Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

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KCMO 64138
816-861-3300

GENERAL DEVELOPMENT PLAN & PRELIMINARY PLAT for BLUE SPRINGS RETAIL

A COMMERCIAL DEVELOPMENT IN
BLUE SPRINGS, JACKSON COUNTY, MO

JADRIENNE S. RODELL-TIPTON, PE
PE-2021032725 (MISSOURI #)

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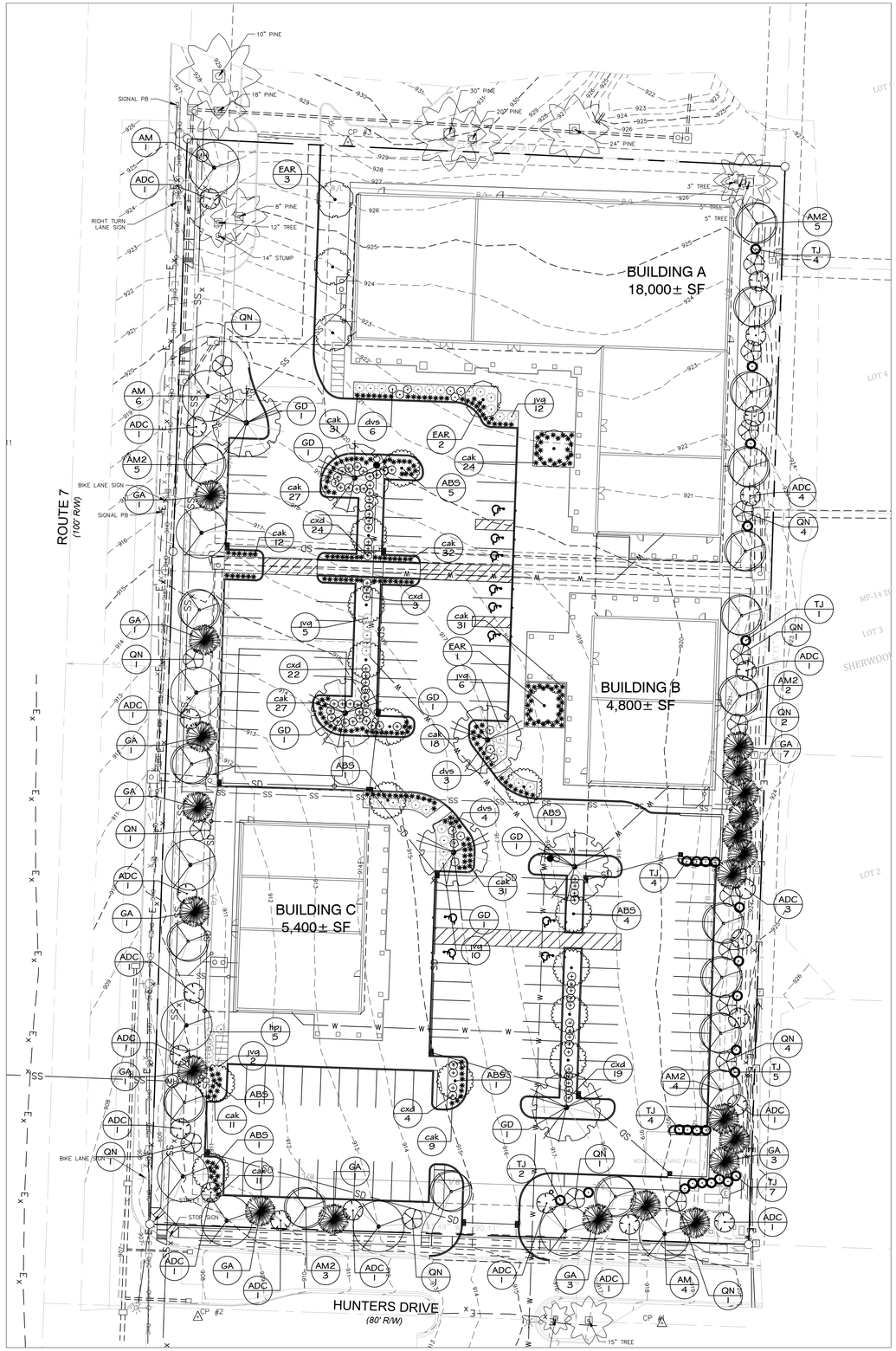
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CHECKED BY:	JRT
PROJECT #:	25-2327
ISSUE DATE:	11-17-2025
ISSUED FOR:	APPROVAL

ILLUSTRATIVE PLAN

C-003

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1 LANDSCAPE PLAN
1" = 30'

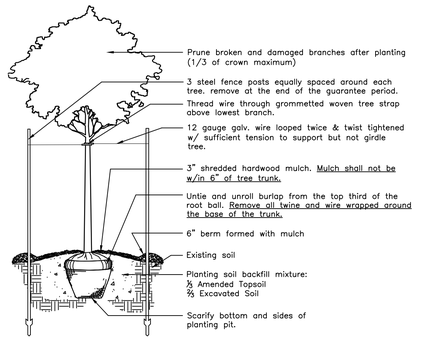
NORTH

0 30' 60'
SCALE: 1" = 30'

LANDSCAPE CALCULATIONS - CITY OF BLUE SPRINGS, MO		SHADE TREES (8)		ORN. TREES (5)		EVRGRN. TREES (5)		UPRIGHT EVRGRNS (3)		SHRUBS (1)		PERENNIALS/GRASSES (1)		TOTALS	
		PROPOSED	PU	PROPOSED	PU	PROPOSED	PU	PROPOSED	PU	PROPOSED	PU	PROPOSED	PU	REQ'D	PROP
STREET TREES														TREES	TREES
WEST (HWY 7)	525.86 LF / 75	7	56											7	7
SOUTH (HUNTER DR)	290.11 LF / 75	4	32											4	4
OPEN SPACE														PU'S	PU'S
LOT AREA - 151,975.19 SF	151975.19 SF / 500 = 304 X 1 PU			8	40			10	30	41	41	194	194	304	305
LANDSCAPE BUFFER PLANTINGS														PU'S	PU'S
WEST (HWY 7) BUFFER B	525.86 LF = 210 PU'S @ 25' WIDE	8	64	10	50	15	75			7	7	22	22	210	210
SOUTH (HUNTER DR) BUFFER B	290.11 LF = 130.5 PU'S @ 15' WIDE	4	32	8	40	8	40	7	21					130.5	133
EAST (RES MF) BUFFER B	522.16 LF = 234.9 PU'S @ 15' WIDE			30	150	11	55	10	30					234.9	235
NORTH (CASEY'S) NO BUFFER															
PARKING SPACES														PU'S	PU'S
118 SPACES	118 SPACES X 2 PU	7	56	12	55					81	81	44	44	236	236

PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	QTY
ORNAMENTAL TREE						
	ABS	Amelanchier canadensis `Autumn Brilliance`	Autumn Brilliance Serviceberry	2" Cal. - 8' Ht.	B&B / Cont.	14
	EAR	Cercis canadensis	Eastern Redbud	2" Cal. - 8' Ht.	B&B / Cont.	6
	ADC	Malus x `Adirondack`	Adirondack Crabapple	2" Cal. - 8' Ht.	B&B / Cont.	22
SHADE TREE						
	AM	Acer miyabei `State Street`	State Street Maple	2.5" Cal.	B&B	11
	AM2	Acer x freemanii `Armstrong`	Armstrong Maple	2.5" Cal.	B&B	19
	GD	Gymnocladus dioica `Espresso`	Espresso Coffeetree	2.5" Cal.	B&B	7
	QN	Quercus robur x bicolor `Nadler`	Kindred Spirit Oak	2.5" Cal.	B&B	17
EVERGREEN TREES						
	TJ	Juniperus virginiana `Taylor`	Taylor Juniper	6` Ht.	B&B / Cont.	27
	GA	Thuja plicata `Green Giant`	Green Giant Arborvitae	6` Ht.	B&B / Cont.	21
SHRUBS						
	cxd	Chaenomeles x `Double Take` TM	Double Take Quince	5 gal.		72
	dvs	Diervilla rivularis `SMNDRSF`	Kodiak Black Bush-Honeysuckle	5 gal.		13
	hpj	Hydrangea paniculata `Jane` TM	Little Lime Hydrangea	5 gal.		5
	jvg	Juniperus virginiana `Grey Owl`	Grey Owl Juniper	5 gal.		35
ORNAMENTAL GRASS						
	cak	Calamagrostis x acutiflora `Karl Foerster`	Feather Reed Grass	1 gal.		264

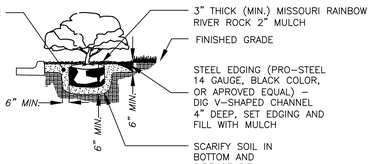


NOTES:
1. On evergreen trees, attach guying collar at approx. 2/3 height of tree on trees that are 6 ft. height and over.
2. Top of rootball shall match original ground level as grown in the nursery. Overplow from nursery shall be removed to expose root collar.
3. Do not fertilize the first growing season.
4. Use tree stakes only in open areas, do not use in parking lot islands where space is limited.

2 DECIDUOUS TREE PLANTING
NTS

LANDSCAPE PLAN NOTES:

1. Existing underground (u/g), overhead (o.h.) utilities and drainage structures have been plotted from available information and therefore, their locations must be considered approximate only. It is the responsibility of the individual contractors to verify existence and location of all utilities before starting any work.
2. Prior to commencement of work, the contractor shall give 48 hours advance notice to all those companies/utilities which have facilities in the near vicinity of the construction to be performed.
3. Contractor shall verify all landscape material quantities and shall report any discrepancies immediately to the Landscape Architect.
4. Contractor shall stake plant locations in the field and have approval by Owner's Representative before proceeding with installation.
5. No substitutions for variety or cultivar shall be accepted without first obtaining written approval from the Landscape Architect.
6. All plant material shall be of excellent quality, free of disease and infestation, and true to type, variety, size specified, and form per American Nursery Association Standards. All trees and shrubs shall be laid out in a uniform and consistent pattern, following the landscape plan accurately.
7. All shrub beds in lawn areas shall be edged as shown in the planting details.
8. All planting beds shall receive 3" minimum of Missouri Rainbow River Rock 2" mulch as detailed, unless otherwise noted. Rock mulch shall be placed on top of woven weed fabric (DeWit Pro5, or approved equal), fastened into place with sod staples at manufacturer's recommended spacing.
9. Trees planted in turf areas shall have a 3" ring of double-ground hardwood mulch, formed into a saucer in a minimum ring twice the diameter of the rootball from the trunk. Elevation of top of mulch shall be 1/2" below any adjacent pavement.
10. Contractor shall thoroughly water in each plant immediately following installation to reduce air pockets in backfill.
11. Contractor shall be responsible for calculating all areas of mulch, sod and seed and the amounts of each needed for specified depth or coverage.
12. Contractor shall spread two inches of cotton burr compost material over entire landscape bed areas and till into existing topsoil to a depth of at least 6" prior to planting.
13. Contractor shall install Turf-type tall fescue sod consisting of 90% fescue blend and 10% bluegrass in all areas disturbed during construction not otherwise designated as another material.
14. Proposed trees shall not be placed over existing or proposed utility service lines. It is the contractor's responsibility to understand utility locations and have them marked during tree planting operations. If utility is damaged during planting, contractor is responsible for notifying the general contractor and owner of utility and paying for repair of the damaged utility.
15. Trees and shrubs located adjacent to parking stalls must be set back a minimum of 4 feet from back of curb to center of the plant to allow for vehicle overhang.
16. Landscaping adjacent to the fire department connection shall allow for unobstructed access to the connection, with no shrubs/trees within a 3-foot radius of the connection.
17. IRRIGATION: Contractor shall install a complete automated irrigation system per sheet LI-101.
18. Detention basin shall be seeded with Switchgrass (Panicum virgatum) at a rate of 10 lbs. per 1,000 SF.
19. All ground or wall mounted equipment shall be fully screened from adjacent property lines and street view with plantings. Contractor shall adjust plantings to accomplish screening to satisfy city requirement. Plantings shown on this plan anticipate the screening condition, but contractor shall adjust for actual site conditions.



3 SHRUB BED & EDGING DETAIL
NTS

Chad D. Weinand, PLA, ASLA
Landscape Architecture
15173 W. 157th Terrace, Olathe, Kansas 66062
913.484.3738 - cweinand74@gmail.com

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PROJECT #: 25-2327
ISSUE DATE: 2/6/2026
NOT FOR CONSTRUCTION
LANDSCAPE PLAN
L-1

REVISIONS NO.	DATE / DESCRIPTION
1	
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6	

PREPARED FOR:
EPIC CONCRETE
12600 E 98th ST
KCMO 64138
816-861-3300

BLUE SPRINGS RETAIL
CONCEPT LAYOUT
28 00 & 2850 HWY 7
BLUE SPRINGS, JACKSON COUNTY, MO

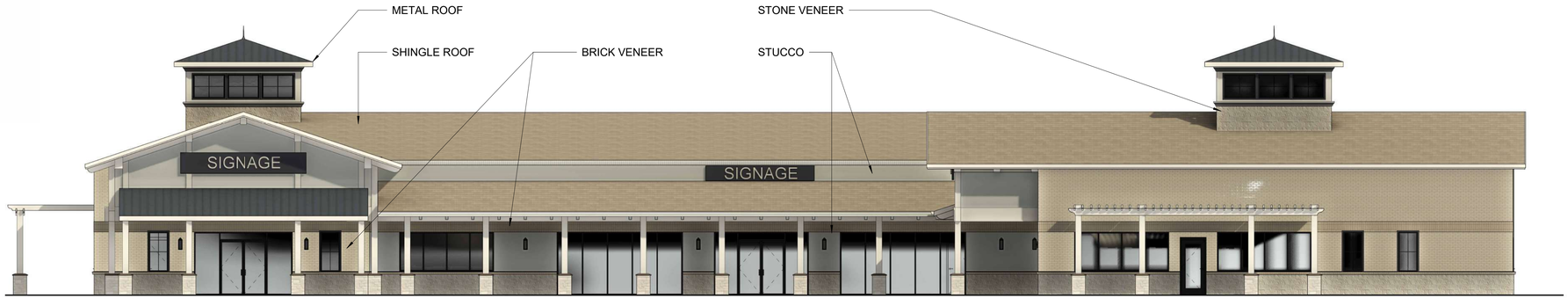
STATE OF MISSOURI
CHAD DAVID WEINAND
NUMBER LA-2013000705
CHAD WEINAND, PLA
LA-2013000705 (MO #)

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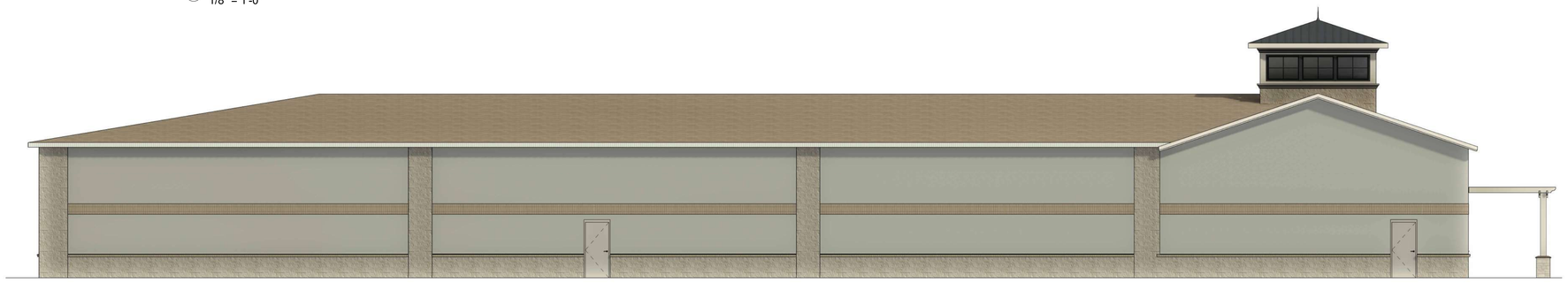
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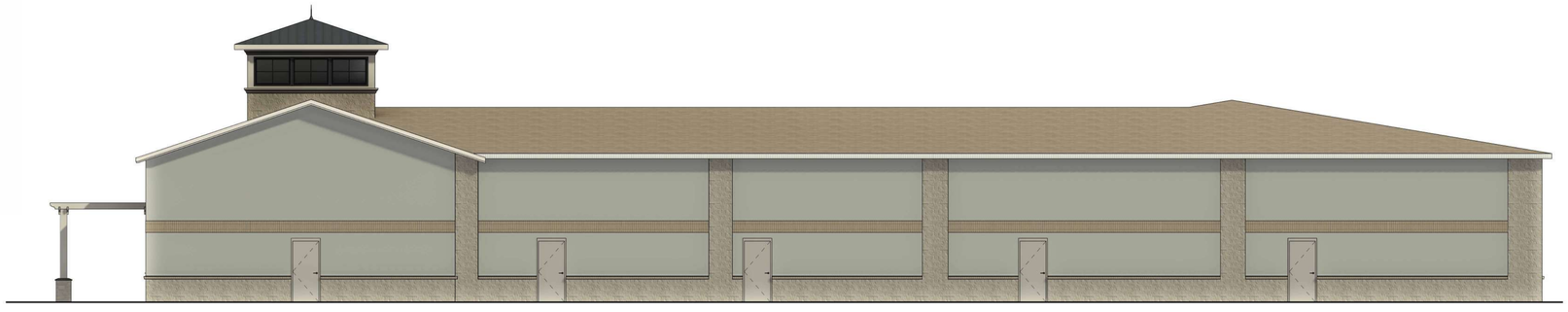
4 BLDG A - ELEV D
1/8" = 1'-0"



3 BLDG A - ELEV C
1/8" = 1'-0"



1 BLDG A - ELEV A
1/8" = 1'-0"



2 BLDG A - ELEV B
1/8" = 1'-0"

EXTERIOR ELEVATION GENERAL NOTES

1. ROOF TO BE 40 YEAR COMPOSITION ROOF OVER 1/2" SHEATHING WITH 15# FELT. COORDINATE WITH OWNER.
2. ALL ROOF CONSTRUCTION SHOULD FOLLOW ALL LOCAL CODES, INCLUDING INTERNATIONAL RESIDENTIAL CODE AND THE ASPHALT ROOFING MANUFACTURERS ASSOCIATIONS DESIGN AND APPLICATION METHODS RESIDENTIAL MANUAL.

SYMBOL LEGEND

X — GRIDLINE

0' - 0" — SPOT ELEVATION

NAME
0' - 0" — LEVEL HEAD

POWELL CWM
ARCHITECTURE/ENGINEERING/SURVEYING
3200 S. State Route 291 | Bldg. 1, Independence, MO 64057
(816) 373-4800 | powellcwm.com

Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

CLIENT

EPIC CONCRETE CONSTRUCTION

BLUE SPRINGS RETAIL

2850 & 2800 NW HWY 7
Blue Springs, MO 64014

NOT FOR CONSTRUCTION

07/17/25

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REVISIONS

NO.	DATE	DESCRIPTION

DRAWN BY: EF
CHECKED BY: NB
PROJECT #: 25-2327
ISSUE DATE: 12/05/25
ISSUED FOR:
PLAN REVIEW

ELEVATIONS

A-200

EXTERIOR ELEVATION GENERAL NOTES

1. ROOF TO BE 40 YEAR COMPOSITION ROOF OVER 1/2" SHEATHING WITH 15# FELT. COORDINATE WITH OWNER.
2. ALL ROOF CONSTRUCTION SHOULD FOLLOW ALL LOCAL CODES, INCLUDING INTERNATIONAL RESIDENTIAL CODE AND THE ASPHALT ROOFING MANUFACTURERS ASSOCIATION'S DESIGN AND APPLICATION METHODS RESIDENTIAL MANUAL.

SYMBOL LEGEND

GRIDLINE

SPOT ELEVATION

LEVEL HEAD



5 BLDG C - ELEV A
1/8" = 1'-0"



1 BLDG B - ELEV A
1/8" = 1'-0"



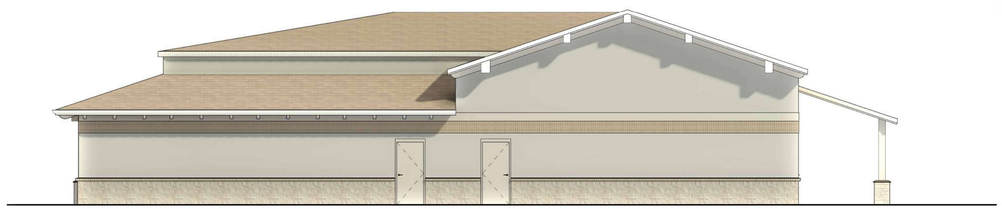
6 BLDG C - ELEV B
1/8" = 1'-0"



2 BLDG B - ELEV B
1/8" = 1'-0"



7 BLDG C - ELEV C
1/8" = 1'-0"



3 BLDG B - ELEV C
1/8" = 1'-0"



8 BLDG C - ELEV D
1/8" = 1'-0"



4 BLDG B - ELEV D
1/8" = 1'-0"

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EPIC CONCRETE CONSTRUCTION

BLUE SPRINGS RETAIL

2850 & 2800 NW HWY 7
Blue Springs, MO 64014

NOT FOR CONSTRUCTION

07/17/25

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REVISIONS

NO.	DATE	DESCRIPTION
1	11/26/26	City Comments 1

DRAWN BY: EF

CHECKED BY: NB

PROJECT #: 25-2327

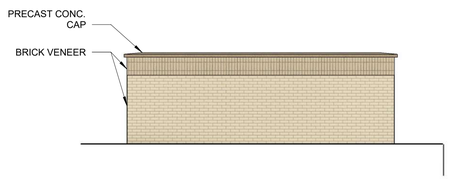
ISSUE DATE: 12/05/25

ISSUED FOR:

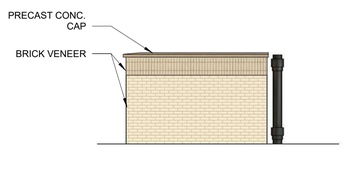
PLAN REVIEW

ELEVATIONS

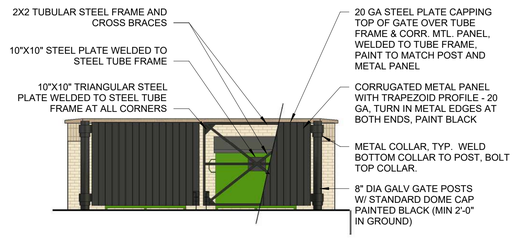
A-201



1 TRASH ENCLOSURE - BACK
3/16" = 1'-0"



3 TRASH ENCLOSURE - SIDE
3/16" = 1'-0"



2 TRASH ENCLOSURE - FRONT
3/16" = 1'-0"

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EPIC CONCRETE CONSTRUCTION

BLUE SPRINGS RETAIL

2850 & 2800 NW HWY 7
Blue Springs, MO 64014

NOT FOR CONSTRUCTION

07/17/25

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REVISIONS

NO.	DATE	DESCRIPTION

DRAWN BY: EF
CHECKED BY: NB
PROJECT #: 25-2327
ISSUE DATE: 12/05/25
ISSUED FOR:
PLAN REVIEW

DUMPSTER ENCLOSURE

A-700

PUBLIC NOTICE

General Development Plan | GDP-12-25-9765
Epic Retail
2850 NW 7 Hwy
Parcel # 36-320-08-36-00-0-00-000

Notice is hereby given that a public hearing will be held by the Planning Commission of the City of Blue Springs on **Monday, February, 23 at 6:30 p.m.** in the Council Chambers of the Howard L. Brown Public Safety Facility at 1100 SW Smith Street for the purpose of hearing interested parties and citizens on a request by the applicant, Bart Fisher, Epic Concrete, on behalf of the property owner, J&M SARAI LLC, for approval of a General Development Plan(GDP-12-25-9765) to re-plat of Lot 2 and Lot 3 of Casey's Addition into a single lot, and construct three buildings for general retail and commercial uses.at 2850 NW 7 Hwy. Interested parties may view the application materials on file by contacting the Community Development Department via email at ComDevLegal@bluespringsgov.com or at City Hall at 903 W Main Street, Blue Springs, MO. The site is legally described as follows:

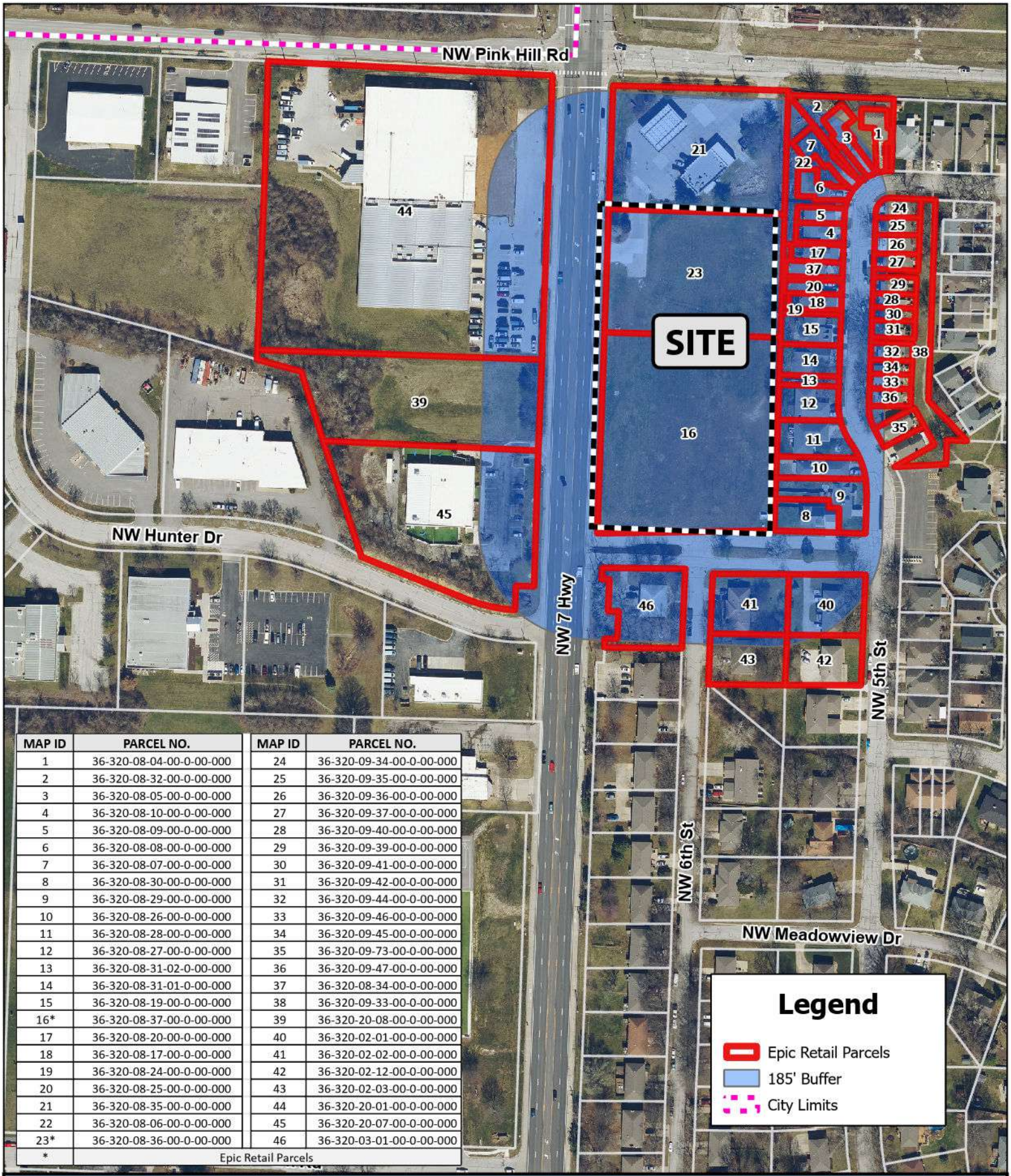
Lots 2 and 3, Casey's Addition to Blue Springs, Missouri, First Plat, according to the plat thereof.

CITY OF BLUE SPRINGS
Planning Commission
By: Logan Day, Planner I

The City Council of the City of Blue Springs will also hold a public hearing on the above noted General Development Plan / GDP-12-25-9765 on **Monday, March 2, 2025 at 6:00 p.m.** in the Council Chambers of the Howard L. Brown Public Safety Facility to consider the application and the recommendation of the Planning Commission.

CITY OF BLUE SPRINGS
City Council

PUBLISH: Saturday, February 7, 2025
E-MAIL TO THE EXAMINER: legals@examiner.net
02/04/2025



MAP ID	PARCEL NO.	MAP ID	PARCEL NO.
1	36-320-08-04-00-0-00-000	24	36-320-09-34-00-0-00-000
2	36-320-08-32-00-0-00-000	25	36-320-09-35-00-0-00-000
3	36-320-08-05-00-0-00-000	26	36-320-09-36-00-0-00-000
4	36-320-08-10-00-0-00-000	27	36-320-09-37-00-0-00-000
5	36-320-08-09-00-0-00-000	28	36-320-09-40-00-0-00-000
6	36-320-08-08-00-0-00-000	29	36-320-09-39-00-0-00-000
7	36-320-08-07-00-0-00-000	30	36-320-09-41-00-0-00-000
8	36-320-08-30-00-0-00-000	31	36-320-09-42-00-0-00-000
9	36-320-08-29-00-0-00-000	32	36-320-09-44-00-0-00-000
10	36-320-08-26-00-0-00-000	33	36-320-09-46-00-0-00-000
11	36-320-08-28-00-0-00-000	34	36-320-09-45-00-0-00-000
12	36-320-08-27-00-0-00-000	35	36-320-09-73-00-0-00-000
13	36-320-08-31-02-0-00-000	36	36-320-09-47-00-0-00-000
14	36-320-08-31-01-0-00-000	37	36-320-08-34-00-0-00-000
15	36-320-08-19-00-0-00-000	38	36-320-09-33-00-0-00-000
16*	36-320-08-37-00-0-00-000	39	36-320-20-08-00-0-00-000
17	36-320-08-20-00-0-00-000	40	36-320-02-01-00-0-00-000
18	36-320-08-17-00-0-00-000	41	36-320-02-02-00-0-00-000
19	36-320-08-24-00-0-00-000	42	36-320-02-12-00-0-00-000
20	36-320-08-25-00-0-00-000	43	36-320-02-03-00-0-00-000
21	36-320-08-35-00-0-00-000	44	36-320-20-01-00-0-00-000
22	36-320-08-06-00-0-00-000	45	36-320-20-07-00-0-00-000
23*	36-320-08-36-00-0-00-000	46	36-320-03-01-00-0-00-000
*	Epic Retail Parcels		

BLUE SPRINGS MISSOURI

PP-12-25-009765 / GDP-12-25-009764
EPIC RETAIL
185' NOTIFICATION MAP

N

1" = 200'

Date: 01/20/26

OBJECTID	Name	situs_address	situs_city	situs_zip
1	36-320-08-04-00-0-00-000	429 NW SHERWOOD DR	BLUE SPRINGS	64014
2	36-320-08-32-00-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64014
3	36-320-08-05-00-0-00-000	431 NW SHERWOOD DR	BLUE SPRINGS	64014
4	36-320-08-10-00-0-00-000	2909 NW 5TH ST	BLUE SPRINGS	64014
5	36-320-08-09-00-0-00-000	2911 NW 5TH ST	BLUE SPRINGS	64014
6	36-320-08-08-00-0-00-000	2913 NW 5TH ST	BLUE SPRINGS	64014
7	36-320-08-07-00-0-00-000	433 NW SHERWOOD DR	BLUE SPRINGS	64014
8	36-320-08-30-00-0-00-000	501 NW HUNTER DR	BLUE SPRINGS	64014
9	36-320-08-29-00-0-00-000	2801 NW 5TH ST	BLUE SPRINGS	64014
10	36-320-08-26-00-0-00-000	2803 NW 5TH ST	BLUE SPRINGS	64014
11	36-320-08-28-00-0-00-000	2807 NW 5TH ST	BLUE SPRINGS	64014
12	36-320-08-27-00-0-00-000	2811 NW 5TH ST	BLUE SPRINGS	64014
13	36-320-08-31-02-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64014
14	36-320-08-31-01-0-00-000	2815 NW 5TH ST	BLUE SPRINGS	64014
15	36-320-08-19-00-0-00-000	2817 NW 5TH ST	BLUE SPRINGS	64014
16	36-320-08-37-00-0-00-000	2800 NW 7 HWY	BLUE SPRINGS	64014
17	36-320-08-20-00-0-00-000	2907 NW 5TH ST	BLUE SPRINGS	64014
18	36-320-08-17-00-0-00-000	2901 NW 5TH ST	BLUE SPRINGS	64014
19	36-320-08-24-00-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64014
20	36-320-08-25-00-0-00-000	2903 NW 5TH ST	BLUE SPRINGS	64014
21	36-320-08-35-00-0-00-000	2900 NW 7 HWY	BLUE SPRINGS	64014
22	36-320-08-06-00-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64014
23	36-320-08-36-00-0-00-000	2850 NW 7 HWY	BLUE SPRINGS	64014
24	36-320-09-34-00-0-00-000	2914 NW 5TH ST	BLUE SPRINGS	64014
25	36-320-09-35-00-0-00-000	2912 NW 5TH ST	BLUE SPRINGS	64014
26	36-320-09-36-00-0-00-000	2910 NW 5TH ST	BLUE SPRINGS	64014
27	36-320-09-37-00-0-00-000	2908 NW 5TH ST	BLUE SPRINGS	64014
28	36-320-09-40-00-0-00-000	2904 NW 5TH ST	BLUE SPRINGS	64014
29	36-320-09-39-00-0-00-000	2906 NW 5TH ST	BLUE SPRINGS	64014
30	36-320-09-41-00-0-00-000	2902 NW 5TH ST	BLUE SPRINGS	64014
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32	36-320-09-44-00-0-00-000	2820 NW 5TH ST	BLUE SPRINGS	64014
33	36-320-09-46-00-0-00-000	2816 NW 5TH ST	BLUE SPRINGS	64014
34	36-320-09-45-00-0-00-000	2818 NW 5TH ST	BLUE SPRINGS	64014
35	36-320-09-73-00-0-00-000	2812 NW 5TH ST	BLUE SPRINGS	64014
36	36-320-09-47-00-0-00-000	2814 NW 5TH ST	BLUE SPRINGS	64014
37	36-320-08-34-00-0-00-000	2905 NW 5TH ST	BLUE SPRINGS	64014
38	36-320-09-33-00-0-00-000	CA RESIDENTIAL	BLUE SPRINGS	64014
39	36-320-20-08-00-0-00-000	2801 NW 7 HWY	BLUE SPRINGS	64015
40	36-320-02-01-00-0-00-000	2709 NW 5TH ST	BLUE SPRINGS	64014
41	36-320-02-02-00-0-00-000	2708 NW 6TH ST	BLUE SPRINGS	64014
42	36-320-02-12-00-0-00-000	2705 NW 5TH ST UNIT A	BLUE SPRINGS	64014
43	36-320-02-03-00-0-00-000	2704 NW 6TH ST	BLUE SPRINGS	64014

44	36-320-20-01-00-0-00-000	2925 NW 7 HWY	BLUE SPRINGS	64015
45	36-320-20-07-00-0-00-000	2801 NW 7 HWY	BLUE SPRINGS	64015
46	36-320-03-01-00-0-00-000	2709 NW 6TH ST UNIT A	BLUE SPRINGS	64014

Blue Springs, Missouri
Community Development

February 4, 2025

Ref: Public Hearing: General Development Plan | GDP-12-25-9765
Epic Retail
2850 NW 7 Hwy
Parcel # 36-320-08-36-00-0-00-000

Dear Property Owner:

A Public Hearing will be held by the Planning Commission and the City Council of the City of Blue Springs to receive comments from interested parties and citizens relative to a request by the applicant, Bart Fisher, Epic Concrete, on behalf of the property owner, J&M SARAI LLC, for approval of a General Development Plan to re-plat of Lot 2 and Lot 3 of Casey's Addition into a single lot, and construct three buildings for general retail and commercial uses.at 2850 NW 7 Hwy.

You are receiving this notice because County records indicate you own property within 185 feet of the boundary of the site in question.

Interested parties may view the application materials on file by contacting the Community Development Department via email at ComDevLegal@bluespringsgov.com or at City Hall at 903 W Main Street, Blue Springs, MO.

The hearing will be held in the Council Chambers in the Howard L. Brown Public Safety Building located at 1100 SW Smith Street, Blue Springs on the following dates:

Planning Commission - Monday, February 23, 2025 @ 6:30 p.m.
&
City Council – Monday, March 02, 2025 @ 6:00 p.m.

Your attendance and comments are welcome at these meetings. Questions concerning this matter may be directed to the Community Development Department at 816-228-0207.

Sincerely,

CITY OF BLUE SPRINGS
COMMUNITY DEVELOPMENT

Traci Breshears
Administrative Assistant

Introduced by Councilmember _____ BILL 5385

(GDP-12-25-9764) ORDINANCE_____

AN ORDINANCE APPROVING THE GENERAL DEVELOPMENT PLAN FOR EPIC RETAIL LOCATED AT 2850 SW 7 HWY, BLUE SPRINGS, JACKSON COUNTY, MISSOURI

WHEREAS, on December 30, 2025, the Applicant, Bart Fisher of Epic Concrete, Inc, submitted a Planning Application on behalf of the property owner, J&M SARAI LLC, for the Epic Retail General Development Plan; and

WHEREAS, after review of the General Development Plan with respect to such issues as density, the impact to surrounding areas, the adequacy of facilities and services, and compliance with development regulations to achievement quality development, in which it has been determined that the application has met; and

WHEREAS, in accordance with Title IV, Unified Development Code of the Municipal of the City of Blue Springs, Missouri, said application was referred to the Planning Commission for report and recommendation and a public hearing was held on February 23, 2026; Planning Commission, after said hearing, recommended that the application for the General Development Plan be approved; and

WHEREAS, thereafter a public hearing was held by City Council on March 2, 2026; and

WHEREAS, in accordance with Title IV, Unified Development Code of the Municipal Code of the City of Blue Springs, Missouri, it was determined that the application was appropriate at the location herein described; and

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF BLUE SPRINGS, MISSOURI, as follows:

Section 1. The following described tract of real estate is hereby declared subject to the General Development Plan for Epic Retail. The site is legally described as: Lots 2 and 3, Casey's Addition to Blue Springs, Missouri, First Plat, according to the plat thereof.

Section 2. No land covered within this General Development Plan, or contained within the area described by Section 1 of this Ordinance, may be developed except in compliance with the General Development Plan approved herein by the City of Blue Springs or hereinafter revised, and the requirements of said General Development Plan shall include any staff recommendations contained in the staff report and presented to the Planning Commission at its February 23, 2026, meeting and to the City Council at its March 2, 2026, meeting, and approved by the City Council as conditions of development passage by this Ordinance and of this General Development Plan, and shall be deemed to include those conditions in additions to those contained in the UDC and in documents and drawings submitted to the Planning Commission and City Council and approved hereby, including the following conditions:

1. Approval by the City Council based on the representations of any drawings presented as part of this application does not waive any requirement or development standard contained in the UDC.

2. A Site Plan Design Review is required to review final building and site design, including landscaping.

3. Final building and site design must meet Non-Residential Design Standards per UDC 407.090 and any other applicable sections of the Unified Development Code.

4. At the time of Site Plan Design Review, a Micro Drainage Study shall be submitted. The study shall include supporting hydrologic and hydraulic modeling verifying the proposed detention design, clearly delineated drainage areas, routing diagrams, and drainage maps. The report shall demonstrate no adverse impact at identified downstream points of interest by comparing existing and proposed conditions. All analyses and design shall comply with the requirements of the City of Blue Springs Design and Construction Manual and applicable MARC standards.

5. At the time of Site Plan Design Review, and consistent with the approved Traffic Impact Study, the westbound approach at the intersection of Missouri Route 7 and NW Pink Hill Road shall be restriped to provide one (1) dedicated left-turn lane and one (1) shared through/right-turn lane, as identified in the study.

Section 3. The base zoning district standards and other applicable regulations of the Unified Development Code shall control development within the General Development Plan.

Section 4. An Administrative Site Plan Design Review shall be submitted and approved prior to the installation of landscaping and/or buffers in each phase and prior to the approval and recording of the Final Plat for that phase. Approval of the Administrative Site Plan Design Review shall only be granted if it is in substantial compliance with the approved General Development Plan.

Section 5. That this Ordinance shall be in full force and effect from and after its passage and approval.

Section 6. Scrivener's Errors. Typographical errors and other matters of a similar nature that do not affect the intent of this Ordinance, as determined by the City Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

1st Reading: _____

2nd Reading: _____

BLUE SPRINGS
MISSOURI

CITY COUNCIL

March 2, 2026

EXHIBITS FOR PUBLIC HEARING

ECLECTIC TATTOO

CONDITIONAL USE PERMIT

(CUP-01-26-9781)

EXHIBIT #1 City Council Information Form dated February 24, 2026 with the following attachments: Staff Report with attachments, Affidavits of Publication in The Examiner on January 24 and January 31, 2026, 185 feet Notification Map, Names/addresses of property owners within 185 feet of site, Copy of letters sent to said property owners, Title IV, Land Use Section – Blue Springs Code of Ordinances (by reference), 2014 Comprehensive Plan (by reference), and Bill approving the Conditional Use Permit for Eclectic Tattoo

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 24, 2026

ITEM TYPE: Public Hearing / Ordinance

SUBMITTED BY: Asif Haque

CONTRACT NUMBER: N/A

DEPARTMENT: City Development

STRATEGIC PLAN PRIORITY: Balanced Growth

ITEM DESCRIPTION

A public hearing is being held at the request of the Applicant, Daniel Kubin, on behalf of the property owner, Mike Brummel, for consideration to approve a Conditional Use Permit with Alternative Development Standards allowing the body art service use on a 0.71 +/- acres property generally located at Onawa Acres Industrial Park. The applicant is requesting to allow for body art services in light Industrial zoning within 500 feet of a residential use on property addressed 1121 SW 28th Street. Upon conclusion of the public hearing, a Bill approving the Conditional Use Permit will be ready for introduction and readings (CUP-01-26-9781).

BACKGROUND

The applicant is requesting approval of a Conditional Use Permit (CUP) to operate his Tattoo Shop, Eclectic Tattoo, offering tattooing services at 1121 SW 28th Street. The CUP is required to permit body art services within the Light Industrial Zoning District. In conjunction with this request, the applicant is seeking approval of Alternative

Development Standards to waive the minimum 500-foot separation requirement from residential uses. The "LI" Light Industrial is intended to primarily accommodate industries that produce finished products from semi-finished materials and require little or no outside storage of materials.

In 2025, the City adopted UDCT-04-25-9554 (Body Art Code Amendment) by Ordinance No. 5418, which amended the Unified Development Code to increase the number of permitted Body Art Service Establishments in the City from one (1) per 15,000 residents to one (1) per 6,000 residents.

Under Missouri Revised Statutes Chapter 324, tattooing falls under the regulation of tattooing and body art services, and practitioners must be licensed by the Missouri Division of Professional Registration-Office of Tattooing, Body Piercing, and Branding.

STAFF RECOMMENDATION

Staff recommends approval of the Conditional Use Permit application subject to the following conditions:

1. Approval by the City Council based on the representation of any drawings presented as part of this application does not waive any requirement or development standard contained in the UDC unless modified under the Concept Plan, which include:

    a. The Conditional Use Permit allows the "Body Art Service" land use to be allowed in accordance with the Special Use Standards Section 405.050 (33) at the property addressed 1121 SW 28th St.

b. The applicant is seeking approval of Alternative Development Standards to waive the minimum 500-foot separation requirement from residential zoning.

2. Prior to issuance of a Business License for the City of Blue Springs, an updated Tattooist and Tattoo Establishment license must be provided for the new address.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: Planning Commission

Date: 2/23/2026

Action: Staff recommends approval with conditions. 8 Aye – 0 No

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Staff Report with attachments; Affidavits of Publication in The Examiner on January 24 and January 31, 2026, 185 ft. Notification Map, Names/addresses of property owners within 185 ft. of site, Copy of letters sent to said property owners, Title IV, Land Use Section – Blue Springs Code of Ordinances (by reference), 2014 Comprehensive Plan (by reference)

2. Bill approving the Conditional Use Permit for Eclectic Tattoo

REVIEWED BY

Requesting Director: Nic Hutchison

Legal: James Newell

Administration: George Schmitz

City Administrator: Christine Cates

Budget: N/A

PLANNING APPLICATION REVIEW STAFF REPORT

Project Information

Meeting Dates:

Planning Commission: February 23, 2026

City Council Date: March 2, 2026

Project Name: ***Eclectic Tattoo***

Site Location: 1121 SW 28th Street

Applicant: Daniel Kubin

Property Owner: Mike Brummel

Staff Planner: Asif Haque, Planner II

Project Request:

CUP-01-26-9781; Conditional Use Permit allowing for body art uses in Light Industrial Zoning on 0.71 +/- acres at 1121 SW 28th Street.

Project Description:

The applicant is requesting approval of a Condition Use Permit (CUP) to operate his Tattoo Studio, Eclectic Tattoo, to allow for tattooing services on 0.71 +/- acres at 1121

SW 28th Street. The CUP is required to permit body art services within the Light Industrial Zoning District. The applicant is seeking approval of Alternative Development Standards to waive the minimum 500-foot separation requirement from residential zoning.

The "LI" Light Industrial Zoning District is intended to primarily accommodate industries that produce finished products from semi-finished materials, and require little or no outside storage of materials. The district provides locations for limited manufacturing and industrial activities with limited land use impacts, primarily traffic generated by delivery vehicles and employees.

The applicant is currently located at this address operating his primary business, DK Rotary, LLC, a tattoo machine company. The applicant is seeking to relocate his private tattoo studio.

In 2025, the City adopted UDCT-04-25-9554 (Body Art Code Amendment), which amended the Unified Development Code to increase the number of permitted Body Art Service Establishments in the City from one (1) per 15,000 residents to one (1) per 6,000 residents. There are currently seven (7) active Conditional Use Permits for Body Art Service Establishments in the City, meaning that the City is not at its limit for these permits, and there are three (3) available Conditional Use Permits for additional Body Art Service Establishments in the City. The applicant already holds a Conditional Use Permit for his existing tattoo studio at his current address, so upon approval the number of active Conditional Use Permits for Body Art Service Establishments will remain at seven (7) and not change.

Under Missouri Revised Statutes Chapter 324, tattooing falls under the regulation of tattooing and body art services, and practitioners must be licensed by the Missouri Division of Professional Registration-Office of Tattooing, Body Piercing, and Branding.

Staff Recommendation:

Staff recommends approval of the Conditional Use Permit application with conditions. Conditions are identified at the end of this report.

Previous Actions:

Date	Review Body	Action
02/04/1980	City Council	Annexation of Real Estate, Onawa Acres, to the Light Industrial Zoning District of the City of Blue Springs.

Future Applications:

A CUP is required to be approved prior to the issuance of building permits as well as an updated City business license and State Tattooing Establishment Certificate.

Adjacent Properties:

Direction	Current Zoning	Current Land Use(s)
North:	"LI" Light Industrial	Auto Repair, Medical Equipment Supplier, Home Remodeler
South:	"LI" Light Industrial	Landscaper
East:	"LI" Light Industrial	Auction House
West:	Unincorporated Jackson County	Wholesale-Trade (Vehicle Wrapping Service and Hobby Store; Parking Grounds)

Conditional Use Permit Analysis

A Conditional Use Permit (CUP) provides flexibility for different uses within a zoning district and allows the potential for additional uses that due to their varying design and operational characteristics of the use or due to conditions in the area are not generally appropriate in that district but require a case-specific review to determine the compatibility in a specific context and location.

Special Use Standards:

Per UDC Section 405.050(33) the following regulations shall apply to all Body Art Service. Body art services shall be subject to the following standards and requirements:

a. As a conditional use, body art services may not be located or expand any existing operation within five hundred (500) feet of any residential use or district, church, school or public park. The distance between these uses shall be measured in a straight line from the boundary of any property containing the body art service and the boundary of any property zoned residential or in use for a residential purpose, church, school, or public park.

   Staff Response: The Light Industrial Zoning District and the general industrial building therein to contain the proposed body art service are within 500 feet of a Large Lot Single-Family Zoning District (SF-12). However, the Light Industrial Zoning District and the Large Lot Single-Family Zoning District are separated by a parcel of unincorporated Jackson County zoned as wholesale-trade.

b. No permit or license may be issued for a body art service establishment where it is determined that the total number of such facilities will exceed a population density factor of one (1) such establishment per six thousand (6,000) residents

based on the last decennial census. This shall not restrict multiple artists from co-locating in an establishment.

Staff Response: The approved Unified Development Code amendment related to the population density requirement for body art services allows up to 10 within the City of Blue Springs.

c. No permit or license shall be issued for a body art service establishment or body art service provider without providing evidence of licensing from the State of Missouri.

Staff Response: A Tattooist and Tattoo Establishment License have been provided for the previous location in Blue Springs, MO. These licenses would need to be transferred to the new location upon approval of CUP, and before the issuance of a business license.

Land Use & Density:

The existing land use of this property is a general industrial building within a Light Industrial Zoning District.

Building Typology:

Since development is not proposed, building typology is not applicable.

Architectural Character:

Architectural character is not applicable since there is no proposed development.

Parking:

The parking is established with the existing general industrial building.

Streets & Sidewalks:

The site is not being developed; therefore, street and sidewalk requirements are not applicable.

Pedestrian Access:

The applicant is not proposing to modify the site; therefore, they are asking to waive the requirement.

Traffic:

A Traffic Impact Study is not required for this project.

Stormwater:

There is no development with the CUP; therefore, it does not impact existing stormwater runoff.

Sanitary Sewer:

There are no expected impacts on the sanitary sewer system since no additional development is proposed.

Signage:

Any signage will be reviewed through an Administrative Sign Permit so long as they meet the Sign Code.

Frontage & Landscaping:

The property is not being developed. There is existing vegetation directly east of the property.

Preservation:

The site is currently developed and the applicant is not requesting to modify it further.

Phasing:

There is no further development proposed at this time.

Review Criteria

A Conditional Use Permit shall be reviewed according to the following criteria:

1. The application furthers the intent of the proposed zoning district and supports that of any abutting districts.

   Staff Response: The application brings the proposed use into conformance with code. The Conditional Use Permit is necessary to allow for body art services in Light Industrial Zoning Districts.

2. Compliance of any proposed development with the requirements of this Development Code.

   Staff Response: No additional development is being proposed; therefore, compliance with the development code is not required.

3. Whether any additional site-specific conditions are necessary to meet the purposes and intent of this Development Code and the Intent or design objectives of any applicable Subsections of this Development Code.

   Staff Response: There are no site-specific conditions necessary to meet the purposes and intent of this Development Code.

4. The impact on the public realm, including the design and functions of streetscapes and relationships of building and site elements to the streetscape.

   Staff Response: No site-specific conditions are required, as the proposed use is consistent with the purposes and intent of the Unified Development Code.

5. The adequacy of drainage, utilities, and other public facilities.

   Staff Response: Utilities and drainage structures exist at and near this site. There are not proposed changes or additions, and the existing facilities will be able to handle the proposed demand.

6. Compatibility with the character of the area in terms of building scale, building form, landscape and site design.

   Staff Response: This is an existing developed site with no substantial modifications being proposed

7. Compatibility with the area in terms of operating characteristics such as hours of operation, visible and audible impacts, traffic patterns, intensity of use as proposed or foreseeable, and other potential impacts on adjacent property.

   Staff Response: The proposed use is compatible in nature with the existing uses of neighboring light industrial properties. Staff does not foresee negative impacts on adjacent properties.

8. The application will not prevent development and use of the neighboring property in accordance with the applicable development regulations.

   Staff Response: The application does not pose a risk to preventing development as required by the Unified Development Code.

9. The long-range plans applicable to the site and surrounding area are not negatively impacted considering the permanence of the proposed use, the permanence of existing uses in the area, and any changes in character occurring in the area.

   Staff Response: The long-range plans for this site and area are not negatively impacted.

10. The recommendations of professional staff.

    Staff Response: Staff recommends approval of the Conditional Use Permit with Alternative Development Standards with conditions listed below.

Findings of fact identifying and evaluation all factors relevant to the application shall be made part of the public record. Approval shall be subject to those specific facts and any additional conditions made as part of the review and approval. Any amendment to a conditional use permit shall require the same process as the original approval.

Staff Recommendation:

Staff recommends approval of the Conditional Use Permit application subject to the following conditions:

1. Approval by the City Council based on the representation of any drawings presented as part of this application does not waive any requirement or development standard contained in the UDC unless modified under the Concept Plan, which include:

    a. The Conditional Use Permit allows the "Body Art Service" land use to be allowed in accordance with the Special Use Standards Sections 405.050 (33) at the property addressed 1121 SW 28th St.

    b. The applicant is seeking approval of Alternative Development Standards to waive the minimum 500-foot separation requirement from residential zoning.

2. Prior to Issuance of a Business License for the City of Blue Springs, an updated Tattooist and Tattoo Establishment license must be provided for the new address.



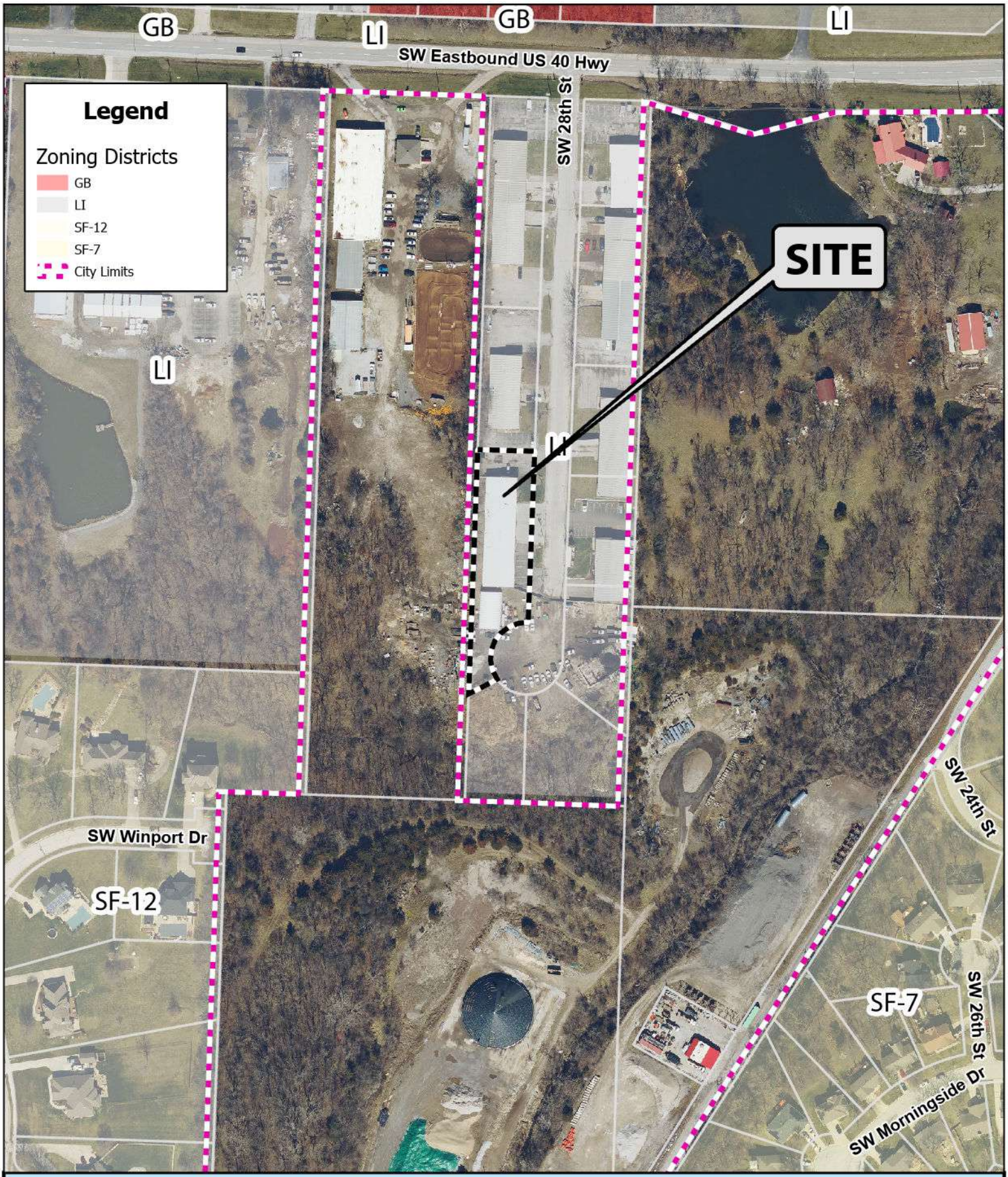
BLUE SPRINGS
MISSOURI

CUP-01-26-9781
ECLECTIC TATOO
AERIAL LOCATION MAP

N

1" = 100'

Date: 01/20/26



BLUE SPRINGS
MISSOURI

CUP-01-26-9781
ECLECTIC TATOO
ZONING AND SITE LOCATION MAP

N

1" = 200'

Date: 01/20/26

THE EXAMINER

AFFIDAVIT OF PUBLICATION

State of Florida, County of Orange, ss:

I, Anjana Bhadoriya, of lawful age, being duly sworn upon oath depose and say that I am an agent of Column Software, PBC, duly appointed and authorized agent of the Publisher of Examiner, a publication that is a "legal newspaper" as that phrase is defined for the city of Independence, for the County of Jackson, in the state of Missouri, that this affidavit is Page 1 of 1 with the full text of the sworn-to notice set forth on the pages that follow, and that the attachment hereto contains the correct copy of what was published in said legal newspaper in consecutive issues on the following dates:

Publication Dates:

- Jan 24, 2026

Printer's Fee: $119.95

Anjana Bhadoriya

_____

Agent

VERIFICATION

State of Florida
County of Orange

JESSICA GORDON-THOMPSON
Notary Public - State of Florida
Commission # HH301656
Expires on August 17, 2026

Signed or attested before me on this: 01/26/2026

_____

Notary Public

Notarized remotely online using communication technology via Proof.

PUBLIC NOTICE

Conditional Use Permit I CUP-01-26-9781
"Eclectic Tattoo"
1121 SW 28th Street
Parcel # 42-210-03-38-00-0-00-000

Notice is hereby given that a public hearing will be held by the Planning Commission of the City of Blue Springs on **Monday, February 9, 2026 at 6:30 p.m.** in the Council Chambers of the Howard L. Brown Public Safety Facility at 1100 SW Smith Street for the purpose of hearing interested parties and citizens on a request by the applicant, Daniel Kubin, Eclectic Tattoo, on behalf of the property owner, Nick Brummel, for approval of a Conditional Use Permit allowing for body art uses on 0.71 +/- acres at 1121 SW 28th Street. Interested parties may view the application materials on file by contacting the City Development Department via email at ComDevLegal@bluespringsgov.com or at City Hall at 903 W Main Street, Blue Springs, MO. The site is legally described as follows:

ONAWA ACRES INDUSTRIAL PARK---LOTS 6 & 8 (CERT SUR T-6 PG-71)

CITY OF BLUE SPRINGS
Planning Commission
By: Asif Haque, Planner II

The City Council of the City of Blue Springs will also hold a public hearing on the above noted Conditional Use Permit / CUP-01-26-9781 on **Tuesday, February 17, 2026, at 6:00 p.m.** in the Council Chambers of the Howard L. Brown Public Safety Facility to consider the application and the recommendation of the Planning Commission.

CITY OF BLUE SPRINGS
City Council

PUBLISH: Saturday, January 24, 2026
E-MAIL TO THE EXAMINER : legals@examiner.net
01/20/2026

Published in the Examiner, Jan 24, 2026

4230610

THE EXAMINER

AFFIDAVIT OF PUBLICATION

State of Florida, County of Broward, ss:

I, Anjana Bhadoriya, of lawful age, being duly sworn upon oath depose and say that I am an agent of Column Software, PBC, duly appointed and authorized agent of the Publisher of Examiner, a publication that is a "legal newspaper" as that phrase is defined for the city of Independence, for the County of Jackson, in the state of Missouri, that this affidavit is Page 1 of 1 with the full text of the sworn-to notice set forth on the pages that follow, and that the attachment hereto contains the correct copy of what was published in said legal newspaper in consecutive issues on the following dates:

Publication Dates:

- Jan 31, 2026

Printer's Fee: $47.63

Anjana Bhadoriya

_____

Agent

VERIFICATION

SHERI SMITH
Notary Public - State of Florida
Commission # HH269383
Expires on May 31, 2026

State of Florida
County of Broward

Signed or attested before me on this: 02/02/2026

S Smith

_____

Notary Public

Notarized remotely online using communication technology via Proof.

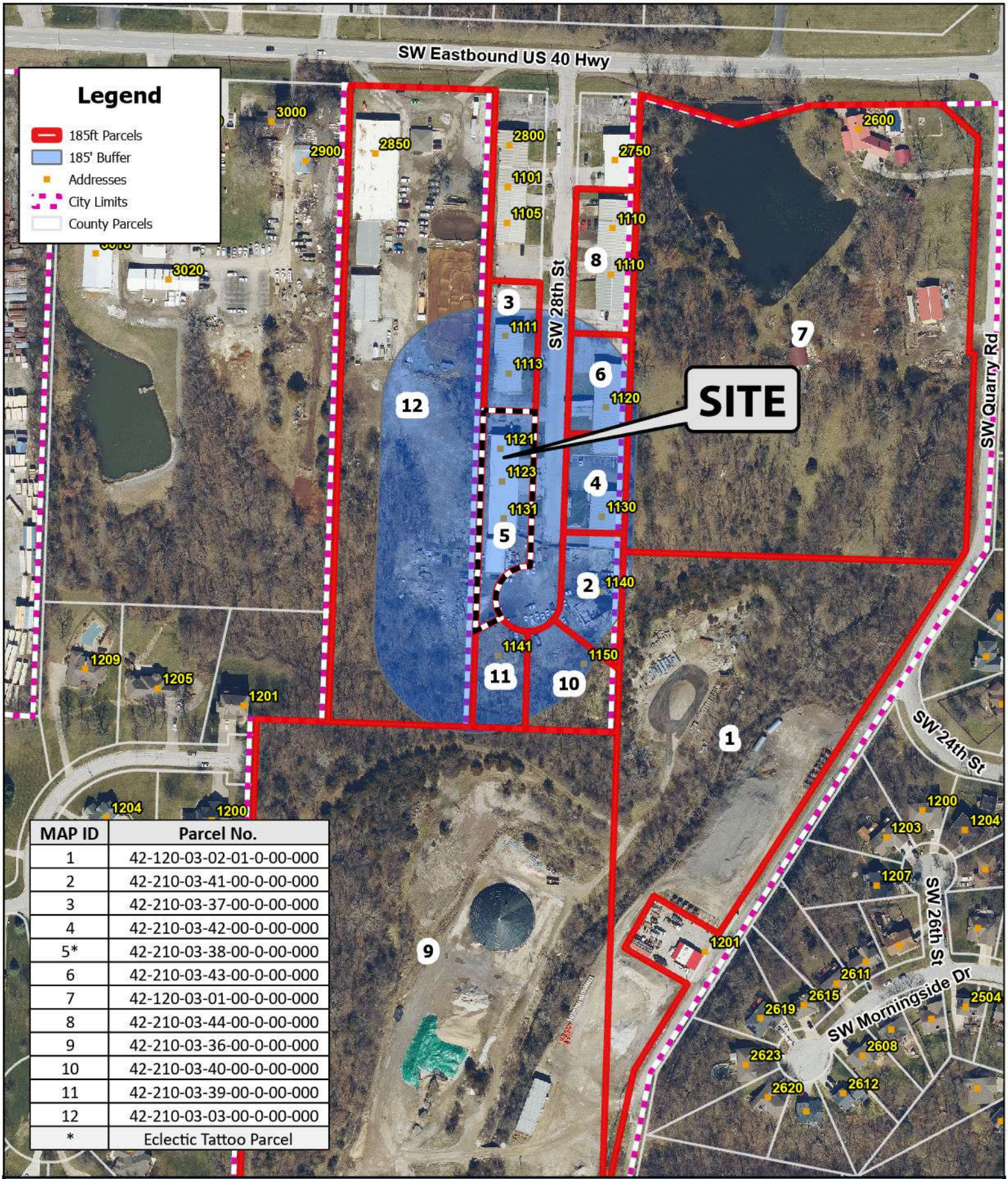
PUBLIC NOTICE
AMENDMENT

Notice is hereby given that on January 24, 2026, the City of Blue Springs published notices for Eclectic Tattoo Conditional Use Permit; a Unified Development Code Text Amendment; and for McAtee Meadows General Development. The date of the City Council Meeting was posted as being February 17, 2026. The correct date for this meeting is **Wednesday, February 18, 2026 at 6:00pm** in the Council Chambers of the Howard L. Brown Public Safety Facility at 1100 SW Smith Street for the consideration of these projects.

CITY OF BLUE SPRINGS
By: Traci Breshears
Publish: Saturday, January 31, 2026

Published in the Examiner, Jan 31, 2026

4249550



MAP ID	Parcel No.
1	42-120-03-02-01-0-00-000
2	42-210-03-41-00-0-00-000
3	42-210-03-37-00-0-00-000
4	42-210-03-42-00-0-00-000
5*	42-210-03-38-00-0-00-000
6	42-210-03-43-00-0-00-000
7	42-120-03-01-00-0-00-000
8	42-210-03-44-00-0-00-000
9	42-210-03-36-00-0-00-000
10	42-210-03-40-00-0-00-000
11	42-210-03-39-00-0-00-000
12	42-210-03-03-00-0-00-000
*	Eclectic Tattoo Parcel

BLUE SPRINGS
MISSOURI

CUP-01-26-9781
ECLECTIC TATOO
185' LOCATION MAP

N

1" = 200'

Date: 01/20/26

address_compl
415 E 12 TH ST KANSAS CITY MO 64106
1130 SW 28TH ST BLUE SPRINGS MO 64015
1000 SW WOODS CHAPEL RD BLUE SPRINGS MO 64015
1130 SW 28TH ST BLUE SPRINGS MO 64015
1130 SW 28TH ST BLUE SPRINGS MO 64015
1000 SW WOODS CHAPEL RD BLUE SPRINGS MO 64015
1207 SW QUARRY RD BLUE SPRINGS MO 64015
1000 SW WOODS CHAPEL RD BLUE SPRINGS MO 64015
415 E 12 TH ST KANSAS CITY MO 64106
1130 SW 28TH ST BLUE SPRINGS MO 64015
1130 SW 28TH ST BLUE SPRINGS MO 64015
2850 W US 40 HWY BLUE SPRINGS MO 64015

Blue Springs, Missouri
Community Development

January 23, 2026

Ref: Public Hearing: Conditional Use Permit | CUP-01-26-9781
Eclectic Tattoo
1121 SW 28th Street
Parcel # 42-210-03-38-00-0-00-000

Dear Property Owner:

A Public Hearing will be held by the Planning Commission and the City Council of the City of Blue Springs to receive comments from interested parties and citizens relative to a request by the applicant, Daniel Kubin, on behalf of the property owner, Brummel Ford Investments LLC, for consideration to approve a Conditional Use Permit allowing the body art service use on an 0.71+/- acres property located at 1121 SW 28th Street.

You are receiving this notice because County records indicate you own property within 185 feet of the boundary of the site in question.

Interested parties may view the application materials on file by contacting the Community Development Department via email at ComDevLegal@bluespringsgov.com or at City Hall at 903 W Main Street, Blue Springs, MO.

The hearing will be held in the Council Chambers in the Howard L. Brown Public Safety Building located at 1100 SW Smith Street, Blue Springs on the following dates:

Planning Commission - Monday, February 23, 2026 @ 6:30 p.m.
&
City Council – Wednesday, March 2, 2026 @ 6:00 p.m.

Your attendance and comments are welcome at these meetings. Questions concerning this matter may be directed to the Community Development Department at 816-228-0207.

Sincerely,

CITY OF BLUE SPRINGS
COMMUNITY DEVELOPMENT

Traci Breshears
Administrative Assistant

Introduced by Councilmember _____ BILL 5386

(CUP-01-26-9781) ORDINANCE_____

AN ORDINANCE APPROVING A CONDITIONAL USE PERMIT WITH ALTERNATIVE DEVELOPMENT STANDARDS ALLOWING BODY ART IN LIGHT INDUSTRIAL ZONING DISTRICT "LI" WITHIN 500 FEET OF RESIDENTIAL USE AT 1121 SW 28TH STREET, BLUE SPRINGS, JACKSON COUNTY, MISSOURI, FOR ECLECTIC TATTOO

WHEREAS, proper application having been made to approve a Conditional Use Permit (CUP) with Alternative Development Standards for property hereinafter described; and

WHEREAS, after review of the Conditional Use Permit with Alternative Development Standards with respect to such issues as zoning, land use, impact to surrounding areas, adequacy of facilities and services, and compliance with development regulations to achievement of quality development in which it has been determined that the application has met; and

WHEREAS, in accordance with Title IV, Unified Development Code of the Municipal Code of the City of Blue Springs, Missouri, said application was referred to the Planning Commission for report and recommendation, and a public hearing was held February 23, 2026, which Commission, after said hearing, recommended the application for the Conditional Use Permit with Alternative Development Standards be approved; and

WHEREAS, thereafter a public hearing was held by City Council on March 2, 2026; and

WHEREAS, the City of Blue Springs, Missouri, has determined that the Conditional Use Permit with Alternative Development Standards is appropriate at this location and

be approved.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF BLUE SPRINGS, MISSOURI, as follows:

Section 1. The following described tract of real estate is hereby declared subject to the Conditional Use Permit with Alternative Development Standards approved by this ordinance. The site is legally described as:

1121 SW 28TH ST

Section 2. The land covered within this Conditional Use Permit with Alternative Development Standards and contained within the area described by Section 1 of this Ordinance, may be used in compliance with the Conditional Use Permit with Alternative Development Standards approved herein by the City of Blue Springs or hereinafter revised, and the requirements of said Conditional Use Permit with Alternative Development Standards shall include any staff recommendations contained in the staff report and presented to the Planning Commission at its February 23, 2026, meeting and to the City Council at its March 2, 2026, meeting, and approved by the City Council as conditions of passage by this Ordinance and of this Conditional Use Permit with Alternative Development Standards, and shall be deemed to include those conditions in addition to those contained in the UDC and in documents and drawings submitted to the Planning Commission and City Council and approved hereby, including the following conditions:

1. Approval by the City Council based on the representation of drawings presented as part of this application does not waive any requirement or development standard contained in the UDC unless otherwise

specified by the following Alternative Development Standards:

a. The Conditional Use Permit allows the "Body Art Service" land use to be allowed in accordance with the Special Use Standards Section 405.050 (33) at the property addressed 1121 SW 28th St.

b. The applicant is seeking approval of Alternative Development Standards to waive the minimum 500-foot separation requirement from residential zoning.

2. Prior to issuance of a Business License for the City of Blue Springs, an updated Tattooist and Tattoo Establishment license must be provided for the new address.

Section 3. That this Ordinance shall be in full force and effect from and after its passage and approval.

Section 4. Scrivener's Errors. Typographical errors and other matters of a similar nature that do not affect the intent of this Ordinance, as determined by the City Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

1st Reading: _____

2nd Reading: _____

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 20, 2026

ITEM TYPE: Ordinance

SUBMITTED BY: Christine Cates

CONTRACT NUMBER: N/A

DEPARTMENT: Administration

STRATEGIC PLAN PRIORITY: Community Safety

ITEM DESCRIPTION

Passage of a Bill amending the Code of Ordinances prohibiting the sales of Intoxicating Hemp and Kratom products to any person.

BACKGROUND

At the December 15, 2025 City Council meeting, Councilmembers Kaylor and Ericson lead a discussion about Intoxicating Hemp Products. The City Council directed staff to research and create an Ordinance or Ordinances to regulate hemp products and various cannabinoids, as well as kratom products and bring it back before Council by the second meeting in February.

At the February 18, 2026 City Council meeting, resolutions 016-2026 and 017-2026 were adopted related to Intoxicating Hemp and Kratom and serve to support and encourage the Missouri State Legislature and Missouri Governor Mike Kehoe to pass legislation into law as a matter of public safety to keep children safe and protect our community.

Bill 5382 amending the Code of Ordinances prohibiting the sales of Intoxicating Hemp and Kratom products to any person under the age of 21 was continued indefinitely.

Also at the February 18, 2026 City Council meeting, staff was directed to bring back the attached ordinance amending the Code of Ordinances to prohibit the sale of intoxicating Hemp and Kratom products to any person. If the subject ordinance is approved, the ordinance will take effect 15 days after adoption, on March 17, 2026. Upon adoption, the Police Department will notify all gas stations, vape shops, and liquor stores of the change in the law.

FINANCIAL IMPACT

Contractor:	N/A

PROJECT TIMELINE

Estimated Start Date	March 3, 2026
Estimated End Date	N/A

STAFF RECOMMENDATION

Staff recommends approval.

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: N/A

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Bill amending the Code of Ordinances prohibiting sale of intoxicating Hemp and Kratom products.

REVIEWED BY

Requesting Director: Christine Cates

Administration: George Schmitz

Budget: N/A

Legal: Jennifer Baird

City Administrator: Christine Cates

Introduced by _____ BILL 5387

ORDINANCE_____

AN ORDINANCE AMENDING SECTION 225.010 OF THE CODE OF ORDINANCES, CITY OF BLUE SPRINGS, MISSOURI, AND ADDING SECTION 225.195, REGULATING THE SALE, PURCHASE AND POSSESSION OF INTOXICATING HEMP-DERIVED CANNABINOIDS AND KRATOM-DERIVED PRODUCTS

WHEREAS, the Agriculture Improvement Act of 2018 (Farm Bill) legalized industrial hemp, defined as cannabis with a Delta-9 tetrahydrocannabinol (THC) concentration of not more than 0.3 percent on a dry weight basis; and

WHEREAS, the market has seen proliferation of chemically modified hemp products containing isomers and derivatives such as Delta-8 THC, Delta-10 THC, and HHC, which produce intoxicating effects similar to marijuana; and

WHEREAS, there has also been an emergence of products containing 7-Hydroxymitragynine (7-OH), a potent alkaloid derived from the Kratom plant (*Mitragyna speciosa*), which is distinct from hemp but produces potent psychoactive and intoxicating effects; and

WHEREAS, these products are currently sold in the United States with little oversight, regulation, or enforcement and pose health and public safety concerns; and

WHEREAS, the City Council seeks to protect the the public from accessing these intoxicating substances, regardless of their botanical origin.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF BLUE SPRINGS, MISSOURI, as follows:

NOTE: LANGUAGE INTO BE ADDED IS <u>UNDERLINED</u>. LANGUAGE TO BE DELETED IS SHOWN AS ~~STRICKEN~~. Sections and Subsections not set out herein are not amended or changed.

Section 1. That Section 225.010 Definitions, of the Code of Ordinances, City of Blue Springs, Missouri, is hereby amended by adding the following definitions:

Section 225.010 Definitions.

For the purposes of this Chapter, the following words and phrases shall have the meanings given herein:

EXEMPT HEMP PRODUCTS

Products containing cannabinoids derived from industrial hemp that are not psychoactive or intoxicating, specifically including Cannabidiol (CBD), Cannabigerol (CBG), and Cannabinol (CBN), provided they do not contain Intoxicating Hemp-Derived Cannabinoids or Intoxicating Kratom-Derived Products.

INTOXICATING HEMP-DERIVED CANNABINOID

Any cannabinoid derived from industrial hemp that has a psychoactive or intoxicating effect on the human body, including but not limited to:

1. Delta-8 Tetrahydrocannabinol;
2. Delta-10 Tetrahydrocannabinol;
3. Hexahydrocannabinol (HHC);
4. Tetrahydrocannabinol acetate (THC-O);
5. Tetrahydrocannabiphorol (THC-P);
6. Any other chemical substance derived from hemp that is capable of inducing a psychoactive or intoxicating effect comparable to Delta-9

THC.

INTOXICATING KRATOM-DERIVED PRODUCT

Any product containing alkaloids derived from the plant Mitragyna speciosa (Kratom) that have been isolated, extracted, or concentrated to produce a psychoactive or intoxicating effect, specifically including:

1. 7-Hydroxymitragynine (7-OH);

2. Pseudoindoxyl;

3. Concentrated Mitragynine extracts.

POSSESSION OR POSSESS

Having control or dominion over a Regulated Intoxicating Product, which can be actual or constructive. Possession involves both physical custody and the intent to control the regulated intoxicating product.

REGULATED INTOXICATING PRODUCT

Any product containing an Intoxicating Hemp-Derived Cannabinoid or an Intoxicating Kratom-Derived Product.

SELL OR SALE

To transfer, give, exchange, or barter for any consideration.

Section 2. That the following new Section, Section 225.195 be added to the Code of Ordinances, City of Blue Springs, Missouri, to read as follows:

Section 225.195 Intoxicating Hemp and Intoxicating Kratom Products

1. Sale to Persons is Prohibited. It shall be unlawful for any person, retailer, or business entity to sell, provide, or distribute any Regulated Intoxicating Product to any person

2. Purchase or Possession by Persons Prohibited. It shall be unlawful for any person to purchase, attempt to purchase, or possess any Regulated Intoxicating Product within the City.

Section 3. Severability: If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance.

Section 4. That this Ordinance shall be in full force and effect from on March 6, 2026, 15 days after its passage and approval.

Section 5. Scrivener's Errors. Typographical errors and other matters of a similar nature that do not affect the intent of this Ordinance, as determined by the City Clerk, may be corrected with the endorsement of the City Administrator without the need to come before the City Council.

PASSED by the City Council of the City of Blue Springs, Missouri, and approved by the Mayor of Blue Springs, this 2nd day of March 2026.

CITY OF BLUE SPRINGS

_____

Chris Lievsay, Mayor

ATTEST:

_____

Megan Rodgers, Deputy City Clerk

1st Reading: _____

2nd Reading: _____

BLUE SPRINGS
MISSOURI

CITY COUNCIL INFORMATION FORM

DATE SUBMITTED: February 9, 2026

ITEM TYPE: Presentation

SUBMITTED BY: Karen Van Winkle

CONTRACT NUMBER: N/A

DEPARTMENT: Finance

STRATEGIC PLAN PRIORITY: Organizational Health

ITEM DESCRIPTION

Kristen Hughes, Managing Director, at RSM US LLP will present the City's financial year 2025 audit report.

BACKGROUND

The Government Finance Officers Association (GFOA) Best Practices for the procurement of audit services recommends that cities enter multi-year contracts of at least five years with audit firms that are fully qualified to perform public sector audits. The GFOA Best Practice included a provision for the automatic renewal of a multi-year contract for the auditor upon satisfactory performance. The City entered a five-year contract with RSM US LLP in 2022 with approval of Resolution 59-2022. The cost of the 2025 audit is $95,000, with the City's audit costing $69,040.

The audit engagement includes not only the City's financials, but the Adams Farm Transportation Development District and the Adams Dairy Landing, Woods Chapel,

White Oak, Fall Creek, Sunset Plaza, North Blue Springs and Downtown Community Improvement Districts. Reports are issued to the Boards of each of these districts and each district covers the cost of their own audit.

The Annual Comprehensive Financial Report will be submitted to the Government Finance Officers Association for the Certificate of Achievement in Financial Reporting. The City has been submitting and receiving this award since 1982.

In compliance with the terms of this contract, RSM US LLP will present to the Council on March 2, 2026, the results of their audit of the City's financials.

FINANCIAL IMPACT

INFORMATION	DETAIL
Contractor:	N/A

PROJECT TIMELINE

INFORMATION	DETAIL
Estimated Start Date	March 2, 2026
Estimated End Date	N/A

STAFF RECOMMENDATION

N/A

OTHER BOARDS & COMMISSIONS ASSIGNED

Name of Board or Commission: N/A

LIST OF REFERENCE DOCUMENTS ATTACHED

1. Fiscal Year 2025 Annual Report
2. Management Letter Fiscal Year 2025 – Auditor Communication Packet
3. Fiscal Year 2025 Single Audit
4. Financial Report Presentation

REVIEWED BY

Requesting Director: Karen Van Winkle

Legal: N/A

Administration: George Schmitz

City Administrator: Christine Cates

Budget: N/A



FOR FISCAL YEAR ENDED SEPTEMBER 30, 2025

ANNUAL COMPREHENSIVE FINANCIAL REPORT

The City of Blue Springs Missouri

City of Blue Springs, Missouri

Annual Comprehensive Financial Report
Year Ended September 30, 2025

Prepared by:
Finance Department

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City of Blue Springs, Missouri

Principal Officials
(September 30, 2025)

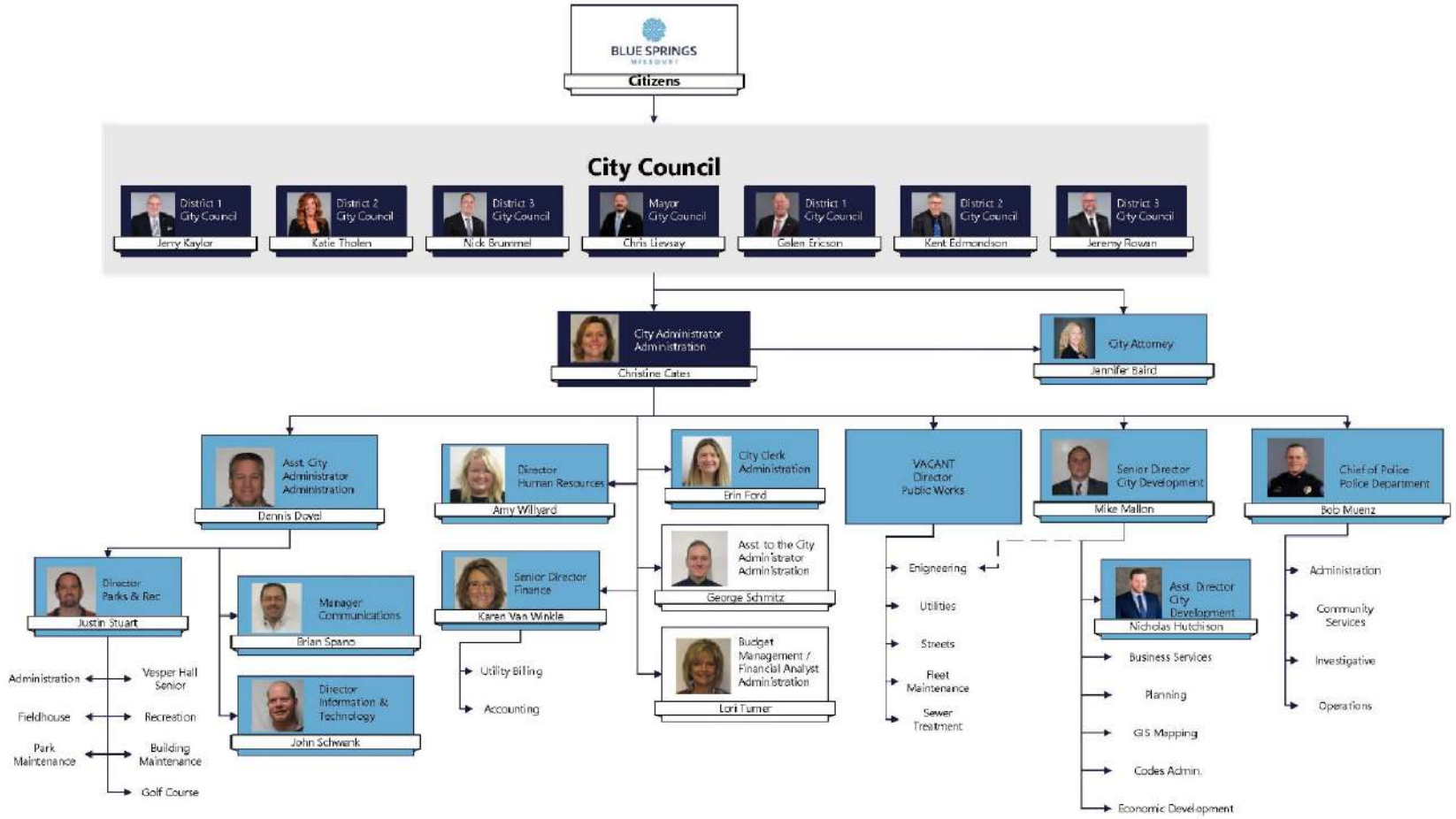
Mayor and City Council

Honorable Chris Lievsay	Mayor
Honorable Jerry Kaylor	District I
Honorable Galen Ericson	District I
Honorable Kent Edmondson	District II
Honorable Katie Tholen	District II
Honorable Nick Brummel	District III
Honorable Jeremy Rowan	District III

Administration

Christine Cates	City Administrator
Dennis Dovel	Assistant City Administrator
Jennifer Baird	City Attorney
Karen Van Winkle	Senior Director of Finance
John Schwenk	Director of Information Technology
Amy Willyard	Senior Director of Human Resources
Bob Muenz	Chief of Police
Vacant	Director of Public Works
Justin Stuart	Director of Parks and Recreation
Mike Mallon	Senior Director of City Development
Vacant	Economic Development Manager

City Council & Administration



Transmittal Letter

February 23, 2026

Honorable Mayor, Members of the City Council, and Citizens of the City of Blue Springs:

The Annual Comprehensive Financial Report of the City of Blue Springs, Missouri for the fiscal year ended September 30, 2025, is hereby submitted for your review. This report is submitted for your review in compliance with the provisions of Article V, Section 5.4 (f) of the City Charter.

The responsibility for the accuracy of the data and the completeness and fairness of its presentation, including all disclosures, rests with the City of Blue Springs. To the best of our knowledge and belief, the financial statements are accurate in all material aspects and are presented in a manner that fairly depicts the financial position and results of operations of the various activities of the City. All disclosures necessary to enable the reader to gain an understanding of the City's financial activities have been included.

The report was prepared by the City's Finance Department staff in accordance with generally accepted accounting principles (GAAP), which are uniform minimum standards and guidelines for financial accounting and reporting in the United States.

This report is intended to provide sufficient information to permit the assessment of stewardship and accountability and to demonstrate legal compliance.

The City of Blue Springs' financial statements, as required by the Charter, have been audited by RSM US LLP. The goal of the independent audit is to provide reasonable assurance that the financial statements are free of material misstatement. The independent audit involved examining on a test basis, evidence supporting the amounts and disclosures in the financial statements; assessing the accounting principles used and significant estimates made by management; and evaluating the overall financial statement presentation. The independent auditor concluded, based upon the audit, that there was reasonable basis for rendering an unmodified opinion that the City of Blue Springs' financial statements for the fiscal year ended September 30, 2025, are fairly presented in conformity with GAAP. The independent auditor's report is presented as the first component of the financial section of this report.

The independent audit of the financial statements of the City of Blue Springs was part of a broader, federally mandated "Single Audit" designed to meet the special needs of Federal grantor agencies. The standards governing Single Audit engagements require the independent auditor to report not only on the fair presentation of the financial statements, but also on the audited government's internal controls and compliance with legal requirements, with special emphasis on internal controls and compliance with legal requirements involving the administration of federal awards. These reports are included in the City of Blue Springs' separately issued Single Audit Report.

Management's discussion and analysis (MD&A) immediately follows the independent auditor's report and provides a narrative introduction, overview, and analysis of the basic financial statements. This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it.

Profile of the City

The City of Blue Springs was incorporated in 1880 and became a fourth-class city in 1904. Under the provisions of the Missouri State Statutes governing fourth-class cities, a Mayor/Board of Alderman/ City Administrator form of government was adopted. On April 6, 1993, the citizens of Blue Springs voted to create a Charter Commission that was charged with the task of drafting a Home Rule Charter. The Commission submitted their proposed Charter to the citizens on April 5, 1994, which recommended the establishment of a Mayor/City Council/City Administrator form of government. Upon approval of the voters, the new City Charter became effective at the first meeting of the City Council on April 18, 1994. In accordance with the Home Rule Charter, the registered voters within the City elect a mayor for a four-year term and six Council members, two from each of three geographic districts, to serve staggered three-year terms as representatives on the City Council.

All policy making and legislative authority are vested in the City Council. This body is responsible for passing ordinances, adopting the budget, appointing committees, and hiring the City Administrator. The City Administrator, as chief administrative officer of

the City, is responsible for carrying out the policies and ordinances adopted by the Governing Body, overseeing the day-to-day operations of the City and for appointing the directors of the various City departments. This position serves at the discretion of the City Council.

The City of Blue Springs provides a full range of municipal services including police protection; water and sanitary sewerage utilities; planning, construction and maintenance of highways, streets, and infrastructure; community planning and development; planning, maintenance, and construction of parks facilities; recreational activities; youth outreach programs; senior social services; and general administrative oversight.

In fulfilling its responsibilities for reliable financial statements, management depends on the City's system of internal controls. This system is designed to provide reasonable assurance that assets are effectively safeguarded and that transactions are executed in accordance with management's authorization and are properly recorded. The objective of a system of internal control is to provide reasonable, rather than absolute, assurance that the financial statements are free of any material misstatements.

The City Council is required to adopt a final budget no later than the end of the fiscal year. The annual budget serves as the foundation for the City of Blue Springs' financial planning and control. The budget is prepared by fund, function (e.g., public safety), and department (e.g., police). Department directors may transfer resources

within a department as they see fit. Transfers between departments, however, need approval from the City Administrator.

Factors affecting Financial Condition

Local Economy

Blue Springs is strategically located near the center of Jackson County, Missouri, at the eastern edge of the Kansas City metropolitan region and covers 22.27 square miles of territory. The community is served by two state highways (7 and 40) and one Interstate highway (I-70), providing convenient commuter access to the various cultural, educational, social, legal, financial, and marketing institutions of the region. The community is also served by the Kansas City Southern Railroad, which provides efficient rail service connections for several industrial sites within the City.

In 1970, Blue Springs had a total population of 6,779. By 1980, the City had almost quadrupled, boasting a population of 25,936. Following the 1990 census, it was reported that, during the previous decade, Blue Springs was one of the top ten fastest growing cities in the state of Missouri with the population increasing by 54.8% to a total of 40,153. The Census continues to report growth in population for the City with 2000 reporting 48,050, 2010 reporting 52,575, 2020 reporting 58,603. The current population is estimated at 61,246.

Long-term Financial Planning

The City of Blue Springs prepares a five-year financial projection of financial condition, which includes capital outlay projections and a five-year Capital Improvement Program (CIP). The CIP outlines proposed budgets for constructing, maintaining, upgrading, and replacing the City's physical infrastructure, including Water and Sewer capital improvements.

The fiscal year 2025–26 budget includes approximately $36.3 million in capital projects. In developing the budget, capital needs are assessed, public improvements are prioritized, and project costs are projected. The CIP is reviewed annually, with projects re-prioritized as needed and the City's overall financial condition evaluated.

Projects funded through the 2025 General Obligation Bonds include $4.9 million for Downtown Master Plan implementation, $1.5 million for the ADP Duncan Road right-turn lane, $4.5 million for SW 12th Street improvements, $1.9 million for Mock Avenue improvements, and $5.0 million of the Pavement Maintenance Program.

Additional approved capital projects include $13.0 million for the Pavement Maintenance Program (inclusive of the GO bond-funded portion), $1.1 million for Rotary Park improvements (part of a $4.3 million two-year project), and $1.2 million for Southwest Park construction (part of a $26.2 million two-year project). Of the total $36.3 million in capital projects, $2.8 million is designated for capital outlay.

During fiscal year 2021, the City Council adopted a stabilization arrangement that sets aside 25% of budgeted General Fund expenditures of the prior fiscal year and

includes a provision for allocation of 50% of unassigned fund balance to the next year's Pavement Management Program. This policy reduced the fund balance reserves from 30%, which had been in place since 2011. The 25% of operating expenditures are divided into two reserve categories, the Emergency Reserve is set at 17% and the Budget Stabilization Reserve is set at 8%.

Relevant financial policies

The City's Stabilization Arrangement Policy indicates that the City will maintain twenty-five percent of general operating expenditures and obligated debt service transfers as emergency reserve and budget stabilization balance. At the end of the current fiscal year, the unassigned fund balance for the general fund was $2,758,983 or 8.32% of total general fund expenditures. In compliance with the City's Enterprise Fund Policy, a comprehensive rate study was performed in 2025 for both the Water and Sewer Utilities. The study was completed and adopted in August 2025 with increases in rates in October 2025, 2026, and 2027. During 2028, the City will perform another rate study to be implemented over the following three fiscal years.

Major initiatives

The City of Blue Springs continues to make strategic investments that support long-term planning, infrastructure reliability, and community quality of life. In August 2025, the City Council is scheduled to adopt a new Strategic Plan to guide future decision-

making and governance. A comprehensive website redesign is underway and will be completed by March 2026, providing a more modern and user-friendly platform along with a transition to the new domain, bluespringsmo.gov. Infrastructure improvements remain a key focus, including the 2026 Preventive Pavement Management Plan, which will complete 85.6 lane miles using remaining bond and annual program funding—far exceeding original projections—and includes major mill and overlay projects on several arterial streets. Additional bond-funded initiatives scheduled for completion in FY 2026 include the Downtown Streetscape Plan along Main Street, construction of 12th Street connecting Southcrest to Wyatt Road, and traffic improvements at Adams Dairy Parkway and Duncan Road.

Ongoing initiatives further reflect the City's commitment to thoughtful growth and operational efficiency. Wyatt Road East will be reconstructed from 7 Highway to Adams Dairy Parkway in FY 2026 using previously approved funds. The City will begin updating its Comprehensive Plan in 2026 to replace the 2014 plan and guide future development, alongside completion of a new Parks, Recreation and Open Space Master Plan in early FY 2026. Improvements to the Public Works Facility will enhance operational capacity through expanded space and upgraded amenities. Looking ahead, Highway AA will undergo major safety and accessibility improvements by FY 2027, and significant upgrades to the Sni-A-Bar Wastewater Treatment Plant are planned to maintain EPA compliance, with voters considering bond financing for this project in April 2026.

Awards and Acknowledgements

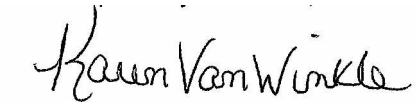
The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the City of Blue Springs, Missouri for its Annual Comprehensive Financial Report for the fiscal year ended September 30, 2024. The City has been the recipient of this award since 1982.

To be awarded a Certificate of Achievement, the City published an easily readable and efficiently organized Annual Comprehensive Financial Report, whose contents conform to program standards. Such reports must satisfy both generally accepted accounting principles and applicable legal requirements. A Certificate of Achievement is valid for a period of one year. We believe that our 2025 report continues to conform to the Certificate of Achievement program requirements, and we will submit this report to the GFOA to determine its eligibility for another certificate.

In addition, the City received the GFOA's Award for Distinguished Budget Presentation for its annual appropriation budget dated October 1, 2025. To qualify for this Award, a governmental unit must publish a budget document that meets program criteria as a policy document, as an operations guide, as a financial plan, and as a communication device. During this fiscal year, the City also received the GFOA's Award of Outstanding Achievement for its Popular Annual Financial Reporting. The City has received this award since 2012.

The preparation of this report could not have been accomplished without the efficient and dedicated services of the entire staff of the finance department. I wish to express my appreciation to all members of the department who assisted and contributed to the preparation of this report. Due credit should also be given to the Mayor and the members of the City Council for their continued interest and support in planning and conducting the affairs of the City in a responsible and progressive manner.

Respectfully submitted,



Karen Van Winkle

Senior Director of Finance

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

City of Blue Springs
Missouri

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

September 30, 2024

Christopher P. Morrill

Executive Director/CEO

Independent Auditor's Report

Honorable Mayor and
Members of the City Council
City of Blue Springs, Missouri

Opinions

We have audited the financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City of Blue Springs, Missouri (the City), as of and for the year ended September 30, 2025, and the related notes to the financial statements, which collectively comprise the City's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City of Blue Springs, Missouri, as of September 30, 2025, and the respective changes in financial position, and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the City and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Emphasis of Matter

As discussed in Note 14 to the basic financial statements, the City adopted Government Accounting Standards Board (GASB) Statement No. 101, *Compensated Absences*, as of October 1, 2024. The implementation of this standard resulted in the restatement of October 1, 2024 net position for governmental activities, business-type activities, Water Utility Fund, Sewer Utility Fund, Fieldhouse Fund and the aggregate remaining fund information. Our opinions are not modified with respect to this matter.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the City's ability to continue as a going concern for 12 months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

RSM US LLP is the U.S. member firm of RSM International, a global network of independent assurance, tax, and consulting firms.
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Auditor's Responsibilities for the Audit of the Financial Statements
Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we

- Exercise professional judgment and maintain professional skepticism throughout the audit.

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the City's internal control. Accordingly, no such opinion is expressed.

- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.

- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the City's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information
Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, the pension schedules, and the budgetary comparison schedules, as listed in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information
Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the City's basic financial statements. The combining financial statements and other budget to actual schedules, listed in the table of contents as supplementary information, are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the accompanying combining nonmajor fund financial statements and other budget to actual schedules are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information
Management is responsible for the other information included in the annual comprehensive financial report. The other information comprises the introductory and statistical sections but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

RSM US LLP

Kansas City, Missouri
February 23, 2026

City of Blue Springs, Missouri

Management's Discussion and Analysis
Fiscal Year Ended September 30, 2025

Management's Discussion and Analysis (MD&A) provides an overview and analysis of the financial activities of the City of Blue Springs for the fiscal year ended September 30, 2025. This discussion is intended to assist readers in understanding the City's financial position and results of operations and should be read in conjunction with the transmittal letter, the basic financial statements, and the accompanying notes to the financial statements contained in this Annual Comprehensive Financial Report.

During fiscal year 2025, the City implemented GASB Statement No. 102, *Certain Risk Disclosures*. The adoption of this standard did not have an impact on the City's financial statements.

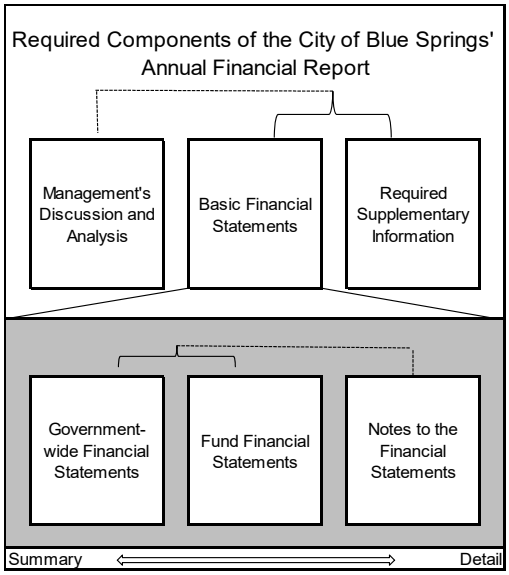
The City also implemented GASB Statement No. 101, *Compensated Absences*, which revises the recognition and measurement guidance for compensated absences. The implementation of this standard resulted in a restatement of beginning net position to reflect the updated methodology for recording compensated absence liabilities. As a result, total governmental activities compensated absences liability increased by $698,860, from $1,552,184 to $2,251,044, and beginning net position decreased from $86,850,814 to $86,151,954. Total business-type activities compensated absences liability increased by $45,289, from $120,591 to $165,880, and beginning net position decreased from $153,104,634 to $153,059,345. Additional information regarding the implementation and its financial impact is disclosed in Note 14 to the financial statements.

Financial Highlights

- The assets and deferred outflows of resources of the City exceeded its liabilities and deferred inflows of resources at the close of the fiscal year by $248,931,863 (net position). Of this amount, $55,421,455 (unrestricted net position) may be used to meet the government's ongoing obligations to citizens and creditors.
- The City's total net position increased by $9.72 million during fiscal year 2025. Governmental activities contributed a $7.76 million increase, while business-type activities increased by $1.96 million. Governmental capital assets increased by $9.3 million, as capital additions exceeded depreciation expense for the year. These additions were primarily attributable to contributed capital for streets and storm sewers in southern Blue Springs, the purchase of land and equipment, and the completion of trail projects and Wyatt Road. In contrast, business-type capital assets, net of depreciation, declined by approximately $3.9 million as depreciation expense exceeded current-year additions, primarily reflecting the first full year of depreciation on the aquatic center. Governmental liabilities increased by $26,676,847 due to the issuance of the 2025 General Obligation Bonds, and current and other assets also increased as a result of cash held at year end for unspent bond proceeds.
- As of September 30, 2025, the City's governmental funds reported combined ending fund balances of $78,962,655, an increase of $25,667,393 from the prior year. This net increase reflects a decrease of $2,421,466 in the General Fund, a decrease of $2,968,264 in the Parks Sales Tax Fund, a decrease of $4,448 in the General Obligation Bond Debt Service Fund, an increase of $30,176,390 in the Capital Projects Fund, an increase of $54,328 in TIF funds, and an increase of $830,853 in other non-major governmental funds. Of the total fund balance, $37,420,283 (47.4%) represents committed, assigned, and unassigned amounts that may be used to support ongoing operations and capital priorities, subject to formal Council action and City policy. The remaining fund balance is restricted or nonspendable for specific purposes in accordance with external requirements or legal constraints.
- As of September 30, 2025, the General Fund reported an unassigned fund balance of $2,758,983, representing 8.4% of total General Fund expenditures for the fiscal year. The unassigned fund balance provides financial flexibility to address unforeseen expenditures or revenue shortfalls. In addition, the City maintains committed emergency and budget stabilization reserves totaling 25% of prior year budgeted General Fund operating expenditures, in accordance with formal Council policy. These committed reserves further strengthen the City's financial position and support long-term fiscal stability.
- The City's total long-term liabilities increased by $23,840,643 during fiscal year 2025. Governmental activities increased by $26.5 million, primarily due to the issuance of the 2025 General Obligation Bonds, partially offset by scheduled principal repayments on special obligation bonds and other governmental debt. Business-type activities decreased by $2.7 million, largely as a result of principal payments in the Sewer Fund related to the State Revolving Fund (SRF) Loan and Neighborhood Improvement District (NID) Limited Obligation Bonds. Additional information regarding long-term debt activity is presented in Note 7 to the financial statements.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the City's basic financial statements. The City's basic financial statements consist of: (1) government-wide financial statements, (2) fund financial statements, and (3) notes to the basic financial statements. This report also includes required supplementary information and other supplementary information in addition to the basic financial statements.



1. The first two statements are government-wide financial statements that provide both long-term and short-term information about the City's overall financial status.

2. The remaining statements are fund financial statements that focus on individual parts of the City government, reporting the City's operation in more detail than the government-wide statements.

3. Notes to the statements are included which provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements.

The basic financial statements are followed by required supplementary information that provides additional context and support for the information presented in the financial statements. In addition, the report includes other supplementary information to further assist readers in understanding the City's financial condition and operations.

Major Features of the City of Blue Springs' Government-wide and Fund Financial Statements

		Fund Statements		
	Government-Wide Statements	**Governmental Funds**	**Proprietary Funds**	**Fiduciary Funds**
Scope	Entire City government (except fiduciary funds)	The activities of the City that are not proprietary or fiduciary, such as police, public works, and parks	Activities the City operates similar to private business; water, sewer, and golf course	Instances in which the City is the trustee or agent for someone else's resources
Required Financial Statements	*Statement of Net Position *Statement of Activities	*Balance Sheet *Statement of Revenues, Expenditures and *Changes in Fund Balances	*Statement of Net Position *Statement of Revenues, Expenses, and Changes in Fund Net Position *Statement of Cash Flows	*Statement of Fiduciary Net Position *Statement of Changes in Fiduciary Net Position
Accounting Basis and Measurement Focus	Accrual accounting and economic resource focus	Modified accrual accounting and current financial resources focus	Accrual accounting and economic resource focus	Accrual accounting and economic resource focus
Type of Asset/Liability Information	All assets and liabilities, both financial and capital, and short-term and long-term	Only assets expected to be used up and liabilities that come due during the year or soon thereafter, no capital assets included	All assets and liabilities, both financial and capital, and short-term and long-term	All assets and liabilities, both short-term and long-term
Type of Inflow/Outflow Information	All revenues and expenses during year, regardless of when cash is received or paid	Revenues for which cash is received during or soon after the end of the year; expenditures when good or services have been received and payment is due during the year or soon thereafter	All revenues and expenses during year, regardless of when cash is received or paid	All revenues and expenses during year, regardless of when cash is received or paid

Government-Wide Financial Statements

The government-wide financial statements provide readers with a broad overview of the City's financial position and results of operations in a manner similar to a private-sector business. These statements include the Statement of Net Position and the Statement of Activities.

The Statement of Net Position presents information on all of the City's assets, deferred outflows of resources, liabilities, and deferred inflows of resources, with the difference reported as net position. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the City is improving or deteriorating. In evaluating the City's overall financial condition, readers should also consider nonfinancial factors, such as changes in the property tax base and the condition and capacity of capital assets, including roads, buildings, and water and sewer infrastructure.

The Statement of Activities presents information showing how the City's net position changed during the most recent fiscal year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Accordingly, revenues and expenses are reported in this statement for certain items that will result in cash flows in future fiscal periods, such as property taxes receivable and earned but unused compensated absences.

The government-wide financial statements report the City's activities in two categories:

- Governmental activities - These activities include most of the City's core services, such as General Government, Public Works, Highways and Streets, Public Safety, Parks and Recreation, and Economic Development. These functions are primarily supported by property taxes, sales taxes, franchise and other taxes, intergovernmental revenues, user fees, and investment income.

- Business-type activities - These activities are intended to recover all or a significant portion of their costs through user charges. The City's Water Utility, Sewer Utility, Golf Course, and Fieldhouse funds are reported as business-type activities.

The government-wide financial statements can be found on pages 20–22 of this report.

Fund Financial Statements

A fund is a grouping of related accounts used to maintain control over resources that have been segregated for specific activities or objectives. The City of Blue Springs, like other state and local governments, uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

The City utilizes three types of funds: governmental, proprietary, and fiduciary.

- Governmental funds - Governmental funds are used to account for most of the City's basic services. These funds focus on the inflows and outflows of current financial resources and the balances of spendable resources available at year end. Accordingly, the governmental fund statements provide a short-term perspective that assists readers in determining whether there are sufficient financial resources available to finance near-term operations. Because governmental funds do not report long-term assets and liabilities, a reconciliation is provided to explain the differences between the governmental fund statements and the government-wide financial statements.

The basic governmental fund financial statements can be found on pages 23–27 of this report.

- Proprietary funds - Proprietary funds are used to account for activities that are intended to recover all or a significant portion of their costs through user charges. These funds use the economic resources measurement focus and the accrual basis of accounting, similar to the government-wide statements. The City's enterprise funds correspond to its business-type activities but provide more detailed information, including cash flow statements. The City also maintains one internal service fund, Fleet Maintenance, which accounts for services provided to other City departments.

The basic proprietary fund financial statements can be found on pages 28–35 of this report.

- Fiduciary funds - Fiduciary funds are used to account for resources held for the benefit of parties outside the City. Because these resources are not available to support the City's own programs, fiduciary funds are not included in the government-wide financial statements. The City serves as fiduciary for several custodial funds, including various Community Improvement District (CID) and Transportation Development District (TDD) entities. Additional information is provided in Note 1 to the financial statements.

The basic fiduciary fund financial statements can be found on pages 36–37 of this report.

Notes to basic financial statements

The notes to the basic financial statements provide additional information that is essential to a full understanding of the data presented in the government-wide and fund financial statements. The notes can be found on pages 38–79 of this report.

Other information

In addition to the basic financial statements and accompanying notes, this report includes Required Supplementary Information (RSI), including budgetary comparison information for the General Fund and pension-related schedules. Other supplementary information, including combining statements, individual fund schedules, and budgetary comparison schedules for nonmajor governmental funds, is presented on pages 80–113. The Statistical Section, which provides additional financial, economic, and demographic information, begins on page 114.

Government-Wide Financial Analysis

The following table presents a condensed comparative Statement of Net Position for fiscal years 2025 and 2024.

As of September 30, 2025, the City of Blue Springs reported total net position of $248,931,863, reflecting that assets and deferred outflows of resources exceeded liabilities and deferred inflows of resources. Net position serves as a useful indicator of the City's overall financial condition and provides a measure of the resources available to support future operations.

City of Blue Springs Net Position

	Governmental Activities		Business-Type Activities		Total	
	2025	2024	**2025**	2024	**2025**	2024
Current and other assets	**$ 101,604,024**	$ 77,137,084	**$ 62,239,500**	$ 59,233,327	**$ 163,843,524**	$ 136,370,411
Capital assets	**138,769,082**	129,493,199	**109,160,182**	113,038,345	**247,929,264**	242,531,544
Total assets	**240,373,106**	206,630,283	**171,399,682**	172,271,672	**411,772,788**	378,901,955
Deferred outflows of resources	**8,438,118**	6,962,383	**818,816**	543,765	**9,256,934**	7,506,148
Long-term liabilities outstanding	**131,031,060**	104,489,348	**13,512,071**	16,213,140	**144,543,131**	120,702,488
Other liabilities	**8,819,996**	8,684,861	**2,908,922**	2,628,450	**11,728,918**	11,313,311
Total liabilities	**139,851,056**	113,174,209	**16,420,993**	18,841,590	**156,272,049**	132,015,799
Deferred inflows of resources	**15,052,646**	13,567,643	**773,164**	869,213	**15,825,810**	14,436,856
Net position:						
Net investment in capital assets	**102,379,099**	91,364,950	**95,140,781**	96,834,583	**164,924,880**	155,029,533
Restricted	**27,600,376**	26,660,632	**985,152**	1,175,745	**28,585,528**	27,836,377
Unrestricted (deficit)	**(36,071,953)**	(31,174,768)	**58,898,408**	55,094,306	**55,421,455**	57,089,538
Total net position	**$ 93,907,522**	$ 86,850,814	**$ 155,024,341**	$ 153,104,634	**$ 248,931,863**	$ 239,955,448

The largest portion of the City's net position, $164,924,880 (66%), reflects its investment in capital assets (e.g., land, buildings, machinery, equipment, and infrastructure), net of outstanding debt used to acquire those assets. These capital assets are used to provide services to citizens and are not available for future spending. Although reported net of related debt, the resources required to repay that debt must be provided from other revenue sources, as the capital assets themselves cannot be used to liquidate these obligations.

An additional $28,585,528 (11%) of net position represents resources that are restricted by external parties or enabling legislation for specific purposes, including debt service, capital projects, pension-related amounts, public safety building improvements, parks, tourism, and other legally restricted activities. The remaining $55,421,455 (23%) is classified as unrestricted net position and may be used to meet the City's ongoing obligations to citizens and creditors.

The following table reflects the revenues and expenses from the City's activities:

	City of Blue Springs' Changes in Net Position					
	Governmental Activities		Business-Type Activities		Total	
	2025	2024	**2025**	2024	**2025**	2024
Revenues:						
Program revenues:						
Charges for services	**$ 6,056,116**	$ 5,922,508	**$ 31,282,566**	$ 29,593,789	**$ 37,338,682**	$ 35,516,297
Operating grants and contributions	**3,656,064**	1,332,589	**-**	-	**3,656,064**	1,332,589
Capital grants and contributions	**4,706,248**	4,176,836	**259,367**	283,736	**4,965,615**	4,460,572
General revenues:						
Property taxes	**8,425,711**	8,477,137	**-**	-	**8,425,711**	8,477,137
General sales and use tax	**29,542,798**	28,942,108	**-**	-	**29,542,798**	28,942,108
Franchise tax	**4,587,909**	4,862,010	**-**	-	**4,587,909**	4,862,010
Intergovernmental activity taxes	**5,020,033**	5,297,986	**-**	-	**5,020,033**	5,297,986
Motor vehicle tax	**3,158,806**	2,848,411	**-**	-	**3,158,806**	2,848,411
Hotel tax	**736,427**	694,626	**-**	-	**736,427**	694,626
Other taxes	**657,532**	666,186	**-**	-	**657,532**	666,186
Unrestricted investment income (loss)	**2,608,185**	2,987,935	**2,056,859**	2,520,522	**4,665,044**	5,508,457
Gain on sale of assets	**144,515**	551,502	**-**	-	**144,515**	551,502
Other	**860,637**	4,672,180	**-**	-	**860,637**	4,672,180
Total revenues	**70,160,981**	71,432,014	**33,598,792**	32,398,047	**103,759,773**	103,830,061
Expenses:						
General government	**9,674,596**	12,001,747	**-**	-	**9,674,596**	12,001,747
Public works	**1,502,590**	2,197,308	**-**	-	**1,502,590**	2,197,308
Highways and streets	**14,392,068**	10,546,156	**-**	-	**14,392,068**	10,546,156
Public safety	**20,596,953**	19,569,867	**-**	-	**20,596,953**	19,569,867
Parks and recreation	**10,081,489**	8,168,607	**-**	-	**10,081,489**	8,168,607
Economic development	**465,229**	2,401,871	**-**	-	**465,229**	2,401,871
Water	**-**	-	**13,583,719**	12,270,849	**13,583,719**	12,270,849
Sewer	**-**	-	**10,228,552**	9,479,289	**10,228,552**	9,479,289
Golf Course	**-**	-	**2,476,738**	2,481,856	**2,476,738**	2,481,856
Non-major: Fieldhouse	**-**	-	**5,627,841**	3,720,158	**5,627,841**	3,720,158
Interest on long-term debt	**5,409,434**	4,805,429	**-**	-	**5,409,434**	4,805,429
Total expenses	**62,122,359**	59,690,985	**31,916,850**	27,952,152	**94,039,209**	87,643,137
Excess (deficiency) before transfers	**8,038,622**	11,741,029	**1,681,942**	4,445,895	**9,720,564**	16,186,924
Transfers	**(283,054)**	(16,513,385)	**283,054**	16,513,385	**-**	-
Change in net position	**7,755,568**	(4,772,356)	**1,964,996**	20,959,280	**9,720,564**	16,186,924
Net position, beginning,	**86,151,954**	91,623,170	**153,059,345**	132,145,354	**239,211,299**	223,768,524
Net position, ending	**$ 93,907,522**	$ 86,850,814	**$ 155,024,341**	$ 153,104,634	**$ 248,931,863**	$ 239,955,448

Governmental activities. Governmental activities net position increased by $7,755,568 (9%) in fiscal year 2025, as revenues exceeded expenses and transfers to business-type activities were significantly lower than in the prior year.

In fiscal year 2024, the City transferred $16.0 million to business-type activities, compared to $283,000 in fiscal year 2025. The substantial reduction in interfund transfers contributed materially to the year-over-year improvement in governmental net position.

Overall revenues decreased from fiscal year 2024 by $1,271,033 due to increases in some revenue categories and decreases in other revenue categories. The most significant year-over-year changes were driven by ARPA grant reimbursements, development-related contributions, lower one-time FY2024 TIF termination revenue, and increased transportation capital activity

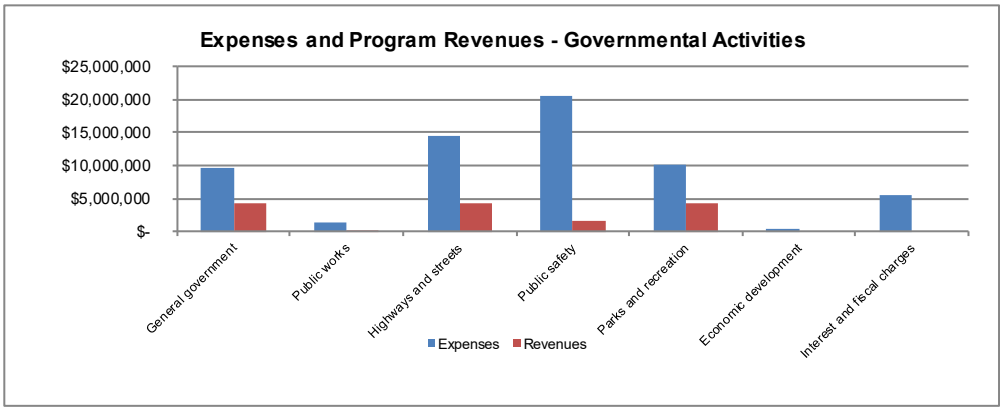
- Charges for Services increased by $133,608 (2%) in fiscal year 2025, primarily due to an increase in right-of-way permits, increased participation in Parks and Recreation programs, and higher municipal court costs associated with an increase in citations issued.
- Operating Grants and Contributions increased by $2,323,475 (174.4%) primarily due to the completion and recognition of revenue for projects funded through the American Rescue Plan Act (ARPA) during fiscal year 2025, compared to lower grant activity in the prior fiscal year.
- Capital Grants and Contributions increased by $529,412 (13%) as development-related contributions remained steady, particularly in southern Blue Springs. The increase also reflects reimbursement from the Blue Springs School District for a portion of the costs associated with tennis court improvements at Baumgardner Park.
- Property Taxes decreased by $51,426 (0.6%) in fiscal year 2025. Billed property taxes declined by approximately $130,000, and collections for the year were down approximately 2%, with a collection rate of 94.5%. Collection rates have declined in recent years due to ongoing valuation and billing issues in Jackson County, which have impacted the timing and consistency of tax payments.
- General Sales and Use Taxes increased by $600,690, or 2 percent, compared to the prior fiscal year. The growth reflects continued stability in local retail activity and sustained consumer spending, with inflation contributing to higher taxable sales. In addition, revenues from the legalization of recreational marijuana continued to strengthen this category, generating an 11 percent increase over fiscal year 2024.
- Franchise Taxes decreased by $274,101, or 5.6 percent, compared to the prior fiscal year. Gas franchise taxes were $132,641 below the prior year due to reduced natural gas rates approved by the Missouri Public Service Commission for Spire Inc. Video franchise taxes declined by $96,859 as customers continued transitioning from traditional cable services to streaming platforms, resulting in a smaller taxable base. In addition, pursuant to City Ordinance 5273, the video service tax rate is being reduced from 5% to 2.5% through one-half percent step-downs over a five-year period. The applicable tax rate for fiscal year 2025 was 4%, which also contributed to the decrease in this revenue source.
- Intergovernmental Activity Taxes decreased by $277,953 (5.2%), primarily due to lower Payments in Lieu of Taxes (PILOTs) related to protested property taxes within the Adams Farm TIF district. Ongoing valuation and billing issues in Jackson County have continued to affect the timing and consistency of tax collections, contributing to fluctuations in PILOT revenues.
- Motor Vehicle Taxes increased by $310,396 (11%). The increase is due to higher state motor fuel tax distributions resulting from phased rate increases enacted by the State of Missouri. The motor fuel tax increased to 27.0 cents per gallon on July 1, 2024, and further increased to 29.5 cents per gallon on July 1, 2025. These rate adjustments increased the per-gallon tax collected and distributed to municipalities.
- Hotel Tax increased by $41,801 (6%) in fiscal year 2025. After declining in FY2024 due to the temporary closure of two local hotels, revenues improved in FY2025 as occupancy levels stabilized, although both properties remain in litigation.
- Unrestricted Investment Earnings decreased by $379,750 (12.7%), primarily due to the spending down of available cash in the Parks Sales Tax Fund, resulting in lower balances available for investment during the year.
- Gain on Sale of Assets decreased by $406,987 (73.8%), primarily due to the sale of a Land Bank property in fiscal year 2024 that generated a gain of approximately $500,000. In fiscal year 2025, only minor asset disposals occurred, resulting in significantly lower gains.

- Miscellaneous Revenue decreased by $3,811,543, primarily due to one-time revenues recognized in FY2024 related to the termination of the Copperleaf Village TIF and the associated write-offs totaling approximately $3.6 million. The district underperformed due to insufficient tax-generating activity, and no comparable revenues were recognized in FY2025.

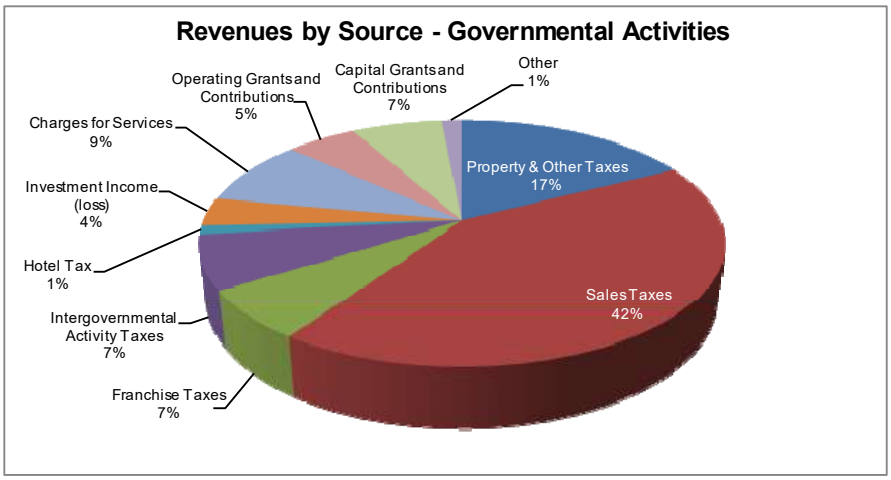
Governmental activities expenses increased by $2,431,374 from FY2024 to FY2025 due to increases in some functions and decreases in others.

- General Government decreased by $2,327,151, primarily due to the normalization of capital outlay and pension expense fluctuations that significantly impacted FY2024.
- Public Works expenditures decreased by $694,718 compared to the prior year, primarily due to vacant positions during the fiscal year and fewer capital projects reaching completion than in FY2024, when several previously delayed projects were finalized.
- Highways and Streets increased by $3,845,912, driven by continued infrastructure improvements and capital activity, including projects supported by the 2025 General Obligation Bonds.
- Public Safety expenditures increased by $1,027,086 from fiscal year 2024 to fiscal year 2025. The increase is primarily attributable to higher personnel costs across all bureaus, with the most significant impact in Police Operations. In addition, most previously vacant positions were filled during fiscal year 2024; therefore, fiscal year 2025 reflects a full year of salary and benefit costs for those positions.
- Parks and Recreation increased by $1,912,882 in fiscal year 2025 primarily due to a higher net pension liability and related pension expense, reflecting updated actuarial assumptions and changes in the City's proportionate share of pension costs.
- Economic Development decreased by $1,936,642, as FY2024 included final cost certifications related to the White Oak A TIF project that did not recur in FY2025.
- Interest on Long-Term Debt increased by $604,005, due to the issuance of the 2025 General Obligation Bonds, reversing the prior-year decline when no new debt was issued.

The following table reflects the expenses and revenues from the City's governmental activities:



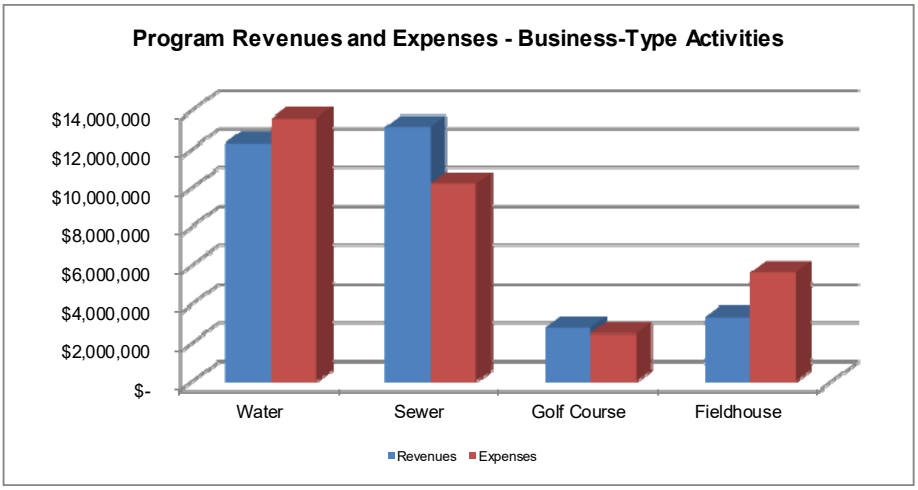
The following table reflects the revenues by source from the City's governmental activities:



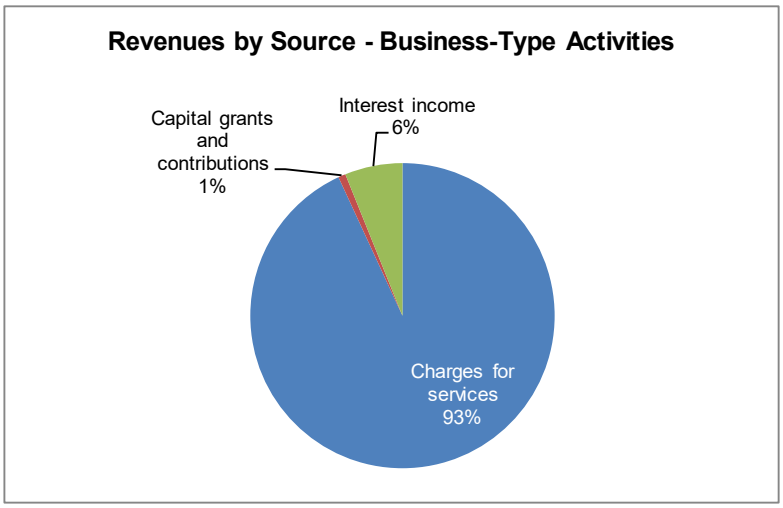
Business-type activities. Business-type activities net position increased by $1,964,996 or 1.28%. Key elements of this increase are as follows:

- The net position of the Water Utility Fund increased by $21,395, as operating revenues and expenses were substantially consistent during the fiscal year, resulting in only a minimal change in net position.
- Net position for the Sewer Utility Fund increased by $3,728,457, primarily due to higher revenues resulting from sewer rate adjustments and the timing of capital projects, as several planned improvements, including the sludge-removal project, were not completed during the fiscal year and are scheduled for completion in the coming years. The Water and Sewer Rate Study conducted in fiscal year 2025 anticipates the planned use of accumulated fund balance over the next several years to support these capital improvements.
- Net position for the Golf Course increased by $311,949 primarily due to increases in revenues as golf has maintained its popularity post-COVID in Blue Springs.
- The net position of the Fieldhouse Fund decreased by $2,096,805, primarily due to depreciation expense related to the first full year of operations for the $40 million Blue Surf Bay Waterpark project.

The following table reflects the expenses and revenues from the City's business-type activities:



The following table reflects the revenues by source from the City's business-type activities:



Financial Analysis of the City's Funds

As noted earlier, the City of Blue Springs uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

Governmental funds. The focus of the City's governmental funds is to provide information on near-term inflows, outflows, and balances of spendable resources. Such information is useful in assessing the City's financing requirements. Specifically, unassigned fund balance may serve as a useful measure of a government's net resources available for spending at the end of the fiscal year.

Of the total governmental fund balance of $78,962,655, approximately $37,420,283 (47%) is classified as committed, assigned, or unassigned and is available to support ongoing operations and previously authorized capital priorities in accordance with Council action and City policy. The remaining 53% is restricted or nonspendable for specific purposes in accordance with external requirements, bond covenants, voter-approved sales taxes, or other legal constraints.

The general fund decreased by $2,421,466, the parks sales tax decreased by $2,968,264, the GO Bonds fund decreased by $4,448, the TIF funds increased by $54,328, the capital projects fund increased by $30,176,390 and other governmental funds increased by $830,853. Explanations for the changes in fund balance within each fund are detailed below.

In 2021, the City Council adopted a resolution directing staff to amend the fund balance policy to reduce reserves from 30% to 25% and to include a provision for allocation of 50% of the increase in unassigned fund balance to the next year's Pavement Management Program. The 25% operating expenditure is divided into two reserve categories, the Emergency Reserve, and the Budget Stabilization Reserve.

The Emergency Reserve is set at 17% of budgeted General Fund expenditures of the prior fiscal year and shall only be used if one of the following three things occurs: (1) the City directly experiences a natural disaster or urgent event that jeopardizes public safety; (2) the Federal Government and/or State of Missouri formally declare a disaster or emergency; or (3) no reasonable budget adjustments are available to continue providing essential services to the public.

The Budget Stabilization Reserve is set at 8% of budgeted General Fund expenditures of the prior fiscal year. The Budget Stabilization Reserve shall only be used if one of the following four things occurs: (1) the City experiences a sudden and unexpected decline in ongoing revenues greater than 10% of General Fund operating revenues; (2) short term stabilization is needed to minimize significant changes in insurance rates or premiums; (3) funds are needed as part of a matching grant for a major project or (4) sudden or unexpected capital outlay replacement is needed (this includes equipment or facility failures).

The general fund balance decreased by $2,421,466, primarily due to a $4.5 million transfer to the capital projects fund for the purchases of heavy equipment and the downtown property located at 15th and Main. This decrease was partially offset by increased revenues, mainly driven by higher tax collections. Additionally, expenditures remained under budget, with the most significant savings occurring in contractual services. These factors helped mitigate the overall impact of the transfer, though the general fund still experienced a net decline.

The Parks Sales Tax Fund accounts for revenues generated by the voter-approved ½-cent parks sales tax and is used to finance park capital improvements and related maintenance activities. As of September 30, 2025, the fund reported a fund balance of $406,321, representing a decrease of $2,968,264 from the prior fiscal year. The decrease in fund balance reflects debt service payments and planned capital expenditures that exceeded current-year revenues, resulting in the use of previously accumulated resources to complete voter-authorized park improvement projects, including the installation of turf infields at the softball fields at Hidden Valley Park.

The City's TIF funds are used to account for resources related to tax increment financing activities. At the end of the current fiscal year, the TIF fund balance stands at $7,719,412, reflecting a modest increase of $54,328 from the previous year. Overall activity within TIF funds remained consistent with prior-year levels, resulting in a relatively stable fund balance. The majority of the fund balance is restricted and held as cash with the bond trustee to be applied toward future debt service payments on the Adams Farm and White Oak Special Obligation Bonds.

The General Obligation Debt Service Fund balance stands at $3,232,290, reflecting a minor decrease of $4,448. Overall activity within the fund remained stable during the fiscal year, and fund balance levels continue to support upcoming debt service requirements.

As of September 30, 2025, the Capital Projects Fund reported a fund balance of $40,555,269, representing an increase of $30,176,390 from the prior fiscal year. The increase is primarily attributable to the issuance of the voter-authorized Series 2025 General Obligation Bonds approved in August 2024 for street improvement projects. Much of the fund balance consists of restricted bond proceeds designated for specific capital projects and will be expended over multiple fiscal years as the related infrastructure improvements are completed.

Total fund balance within the City's other nonmajor governmental funds increased by $830,853 during fiscal year 2025. This change was primarily attributable to increases in the Public Safety Sales Tax Fund ($534,833) and the Hotel/Motel Tax Fund ($473,070), partially offset by a decrease in the Land Bank Agency Fund ($10,026). The increase in the Public Safety Sales Tax Fund balance is primarily attributable to expenditures that were budgeted but not yet spent or encumbered at fiscal year-end, including the planned training facility and vehicle and equipment purchases. In addition, sales tax revenues for the year slightly exceeded budgeted projections. The combination of revenues exceeding expectations and the timing of planned capital and operational expenditure resulted in a temporary increase in fund balance at year-end. Since the 2014 Certificates of Participation were fully paid off in 2019, the Hotel/Motel Tax Fund has experienced continued growth as revenues have exceeded ongoing operating expenditures and no longer include related debt service payments. As a result, fund balance has accumulated and is planned to be used for capital improvements, including the replacement of the HVAC system at the Conference Center.

The Land Bank Agency Fund reported a minor decrease attributable to routine property transactions and related program costs.

Outstanding encumbrances represent commitments related to open purchase orders at fiscal year-end and are included in assigned or restricted fund balance, as appropriate.

Encumbrances in the General Fund decreased by $287,925, from $1,099,510 to $811,585. Remaining commitments primarily relate to software upgrades for permitting and licensing, website redesign services, strategic planning initiatives, and seasonal maintenance contracts. The decrease reflects completion of prior-year purchase commitments.

Encumbrances in the Parks Sales Tax Fund decreased by $367,985, from $909,375 to $541,390, reflecting the completion of previously authorized park improvement projects. Remaining commitments relate primarily to park improvements, planning initiatives, and design services.

The ARPA Fund reported no outstanding encumbrances at fiscal year-end, as all projects were substantially completed, with only minor retainage remaining.

Encumbrances in the Public Safety Sales Tax Fund increased by $101,029, from $1,087,125 to $1,188,154, primarily attributable to commitments related to construction of a police training and vehicle processing facility.

Encumbrances in the Capital Projects Fund increased by $13,228,301, from $8,903,651 to $22,131,952. The increase reflects commitments associated with voter-approved 2025 General Obligation Bond projects, the pavement management program, sidewalk improvements, and related equipment purchases. The increase is consistent with the timing of multi-year capital projects and bond-funded infrastructure activity.

Overall, changes in encumbrances reflect the timing of capital and operational commitments rather than structural changes in program levels.

Proprietary Funds. The City's proprietary fund statements provide the same type of information found in the government-wide statements but in more detail.

The unrestricted net position of the water and sewer funds at the end of the year amounted to $21,130,810 and $38,933,609 respectively. The golf course fund has an unrestricted net deficit of $1,734,946 for an increase in the unrestricted deficit of $138,371. The Golf Course Fund reports a deficit in unrestricted net position primarily due to the advance received from other City funds at the time the facility originally opened. The advance was necessary to support start-up operations and early capital needs during the initial years of operation. Although the golf course generates sufficient operating revenues to support ongoing activities, the outstanding interfund advance continues to reduce unrestricted net position. The fieldhouse fund has an unrestricted net position of $568,935 at September 30, 2025. This positive balance is largely due to the completion of the aquatic center and the stabilization of operations. Revenues from memberships and programs have supported operating costs, and the value of the facility remains strong relative to the related debt.

Other factors concerning the finances of these funds have been addressed in the discussion of the City's business-type activities.

General Fund Budgetary Highlights

The general fund revenues for the year ended September 30, 2025, were $35,464,858 or $1,784,642 over budget. Expenditures ended the year at $32,843,522 or $2,446,465 below the final budget amount of $35,289,987.

General Fund Revenues ended over budget by $1,784,642:

- Taxes exceeded budget by $237,292 (1%). Sales taxes were $385,664 above budget, primarily due to stronger retail and restaurant activity within the City. Marijuana sales taxes exceeded projections by $157,053, reflecting higher-than-anticipated collections in this newer revenue category, which had limited historical data for budgeting purposes since the tax took effect October 1, 2024. Property taxes were $78,483 over budget. Offsetting these favorable variances, gas franchise taxes were $189,988 under budget due to a reduction in natural gas rates approved by the Missouri Public Service Commission for Spire Inc. The Commission has approved a 10% rate increase effective October 1, 2025, which will impact fiscal year 2026. Video franchise taxes declined by $96,859 as customers continued transitioning from traditional cable services to streaming

platforms, resulting in a smaller taxable base. In addition, pursuant to City Ordinance 5273, the video service tax rate is being reduced from 5% to 2.5% through one-half percent step-downs over a five-year period. The applicable tax rate for fiscal year 2025 was 4%, which also contributed to the decrease in this revenue source.

- Licenses and permits revenue was $35,351 (3%) below budget for fiscal year 2025. In fiscal year 2024, several large permits related to Blue Springs School District projects generated higher-than-anticipated fee revenue because permit fees are calculated based on construction values. Similar large-scale projects did not occur in fiscal year 2025. In addition, higher construction costs and elevated interest rates contributed to a slowdown in certain development activity, which further reduced permit-related revenue compared to budget expectations.
- Intergovernmental revenues exceeded budget by $320,525 (7%), primarily due to higher state motor fuel tax distributions resulting from phased rate increases enacted by the State of Missouri. The motor fuel tax increased to 27.0 cents per gallon on July 1, 2024, and further increased to 29.5 cents per gallon on July 1, 2025. These rate adjustments increased the per-gallon tax collected and distributed to municipalities, resulting in higher-than-budgeted intergovernmental revenue for fiscal year 2025.
- Charges for services revenue came in under budget by $117,393 (7%) due to plan review fees, developer construction fees and parks programs including summer camp, youth sports, senior activities and parks special events. Parks budget continued to be increased beyond what was feasible. This is offset by savings in parks operating costs and the fiscal year 2026 budget reflects lower expected revenue in these categories.
- Administrative Charges were budgeted at 17% of total operating expenses, totaling $1,305,125 from the water fund and $1,002,022 from the sewer fund.
- Fines and forfeits exceeded budget by $307,540, or 73%. The increase was driven by sustained growth in ticket issuance and the timing of collections. Citations rose 26% in fiscal year 2024 and an additional 41% in fiscal year 2025. Because payments are often received after tickets are issued, higher citation volumes in both years contributed to increased overall collections during the fiscal year.
- Investment income exceeded the budget by $327,094, driven by consistently higher interest rates throughout much of the year and the investment of additional idle cash.
- Other revenue exceeded the budget by $694,006, primarily due to insurance settlements for police vehicles, insurance wellness incentives, sale of city property and proceeds from the opioid legal settlements.

General Fund Expenditures were under budget by $2,446,465. At year end, Encumbrances were $811,585 and will be spent in the next fiscal year. Other key factors are noted below:

There were savings in every function as well as in every category. The major savings categories were as follows:

- Personal Services were under budget by $902,744 primarily due to vacant positions in City Development, Information Technology, and Public Works. In addition to new hires coming in at lower salaries in the Public Works and Parks Departments.
- Materials & Supplies were under budget by $363,563, primarily due to the vacant positions in Public Safety Departments that resulted in decreases in personnel equipment.
- Contractual Services were under budget by $1.2 million primarily due to projects budgeted in fiscal year 2025 but will be completed and paid for in fiscal year 2026, including City Council strategic planning, Community Development software for permitting and licensing, website redesign, seasonal maintenance, and parks grounds projects.
- Capital outlay expenditures were under budget by $567,257, primarily due to change orders that were completed and ultimately deemed unnecessary, as adequate funding was available through the ARPA grant. In addition, certain parks operating equipment purchases included in the budget were later determined to be unnecessary and were not acquired.

General Fund Budget Amendments

During fiscal year 2025, the City Council increased General Fund appropriations by $995,787 to address operational needs, storm response costs, capital equipment purchases, and technology improvements. The most significant amendments included $435,254 for storm culvert change orders (Sunnyside and RD Mize projects) and $216,090 for snow removal materials, contracted services, and overtime related to the January 2025 snowstorm. Additional amendments supported website redesign services, timeclock replacements, police training and equipment, wellness program reimbursements, and park facility repairs. Certain costs were offset by donations and reimbursements, with the remaining balance funded from unassigned fund balance.

In addition, the General Fund was amended to authorize a $4,453,000 operating transfer to the Capital Projects Fund for property acquisition and heavy equipment purchases.

Capital Asset and Debt Administration

Capital assets. As of September 30, 2025, the City's capital assets, net of depreciation for governmental and business-type activities totaled $247,929,264. Capital assets include land and other non-depreciable assets, buildings, improvements, machinery and equipment, park facilities, infrastructure, and lease assets.

During the fiscal year, total net capital assets increased by $5,397,720, or 2.23%. Governmental activities experienced a 7.16% increase, primarily attributable to contributed capital and infrastructure additions. Business-type activities decreased by 3.43%, as annual depreciation expense exceeded current year asset additions, primarily related to the aquatic center facilities.

City of Blue Springs' Capital Assets (Net of Depreciation)

	Governmental Activities		Business-Type Activities		Total	
	2025	2024	**2025**	2024	**2025**	2024
Land and land rights	**$ 22,979,025**	$ 20,206,831	**$ 4,694,882**	$ 4,694,882	**$ 27,673,907**	$ 24,901,713
Construction-in-progress	**2,127,976**	2,000,485	**1,176,595**	322,179	**3,304,571**	2,322,664
Buildings and improvements	**26,376,207**	23,542,603	**45,897,391**	48,238,177	**72,273,598**	71,780,780
Equipment and vehicles	**8,548,162**	8,535,142	**4,106,206**	4,478,947	**12,654,368**	13,014,089
Infrastructure	**76,075,906**	72,358,567	**53,044,866**	54,998,818	**129,120,772**	127,357,385
Leased equipment	**943,166**	1,048,358	**107,372**	121,522	**1,050,538**	1,169,880
Leased vehicles	**715,081**	913,011	**-**	-	**715,081**	913,011
Subscription assets	**1,003,559**	888,202	**132,870**	183,820	**1,136,429**	1,072,022
	$ 138,769,082	$ 129,493,199	**$ 109,160,182**	$ 113,038,345	**$ 247,929,264**	$ 242,531,544

Additional information on the City's capital assets can be found in Note 6 on pages 56–57 of this report.

Long-Term Debt
As of September 30, 2025, the City had total outstanding long-term debt obligations of $144,543,131. This total includes general obligation bonds, certificates of participation, special obligation bonds, state direct loans, development agreements, leases, and subscription-based information technology arrangements.

General Obligation Bonds outstanding totaled $42,842,248 and are backed by the full faith and credit of the City. Neighborhood Improvement District (NID) debt totaled $4,465,000. Although NID debt is supported by special assessments on benefiting properties, the City remains contingently liable in the event of property owner default.

Certificates of Participation (COPs) outstanding totaled $17,330,000. These obligations are subject to annual appropriation and were originally issued to finance improvements to the City's golf course and Public Safety facilities. The golf course portion of the debt paid off in fiscal year 2025.

Special Obligation Bonds related to the Adams Farm and White Oak Tax Increment Financing (TIF) districts totaled $27,226,530. These bonds are repaid from pledged TIF revenues collected and remitted by the City. In addition, Special Obligation Bonds issued in December 2022 for construction of the aquatic center had an outstanding balance of $32,595,000 at fiscal year-end.

Outstanding development agreement obligations represent certified developer costs associated with pay-as-you-go TIF projects, including Whataburger, Woods Chapel, and a portion of the White Oak TIF not funded through bond issuance.

In 2010, the City entered into a direct loan agreement with the Missouri Department of Natural Resources to finance expansion of the Sni-A-Bar Wastewater Treatment Plant. As of September 30, 2025, the remaining balance on this loan was $8,191,301, net of cumulative principal payments.

The City also reports lease liabilities of $1,574,158 related primarily to equipment and vehicle leases. In addition, the City has outstanding Subscription-Based Information Technology Arrangement (SBITA) liabilities totaling $936,881, associated with recreation, water utility, public safety, and financial software systems.

City of Blue Springs' Outstanding Debt
Capital Leases, General Obligation Bonds, Revenue Bonds and Long-Term Debt

	Governmental Activities		Business-Type Activities		Total	
	2025	2024	**2025**	2024	**2025**	2024
Leased asset liability	**$ 1,464,126**	$ 1,713,154	**$ 110,032**	$ 122,682	**$ 1,574,158**	$ 1,835,836
General obligation bonds	**42,842,248**	12,750,000	**-**	-	**42,842,248**	12,750,000
Compensated absences	**2,386,984**	1,551,437	**193,504**	120,591	**2,580,488**	1,672,028
Development agreements	**3,251,880**	3,558,915	**-**	-	**3,251,880**	3,558,915
Certificates of participation	**17,330,000**	17,960,000	**-**	325,000	**17,330,000**	18,285,000
Neighborhood improvement	**-**	-	**4,465,000**	5,450,000	**4,465,000**	5,450,000
Special obligation bonds	**59,821,530**	64,576,530	**-**	-	**59,821,530**	64,576,530
Discount/premium on issuance	**3,117,729**	1,594,129	**431,916**	561,506	**3,549,645**	2,155,635
Subscription liability	**816,563**	785,183	**120,318**	167,660	**936,881**	952,843
State revolving fund	**-**	-	**8,191,301**	9,465,701	**8,191,301**	9,465,701
	$ 131,031,060	$ 104,489,348	**$ 13,512,071**	$ 16,213,140	**$ 144,543,131**	$ 120,702,488

Missouri statutes limit the amount of general obligation debt a municipality may issue to 20 percent of the total assessed valuation of taxable property within its boundaries. Based on current assessed valuation, the City's legal debt margin is $242,074,116.

The City's total debt increased by $23,840,643 or 19.7% during the current fiscal year as a result of the issuance of 2025 General Obligation Bonds. On August 6, 2024, voters approved the issuance of $40 million in General Obligation Bonds for street improvement projects, with approximately 74.6 percent voter support. To date, the City has issued approximately $32 million of the authorized amount, with the remaining bonds anticipated to be issued in 2026.

Additional information regarding the City's long-term obligations, including future debt service requirements and maturity schedules, is presented in Note 7 to the financial statements on pages 58–65 of this report.

Economic Factors and Next Year's Budgets and Rates

Overall Economic Environment
The City's Fiscal Year 2026 budget was developed in the context of moderate regional economic activity, elevated interest rates, and continued infrastructure demands. While property taxes remain a stable revenue source, future assessed valuation trends remain uncertain as Jackson County continues to address corrections related to the significant valuation increases implemented in FY 2023. Those increases impacted both 2024 and 2025, assessed values and subsequently affected the City's tax levy calculations. Ongoing litigation involving multiple cities and the State of Missouri creates continued uncertainty regarding future valuation growth and potential levy adjustments.

The City will continue to monitor developments and evaluate any resulting financial implications.

Revenue Environment
Total FY 2026 revenues, including the planned use of cash reserves, are budgeted at $112,958,377, compared to $93,493,836 in the prior year's adopted budget. The increase of approximately $19,464,541 is primarily attributable to capital project funding and the strategic use of reserves for infrastructure investment.

Sales tax revenues, the City's largest General Fund revenue source, are projected to reflect moderate growth consistent with recent trends and adopted budget projections. Sales tax performance supports General Fund operations, Public Safety Sales Tax operations, Parks Sales Tax improvements, and capital funding within the Capital Projects Fund.

Licenses and permit revenues are projected to decline due to higher mortgage interest rates impacting residential construction activity and development timing. Conversely, higher interest rates have positively impacted projected investment earnings on operating cash and bond proceeds.

Utility revenues are projected to increase in FY 2026 due to rate adjustments effective October 1, 2025, adopted pursuant to the City's multi-year rate study. These rate adjustments are designed to support operating costs, capital reinvestment, reserve requirements, and long-term system sustainability.

Expenditure Environment
Operating expenditures increased at a more moderate pace than total expenditures, with the majority of overall budget growth attributable to capital improvements and debt service.

Personnel expenditures are budgeted at $30,704,657, representing the largest component of operating costs. Growth in personnel expenditures reflects market-based compensation adjustments, anniversary increases, longevity plan provisions, and contractual obligations under collective bargaining agreements. These adjustments are intended to maintain competitive compensation levels and support staffing necessary to deliver core public safety, infrastructure, and community services.

Capital Investment and Debt
FY 2026 capital improvement expenditures total $36,337,637, reflecting continued investment in streets, stormwater infrastructure, parks, water and sewer systems, and equipment replacement. Street and stormwater projects represent the largest category of capital spending.

Total FY 2026 debt service expenditures are budgeted at $18,275,115 across all funds. Major components include TIF-related obligations, General Obligation debt, Sewer debt service, Parks Sales Tax debt service, and additional enterprise and special revenue fund obligations. Debt levels reflect previously issued bonds supporting infrastructure improvements and will continue to be managed in accordance with the City's adopted debt policies.

A significant long-term infrastructure driver is the planned Sni-A-Bar Wastewater Treatment Plant improvement project, with bond authorization anticipated in April 2026. Future debt issuance associated with this project will directly impact sewer rates and long-term debt service planning.

The City continues to evaluate future capital financing needs in accordance with its adopted debt management policies. Planned and potential future issuances, including utility-related bonds, will be structured to support long-term fiscal sustainability while maintaining compliance with adopted debt policy guidelines and applicable statutory debt limitations.

Additional information regarding the City's long-term obligations, including detailed schedules of outstanding debt and future maturities, is presented in Note 7 to the financial statements.

Major Fund Impacts

General Fund
For FY 2026, General Fund projected revenues total $32,283,153, while budgeted expenditures total $34,431,150, resulting in a planned use of fund balance of approximately $2,147,997. This planned use reflects operating and capital activity within the fund and remains consistent with the City's adopted reserve policy. At the beginning of FY 2026, the General Fund reported a beginning fund balance of $19,273,082, with projected ending fund balance estimated at $19,103,215, reflecting a modest planned decrease while maintaining structural financial stability.

Public Safety Sales Tax Fund
The voter-approved ½-cent Public Safety Sales Tax continues to provide a dedicated revenue source for public safety operations and capital needs. FY 2026 projected revenues total $5,668,772, with budgeted expenditures of $6,332,021. The planned use of fund balance reflects scheduled capital and debt service obligations while maintaining financial capacity for long-term equipment replacement and facility maintenance.

Parks Sales Tax Fund
The voter-approved permanent ½-cent Parks Sales Tax provides dedicated funding for park capital improvements and related debt service. FY 2026 projected revenues total $5,798,551, with budgeted expenditures of $5,157,444 and debt service of $2,207,444. The fund structure supports continued reinvestment in park infrastructure and management of previously issued debt.

Utility Funds (Water and Sewer)
Water and Sewer operations are accounted for in enterprise funds and are supported by user fees. FY 2026 projected revenues total $13,268,163 for the Water Fund and $14,327,140 for the Sewer Fund. Rate adjustments adopted under the City's rate study continue to support operating costs, capital reinvestment, and debt service obligations. The Sewer Fund carries debt service of $2,846,808 in FY 2026.

General Fund Reserves and Financial Stability
The City maintains a minimum combined reserve requirement equal to 25% of General Fund operating expenditures, composed of:

- 17% Unassigned Fund Balance, and
- 8% Committed Emergency/Contingency Reserve

FY 2026 projections indicate continued compliance with this policy. Maintaining this reserve structure provides liquidity for cash flow timing, protection against revenue volatility, and capacity to respond to unforeseen emergencies or economic downturns.

In addition, 50% of annual growth in unassigned fund balance continues to be allocated to the Pavement Management Program, supporting long-term infrastructure sustainability and reducing reliance on future borrowing.

Long-Term Outlook and Risk Factors
Key variables that could affect future financial performance include:

- Sales tax volatility tied to consumer spending,
- Resolution of Jackson County reassessment corrections and related litigation,
- Interest rate fluctuations affecting both borrowing and investment returns,
- Construction activity levels, and
- Inflationary pressures on labor, materials, and contracted services.

The City will continue to monitor these factors and adjust financial plans as necessary to maintain structural balance, reserve adequacy, and long-term fiscal sustainability.

Grant Close-Out
The American Rescue Plan Act (ARPA) funding of $6,190,665 was substantially expended in FY 2025, with only minor retainage remaining at year-end. No material financial impact is anticipated in FY 2026 as the projects near completion in compliance with federal requirements.

Requests for Information

This report is intended to provide a general overview of the City of Blue Springs' financial position for citizens, taxpayers, investors, and other interested parties. Questions concerning any of the information presented in this report or requests for additional financial information should be directed to the Director of Finance, City of Blue Springs, 903 W. Main Street, Blue Springs, Missouri 64015. Additional information is also available on the City's website at www.bluespringsgov.com

City of Blue Springs, Missouri

Statement of Net Position
September 30, 2025

	Primary Government			
	Governmental Activities	Business-Type Activities	Adjustments	Total
Assets				
Cash and investments	$ 67,575,331	$ 46,858,368	$ -	$ 114,433,699
Receivables (net of allowances for uncollectibles):				
Property taxes	11,782,989	-	-	11,782,989
Other taxes	6,126,711	-	-	6,126,711
Accounts	115,693	3,377,972	-	3,493,665
Accrued interest	146,764	251,849	-	398,613
Internal balances	2,000,055	(2,000,055)	-	-
Inventories	306,071	496,535	-	802,606
Prepaid items	1,330,387	981,611	-	2,311,998
Special assessments:				
Due in one year	-	2,672,139	-	2,672,139
Due in more than one year	-	4,301,535	-	4,301,535
Due from other governments:				
Due in one year	1,364,033	463,695	-	1,827,728
Due in more than one year	-	3,282,370	-	3,282,370
Lease receivable:				
Due in one year	166,328	40,459	-	206,787
Due in more than one year	2,664,449	527,870	-	3,192,319
Land held for resale	190,278	-	-	190,278
Restricted cash and investments	8,112,578	574,763	-	8,687,341
Net pension (liability) asset	(277,643)	410,389	-	132,746
Capital assets:				
Land and construction-in-progress, nondepreciable	25,107,001	5,871,477	-	30,978,478
Other capital assets, net of depreciation	113,662,081	103,288,705	-	216,950,786
Total assets	240,373,106	171,399,682	-	411,772,788
Deferred Outflows of Resources				
Deferred charge on refunding	381,448	-	-	381,448
Pension-related amounts	8,056,670	818,816	-	8,875,486
Total deferred outflows of resources	8,438,118	818,816	-	9,256,934
Liabilities				
Accounts payable	4,427,517	1,838,821	-	6,266,338
Accrued liabilities	1,330,668	234,165	-	1,564,833
Court bonds	287,083	-		287,083
Accrued interest	1,141,227	68,548	-	1,209,775
Customer deposits	1,499,044	561,739	-	2,060,783
Unearned revenue	134,457	169,605	-	304,062
Due to other governments	-	36,044	-	36,044
Noncurrent liabilities:				
Due in one year	4,808,795	2,529,019	-	7,337,814
Due in more than one year	126,222,265	10,983,052	-	137,205,317
Total liabilities	139,851,056	16,420,993	-	156,272,049
Deferred Inflows of Resources				
Property taxes	11,783,607	-	-	11,783,607
Deferred charge on refunding	-	97,531	-	97,531
Pension-related amounts	542,416	109,679	-	652,095
Leases	2,726,623	565,954	-	3,292,577
Total deferred inflows of resources	15,052,646	773,164	-	15,825,810
Net Position				
Net investment in capital assets	102,379,099	95,140,781	(32,595,000)	164,924,880
Restricted for:				
Debt service	-	574,763	-	574,763
Capital projects	16,067,431	-	-	16,067,431
Pension	-	410,389	-	410,389
Public safety building improvements	8,965,938	-	-	8,965,938
Parks	406,321	-	-	406,321
Land	236,996	-	-	236,996
Tourism	1,891,050	-	-	1,891,050
Other	32,640	-	-	32,640
Unrestricted (deficit)	(36,071,953)	58,898,408	32,595,000	55,421,455
Total net position	$ 93,907,522	$ 155,024,341	$ -	$ 248,931,863

See notes to basic financial statements.

City of Blue Springs, Missouri

Statement of Activities
Year Ended September 30, 2025

Functions/Programs	Expenses	Program Revenues: Charges for Services	Program Revenues: Operating Grants and Contributions	Program Revenues: Capital Grants and Contributions
Primary Government				
Governmental activities:				
General government	$ 9,674,596	$ 4,218,279	$ 97,834	$ -
Public works	1,502,590	59,844	-	-
Highways and streets	14,392,068	-	-	4,227,528
Public safety	20,596,953	1,149,228	495,095	4,771
Parks and recreation	10,081,489	628,765	3,063,135	473,949
Economic development	465,229	-	-	-
Interest and fiscal charges	5,409,434	-	-	-
Total governmental activities	62,122,359	6,056,116	3,656,064	4,706,248
Business-type activities:				
Water	13,583,719	12,309,337	-	-
Sewer	10,228,552	12,883,621	-	259,367
Golf course	2,476,738	2,768,370	-	-
Fieldhouse	5,627,841	3,321,238	-	-
Total business-type activities	31,916,850	31,282,566	-	259,367
Total primary government	$ 94,039,209	$ 37,338,682	$ 3,656,064	$ 4,965,615
General Revenues				
Taxes:				
Sales				
Property				
Franchise				
Intergovernmental property taxes—unrestricted				
Intergovernmental sales taxes—unrestricted				
Motor vehicle				
Hotel				
Other taxes				
Investment income (loss)				
Gain on disposal of capital assets				
Miscellaneous				
Transfers				
Total general revenues and transfers				
Changes in net position				
Net position, beginning, as previously reported				
Change in accounting principle				
Net position, beginning, as restated				
Net position, ending				

See notes to basic financial statements.

Net (Expense) Revenue and Changes in Net Position		
Primary Government		
Governmental Activities	Business-Type Activities	Total
$ (5,358,483)	$ -	$ (5,358,483)
(1,442,746)	-	(1,442,746)
(10,164,540)	-	(10,164,540)
(18,947,859)	-	(18,947,859)
(5,915,640)	-	(5,915,640)
(465,229)	-	(465,229)
(5,409,434)	-	(5,409,434)
(47,703,931)	-	(47,703,931)
-	(1,274,382)	(1,274,382)
-	2,914,436	2,914,436
-	291,632	291,632
-	(2,306,603)	(2,306,603)
-	(374,917)	(374,917)
(47,703,931)	(374,917)	(48,078,848)
29,542,798	-	29,542,798
8,425,711	-	8,425,711
4,587,909	-	4,587,909
1,892,199	-	1,892,199
3,127,834	-	3,127,834
3,158,806	-	3,158,806
736,427	-	736,427
657,532	-	657,532
2,608,185	2,056,859	4,665,044
144,515	-	144,515
860,637	-	860,637
(283,054)	283,054	-
55,459,499	2,339,913	57,799,412
7,755,568	1,964,996	9,720,564
86,850,814	153,104,634	239,955,448
(698,860)	(45,289)	(744,149)
86,151,954	153,059,345	239,211,299
$ 93,907,522	$ 155,024,341	$ 248,931,863

City of Blue Springs, Missouri

Balance Sheet
Governmental Funds
September 30, 2025

	General	Park Sales Tax	General Obligation Debt Service	Capital Projects	TIF Fund	Nonmajor Governmental Funds	Total Governmental Funds
Assets							
Cash and investments	$ 13,462,763	$ 40,127	$ 3,223,012	$ 41,729,657	$ 658,470	$ 8,461,302	$ 67,575,331
Receivables, (net of allowances for uncollectibles):							
Property taxes	6,749,427	-	2,307,643	-	2,725,919	-	11,782,989
Other taxes	3,122,756	941,875	-	941,874	44,383	1,075,823	6,126,711
Accounts	98,016	-	-	-	-	618	98,634
Accrued interest	121,527	-	-	20,401	4,836	-	146,764
Due from other funds	2,591	-	-	-	288,198	-	290,789
Due from other governments	230,904	473,949	-	139,964	519,216	-	1,364,033
Advances to other funds	1,673,144	-	-	326,911	-	-	2,000,055
Prepaid items	1,135,106	-	-	-	-	182,044	1,317,150
Lease receivable	2,830,777	-	-	-	-	-	2,830,777
Land held for resale	-	-	-	-	-	190,278	190,278
Restricted cash and investments	19,532	572	-	50,000	6,507,831	1,534,643	8,112,578
Total assets	$ 29,446,543	$ 1,456,523	$ 5,530,655	$ 43,208,807	$ 10,748,853	$ 11,444,708	$ 101,836,089

(Continued)

City of Blue Springs, Missouri

Balance Sheet (Continued)
Governmental Funds
September 30, 2025

	General	Park Sales Tax	General Obligation Debt Service	Capital Projects	TIF Fund	Nonmajor Governmental Funds	Total Governmental Funds
Liabilities, Deferred Inflows of Resources and Fund Balance							
Liabilities:							
Accounts payable	$ 599,638	$ 1,050,202	$ -	$ 2,453,790	$ 209,680	$ 88,772	$ 4,402,082
Accrued liabilities	1,188,249	-	-	-	-	126,094	1,314,343
Due to other funds	153,478	-	-	67,214	2,591	67,506	290,789
Court bonds	287,083	-	-	-	-	-	287,083
Customer deposits	1,489,044	-	-	-	-	10,000	1,499,044
Unearned revenue	134,457	-	-	-	-	-	134,457
Total liabilities	3,851,949	1,050,202	-	2,521,004	212,271	292,372	7,927,798
Deferred inflows of resources:							
Unavailable revenue—property taxes	6,718,811	-	2,298,365	132,534	2,725,919	618	11,876,247
Leases	2,726,623	-	-	-	-	-	2,726,623
Unavailable revenue—other	191,941	-	-	-	91,251	59,574	342,766
Total deferred inflows of resources	9,637,375	-	2,298,365	132,534	2,817,170	60,192	14,945,636
Fund balance:							
Nonspendable:							
Prepaid items	1,135,106	-	-	-	-	182,044	1,317,150
Interfund advances	1,673,144	-	-	-	-	-	1,673,144
Restricted:							
Debt service	-	-	3,232,290	-	7,719,412	-	10,951,702
Capital projects	-	-	-	16,067,431	-	-	16,067,431
Tourism	-	-	-	-	-	1,891,050	1,891,050
Public safety	183,884	-	-	-	-	8,782,054	8,965,938
Parks	-	406,321	-	-	-	-	406,321
Land	-	-	-	-	-	236,996	236,996
Other purposes	32,640	-	-	-	-	-	32,640
Committed:							
Budget stabilization reserve	2,651,175	-	-	-	-	-	2,651,175
Emergency reserve	5,633,748	-	-	-	-	-	5,633,748
Other purposes	1,365,840	-	-	6,867,571	-	-	8,233,411
Assigned:							
Capital projects	445,994	-	-	17,620,267	-	-	18,066,261
Other purposes	76,705	-	-	-	-	-	76,705
Unassigned	2,758,983	-	-	-	-	-	2,758,983
Total fund balance	15,957,219	406,321	3,232,290	40,555,269	7,719,412	11,092,144	78,962,655
Total liabilities, deferred inflows of resources and fund balance	$ 29,446,543	$ 1,456,523	$ 5,530,655	$ 43,208,807	$ 10,748,853	$ 11,444,708	$ 101,836,089

See notes to basic financial statements.

City of Blue Springs, Missouri

Reconciliation of Total Governmental Fund Balances to Net Position of Governmental Activities
September 30, 2025

Total governmental fund balances		$ 78,962,655
Amounts reported for governmental activities in the statement of net position are different because:		
Governmental funds report capital outlays as expenditures. However, in the statement of net position the cost of those assets is capitalized and shown at cost, net of accumulated depreciation.		138,703,003
Net pension liability (asset) not reported in the funds		(277,643)
Long-term assets are not available to pay for current period expenditures and are therefore deferred inflows of resources in the fund statements.		435,407
The issuance of long-term debt provides current financial resources to governmental funds, while the repayment of the principal of long-term debt consumes the current financial resources of governmental funds. Neither transaction has any effect on net position. Also, governmental funds report the effect of premiums, discounts and similar items when debt is first issued, whereas these amounts are deferred and amortized in the statement of activities. Other long-term liabilities, including accrued compensated absences, are not due and payable in the current period and therefore, are not reported as liabilities in the governmental funds. This amount is the net effect of these differences in the treatment of long-term debt liabilities:		
Accrued interest payable	$ (1,141,227)	
Accrued compensated absences	(2,379,796)	
Deferred charge on refunding	381,448	
Net discount/premium on bond issues	(3,117,729)	
Development agreements	(3,251,880)	
Leased assets liability	(1,464,126)	
Bonds and certificates of participation	(119,993,778)	
Subscription liabilities	(816,563)	(131,783,651)
Pension-related deferred outflows and inflows of resources are not due and payable in the current year and, therefore, are not reported in the governmental funds as follows:		
Deferred outflows of resources—pension-related amounts		8,056,670
Deferred inflows of resources—pension-related amounts		(542,416)
Internal service funds are used by management to charge the costs of certain activities to individual funds. The assets and liabilities of the internal service fund are reported with governmental activities in the statement of net position.		353,497
Net position of governmental activities		$ 93,907,522

See notes to basic financial statements.

City of Blue Springs, Missouri

Statement of Revenues, Expenditures and Changes in Fund Balances— Governmental Funds
Year Ended September 30, 2025

	General	Park Sales Tax	General Obligation Debt Service	Capital Projects	TIF Fund	Nonmajor Governmental Funds	Total Governmental Funds
Revenues:							
Taxes	$ 22,463,110	$ 5,676,133	$ 2,148,628	$ 5,281,435	$ 1,645,415	$ 6,181,577	$ 43,396,298
Intergovernmental activity taxes	-	-	-	-	5,020,033	-	5,020,033
Licenses and permits	1,226,749	-	-	-	-	-	1,226,749
Intergovernmental revenues	5,018,608	-	-	292,525	-	2,390,651	7,701,784
Charges for services	1,521,206	-	-	-	-	-	1,521,206
Administrative charges	2,307,147	-	-	-	-	-	2,307,147
Fines and forfeits	731,731	-	-	-	-	-	731,731
Investment income	775,876	56,369	142,122	970,422	245,499	417,897	2,608,185
Donations	97,834	473,949	-	-	-	-	571,783
Other	668,707	-	-	187,456	-	4,474	860,637
Total revenues	34,810,968	6,206,451	2,290,750	6,731,838	6,910,947	8,994,599	65,945,553
Expenditures:							
Current:							
General government	6,878,953	-	34,592	-	-	532,009	7,445,554
Public works	569,632	-	-	-	-	-	569,632
Highways and streets	3,414,229	-	-	-	-	-	3,414,229
Public safety	14,717,141	-	-	-	-	3,221,696	17,938,837
Parks and recreation	4,816,563	-	-	-	-	-	4,816,563
Economic development	-	-	-	-	465,229	-	465,229
Capital outlay	2,070,650	6,964,801	-	14,076,930	-	2,696,948	25,809,329
Debt service:							
Principal retirement	656,699	575,000	1,335,000	127,640	4,577,136	780,887	8,052,362
Interest and fiscal charges	38,378	1,634,914	925,606	289,084	1,881,166	765,182	5,534,330
Total expenditures	33,162,245	9,174,715	2,295,198	14,493,654	6,923,531	7,996,722	74,046,065
Excess (deficiency) of revenues over expenditures	1,648,723	(2,968,264)	(4,448)	(7,761,816)	(12,584)	997,877	(8,100,512)
Other financing sources (uses):							
Issuance of bonds	-	-	-	31,427,248	-	-	31,427,248
Bond issuance premium	-	-	-	1,684,745	-	-	1,684,745
Issuance of leases	176,919	-	-	-	-	-	176,919
Issuance of SBITAs	476,971	-	-	-	-	29,648	506,619
Issuance of developer costs	20,798	-	-	10,399	92,943	-	124,140
Proceeds from sales of capital assets	162,208	-	-	-	-	-	162,208
Transfers in	126,863	-	-	5,001,118	-	-	5,127,981
Transfers out	(5,033,948)	-	-	(185,304)	(26,031)	(196,672)	(5,441,955)
Total other financing sources (uses)	(4,070,189)	-	-	37,938,206	66,912	(167,024)	33,767,905
Net change in fund balances	(2,421,466)	(2,968,264)	(4,448)	30,176,390	54,328	830,853	25,667,393
Fund balances, beginning, as originally reported	18,378,685	3,374,585	3,236,738	-	7,665,084	20,640,170	53,295,262
Changes to, or within, the financial reporting entity	-	-	-	10,378,879	-	(10,378,879)	-
Fund balances, beginning, as adjusted	18,378,685	3,374,585	3,236,738	10,378,879	7,665,084	10,261,291	53,295,262
Fund balances, ending	$ 15,957,219	$ 406,321	$ 3,232,290	$ 40,555,269	$ 7,719,412	$ 11,092,144	$ 78,962,655

See notes to basic financial statements.

City of Blue Springs, Missouri

Reconciliation of the Statement of Revenues, Expenditures and Changes in Fund Balances of Governmental Funds to the Statement of Activities
Year Ended September 30, 2025

Total net change in fund balances—governmental funds	$	25,667,393
Amounts reported for governmental activities in the statement of activities are different because:		
Governmental funds report capital outlays as expenditures. However, in the statement of activities the cost of those assets is allocated over their estimated useful lives and reported as depreciation expense. This is the effect of capital outlay, depreciation expense and other capital asset transactions in the current period:		
Capital outlays		17,069,606
Depreciation and amortization expense		(11,776,689)
Proceeds from sale of capital assets		(162,208)
Gain on disposal of capital assets		144,515
Capital assets contributed		3,935,003
Revenues in the statement of activities that do not provide current financial resources are not reported as revenues in the funds:		
Deferred inflows of resources		139,748
The issuance of long-term debt provides current financial resources to governmental funds, while the repayment of the principal of long-term debt consumes the current financial resources of governmental funds. Neither transaction has any effect on net position. Also, governmental funds report the effect of premiums, discounts and similar items when debt is first issued, whereas these amounts are deferred and amortized in the statement of activities. This amount is the net effect of these differences in the treatment of long-term debt and related items:		
Issuance of bonds		(31,427,248)
Issuance of leases		(176,919)
Issuance of SBITAs		(506,619)
Principal payments		7,621,186
Issuance of certified developer obligations		(124,141)
Issuance of premium		(1,684,745)
Reduction of amount owed for certified developer obligations		431,176
Amortization of premium, discount and deferred charges on refunding		133,899
Change in accrued interest payable		(9,003)
Some expenses reported in the statement of activities do not require the use of current financial resources and, therefore, are not reported as expenditures in governmental funds:		
Compensated absences		(135,940)
Pension-related amount, pension expense		(1,474,192)
Internal service funds are used by management to charge the costs of certain activities to individual funds. The net revenue of the internal service fund is reported with governmental activities.		90,746
Change in net position of governmental activities	$	7,755,568

See notes to basic financial statements.

City of Blue Springs, Missouri

Statement of Net Position (Deficit)
Proprietary Funds
September 30, 2025

	Business-Type Activities - Enterprise Funds - Major Funds		
	Water Utility	Sewer Utility	Golf Course
Assets			
Current assets:			
Cash and investments	$ 19,844,700	$ 25,300,179	$ 470,234
Receivables, (net of allowances for uncollectibles):			
Accounts	1,691,863	1,685,747	-
Accrued interest	113,315	135,537	-
Special assessments	-	2,672,139	-
Due from other governments	-	463,695	-
Lease receivable:			
Due in one year	8,327	-	-
Due in more than one year	17,319	-	-
Inventory	292,758	102,636	101,141
Prepaid items	430,746	469,908	-
Total current assets	22,399,028	30,829,841	571,375
Noncurrent assets:			
Restricted cash and investments	-	356,785	217,978
Due from other governments	-	3,282,370	-
Noncurrent special assessments	-	4,301,535	-
Advances to other funds	-	600,000	-
Net pension asset	160,508	187,068	-
Capital assets:			
Land and construction in progress, nondepreciable	994,436	1,633,463	2,250,443
Other capital assets, net of depreciation	12,908,879	41,702,827	6,070,890
Total noncurrent assets	14,063,823	52,064,048	8,539,311
Total assets	36,462,851	82,893,889	9,110,686
Deferred Outflows of Resources			
Deferred charge on refunding	-	-	-
Pension related amounts	320,249	373,242	-
Total deferred outflows of resources	320,249	373,242	-
Liabilities			
Current liabilities:			
Accounts payable	1,352,730	358,725	242
Accrued liabilities	79,203	80,208	-
Accrued interest	2,422	58,300	2,122
Customer deposits	382,375	-	179,364
Unearned revenue	2,251	-	124,538
Due to other governments	36,044	-	-
Long-term debt due in one year	46,848	2,390,591	49,626
Total current liabilities	1,901,873	2,887,824	355,892
Noncurrent liabilities:			
Advances from other funds	-	-	2,000,055
Long-term debt	52,851	10,821,239	60,406
Total noncurrent liabilities	52,851	10,821,239	2,060,461
Total liabilities	1,954,724	13,709,063	2,416,353
Deferred Inflows of Resources			
Deferred charge on refunding	-	97,531	-
Pension related amounts	42,897	49,995	-
Leases	32,484	-	-
Total deferred inflows of resources	75,381	147,526	-
Net Position (Deficit)			
Net investment in capital assets	13,461,677	29,933,080	8,211,301
Restricted for debt service	-	356,785	217,978
Restricted for pension	160,508	187,068	-
Unrestricted (deficit)	21,130,810	38,933,609	(1,734,946)
Total net position (deficit)	$ 34,752,995	$ 69,410,542	$ 6,694,333

See notes to basic financial statements.

Fieldhouse	Total	Governmental Activities - Internal Service Fund
$ 1,243,255	$ 46,858,368	$ -
362	3,377,972	17,059
2,997	251,849	-
-	2,672,139	-
-	463,695	-
32,132	40,459	-
510,551	527,870	-
-	496,535	306,071
80,957	981,611	13,237
1,870,254	55,670,498	336,367
-	574,763	-
-	3,282,370	-
-	4,301,535	-
-	600,000	-
62,813	410,389	-
993,135	5,871,477	-
42,606,109	103,288,705	66,079
43,662,057	118,329,239	66,079
45,532,311	173,999,737	402,446
-	-	-
125,325	818,816	-
125,325	818,816	-
127,124	1,838,821	25,436
74,754	234,165	16,325
5,704	68,548	-
-	561,739	-
42,816	169,605	-
-	36,044	-
41,954	2,529,019	3,003
292,352	5,437,941	44,764
600,000	2,600,055	-
48,556	10,983,052	4,185
648,556	13,583,107	4,185
940,908	19,021,048	48,949
-	97,531	-
16,787	109,679	-
533,470	565,954	-
550,257	773,164	-
43,534,723	95,140,781	66,079
-	574,763	-
62,813	410,389	-
568,935	58,898,408	287,418
$ 44,166,471	$ 155,024,341	$ 353,497

City of Blue Springs, Missouri

Statement of Revenues, Expenses and Changes in Fund Net Position (Deficit)
Proprietary Funds
Year Ended September 30, 2025

	Business-Type Activities - Enterprise Funds - Major Funds		
	Water Utility	Sewer Utility	Golf Course
Operating revenues:			
Charges for services	$ 12,202,278	$ 12,747,724	$ 2,761,955
Other	107,059	135,897	6,415
Total operating revenues	12,309,337	12,883,621	2,768,370
Operating expenses:			
Personnel services	1,343,207	1,414,345	821,111
Administrative and support services	1,305,125	1,002,022	-
Materials and supplies	959,444	734,478	546,680
Purchased water and sewer services	7,500,937	2,715,852	-
Contractual services	1,525,344	938,024	689,306
Utilities	49,432	453,229	-
Depreciation and amortization	897,808	2,690,269	389,818
Total operating expenses	13,581,297	9,948,219	2,446,915
Operating income (loss)	(1,271,960)	2,935,402	321,455
Nonoperating revenues (expenses):			
Investment income (loss)	794,020	968,734	16,617
Interest income—special assessments	-	245,446	-
Interest expense and fiscal charges	(2,422)	(265,427)	(26,123)
Gain/(loss) on sale of capital assets	(14,906)	(3,700)	-
Total nonoperating revenues (expenses)	776,692	945,053	(9,506)
Income (loss) before capital contributions and transfers	(495,268)	3,880,455	311,949
Capital contributions	-	259,367	-
Transfers in	516,663	16,224	-
Transfers out	-	(427,589)	-
Change in net position (deficit)	21,395	3,728,457	311,949
Net position, beginning, as previously reported	34,748,162	65,708,012	6,382,384
Change in accounting principle	(16,562)	(25,927)	-
Net position, beginning, as restated	34,731,600	65,682,085	6,382,384
Net position (deficit), end of year	$ 34,752,995	$ 69,410,542	$ 6,694,333

See notes to basic financial statements.

Fieldhouse	Total	Governmental Activities - Internal Service Fund
$ 3,203,550	$ 30,915,507	$ 1,389,720
117,688	367,059	-
3,321,238	31,282,566	1,389,720
1,765,490	5,344,153	333,648
-	2,307,147	-
184,228	2,424,830	627,529
-	10,216,789	-
254,166	3,406,840	334,951
334,903	837,564	696
3,040,463	7,018,358	33,070
5,579,250	31,555,681	1,329,894
(2,258,012)	(273,115)	59,826
32,042	1,811,413	-
-	245,446	-
(48,591)	(342,563)	-
-	(18,606)	-
(16,549)	1,695,690	-
(2,274,561)	1,422,575	59,826
-	259,367	-
177,756	710,643	30,920
-	(427,589)	-
(2,096,805)	1,964,996	90,746
46,266,076	153,104,634	265,355
(2,800)	(45,289)	(2,604)
46,263,276	153,059,345	262,751
$ 44,166,471	$ 155,024,341	$ 353,497

City of Blue Springs, Missouri

Statement of Cash Flows
Proprietary Funds
Year Ended September 30, 2025

	Business-Type Activities - Enterprise Funds - Major Funds		
	Water Utility	Sewer Utility	Golf Course
Cash flows from operating activities:			
Receipts from customers and users	$ 12,381,200	$ 12,777,731	$ 2,834,747
Receipts from interfund charges	-	-	-
Payments to suppliers and service providers	(10,982,802)	(5,785,312)	(1,272,276)
Payments to employees	(1,418,395)	(1,444,939)	(821,111)
Net cash provided by (used in) operating activities	(19,997)	5,547,480	741,360
Cash flows from noncapital financing activities:			
Decrease (Increase) in interfund advances	-	150,000	-
Transfers in	516,663	16,224	-
Transfers out	-	(427,589)	-
Net cash provided by (used in) noncapital financing activities	516,663	(261,365)	-
Cash flows from capital and related financing activities:			
Acquisition and construction of capital assets	(1,177,915)	(1,020,225)	(460,964)
Proceeds on sale of capital assets	14,906	3,700	-
Intergovernmental grants	-	603,765	-
Special assessments received	-	1,277,918	-
Principal payments on debt	(10,818)	(2,268,207)	(381,423)
Interest payments on debt and interfund loans	(1,402)	(414,260)	(31,438)
Net cash used in capital and related financing activities	(1,175,229)	(1,817,309)	(873,825)
Cash flows from investing activities:			
Purchase of investments	(4,000,000)	(5,250,000)	-
Sale of investments	4,000,000	4,000,000	-
Interest on special assessments	-	245,446	-
Interest on investments	592,980	758,865	16,617
Net cash provided by (used in) investing activities	592,980	(245,689)	16,617
Net increase (decrease) in cash and cash equivalents	(85,583)	3,223,117	(115,848)
Cash and cash equivalents, beginning of year	3,945,430	5,486,067	804,060
Cash and cash equivalents, end of year	$ 3,859,847	$ 8,709,184	$ 688,212

(Continued)

Fieldhouse	Total	Governmental Activities - Internal Service Fund
$ 3,359,694	$ 31,353,372	$ 116,625
-	-	1,265,991
(707,873)	(18,748,263)	(985,574)
(1,832,836)	(5,517,281)	(329,237)
818,985	7,087,828	67,805
(150,000)	-	-
177,756	710,643	30,920
-	(427,589)	-
27,756	283,054	30,920
(525,454)	(3,184,558)	(98,725)
-	18,606	-
-	603,765	-
-	1,277,918	-
(27,717)	(2,688,165)	-
(47,268)	(494,368)	-
(600,439)	(4,466,802)	(98,725)
-	(9,250,000)	-
-	8,000,000	-
-	245,446	-
30,585	1,399,047	-
30,585	394,493	-
276,887	3,298,573	-
966,368	11,201,925	-
$ 1,243,255	$ 14,500,498	$ -

City of Blue Springs, Missouri

Statement of Cash Flows (Continued)
Proprietary Funds
Year Ended September 30, 2025

	Business-Type Activities - Enterprise Funds - Major Funds		
	Water Utility	Sewer Utility	Golf Course
Reconciliation of amounts reported on the statement of net position:			
Cash and cash equivalents	$ 3,859,847	$ 8,709,184	$ 688,212
Investments	15,984,853	16,947,780	-
Total cash and investments	$ 19,844,700	$ 25,656,964	$ 688,212
Reconciliation of operating income (loss) to net cash provided by (used in) operating activities:			
Operating income (loss)	$ (1,271,960)	$ 2,935,402	$ 321,455
Adjustments to reconcile operating (loss) to net cash provided by (used in) operating activities:			
Depreciation	897,808	2,690,269	389,818
(Increase) decrease in accounts receivable	62,868	(105,890)	-
(Increase) decrease in leases receivable	(25,646)	-	-
(Increase) decrease in inventories	72,591	91,531	(36,222)
(Increase) decrease in prepaid items	(85,846)	(105,444)	-
Increase (decrease) in accounts payable	370,735	72,206	(68)
Increase (decrease) in accrued expenses	(18,348)	1,561	-
Increase (decrease) in customer deposits	3,625	-	45,777
Increase (decrease) in unearned revenue	2,251	-	20,600
Increase (decrease) in deferred inflows - leases	28,765	-	-
Decrease (increase) in LAGERS net pension asset	(56,840)	(32,155)	-
Net cash provided by (used in) operating activities	$ (19,997)	$ 5,547,480	$ 741,360
Supplemental information, noncash capital and related financing activities			
Supplemental information, noncash capital and related financing:			
Capital assets included in accounts payable at year end	$ 412,697	$ 190,606	$ -
Capital contributions	$ -	$ 259,367	$ -
Capital assets acquired by assumption of liabilities	$ -	$ -	$ 43,773

See notes to basic financial statements.

Fieldhouse	Total	Governmental Activities - Internal Service Fund
$ 1,243,255	$ 14,500,498	$ -
-	32,932,633	-
$ 1,243,255	$ 47,433,131	$ -
$ (2,258,012)	$ (273,115)	$ 59,826
3,040,463	7,018,358	33,070
3,560	(39,462)	(7,105)
31,115	5,469	-
-	127,900	(36,698)
(14,197)	(205,487)	(2,795)
79,621	522,494	17,096
6,144	(10,643)	4,411
-	49,402	-
42,816	65,667	-
(39,035)	(10,270)	-
(73,490)	(162,485)	-
$ 818,985	$ 7,087,828	$ 67,805
$ -	$ 603,303	$ -
$ -	$ 259,367	$ -
$ -	$ 43,773	$ -

City of Blue Springs, Missouri

Statement of Fiduciary Net Position—Fiduciary Funds
September 30, 2025

	Custodial Funds
Assets	
Cash	$ 369,512
Sales taxes receivable	73,469
Special assessment receivable	461,699
Restricted cash	499,395
Total assets	1,404,075
Liabilities	
Trade accounts payable	136,776
Accrued interest	61,156
Due to developer	86,426
Bonds payable	2,535,900
Total liabilities	2,820,258
Deferred inflows of resources	
Special assessment taxes for next year	397,684
Net Position	
Unrestricted deficit	(2,118,624)
Restricted for:	
Organizations	304,757
Total net position	$ (1,813,867)

See notes to basic financial statements.

City of Blue Springs, Missouri

Statement of Changes in Fiduciary Net Position—Fiduciary Funds
Year Ended September 30, 2025

	Custodial Funds
Additions	
Sales tax collections for other governments	$ 526,410
Special assessments	415,730
Total additions	942,140
Deductions	
Professional services and other expenses	75,058
Payments to developers for project costs	422,332
Interest and amortization expense	192,549
Total deductions	689,939
Change in net position	252,201
Net position, beginning	(2,066,068)
Net position, ending	$ (1,813,867)

See notes to basic financial statements.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies

Nature of operations:

The City of Blue Springs, Missouri (City) was incorporated in 1904 and covers an area of approximately 22.0 square miles in Jackson County, Missouri. The City is a home rule chartered city and operates under the mayor/council/administrator form of government. The City Administrator is the chief administrative officer of the City. The City provides services to approximately 53,000 residents in many areas, including law enforcement, water and sewer services, community enrichment and development, and various social services. Elementary, secondary, and junior college education services are provided by various school districts, fire protection services are provided by a separate fire protection district, all of which are separate governmental entities.

The accounting and reporting policies of the City conform to accounting principles generally accepted in the United States of America (GAAP), as applicable to governmental units. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. The following represent the more significant accounting and reporting policies and practices of the City.

Reporting entity:

Blue Springs, Missouri is a home rule chartered city in which citizens elect the Mayor and six council members from three districts. In evaluating the City's financial reporting entity, management has considered all potential component units. The accompanying basic financial statements present the City and the component units over which the City is financially accountable. Financial accountability is based primarily on operational or financial relationships with the City (as distinct from legal relationships).

The following component units are blended in the City's basic financial statements:

The Tax Increment Financing (TIF) Commission: is governed by an eleven-member board of which six members are appointed by the City Council. The remaining five members are appointed by the respective taxing districts' boards. Although it is legally separate from the City, the TIF is reported as if it were part of the primary government because its sole function is to use TIF as a method to finance infrastructure improvements through payments in lieu of taxes and economic activity taxes and provides services exclusively to the City. The TIF has been reported as a major capital projects fund within the City's financial statements. The TIF Commission does not issue separate financial statements.

Blue Springs Land Bank Agency: Legislation which became effective August 28, 2012, authorized the City to create a Land Bank Agency (the Agency). That legislation provided that any property owned by the County's Land Trust to be transferred to the Land Bank Agency and provided that any properties located in the City limits of Blue Springs which were sold for back taxes where the bid was not sufficient to pay the judgment would be transferred to the Blue Springs Land Bank Agency rather than the Jackson County Land Trust. This is specifically important for the properties that are located in the City's Neighborhood Improvement District.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

The purpose of the Agency is to return nonrevenue generating and nontax producing land to usefulness. The Land Bank Agency is composed of a Board of Commissioners consisting of five members, all of whom are residents of the City. Three Commissioners are appointed by the Mayor of the City, one Commissioner is appointed by Jackson County and the other Commissioner by the School District. The Agency is reported as a non-major special revenue fund within the City's financial statements. The Agency does not issue separate financial statements.

Basis of presentation:

The City's basic financial statements include both government-wide (reporting the City as a whole) and fund financial statements (reporting the City's major funds).

Government-wide financial statements: The statement of net position and the statement of activities display information about the City, the primary government, as a whole, with the exclusion of fiduciary funds. These statements distinguish between the governmental and business-type activities of the City. Governmental activities generally are financed through taxes, intergovernmental revenues, and other non-exchange transactions. Business-type activities are financed in whole or in part by fees charged to external parties. Internal activity is eliminated to avoid "doubling up" revenues and expenses.

The government-wide financial statements are prepared using the economic resources measurement focus and the accrual basis of accounting. This is the same approach used in the preparation of the proprietary fund and fiduciary fund financial statements but differs from the manner in which governmental fund financial statements are prepared. Therefore, each of the governmental fund financial statements includes a reconciliation with brief explanations to better identify the relationship between the governmental fund statements and the government-wide statements.

The government-wide statement of activities presents a comparison between expenses and program revenues for each program of the governmental activities. Expenses are specifically associated with a service, program or department and are therefore clearly identifiable to a particular function. Program revenues include charges paid by the recipients of the goods or services offered by the programs and grants and contributions that are restricted to meeting the operational or capital requirements of a particular program. Revenues that are not classified as program revenues are presented as general revenues. The comparison of program revenues and expenses identifies the extent to which each program is self-financing or draws from the general revenues of the City.

Fund financial statements: Separate financial statements are provided for governmental funds, proprietary funds, and fiduciary funds, even though the fiduciary funds are excluded from the government-wide financial statements. Major individual governmental funds and major individual enterprise funds are reported as separate columns in the fund financial statements. Non-major funds are aggregated and presented in a single column.

Governmental Fund Types: Governmental funds are those through which most governmental functions of the City are financed. The acquisition, use and balances of the City's expendable financial resources and the related liabilities (other than those in proprietary funds) are accounted for through governmental funds. The following are the City's major governmental funds:

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

General Fund is the principal operating fund of the City and accounts for all financial transactions not accounted for in other funds. The general operating expenditures, fixed charges and capital improvement costs that are not paid through other funds are financed through revenues received by the General Fund.

General Obligation Bond Debt Service Fund**,** a debt service fund established to account for the accumulation of resources for, and the payment of, principal, interest and other related costs associated with the City's general obligation bonds.

Park Sales Tax Fund, a special revenue fund established to account for the financial activity related to the collection of the dedicated 5-year ½ cent sales tax for parks deferred maintenance. This fund is also accounting for the proceeds of the 2022 special obligation bonds, which is being used for the building of the Aquatic Center Project, as well as using the sales tax collections to pay the principal retirement of the bonds.

Capital Projects Fund, a capital projects fund established to account for the acquisition and/or construction of capital facilities, except those accounted for in proprietary funds.

TIF Fund, a capital projects fund, accounts for resources of the City's tax increment financing activities.

Proprietary Fund Types: Proprietary funds are used to account for the City's ongoing activities that are similar to those often found in the private sector. The following are the City's major proprietary funds:

Water Utility Fund accounts for the provision of water services to residents of the City. All activities necessary to provide such services are accounted for in this fund, including, but not limited to, administration, operations, maintenance, financing and related debt service, and billing and collection.

Sewer Utility Fund accounts for the provision of sewer services to residents of the City. All activities necessary to provide such services are accounted for in this fund, including, but not limited to, administration, operations, maintenance, financing and related debt service, and billing and collection.

Golf Course Fund accounts for all golf activity services related to the City golf course plus professional shop sales. All activities to provide such services are accounted for in this fund, including, but not limited to, administration, operations, maintenance, financing and related debt service.

Fieldhouse Fund accounts for indoor recreational space related to all recreation activity services. All activities to provide these services are accounted for in this fund, including, but not limited to, administration, operations, maintenance and financing.

In addition, the City reports an Internal Service Fund which accounts for the financing of goods or services provided by one department or agency to other departments or agencies of the City, or to other governmental units, on a cost reimbursement basis. The City's internal service fund is the Central Garage Fund.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

Fiduciary Fund Types: Fiduciary fund types are used to account for assets held by a governmental unit in a trustee capacity or as an agent for individuals, private organizations, other governmental units. The City has the following fiduciary fund types:

Custodial Funds: The City maintains nine custodial funds, Adams Dairy Landing CID, Woods Chapel CID, Sunset Plaza CID, Fall Creek CID, White Oak CID, North Blue Springs CID, Downtown Blue Springs CID and the Colonial Gardens CID which account for funds received by the community improvement districts; and Adams Farm TDD Fund which accounts for funds received by this transportation development district. Custodial funds are used to report assets held in a fiduciary capacity for others. Since by definition these assets are being held for the benefit of a third party and cannot be used to support activities or obligations of the City, these funds are not incorporated into the government-wide statements.

Measurement focus and basis of accounting:

All governmental funds utilize the current financial resources measurement focus and the modified accrual basis of accounting. Under the current financial resources measurement focus, only current assets and current liabilities are included on the balance sheet of the fund financial statements. Under the modified accrual basis of accounting, revenues are recorded as collected unless susceptible to accrual, i.e., amounts measurable and available to finance the City's operations or of a material amount and not received at the normal time of receipt. Measurable means the amount of the transaction can be determined and available means collectible within the current period or soon enough thereafter to be used to pay liabilities of the current period. For this purpose, the City considers revenues to be available if they are collected within sixty days of the end of the current period.

Significant revenues that are considered susceptible to accrual include sales taxes, interest, and certain state and federal grants and entitlements. Expenditures generally are recorded when the fund liability is incurred. However, debt service expenditures, as well as those related to compensated absences and pensions, are recorded in the governmental funds only when payment is due.

In applying the susceptible-to-accrual concept to intergovernmental revenues, the legal and contractual requirements of the numerous individual programs are used as guidance. There are, however, essentially two types of these revenues. In one, monies must be expended for the specific purpose or on the specific project before any amounts will be paid to the City; therefore, revenues are recognized based upon the expenditures recorded. In the other, fund are provided in advance to be used for a specific purpose and are revocable only for failure to comply with prescribed compliance requirements. These resources are reflected as revenues at the time of receipt or earlier if they meet the available and measurable criteria.

Property tax revenue is recognized independent of receivable recognition in the fiscal year for which the taxes have been levied (budgeted). Delinquent taxes expected to be received later than 60 days after the close of the fiscal year are classified as deferred inflows of resources within the governmental fund financial statements. Licenses and permits, fines and forfeitures, charges for services and miscellaneous revenues are recorded as revenues when received in cash because they are generally not measurable until actually received.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

The economic resources measurement focus and the accrual basis of accounting are utilized by the proprietary funds, trust funds and custodial funds. Under this basis of accounting, revenues are recognized when earned and expenses are recorded when liabilities are incurred. All assets, liabilities and deferred inflows/outflows of resources (whether current or noncurrent) associated with a proprietary fund's activities are included on its statement of net position. Operating revenues and expenses for proprietary funds are those that result from providing services and producing and delivering goods and/or services. All other revenues and expenses are considered nonoperating.

Summary of significant accounting policies:

The significant accounting policies followed by the City include the following:

Cash, cash equivalents and investments: The City maintains and controls a cash and investment pool in which a majority of the City's funds share. Each fund's portion of the pool is displayed on their respective balance sheet/statement of net position as "cash and investments." The City's cash and cash equivalents are primarily considered to be cash on hand, amounts in demand deposits and certificates of deposits. For purposes of the statement of cash flows, short-term investments held in proprietary funds with a maturity date within three months of the date acquired by the City, if any, and pooled cash and investments are considered cash equivalents.

Most of the City's investments are reported at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is a market-based measurement, not an entity-specific measurement. For some assets and liabilities, observable market transactions or market information might be available; for others, it might not be available. However, the objective of a fair value measurement in both cases is the same—that is, to determine the price at which an orderly transaction to sell the asset or to transfer the liability would take place between the market participants at the measurement date under current market conditions. Fair value is an exit price at the measurement date from the perspective of a market participant that controls the asset or is obligated for the liability. Purchases and sales of securities are recorded on a trade-date basis. See Note 2 for additional information regarding fair value measures.

Inventories and prepaid items: Inventories are valued at cost using the first-in, first-out method. Inventory quantities are determined by physical count at each year-end. Inventory in the Water Utility Fund consists primarily of water meters and water line maintenance materials. Inventory in the Sewer Utility Fund consists primarily of sewer line maintenance materials. Inventory in the Central Garage Fund consists of vehicle maintenance materials. Inventory in the Golf Course Fund consists of pro-shop merchandise and food supplies. Certain payments reflect costs applicable to future accounting periods and are recorded as prepaid items. The cost of prepaid items is recorded as expenditures/expenses when consumed rather than when purchased.

Accounts receivable: Accounts receivable result primarily from sales of water and sewer services accounted for in the Water Utility and Sewer Utility Funds, respectively. An estimated amount has been recorded for services rendered, but not yet billed, as of the close of the fiscal year. Accounts receivable are expressed net of allowances for doubtful accounts of $104,763 for the business-type activities. Allowances for doubtful accounts are based on historical collection trends for the related receivables.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

Special assessments receivable: Special assessments receivable reflects the property taxes collectable by the City for the purpose of repaying the Special Assessment debt held by the City. The amount collectable by the City is reduced each year as the taxes are levied against the property and, subsequently, collected by the City. Special assessments receivable is expressed net of allowances for doubtful accounts, based on foreclosed properties. At September 30, 2025, the City had $6,973,674 in special assessments receivable in the Sewer Utility Fund.

Interfund activity: Transactions among City funds that would be treated as revenues and expenditures or expenses if they involved organizations external to City government are accounted for as revenues and expenditures or expenses in the funds involved.

Transactions which constitute reimbursements to a fund for expenditures initially made from it which are properly applicable to another fund are recorded as expenditures in the reimbursing fund and as reductions of expenditures in the reimbursed fund.

Transactions, which constitute the transfer of resources from a fund receiving revenues to a fund through which the revenues are to be expended, are separately reported in the respective fund's operating statements.

Activity between funds that are representative of lending/borrowing arrangements at the end of the fiscal year are referred to as "due to/from other funds" in the fund financial statements. Any residual balances outstanding between the governmental activities and business-type activities are reported in the government-wide financial statements as "internal balances."

The City has the following types of interfund activity:

Advances to/from other funds—amounts provided with a requirement for repayment. Advances to other funds are reported as receivables in lender funds and payables in borrower funds and are considered long-term in nature.

Transfers—flows of assets (such as cash or goods) without equivalent flows of assets in return and without a requirement for repayment. In governmental funds, transfers are reported as other financing uses in the funds making transfers and as other financing sources in the funds receiving transfers.

Capital assets: Capital assets acquired for general governmental purposes are recorded as expenditures in the governmental fund financial statements and are capitalized at cost or estimated historical cost in the governmental activities column in the government-wide financial statements. Capital assets owned by the proprietary funds are stated at cost or estimated historical cost in the proprietary fund financial statements and in the business-type activities column in the government-wide financial statements. All contributed capital assets received from federal, state or local sources are recorded at acquisition value at the time received. Capital assets are defined by the City as assets with an initial, individual cost of more than $5,000 and an estimated useful life in excess of one year.

Additions, improvements and costs that significantly extend the useful life of an asset are capitalized. The cost of assets sold or retired, and the related amounts of accumulated depreciation are eliminated from the accounts in the year of sale or retirement and any resulting gain or loss is reflected in the basic financial statements. Fully depreciated assets are included in the capital asset accounts until their disposal.

Interest costs associated with constructed assets are expensed as incurred.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

Depreciation has been provided over the estimated useful lives using the straight-line method. The estimated useful lives are as follows:

Infrastructure—water and sewer lines, storm sewers, reservoirs, wells, roads and bridges	20 to 60 years
Buildings and improvements	20 to 60 years
Equipment and vehicles	5 to 15 years
Computer equipment and software	3 years
Leased assets	3 to 15 years
Subscription assets	3 to 5 years

Unearned revenue: Unearned revenue arises when resources are received by the City before it has a legal claim to them. In subsequent periods, when both revenue recognition criteria are met, or when the City has a legal claim to the resources, revenue is recognized.

Deferred outflows of resources: In addition to assets, the statement of net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net assets that applies to a future period(s) and so will not be recognized as an outflow of resources (expense) until then. The City has two items that qualify for reporting in this category. The first is the deferred charge on refunding reported in the government-wide and proprietary funds statement of net position. A deferred charge on refunding results from the difference in the carrying value of refunded debt and its reacquisition price. This amount is deferred and amortized over the shorter of the life of the refunded or refunding debt. The second deferred outflow item consists of unrecognized items not yet charged to pension expense related to the net pension asset and contributions paid by the City after the measurement date but before the end of the City's reporting period.

Deferred inflows of resources: In addition to liabilities, the statement of net position and balance sheet will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net assets that applies to a future period(s) and so will not be recognized as an inflow of resources (revenue) until that time. The governmental funds report unavailable revenues from several sources: property taxes and other revenue. Property tax revenue is deferred until the period for which it is levied, and other revenue amounts are deferred and recognized as an inflow of resources in the period that the amounts become available. They also include a deferred inflow for leases, as discussed in the section about leases.

In the City's government-wide statements, the property tax revenues remain as a deferred inflow of resources and will become an inflow in the year for which the taxes are levied. The City's government-wide and proprietary fund statements include the unamortized portion of the difference between expected and actual experience, changes in assumptions and the change in proportion and differences between the City's contributions and proportionate share of contributions all related to the net pension asset. They also include a deferred charge on refunding, as previously defined, and deferred inflows related to leases where the City is the lessor, as discussed in the section about leases.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

Pensions: For purposes of measuring the net pension asset, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the Missouri Local Government Employees Retirement System (LAGERS) and additions to/deductions from LAGERS fiduciary net position have been determined on the same basis as they are reported by LAGERS. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

Bond premiums, discounts and issuance costs: In the government-wide and proprietary fund financial statements, bond premiums and discounts are deferred and amortized over the life of the bonds using a method which approximates the effective interest method. Bonds payable are reported net of the applicable bond premium or discount. Debt issuance costs are recognized as an expense in the year in which the costs were incurred.

In the fund financial statements, governmental fund types recognize bond premiums and discounts, as well as bond issuance costs, during the current period. The face amount of debt issued and any related premiums or discounts are reported as other financing sources/uses. Issuance costs are reported as a debt service expenditure in the year in which the costs were incurred.

Compensated absences: The City recognizes a liability for compensated absences for leave that (a) is attributable to services already rendered, (b) accumulates, and (c) is more likely than not to be used for time off or otherwise paid in cash or settled through noncash means. The City has adopted a FIFO flows assumption which aligns with how compensated absences are likely to be paid/settled.

The liability for compensated absences is reported as incurred in the government-wide and proprietary fund financial statements. A liability for compensated absences is recorded in the governmental funds only for amounts due and payable. The liability for compensated absences includes salary-related benefits, where applicable.

Under terms of the City's personnel policy, City employees are granted Paid Time Off (PTO) and Extended Illness Bank (EIB) in varying amounts. In the event of termination, an employee is paid for accumulated unused PTO days. Employees with five years of service and a minimum of 100 hours of accumulated, unused EIB time are paid 15% of the hours up to 500 hours and 20% of the hours between 501 and 1,000.

For types of compensated absences that are dependent upon the occurrence of a sporadic event that affects a relatively small proportion of employees in any particular reporting period (parental leave, military leave, and jury duty), a liability is not recognized until the leave commences. For unlimited leave and holiday leave, a liability is recognized when the leave is taken.

The liability for leave that has been used, but not yet paid, has been recognized in accrued salaries. The liability for leave that has not been used is recognized in compensated absences.

Leases:

Lessee: The City is a lessee in equipment and real estate leases. The City recognizes a lease liability and an intangible right-to-use lease asset (lease asset) in the government-wide and proprietary financial statements.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

At the commencement of a lease, the City initially measures the lease liability at the present value of payments expected to be made during the lease term. Subsequently, the lease liability is reduced by the principal portion of lease payments made. The lease asset is initially measured as the initial amount of the lease liability, adjusted for lease payments made at or before the lease commencement date, plus certain initial direct costs. Subsequently, the lease asset is amortized on a straight-line basis over its useful life.

The City monitors changes in circumstances that would require a remeasurement of its lease and will remeasure the lease liability and asset if certain changes occur that are expected to significantly affect the amount of the lease liability.

Lease assets are reported with other capital assets and lease liabilities are reported with long-term debt on the statement of net position.

Lessor: The City is a lessor in real estate leases. The City recognizes a lease receivable and a deferred inflow of resources in the government-wide, proprietary and governmental fund financial statements.

At the commencement of a lease, the City initially measures the lease receivable at the present value of payments expected to be received during the lease term. Subsequently, the lease receivable is reduced by the principal portion of lease payments received. The deferred inflow of resources is initially measured as the initial amount of the lease receivable, adjusted for lease payments received at or before the lease commencement date. Subsequently, the deferred inflow of resources is recognized as revenue over the life of the lease term.

All leases: Key estimates and judgments include how the City determines (1) the discount rate it uses to discount the expected lease receipts to present value, (2) lease term, and (3) lease receipts.

- For leases where the City is a lessee, the City uses the interest rate charged by the lessor as the discount rate. When the interest rate charged by the lessor is not provided, the City generally uses its estimated incremental borrowing rate as the discount rate for leases.
- For leases where the City is a lessor, the City uses its estimated incremental borrowing rate as the discount rate for leases.
- The lease term includes the noncancellable period of the lease.
- Lease receipts included in the measurement of the lease receivable are composed of fixed payments from the lessee.

The City monitors changes in circumstances that would require a remeasurement of its lease and will remeasure the lease receivable and deferred inflows of resources if certain changes occur that are expected to significantly affect the amount of the lease receivable.

Subscription-Based Information Technology Arrangements (SBITAs):

The City has entered into agreements where they subscribe to use a vendors software programs. The City recognizes a subscription liability and an intangible right-to-use subscription asset in the government-wide and proprietary financial statements.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

At the commencement of a subscription, the City initially measures the subscription liability at the present value of payments expected to be made during the subscription term. Subsequently, the subscription liability is reduced by the principal portion of subscription payments made. The subscription asset is initially measured as the initial amount of the subscription liability, adjusted for payments made at or before the commencement date of the agreement, plus certain initial direct costs. Subsequently, the subscription asset is amortized on a straight-line basis over its useful life.

The City monitors changes in circumstances that would require a remeasurement of its subscriptions and will remeasure the subscription liability and asset if certain changes occur that are expected to significantly affect the amount of the subscription liability.

Subscription assets are reported with other capital assets and subscription liabilities are reported with long-term debt on the statement of net position.

Key estimates and judgments include how the City determines (1) the discount rate it uses to discount the expected subscription payments to present value and (2) the subscription term.

- The City uses the interest rate charged by the vendor as the discount rate. When the interest rate charged by the vendor is not provided, the City generally uses its estimated incremental borrowing rate as the discount rate for subscriptions.
- The subscription term includes the noncancellable period of the agreement.

Net position classifications: In the government-wide and proprietary fund financial statements, net position represents the difference between assets plus deferred outflows of resources and liabilities plus deferred inflows of resources and is classified into three components:

Net investment in capital assets—consisting of capital assets, net of accumulated depreciation and reduced by the outstanding balances of any bonds, mortgage notes, or other borrowings that are attributable to the acquisition, construction, or improvement of those assets. Net investment in capital assets for the governmental activities exclude $72,167,780 of the Special Obligation and General Obligation bonds as they were for purposes other than capital asset additions for the City's governmental activities.

Restricted net position—consisting of net position with constraints placed on its use either by (1) external groups such as creditors, grantors, contributors, or laws or regulations of other governments; or (2) law through constitutional provisions or enabling legislation. The City first utilizes restricted resources to finance qualifying activities for which restricted and unrestricted net position is available. Net position restricted through enabling legislation consists of $1,891,050 for tourism.

Unrestricted net position—all other net position that does not meet the definition of "restricted" or "net investment in capital assets."

The City first applies restricted resources when an expense is incurred for purposes for which both restricted and unrestricted net position are available.

Fund balances: In the fund financial statements, governmental funds report the following fund balance classifications:

Nonspendable—This consists of amounts that cannot be spent because they are either not in spendable form or legally or contractually required to be maintained intact.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

Restricted—This consists of amounts where constraints are placed on the use of those resources which are either externally imposed by creditors, grantors, contributors, laws or regulations of other governments, or imposed by law through constitutional provisions or enabling legislation.

Committed—This consists of amounts which can only be used for specific purposes pursuant to constraints imposed by formal action of the City Council through ordinance approved prior to year-end. Those committed amounts cannot be used for any other purpose unless the City Council removes or changes the specified amounts by use of the same formal action that it employed to previously commit the funds.

Assigned—This consists of amounts which are constrained by City management's intent to be used for a specific purpose but are neither formally restricted by external sources nor committed by City Council action. It is the City's Governmental Fund Balance Policy (as approved by Resolution 60-2011) that the Authority to assign fund balance has been delegated by the City Council to the City Administrator. Likewise, the City Administrator has the authority to take necessary actions to un-assign amounts in this category.

Unassigned—This consists of the residual fund balance that does not meet the requirements for the nonspendable, restricted, committed or assigned classifications. The General Fund is the only fund that would report a positive amount in unassigned fund balance. Residual deficit amounts of other governmental funds would also be reported as unassigned.

The City has a fund balance policy that provides guidance for programs with multiple revenue sources. The policy is to use restricted resources first when an expenditure is incurred for purposes for which both restricted and unrestricted fund balance is available. For purposes of fund balance classification expenditures are to be spent from restricted fund balance first, followed in order by committed fund balance, assigned fund balance and lastly unassigned fund balance.

The City has stabilization arrangements that set aside 25% of the prior year's budgeted General Fund expenditures. The 25% is divided into two reserve categories, the emergency reserve at 17% and the budget stabilization reserve at 8%. These reserves were established as committed fund balance by the City Council with Resolution RES-0065-2021. The emergency reserve shall only be used if the City directly experiences a natural disaster that jeopardizes public safety, the Federal Government or State of Missouri formally declare a disaster or emergency or if no reasonable budget adjustments are available to continue providing essential services to the public, all of which are considered nonroutine. The budget stabilization reserve shall only be used if there is a sudden or unexpected decline in ongoing revenues greater than 10% of General Fund operating revenues, short term stabilization is needed to minimize significant changes in insurance rates or premiums, funds are needed as part of a matching grant for a major project for which budgeted funds are not available or for sudden or unexpected capital outlay replacement needs such as a facility failure, all of which are considered sufficiently specific and nonroutine. If the reserves are spent below the minimum required level, the City will develop and implement a plan to replenish the reserves. This plan will restore the reserves within 2 years for the emergency reserve and 5 years for the budget stabilization reserve. During an economic downturn, the timeline for restoring the reserves will not begin until revenues have stabilized.

Note 1. Nature of Operations, Reporting Entity, Basis of Presentation, Measurement Focus and Basis of Accounting and Summary of Significant Accounting Policies (Continued)

Budgetary data: The City Council follows these procedures in establishing the budget:

1. Prior to September 1, the City Administrator submits to the City council a proposed operating budget for the fiscal year commencing the following October 1. The operating budget includes proposed expenditures and the means of financing them.

2. Public hearings are conducted to obtain taxpayer comments.

3. Prior to October 1, the budget is legally enacted through passage of an ordinance.

4. The legal level of control is at the fund level. City management cannot amend the budget without receiving the approval of the City Council. The City Administrator is authorized to approve overspending of budgeted line items within any fund as long as the total expenditures within the fund do not exceed the total approved budgeted expenditures for that fund. However, overspending of total expenditures of any fund requires approval by the City Council.

Use of estimates: The preparation of basic financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect amounts reported in the financial statements and accompanying notes. Accordingly, actual results could differ from those estimates.

Governmental Activities Column Statement of Net Position: The Governmental Activities column for the City excludes debt related to business-type activities in the “Net investment in capital assets” line item totaling $32,595,000. The City issues debt to finance construction projects for its business-type activities (Fieldhouse fund); however the Fieldhouse fund owns the assets and the City retires the debt. The Statement of Net Position reports an adjustment column to properly reflect the entity wide net investment in capital assets.

Note 2. Deposits and Investments

As of September 30, 2025, the carrying values of deposits and investments are summarized as follows:

Investments:	
Short-term investments (money market mutual fund)	$ 9,136,735
U.S. Treasuries	26,921,397
U.S. agency securities	39,404,150
Repurchase agreement	45,595,000
Total investments	121,057,282
Deposits	442,665
Certificates of deposit	2,490,000
Total	$ 123,989,947

Note 2. Deposits and Investments (Continued)

Deposits and investments are reflected in the financial statements as follows:

	Government-Wide Statement of Net Position	Fiduciary Funds Statement of Net Position	Total
Cash and investments	$ 114,433,699	$ 369,512	$ 114,803,211
Restricted cash and investments	8,687,341	499,395	9,186,736
Cash and investments	$ 123,121,040	$ 868,907	$ 123,989,947

Investment policy: Missouri State Statutes authorize the City to deposit funds in open accounts and certificates of deposit. Statutes also require that collateral pledged must have a fair value equal to 100% of the funds on deposit, less insured amounts. Collateral securities must be held by the City or a disinterested third party and must be of the kind prescribed by State Statutes and approved by the State.

The City maintains a cash and investment pool, which is available for use by most funds. Each fund type's portion of this pool is displayed as "Cash and investments." Interest earned is allocated to the funds on the basis of average monthly cash and investment balances. Funds with overdrawn balances are charged for interest. All investments are reported at fair value. Cash and investments are held separately by some of the City's funds. Additionally, certain restricted assets, related to bond ordinances and indentures and capital lease certificates, are held in escrow by financial institutions' trust departments.

The City's repurchase agreement invests in U.S. government agency securities, which as of September 30, 2025 consisted of Federal Home Loan Bank, Federal Farm Credit Banks Funding Corporation, and Federal National Mortgage Association investments.

Fair value measurements: The City categorizes its assets and liabilities measured at fair value within the hierarchy established by generally accepted accounting principles. Assets and liabilities valued at fair value are categorized based on inputs to valuation techniques as follows:

Level 1 input: Quoted prices for identical assets or liabilities in an active market that an entity has the ability to access.

Level 2 input: Quoted prices for similar assets or liabilities in active markets and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the asset or liability.

Level 3 input: Inputs that are unobservable for the asset or liability which are typically based upon the City's own assumptions as there is little, if any, related market activity.

Hierarchy: The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs.

Inputs: If the fair value of an asset or a liability is measured using inputs from more than one level of the fair value hierarchy, the measurement is considered to be based on the lowest priority level input that is significant to the entire measurement.

Note 2. Deposits and Investments (Continued)

For the City, the following fair value techniques were utilized in measuring the fair value of its investments:

U.S. Treasury securities: These investments are reported at fair value using other observable significant inputs including but not limited to quoted prices for similar securities, interest rates and fixed-income pricing models.

U.S. Government agency securities: U.S. Government securities are reported at fair value based on bullet (noncall) spread scale for each issuer for maturities going out to 40 years. These spreads represent credit risk and are obtained from the new issue market, secondary trading, and dealer quotes.

An Option Adjusted Spread (OAS) model is incorporated to adjust spreads of issues that have early redemption features. Final spreads are added to a U.S. Treasury curve. A cash discounting yield/price routine calculates prices from final yields to accommodate odd coupon payment dates typical of medium-term notes.

The City has no assets reported at fair value on a nonrecurring basis and no other investments meeting the fair value disclosure requirements of Governmental Accounting Standards Board (GASB) Statement No. 72.

Credit risk: The credit risk for deposits and investments is the possibility that the issuer/counterparty to an investment will be unable to fulfill its obligations. It is the City's policy to limit its investments to certificates of deposit and bonds or other obligations of the United States. Presented below is the actual rating by Moody's Investor Service as of year-end for the City's debt securities, except for US Treasury Securities as they are not subject to credit risk:

Investment Type	Fair Value	Rating as of September 30, 2025
Short-term investments (money market mutual fund)	$ 9,136,735	Aaa
Federal Home Loan Banks (FHLB)	17,540,682	Aaa
Federal National Mortgage Association (FNMA)	2,948,085	Aaa
Federal Farm Credit Banks Funding Corp (FFCB)	18,915,383	Aaa
Repurchase agreement	45,595,000	Aaa
	$ 94,135,885	

Custodial credit risk: The custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the City will not be able to recover deposits or will not be able to recover collateral securities that are in the possession of an outside party. The custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, the City will not be able to recover the value of investment or collateral securities that are in the possession of an outside party. The City's policy is to collateralize the demand deposits and repurchase agreements with securities held by the financial institution's agent and in the City's name.

At September 30, 2025, the City's deposits and repurchase obligations were insured by Federal depository insurance and uninsured deposits and repurchase obligations were fully collateralized by securities held in the City's name by their financial institution's agent. Accordingly, management has determined that none of the City's deposits or investments was exposed to custodial credit risk as of September 30, 2025. Investments in government agency securities and U.S. treasuries are registered in the name of the City, or held in money market mutual funds, and therefore, are not exposed to custodial credit risk.

Note 2. Deposits and Investments (Continued)

Interest rate risk: To minimize interest rate risk, the City's investment policy limits investments to a maximum stated maturity of five years for any investment. The City has elected to use the segmented time distribution method of disclosure for its interest rate risk. As of September 30, 2025, the City's investments had the following maturities:

		Investment Maturities (in years)		
	Fair Value	Less Than 1	1 - 5	Fair Value Hierarchy Level
Investments recorded at fair value:				
Debt securities, U.S. agencies				
FHLB	$ 17,540,682	$ 7,013,506	$ 10,527,176	2
FNMA	2,948,085	2,948,085	-	2
FFCB	18,915,383	6,951,039	11,964,344	2
Debt securities, U.S. treasuries	26,921,397	22,864,600	4,056,797	1
Investments recorded at amortized cost:				
Short-term investments (money market mutual fund)	9,136,735	9,136,735	-	
Repurchase agreement	45,595,000	45,595,000	-	
Total	$ 121,057,282	$ 94,508,965	$ 26,548,317	

The short-term investments (money market mutual fund) are presented as an investment with a maturity of less than one-year because the funds' weighted-average maturities are under one year.

Concentration of credit risk: To minimize concentration of credit risk, the City's investment policy has the below diversification requirements: No single financial institution will hold demand or certificates of deposits, which will constitute more than 20% of the City's portfolio value. In addition, the following maximum limits, by investment type, are established for the City's total investment portfolio:

Investment Type	Maximum Percentage of Portfolio
Repurchase Agreements	75%
Collateralized Certificates of Deposit or FDIC Insured CD	25
U.S. Treasury Notes and Bills	100
U.S. Government Agency Securities	90
Bankers Acceptances	10
Commercial Paper	15
Local Government Investment Pools	25

As of September 30, 2025, the City's investments in the Federal Home Loan Banks and Federal Farm Credit Banks Funding Corp were 14.49% and 15.63%, respectively, of the total investments. US Treasury securities are not subject to concentration of credit risk.

Note 3. Tax Revenues and Taxes Receivable

The City's property tax is levied each September 1 on the assessed value as of the prior January 1 for all real and personal property located in the City. On January 1, a lien attaches to all property. Property taxes are billed in total by November 1 following the levy date and considered delinquent after December 31. Property taxes are recognized as a receivable at the time they become an enforceable legal claim (the lien date), and revenue is recognized in the year for which the property tax is levied. Taxes remaining unpaid for two years after that date are submitted to Jackson County for collection through foreclosure proceedings. All receivables are shown net of an allowance for doubtful accounts, of $482 thousand as of September 30, 2025.

Assessed values are established by the Jackson County Assessor subject to review by the County's Board of Equalization. The assessed value for property, including railroad and utility properties located in the City as of January 1, 2024 on which the fiscal year ended September 30, 2025, levy was based, was $1,505,133,986. During the year ended September 30, 2025, the City collected approximately 94.5% of property taxes which were levied in the period.

The City is permitted by Missouri State Statues to levy taxes up to $1.00 per $100 of assessed valuation for general governmental services (General Fund), other than the payment of principal and interest on long-term debt, and in unlimited amounts for the payment of principal and interest on long-term debt. Property tax levies per $100 assessed valuation for the year ended September 30, 2025 were as follows:

	Levy (Dollars)
General Fund	$ 0.4243
Debt Service Fund	0.1500
Total	$ 0.5743

The City has established TIF Districts that allow the City to provide public improvements by encouraging developers to construct and make new investments within blighted, conservation, or economic areas. Through the use of TIF Districts, the City can utilize the taxes generated by the incremental increase in property values and economic activities from the date the TIF District was established and the combined levies of all taxing jurisdictions for infrastructure improvements. Tax revenue collected in the current year for the Districts is recorded in the TIF Fund.

Note 4. Interfund Activity

Interfund transfers for the year were as follows:

Transfers To	General Fund	TIF Fund	Capital Projects Fund	Nonmajor Governmental Funds	Sewer Fund	Total
General Fund	$ -	$ 26,031	$ 80,006	$ 20,826	$ -	$ 126,863
Capital Projects Fund	5,001,118	-	-	-	-	5,001,118
Water Fund	-	-	89,074	-	427,589	516,663
Sewer Fund	-	-	16,224	-	-	16,224
Fieldhouse Fund	1,910	-	-	175,846	-	177,756
Internal Service Fund	30,920	-	-	-	-	30,920
Total	$ 5,033,948	$ 26,031	$ 185,304	$ 196,672	$ 427,589	$ 5,869,544

Transfers are used to (1) move revenues from the fund that statute or budget requires to collect them to the fund that statute or budget requires to expend them, (2) move receipts restricted to debt service from the funds collecting the receipts to the debt service fund as debt service payments become due, and (3) use unrestricted revenues collected in the general fund to finance various programs accounted for in other funds in accordance with budgetary authorizations. Any transfers within the governmental funds or within the proprietary funds have been eliminated in the government-wide statement of activities.

Charges for services: The General Fund provides administrative and other support services for Water and Sewer enterprise funds. Amounts charged to these funds for such services were $1,305,125 and $1,002,022, respectively. In the General fund, these charges are reported as administrative charges revenue. In the Water and Sewer funds these charges are reported as administrative and support services expenses.

Interfund receivable and payable balances at year-end were as follows:

	Interfund Payables				
Interfund Receivables	General	Capital Projects	TIF	Nonmajor Governmental Fund	Total
General Fund	$ -	$ -	$ 2,591	$ -	$ 2,591
TIF	153,478	67,214	-	67,506	288,198
Total	$ 153,478	$ 67,214	$ 2,591	$ 67,506	$ 290,789

Note 4. Interfund Activity (Continued)

Advances to and from other funds at year-end were as follows:

	Advance From Other Funds		
Advance to Other Funds	Golf Course Fund	Fieldhouse Fund	Total
General Fund	$ 1,673,144	$ -	$ 1,673,144
Capital Projects Fund	326,911	-	326,911
Sewer Fund	-	600,000	600,000
Total	$ 2,000,055	$ 600,000	$ 2,600,055

The advances payable from the Golf Course Fund represent advances from the General Fund for operating expenses and debt service payments and is not expected to be repaid within the next fiscal year. The City has reported a nonspendable fund balance in the General Fund in the amount of $1,673,144. The City Council has passed a resolution requiring the advanced funds to be repaid when the corresponding debt has been paid off. Repayment will begin in 2026. The advances payable of the Fieldhouse represent a loan payable to the Sewer Fund. In May 2014, the City Council approved the purchase of the Sports City building to be renovated into a recreation center for the residents of Blue Springs. On June 16, 2014 Council made an offer to purchase the facility for $1.9 million. On July 7, 2014 Council approved the funding of the $4.5 million project budget as follows: $3 million from existing fund balances in the General and Capital Projects Funds and $1.5 million through an inter-fund loan from the Sewer Fund. The loan from the Sewer Fund will be repaid by the Hotel/Motel Tax Fund over a maximum of 15 years at a rate of 3% interest. The borrowing rate of 3% allows the Sewer Fund to receive a rate of return higher than current investment and allows the Fieldhouse project funds to be borrowed below market rates of at least 4%. Staff will evaluate additional revenue sources that might become available to expedite early loan payoff. Such sources could include unreserved fund balances from the General Fund or Capital Projects Fund identified during year-end audits, grants, private donations dedicated for parks/parks facilities and proceeds from the sale of property and/or facilities.

Note 5. Leases Receivable

The City leases land to third parties. The average discount rate is 2.5% with lease terms ranging from two years to 15 years. The following are the lease revenue and lease interest revenue on the leases in effect at September 30, 2025 in which the City is a lessor:

	Revenues	
Leased Asset	Lease Principal	Interest
Governmental Activities/General Fund:		
Land	$ 425,521	$ 47,334
Business-type activities		
Land - Fieldhouse	$ 39,034	$ 19,482
Land - Water	5,884	169
Total - Business-type activities	$ 44,918	$ 19,651

Note 6. Capital Assets

Capital assets activity for the year ended September 30, 2025, was as follows:

Governmental activities	Beginning Balance	Increases	Decreases	Ending Balance
Capital assets, not being depreciated/amortized:				
Land and easements	$ 20,206,831	$ 2,772,194	$ -	$ 22,979,025
Construction in progress	2,000,485	11,338,596	11,211,105	2,127,976
Total capital assets, not being depreciated/amortized	22,207,316	14,110,790	11,211,105	25,107,001
Capital assets, being depreciated/amortized:				
Buildings and building improvements	49,224,165	4,640,693	324,490	53,540,368
Equipment and vehicles	30,666,348	2,910,448	789,309	32,787,487
Infrastructure	255,923,971	9,968,971	-	265,892,942
Leased equipment	1,388,970	137,147	102,667	1,423,450
Leased vehicles	1,088,473	39,772	-	1,128,245
Subscription assets	1,135,409	506,619	-	1,642,028
Total capital assets being depreciated/amortized	339,427,336	18,203,650	1,216,466	356,414,520
Less accumulated depreciation/amortization for:				
Buildings and building improvements	25,681,562	1,801,366	318,767	27,164,161
Equipment and vehicles	22,131,206	2,885,458	777,339	24,239,325
Infrastructure	183,565,404	6,251,632	-	189,817,036
Leased equipment	340,612	242,339	102,667	480,284
Leased vehicles	175,462	237,702	-	413,164
Subscription assets	247,207	391,262	-	638,469
Total accumulated depreciation/amortization	232,141,453	$ 11,809,759	$ 1,198,773	242,752,439
Total capital assets being depreciated/amortized, net	107,285,883			113,662,081
Governmental activities capital assets, net	$ 129,493,199			$ 138,769,082

Note 6. Capital Assets (Continued)

Business-type activities	Beginning Balance	Increases	Decreases	Ending Balance
Capital assets, not being depreciated/amortized:				
Land	$ 4,694,882	$ -	$ -	$ 4,694,882
Construction in progress	322,179	2,160,871	1,306,455	1,176,595
Total capital assets, not being depreciated/amortized	5,017,061	2,160,871	1,306,455	5,871,477
Capital assets, being depreciated/amortized:				
Buildings and building improvements	60,057,027	284,550	60,139	60,281,438
Equipment and vehicles	9,528,632	824,723	198,396	10,154,959
Infrastructure	123,527,307	1,151,339	-	124,678,646
Leased equipment	214,320	43,773	62,813	195,280
Subscription asset	247,802	-	-	247,802
Total capital assets being depreciated/amortized	193,575,088	2,304,385	321,348	195,558,125
Less accumulated depreciation/amortization for:				
Buildings and building improvements	11,818,850	2,625,336	60,139	14,384,047
Equipment and vehicles	5,049,685	1,178,858	179,790	6,048,753
Infrastructure	68,528,489	3,105,291	-	71,633,780
Leased equipment	92,798	57,923	62,813	87,908
Subscription asset	63,982	50,950	-	114,932
Total accumulated depreciation/amortization	85,553,804	$ 7,018,358	$ 302,742	92,269,420
Total capital assets being depreciated/amortized, net	108,021,284			103,288,705
Business-type activities capital assets, net	$ 113,038,345			$ 109,160,182

Depreciation expense was charged to functions/programs of the primary government as follows:

Governmental activities:	
General government	$ 1,188,778
Highways and streets	5,998,573
Public safety	2,022,939
Parks and recreation	2,566,399
Capital assets held by the government's internal service fund are charged to the various functions based on their usage of the asset	33,070
Total depreciation expense for governmental activities	$ 11,809,759
Business-type activities:	
Water utility	$ 897,808
Sewer utility	2,690,269
Golf course	389,818
Fieldhouse	3,040,463
Total depreciation expense for business-type activities	$ 7,018,358

Note 7. Long-Term Debt and Other Obligations

The following is a summary of changes in long-term debt and other obligations of the City for the year ended September 30, 2025:

	Beginning Balance, as restated	Additions	Retirements	Ending Balance	Amounts Due Within One Year
Governmental activities:					
Compensated absences	$ 2,251,044	$ 1,865,237	$ 1,729,297	$ 2,386,984	$ 1,074,768
General obligation bonds	12,750,000	31,427,248	1,335,000	42,842,248	1,380,000
Certificates of participation***	17,960,000	-	630,000	17,330,000	660,000
Special obligation bonds	47,400,000	-	4,190,000	43,210,000	605,000
Special obligation bonds (direct borrowing)	17,176,530	-	565,000	16,611,530	275,000
Net discount/premium on issuances	1,594,129	1,684,745	161,145	3,117,729	-
Development agreements**	3,558,915	124,141	431,176	3,251,880	-
Leased assets liability*	1,713,154	176,919	425,947	1,464,126	425,588
Subscription liability*	785,183	506,619	475,239	816,563	388,439
	105,188,955	35,784,909	9,942,804	131,031,060	4,808,795
Business-type activities:					
Compensated absences	165,880	236,705	209,081	193,504	95,983
Certificates of participation	325,000	-	325,000	-	-
Special assessment-neighborhood improvement bonds	5,450,000	-	985,000	4,465,000	1,035,000
Net discount/premium on issuances	561,506	-	129,590	431,916	-
Sewer revenue bonds (direct borrowing)	9,465,701	-	1,274,400	8,191,301	1,299,500
Leased assets liability	122,682	43,773	56,423	110,032	49,626
Subscription liability	167,660	-	47,342	120,318	48,910
	16,258,429	280,478	3,026,836	13,512,071	2,529,019
Total primary government	$ 120,702,488	$ 36,065,387	$ 12,969,640	$ 144,543,131	$ 7,337,814

* Primarily liquidated by the General Fund.

** Primarily liquidated by the TIF Fund.

*** Primarily liquidated by the Public Safety Sales Tax Fund

Note: Compensated absences as of October 1, 2024 have been restated due to the implementation of GASB Statement No. 101, *Compensated Absences*. See Note 14 for the impact of the restatement.

Note 7. Long-Term Debt and Other Obligations (Continued)

Governmental activities, general obligation bonds, certificates of participation and special obligation bonds as of September 30, 2025 are comprised of the following:

General obligation bonds:		
$7,690,000—2012 General Obligation Bonds due in installments of $25,000 to $1,995,000 through March 1, 2032; interest at 2.0% to 3.5%	$	5,895,000
$11,915,000—2017 General Obligation Refunding Bonds due in installments of $905,000 to $1,465,000 through March 1, 2029; interest at 2.3% to 5.0%		5,520,000
$28,640,000—2025 General Obligation Bonds due in installments of $1,400,000 to $3,560,000 through March 1, 2045; interest at 1.425% to 5.000%		28,640,000
$2,787,248—2025 General Obligation Bonds CASB due in installments of $272,072 to $1,259,163 through March 1, 2035; interest at 3.510% to 3.660%		2,787,248
Total general obligation bonds	$	42,842,248
Certificates of participation:		
$20,960,000—2014 refunding certificates of participation in installments of $250,000 to $1,315,000 through September 1, 2043; interest at 2.0% to 5.0%; subject to acceleration if the City defaults; collateral includes remainder of the term of the ground lease in City Hall, City Hall Annex and Public Safety building	$	17,330,000
Special obligation bonds:		
$38,050,000—2015A special obligation bonds—Adams Farm Project in installments of $5,500,000 to $18,525,000 through June 1, 2039; interest at 4.00% to 5.25%	$	10,615,000
$9,566,530—2015B—Adams Farm Project due in full June 1, 2039; interest at 5.25% (direct borrowing)		9,566,530
$9,265,000—2016 special obligation bonds—White Oak Marketplace Project in installments of $1,635,000 to $7,630,000 through May 1, 2040 interest at 3.75% to 5.15% (direct borrowing)		7,045,000
$34,370,000—2022 special obligation bonds—Aquatic Center Project in installments of $550,000 to $2,105,000 through May 1, 2052 interest at 4.25% to 5.00%		32,595,000
	$	59,821,530

Special obligation bonds and development agreements: The City's Special Obligation Bonds are recorded as a liability of the City to match revenue streams to the related debt for which they have been pledged.

Note 7. Long-Term Debt and Other Obligations (Continued)

On August 18, 2015, the City also issued $9,566,530 in Subordinate Special Obligation Tax Increment and Special Districts Bonds, Series 2015B, maturing June 1, 2039 with an interest rate of 5.25%. The Series 2015B Bonds are subordinate to the Series 2015A Bonds and are only paid after certain conditions are met. These bonds are being held by Blue Springs Development Three, LLC and are paid according to the simplified version of the revenue waterfall below:

1. To the Interest Account of the debt service fund to pay interest on the next interest payment date for the 2015A Bonds.
2. To the Principal Account of the debt service fund to pay principal due on the next principal payment date for the 2015A Bonds.
3. To the Redemption Account to redeem bonds up to the amounts shown in Case 1 Scenario of the 2015A Bond repayment schedule.
4. To the Debt Service Reserve Fund, if the DSRF isn't full *(the DSRF Fund is full as of year-end)*.
5. 50% of remaining revenues to pay interest on the Series B developer bonds.
6. 50% of remaining revenues to redeem additional Series A Bonds over and above Case 1 Scenario of the 2015A Bond repayment schedule.
7. If the Series 2015A Bonds are fully paid off and there are no Additional Parity Bonds outstanding, all remaining revenues flow to the Series B developer bonds.

The City and other taxing districts and governmental entities have pledged a portion of future property tax and sales tax revenues to repay the $38.05 million in Series 2015A and $9.566 million in Series 2015B Special Obligation Bonds issued to finance redevelopment projects within the Adams Farm Tax Increment Financing (TIF) project. The bonds are payable solely from the incremental increase in property taxes and sales taxes generated within the TIF plan as well as revenues pledged by other taxing districts through cooperative agreements. TIF revenues and other pledged revenues were projected to produce sufficient funds to meet debt service requirements over the life of the bonds.

On December 29, 2016, the City issued $9,265,000 in Special Obligation Revenue Bonds, Series 2016, maturing May 1, 2040 with interest rates of 3.75 and 7.15%. The Series 2016 bond proceeds were used for the White Oak Marketplace Project which was completed as of December 31, 2017.

On November 30, 2022, the City issued $34,370,000 in Special Obligation Revenue Bonds, Series 2022, maturing August 1, 2052 with interest rates of 4.00 and 5.00%. The Series 2022 bond proceeds are being used for the Aquatic Center Project which was completed in fiscal year 2024.

On March 11, 2025, the City issued $28,640,000 and $2,787,248 in General Obligation Bonds and Capital Appreciation Bond, Series 2025, maturing March 1, 2045 and March 1, 2035 with interest rates of 4.25 to 5.00% and 3.51 to 3.66%. The Series 2025 bond proceeds are being used for downtown streetscape improvements, citywide street preservation, multiple roadway and turn lane enhancements, a major street extension project, street lighting improvements and corridor upgrades supporting improved traffic flow and safety throughout the City of Blue Springs.

Additionally, the City has entered into certain developer agreements (four as of September 30, 2024) whereby developer financed project costs that have been certified by the City as eligible are reimbursed from tax increment financing revenues attributable to each respective project. Under tax increment financing plans, the developer may be reimbursed up to the certified cost amount from incremental taxes during a period not to exceed 23 years. Accordingly, certified project costs in excess of amounts reimbursed to date are reflected as a long-term obligation of the City. TIF revenues were projected to produce sufficient funds to reimburse the developer for certified costs. The developer obligations are limited solely to the amount of incremental taxes received attributable to each respective project; any deficiencies are the sole responsibility of the developer and do not constitute an obligation of the Commission or of the City.

Note 7. Long-Term Debt and Other Obligations (Continued)

At September 30, 2025, total principal remaining on the Special Obligation Bonds was $59,821,530 and the outstanding developer obligations was $3,251,880. The bonds are scheduled to mature at varying amounts through 2052 and the developer obligations are payable to the extent incremental taxes are available for a period not to exceed 23 years.

For the current year, principal and interest paid on the bonds and developer obligations totaled $6,445,103. Incremental revenues from the City included $1,645,415 in sales taxes. The remaining funds necessary to meet the current year debt service requirements were derived from incremental tax revenues from the Adams Farm TDD, the Coronado Drive TDD, as well as taxes from other districts and governmental entities, developer contributions, and debt trust funds.

Business-type activities, certificates of participation and special assessments as of September 30, 2025 are comprised of the following:

Special assessments—neighborhood improvement bonds:	
Sewer fund, $9,625,000—2018A refunding neighborhood improvement district bonds in installments of $700,000 to $1,205,000 through February 15, 2029; interest at 4.0% to 5.0%	$ 4,465,000

On December 10, 2018, the City issued $9,625,000 in Series 2018A Neighborhood Improvement District Limited General Obligation Refunding Bonds. The proceeds of the issue were used to currently refund the City's Series 2009 Neighborhood Improvement District Limited General Obligation Bonds.

Sewer revenue bonds: In 2010, the City issued its not to exceed $30,789,000 Sewage System Revenue Bonds (State of Missouri-Direct Loan Program), Series 2010. These borrowings were used for the upgrade and expansion of the Sni-A-Bar Wastewater Treatment Plant. The City is participating in the State of Missouri's Direct Loan Program of the DNR and the Clean Water Commission of the State of Missouri. The 2010 revenue bonds mature through 2030 with interest at 1.52%. As eligible project costs are incurred, the City requests reimbursements from project funds held by the bond trustee. As the City receives reimbursements, the outstanding balance of the bonds increases. The City anticipates utilizing the full amount of the bonds to fund current and future projects. As of September 30, 2025, the City has drawn $24,255,728 from these funds and the outstanding balance of the bonds was $8,191,301. The City has pledged future sewer revenues, net of operating expenses to repay the Sewage System Revenue Bonds. The bonds are to be paid solely from sewer net revenues and are payable through 2031. The total principal and interest remaining to be paid on the bonds is $8,603,194. Principal and interest paid for the current year and sewer net revenues for the current year were $1,413,459 and $7,835,813, respectively. The revenue bonds contain certain covenants. The covenants require that net revenues of the sewer system, as defined by the debt agreement, are not less than 110% of the annual debt service requirement.

The project was completed during fiscal year 2015, and no additional funds are expected to be drawn. In November 2009, the City entered into an agreement with the City of Grain Valley, Missouri which provides that the City of Grain Valley will pay for 47.5% of the debt issued for the expansion. The amount due from the City of Grain Valley as of September 30, 2025 is $3,746,065 and is recorded as due from other governments on the Sewer Utility Fund statement of net position.

Note 7. Long-Term Debt and Other Obligations (Continued)

Debt service requirements on long-term debt with scheduled maturities as of September 30, 2025 are as follows:

Governmental Activities	General Obligation Bonds		Certificates of Participation	
	Principal	Interest	Principal	Interest
Years ending September 30:				
2026	$ 1,380,000	$ 1,638,119	$ 660,000	$ 710,813
2027	1,415,000	1,605,769	690,000	677,812
2028	1,445,000	1,567,669	725,000	643,313
2029	1,490,000	1,523,481	765,000	607,062
2030	1,805,000	1,469,481	800,000	568,813
2031 - 2035	8,067,248	7,627,131	4,480,000	2,370,812
2036 - 2040	11,340,000	4,864,625	5,415,000	1,425,800
2041 - 2043	15,900,000	1,715,162	3,795,000	307,600
	$ 42,842,248	$ 22,011,437	$ 17,330,000	$ 7,312,025

	Special Obligation Bonds **		Total Governmental Activities	
	Principal	Interest *	Principal	Interest
Years ending September 30:				
2026	$ 880,000	$ 2,893,695	$ 2,920,000	$ 5,242,627
2027	850,000	2,402,151	2,955,000	4,685,732
2028	665,000	2,362,339	2,835,000	4,573,321
2029	700,000	2,329,089	2,955,000	4,459,632
2030	735,000	2,294,088	3,340,000	4,332,382
2031 - 2035	4,265,000	10,881,444	16,812,248	20,879,387
2036 - 2040	32,156,530	9,242,000	48,911,530	15,532,425
2041 - 2045	6,800,000	4,239,075	26,495,000	6,261,837
2046 - 2050	8,665,000	2,368,000	8,665,000	2,368,000
2051 - 2052	4,105,000	310,500	4,105,000	310,500
	$ 59,821,530	$ 39,322,381	$ 119,993,778	$ 68,645,843

* The interest payment schedule represents estimated future payments. Interest will be calculated every six months with no significant differences expected from the above schedule.

** The 2015B Special Obligation bonds do not have a specified principal and interest maturity schedule. Debt service payments will be made in accordance with the terms of the agreement.

Note 7. Long-Term Debt and Other Obligations (Continued)

Business-Type Activities	Sewer Revenue Bonds		Neighborhood Improvement Bonds	
	Principal	Interest	Principal	Interest
Years ending September 30:				
2026	$ 1,299,500	$ 119,593	$ 1,035,000	$ 173,925
2027	1,325,100	99,745	1,085,000	120,925
2028	1,351,200	79,504	1,140,000	71,000
2029	1,377,700	58,866	1,205,000	24,100
2030	1,404,900	37,822	-	-
2031	1,432,901	16,363	-	-
	$ 8,191,301	$ 411,893	$ 4,465,000	$ 389,950

	Total Business-Type Activities	
	Principal	Interest
Years ending September 30:		
2026	$ 2,334,500	$ 293,518
2027	2,410,100	220,670
2028	2,491,200	150,504
2029	2,582,700	82,966
2030	1,404,900	37,822
2031	1,432,901	16,363
	$ 12,656,301	$ 801,843

	Total Primary Government	
	Principal	Interest
Years ending September 30:		
2026	$ 5,254,500	$ 5,536,145
2027	5,365,100	4,906,402
2028	5,326,200	4,723,825
2029	5,537,700	4,542,598
2030	4,744,900	4,370,204
2031 - 2035	18,245,149	20,895,750
2036 - 2040	48,911,530	15,532,425
2041 - 2045	26,495,000	6,261,837
2046 - 2050	8,665,000	2,368,000
2051 - 2052	4,105,000	310,500
	$ 132,650,079	$ 69,447,686

Note 7. Long-Term Debt and Other Obligations (Continued)

Lease obligations: The City is a lessee in lease agreements for the use of equipment. As of September 30, 2025, the City had 33 active leases. The leases have payments that range from $1,896 to $130,500 and interest rates that range from 2.312% to 7,652%. As of September 30, 2025, the total combined value of the lease liability is $1,574,158, the total combined value of the short-term lease liability is $475,214. The leases had $0 of Variable Payments and $0 of Other Payments, not included in the Lease Liability, within the Fiscal Year.

Debt service requirements on these leases used in governmental activities with scheduled maturities as of September 30, 2025 are as follows:

	Principal	Interest	Total
Years ending September 30:			
2026	$ 425,588	$ 42,561	$ 468,149
2027	399,965	29,957	429,922
2028	390,713	17,802	408,515
2029	247,860	7,162	255,022
Total	$ 1,464,126	$ 97,482	$ 1,561,608

Debt service requirements on these leases used in business-type activities with scheduled maturities as of September 30, 2025 are as follows:

	Principal	Interest	Total
Years ending September 30:			
2026	$ 49,626	$ 6,636	$ 56,262
2027	45,944	3,107	49,051
2028	12,316	681	12,997
2028	2,146	21	2,167
Totals	$ 110,032	$ 10,445	$ 120,477

Subscription liabilities: The City has subscription agreements for software from various vendors. As of September 30, 2025, the City had 14 active subscriptions. The subscriptions have payments that range from $0 to $163,500 and interest rates that range from 2.315% to 3.631%. As of September 30, 2025, the total combined value of the subscription liability is $936,881, and the total combined value of the short-term subscription liability is $437,349. The subscriptions had $0 of Variable Payments and $0 of Other Payments, not included in the Subscription Liability, within the Fiscal Year.

Debt service requirements on these subscriptions with scheduled maturities as of September 30, 2025 are as follows:

	Governmental Activities			Business-Type Activities		
	Principal	Interest	Total	Principal	Interest	Total
Years ending September 30:						
2026	$ 388,439	$ 25,635	$ 414,074	$ 48,910	$ 3,970	$ 52,880
2027	248,906	13,705	262,611	46,932	2,348	49,280
2028	179,218	5,944	185,162	24,476	803	25,279
Total	$ 816,563	$ 45,284	$ 861,847	$ 120,318	$ 7,121	$ 127,439

Note 7. Long-Term Debt and Other Obligations (Continued)

Restricted assets: The 2014 Certificates of Participation, 2015 Special Obligation Bonds, 2016 Special Obligation Bonds and the 2009 State Revolving Fund Loan trust indentures require the City to establish certain special trust funds in the name of the City restricted for future debt service payments. Assets of these special funds consist of cash and investments stated at fair value, and are reported in the accompanying balance sheet/statement of net position as restricted cash and investments as follows:

Account	TIF Fund	Sewer Fund	Golf Course Fund	Total
Debt service and other reserve funds	$ 8,042,474	$ 356,785	$ 217,978	$ 8,617,237

Legal debt margin: The State Constitution permits a City, by vote of four-sevenths of the voting electorate in a general election or by vote of two-thirds of the voting electorate in a special election, to incur general obligation indebtedness for “City purposes” not to exceed 10% of the assessed value of taxable tangible property and to incur additional general obligation indebtedness not to exceed, in the aggregate, an additional 10% of the assessed value of taxable tangible property, for the purpose of acquiring rights-of-way, constructing, extending, and improving streets and avenues and/or sanitary or storm sewer systems, and purchasing or constructing waterworks, electric, or other light plants, provided that the total general obligation indebtedness of the City does not exceed 20% of the assessed valuation of taxable property.

At September 30, 2025, based on the assessed valuation as of January 1, 2024, of $1,418,533,177, the constitutional total general obligation debt limit for “City purposes” was $283,706,635, which, after reduction for outstanding general obligation bonds of $44,864,809, net of amounts available in the General Obligation Bond Debt Service fund of $3,232,290, provides a general obligation debt margin of $242,074,116.

Adams Farm Project Special Obligation Special Assessment Bonds: On August 18, 2015, the City issued $3,910,000 in Taxable Special Obligation Special Assessment Bonds for the Adams Farm Project. The City is not obligated in any manner for the special assessment debt and is only acting as agent for the Community Improvement District in collection of the assessments and forwarding to the bond Trustee for payment of the debt.

Conduit debt: The City has issued taxable industrial revenue bonds to provide financial assistance to private business for economic development. Under related agreements, the City will temporarily hold title to the project assets and lease the project assets to the businesses for the term of the arrangement but does not recognize the capital assets on its financial statements in accordance with GAAP. The bonds and the interest thereon do not constitute obligations of the City, and are issued for tax incentive purposes. The City relinquishes title to the project assets at the end of the arrangement, accordingly, the bonds are not reported as liabilities in the accompanying basic financial statements. As of September 30, 2025, there were five series of taxable industrial revenue bonds outstanding, with an aggregate principal amount payable of $109,327,076.

Note 8. Sewerage Service Agreement

In 1971, the City entered into an agreement to provide sewer service to the City of Grain Valley. In return, the City of Grain Valley is billed for operating costs incurred by the City of Blue Springs based on percentages of users. Service charges for the City of Grain Valley were $640,243 for the year ended September 30, 2025 and were recorded as charges for services in the Sewer Utility Fund.

Note 9. Employees' Retirement System and Other Postemployment Benefits

Plan description: The City's defined benefit pension plan provides certain retirement, disability and death benefits to plan members and beneficiaries. The City participates in the Missouri Local Government Employees Retirement System (LAGERS). LAGERS is an agent multiple-employer, statewide public employee pension plan established in 1967 and administered in accordance with RSM. 70.600-70.755. As such, it is LAGERS responsibility to administer the law in accordance with the expressed intent of the General Assembly. The plan is qualified under the Internal Revenue Code Section 401(a) and is tax exempt. The responsibility for the operations and administration of LAGERS is vested in the LAGERS Board of Trustees consisting of seven persons. The LAGERS plan includes multiple divisions based on class of employee, and the division net position is only used to pay that division's benefit payments. The City specifically participates in the General, Police and Public Safety Divisions. LAGERS issues a publicly available financial report that includes financial statements and required supplementary information. This report may be obtained by accessing the LAGERS website at www.molagers.org.

Benefits provided: LAGERS provides retirement, death and disability benefits. Benefit provisions are adopted by the governing body of the employer, within the options available in the state statutes governing LAGERS. All benefits vest after 5 years of credited service. Employees who retire on or after age 60 (55 for police and fire) with 5 or more years of service are entitled to an allowance for life based upon the benefit program information provided below. Employees may retire with an early retirement benefit with a minimum of 5 years of credited service and after attaining age 55 (50 for police and fire) and receive a reduced allowance.

	2025 Valuation
Benefit multiplier	2.0%
Final average salary	3 years
Member contributions	2.0%

Benefit terms provide for annual postretirement adjustments to each member's retirement allowance subsequent to the member's retirement date. The annual adjustment is based on the increase in the Consumer Price Index and is limited to 4% per year.

Employees covered by benefit terms: At June 30, 2025, the following employees were covered by the benefit terms:

	General Division	Police Division	Public Safety Division	Total LAGERS
Inactive employees or beneficiaries currently receiving benefits	171	70	2	243
Inactive employees entitled to but not yet receiving benefits	123	50	15	188
Active employees	147	88	18	253
	441	208	35	684

Contributions: The employer is required to contribute amounts at least equal to the actuarially determined rate, as established by LAGERS. The actuarially determined rate is the estimated amount necessary to finance the cost of benefits earned by employees during the year, with an additional amount to finance an unfunded accrued liability. Employer contribution rates are 8.9% (General), 11.6% (Police) and 12.7% (Public Safety) of annual covered payroll, and employee contribution rates are 2.0%. Total employer contributions for the fiscal year ending September 30, 2025 were $1,836,168.

Net pension asset: The City's net pension liability (asset) was measured as of June 30, 2025, and the total pension liability used to calculate the net pension liability (asset) was determined by an actuarial valuation as of February 28, 2025. Standard update procedures were used to roll forward the total pension liability to June 30, 2025.

Note 9. Employees' Retirement System and Other Postemployment Benefits (Continued)

Actuarial assumptions: The total pension liability in the February 28, 2025 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.75% wage inflation; 2.25% price inflation
Salary Increase	2.75% to 6.75% including wage inflation
Investment Rate of Return	7.00%, net of investment expenses

The healthy retiree mortality tables, for post-retirement mortality, were 115% of the PubG-2010 Mortality Tables for males and females. The disabled retiree mortality tables, for post-retirement mortality, were 115% of the PubNS-2010 Disabled Retiree Mortality Table for males and females. The pre-retirement mortality tables used were 75% of the PubG-2010 Employee Mortality Tables for males and females of General groups and 75% of the PubS-2010 Employee Mortality Table for males and females of Police, Fire, and Public Safety groups.

Mortality rates for a particular calendar year are determined by applying the MP-2020 mortality improvement scale to the above-described tables.

The actuarial assumptions used in the February 28, 2025, valuation were based on the results of an actuarial experience study for the period March 1, 2015 through February 29, 2020.

The long-term expected rate of return on pension plan investments was determined using a model method in which the best-estimate ranges of expected future real rates of return (expected returns, net of investment expenses and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

	Target Allocation	Long-Term Expected Real Rate of Return
Asset class:		
Equity	39.00%	3.39%
Fixed Income	23.00	3.54
Real Assets	33.00	2.68
Alpha	5.00	1.76
Strategic Assets	7.00	2.83
Cash/Leverage	(7.00)	(0.86)
	100.00%	

Discount rate: The discount rate used to measure the total pension liability is 7.00%. The projection of cash flows used to determine the discount rate assumes that employer and employee contributions will be made at the rates agreed upon for employees and the actuarially determined rates for employers. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to pay all projected future benefit payments of current active and inactive employees. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payment to determine the total pension liability.

Note 9. Employees' Retirement System and Other Postemployment Benefits (Continued)

Changes in the net pension liability (asset):

General Division:	Increase (Decrease) Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (Asset) (a) - (b)
Balances at September 30, 2024	$ 49,892,320	$ 53,000,272	$ (3,107,952)
Changes for the year:			
Service cost	994,619	-	994,619
Interest	3,436,984	-	3,436,984
Difference between expected and actual experience	1,270,618	-	1,270,618
Contributions–employer	-	764,019	(764,019)
Contributions–employee	-	176,127	(176,127)
Net investment income	-	3,285,664	(3,285,664)
Benefit payments, including refunds	(2,606,982)	(2,606,982)	-
Administrative expense	-	(48,946)	48,946
Other changes	-	186,656	(186,656)
Net changes	3,095,239	1,756,538	1,338,701
Balances at September 30, 2025	$ 52,987,559	$ 54,756,810	$ (1,769,251)

Police Division:	Increase (Decrease) Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (Asset) (a) - (b)
Balances at September 30, 2024	$ 44,749,524	$ 45,748,413	$ (998,889)
Changes for the year:			
Service cost	823,500	-	823,500
Interest	3,094,336	-	3,094,336
Difference between expected and actual experience	1,291,538	-	1,291,538
Contributions–employer	-	857,299	(857,299)
Contributions–employee	-	149,847	(149,847)
Net investment income	-	2,769,390	(2,769,390)
Benefit payments, including refunds	(1,931,687)	(1,931,687)	-
Administrative expense	-	(23,535)	23,535
Other changes	-	(673,178)	673,178
Net changes	3,277,687	1,148,136	2,129,551
Balances at September 30, 2025	$ 48,027,211	$ 46,896,549	$ 1,130,662

Note 9. Employees' Retirement System and Other Postemployment Benefits (Continued)

Public Safety Division:	Increase (Decrease) Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (Asset) (a) - (b)
Balances at September 30, 2024	$ 2,544,578	$ 2,256,625	$ 287,953
Changes for the year:			
Service cost	109,611	-	109,611
Interest	176,249	-	176,249
Difference between expected and actual experience	221,877	-	221,877
Contributions–employer	-	125,980	(125,980)
Contributions–employee	-	19,839	(19,839)
Net investment income	-	139,670	(139,670)
Benefit payments, including refunds	(164,005)	(164,005)	-
Administrative expense	-	(2,772)	2,772
Other changes	-	7,130	(7,130)
Net changes	343,732	125,842	217,890
Balances at September 30, 2025	$ 2,888,310	$ 2,382,467	$ 505,843

Total LAGERS:	Increase (Decrease) Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (Asset) (a) - (b)
Balances at September 30, 2024	$ 97,186,422	$ 101,005,310	$ (3,818,888)
Changes for the year:			
Service cost	1,927,730	-	1,927,730
Interest	6,707,569	-	6,707,569
Difference between expected and actual experience	2,784,033	-	2,784,033
Contributions–employer	-	1,747,298	(1,747,298)
Contributions–employee	-	345,813	(345,813)
Net investment income	-	6,194,724	(6,194,724)
Benefit payments, including refunds	(4,702,674)	(4,702,674)	-
Administrative expense	-	(75,253)	75,253
Other changes	-	(479,392)	479,392
Net changes	6,716,658	3,030,516	3,686,142
Balances at September 30, 2025	$ 103,903,080	$ 104,035,826	$ (132,746)

Note 9. Employees' Retirement System and Other Postemployment Benefits (Continued)

Sensitivity of the net pension liability (asset) to changes in the discount rate: The following presents the Net Pension Liability (Asset) of the employer, calculated using the discount rate of 7.00%, as well as what the employer's Net Pension Liability (Asset) would be using a discount rate that is 1 percentage point lower or one percentage point higher than the current rate.

General Division:	1% Decrease (6.00%)	Discount Rate (7.00%)	1% Increase (8.00%)
Total pension liability	$ 60,028,489	$ 52,987,559	$ 47,148,629
Plan fiduciary net position	54,756,810	54,756,810	54,756,810
Net pension liability (asset)	$ 5,271,679	$ (1,769,251)	$ (7,608,181)

Police Division:	1% Decrease (6.00%)	Discount Rate (7.00%)	1% Increase (8.00%)
Total pension liability	$ 55,286,750	$ 48,027,211	$ 42,110,933
Plan fiduciary net position	46,896,549	46,896,549	46,896,549
Net pension liability (asset)	$ 8,390,201	$ 1,130,662	$ (4,785,616)

Public Safety Division:	1% Decrease (6.00%)	Discount Rate (7.00%)	1% Increase (8.00%)
Total pension liability	$ 3,460,269	$ 2,888,310	$ 2,445,003
Plan fiduciary net position	2,382,467	2,382,467	2,382,467
Net pension liability (asset)	$ 1,077,802	$ 505,843	$ 62,536

Total LAGERS:	1% Decrease (6.00%)	Discount Rate (7.00%)	1% Increase (8.00%)
Total pension liability	$ 118,775,508	$ 103,903,080	$ 91,704,565
Plan fiduciary net position	104,035,826	104,035,826	104,035,826
Net pension liability (asset)	$ 14,739,682	$ (132,746)	$ (12,331,261)

Note 9. Employees' Retirement System and Other Postemployment Benefits (Continued)

Pension expense and deferred outflows of resources and deferred inflows of resources related to pensions: For the year ended September 30, 2025 the employer recognized pension expense of $3,147,536 (General division $963,914, Police division $2,054,134 and Public Safety division $129,488). The employer reported deferred outflows and inflows of resources related to pensions from the following sources:

	General Division		Police Division		Public Safety Division		Total LAGERS	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual plan experience	$ 1,104,452	$ (472,846)	$ 3,113,631	$ (89,066)	$ 179,978	$ (22,711)	$ 4,398,061	$ (584,623)
Assumption changes	-	-	-	(67,472)	-	-	-	(67,472)
Net difference between projected and actual earnings on pension plan investments	2,242,256	-	1,830,775	-	-	(25,522)	4,047,509	-
Contributions subsequent to the measurement date*	183,007	-	216,101	-	30,808	-	429,916	-
Total	$ 3,529,715	$ (472,846)	$ 5,160,507	$ (156,538)	$ 210,786	$ (48,233)	$ 8,875,486	$ (652,095)

* The amount reported as deferred outflows of resources resulting from contributions subsequent to the measurement date will be recognized as an increase in the net pension liability (asset) for the year ending September 30, 2026.

Amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense as follows:

Years ending:	General Division	Police Division	Public Safety Division	Total LAGERS
2026	$ 1,617,246	$ 2,007,307	$ 25,313	$ 3,649,866
2027	846,065	1,485,689	25,313	2,357,067
2028	336,202	1,011,555	25,311	1,373,068
2029	74,349	283,317	43,426	401,092
2030	-	-	12,382	12,382
Thereafter	-	-	-	-
	$ 2,873,862	$ 4,787,868	$ 131,745	$ 7,793,475

Deferred inflows and outflows of resources related to the difference between expected and actual plan experience and assumption changes are being amortized over a closed period equal to the average of the expected service lives of all employees as of the beginning of each measurement period. The deferred inflows of resources related to the difference between expected and actual investment returns is being amortized over a closed five-year period as of the beginning of each measurement period.

Note 10. Risk Management

Insurance: The City is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; injuries to employees; automobile liability; law enforcement activities; and natural disasters. The City manages these risks through the purchase of commercial insurance coverage.

For the insurance plan years beginning July 1, 2024 and July 1, 2025, the City Council approved Resolution No. 42-2024 authorizing coverage for property, liability, automobile, crime, umbrella, and workers' compensation insurance. Property, liability, automobile, crime, and umbrella coverage are provided through a national insurance carrier, and workers' compensation coverage is provided through Missouri Employers Mutual Insurance Company. The City is responsible for applicable deductibles under its insurance policies. The City does not maintain a self-insurance program. Management believes the City is adequately insured against significant risks of loss. Settled claims have not exceeded insurance coverage in any of the past three fiscal years.

Note 11. Commitments and Contingencies

Contractual commitments: The City has commitments resulting from construction contracts totaling $325,130, $5,818,225, $22,750, $3,580, $505,000, $6,511,650 and $84,322 in the General, Capital Project, Park Sales Tax, Public Safety Sales Tax, Water Utility, Sewer Utility, and Fieldhouse Funds, respectively. The City expects to receive the contracted services during fiscal year 2026.

The City has entered into a contract to purchase a maximum of 2,000,000 gallons of water per day from the City of Kansas City, Missouri. The contract expires in November 2033. The total amount paid for purchased water under this agreement for the year ended September 30, 2025 totaled $1,787,725.

The City has entered into a contract to purchase a maximum of 2,300,000 gallons of water per day from the City of Independence, Missouri. The contract expires in November 2032. The total amount paid for purchased water under this agreement for the year ended September 30, 2025 totaled $1,317,761.

In 2012, the City had entered into an agreement with the City of Grain Valley to purchase a maximum of 2,000,000 gallons of water per day from Tri-County Water Authority. In July 2013, the City entered directly into a new agreement with Tri-County Water Authority to move forward on a project to upgrade the TCWA treatment plant; upon substantial completion of this project in 2016, the City entered into another 20-year agreement to purchase an additional 6 million gallons per day. The total amount paid under this agreement for the year ended September 30, 2025 totaled $1,439,942. The total amount paid under the agreement for capital project charges for the year ended September 30, 2025, totaled $2,955,509, $1,568,445 for the 2005 agreement and $1,387,064 for the 2016 agreement.

The City has entered into an agreement with RMT of Blue Springs for the operation of the Conference Center. Under the agreement, the City is to pay RMT $140,000 each year through 2026 or until such time that RMT achieves a profit on the operation of the Center. In any year that RMT achieves a profit, the City is to negotiate with RMT to pay an amount deemed to allow RMT to operate the Center on a "break even" basis. If no such amount can be agreed upon, the City is not obligated to pay RMT for the operation of the Center.

Note 11. Commitments and Contingencies (Continued)

Encumbrances: The City utilizes encumbrances for budgetary reporting purposes. Encumbrances relating to certain contractual agreements, supplies and equipment that have been ordered but not received are reported in the year the commitment arises for budgetary reporting purposes. However, for financial reporting purposes, the goods or services are reported when they are received. The City had encumbrances in the General fund, Hotel Motel Tax fund, Public Safety Sales Tax fund, Parks Sales Tax fund and Capital Projects fund of $811,585, $29,085, $1,188,155, $541,390 and $22,131,952, respectively.

Litigation: The City is involved in lawsuits arising in the ordinary course of activities, including claims regarding construction contract issues, personal injury and discriminatory personnel practices, property condemnation proceedings, and suits contesting the legality of certain taxes. While these cases may have future financial effect, management, based on advice of counsel, believes that their ultimate outcome will not be material to the basic financial statements.

Federal assistance: The City has received financial assistance from various federal and state agencies in the form of grants and entitlements. These programs are subject to audit by agents of the granting authority. Management does not believe that liabilities for reimbursements, if any, will have a materially adverse effect upon the financial condition of the City.

Note 12. Tax Abatements

Missouri State Statutes provide for several economic development tools that State and local governments can offer as incentives for businesses to locate, build and/or expand operations in a target area.

Chapter 100 – Industrial Revenue Bonds: Pursuant to Chapter 100 of the Revised Statutes of Missouri (RSMo), a municipality can issue Industrial Revenue Bonds to finance the cost of the purchase, construction, extension and improvement of warehouses, distribution facilities, research and development facility, office industries, agricultural processing industries, service facilities which provide interstate commerce, and industrial plants, including the real estate either within or without the limits of such municipality, buildings, fixtures and machinery. See conduit debt disclosure in Note 7.

In a Chapter 100 agreement, the municipality holds fee title to the project once the revenue bonds are issued and leases the project to the private company. Because the municipality is the legal owner of the property while the revenue bonds are outstanding, the project is exempt from ad valorem taxes.

Under Chapter 100, the City has five agreements:

1. In March 2017, the City issued Industrial Revenue Bonds in an amount not to exceed $7,550,000 to provide 100% tax abatement to Kohl's Department Stores, Inc. for the capital investment in equipment and mechanical controls at the Blue Springs Distribution Center. The Bond Purchase Agreement and Lease Agreement allow the City to maintain ownership of the project equipment, making it exempt from taxation for the term of the Lease Agreement, producing twelve years of tax abatement, starting with tax year 2018. During the term of the Lease Agreement, Kohl's will make annual payments in lieu of taxes (PILOTS) at 50% of the value of taxes otherwise due on the project equipment. Total projected value of abatement is $305,810. Value of abatement for FY 2025 is $10,504.

Note 12. Tax Abatements (Continued)

2. In March 2018, the City issued Industrial Revenue Bonds in an amount not to exceed $36,000,000 to provide tax abatement to Faurecia Interior Systems, Inc. for acquiring, constructing and installing an approximately 262,000 square foot automobile component manufacturing facility, including buildings, structure, improvements and fixtures on the project site. The Project Site and associated Project Improvements will be given 100% tax abatement for 10 years and 50% for the next 5 years. The Developer will be required to make a payment in lieu of taxes equal to 100% of the taxes that would otherwise be due for 2018 for the Project Site. For the period 2019 and continuing through 2028, the Developer will not be required to make PILOTS. For the period 2029 and continuing through 2033, the Developer will be required to make PILOTS in an amount equal to 50% of the amount of ad valorem real property taxes which would have been paid in each year with respect to the Project Site and Project Improvements had the Project Site and the Project Improvements not been exempt from such taxes. Total projected value of abatement is $11,335,193. Value of abatement for FY 2025 is $892,563.

3. In March 2018, the City issued Industrial Revenue Bonds in an amount not to exceed $33,000,000 to provide tax abatement to Faurecia Interior Systems, Inc. for the purpose of furnishing and equipping the Project Improvements with furnishings, equipment, electronics and other related personal property. It is expected that the Company will purchase Project Equipment in the amount of approximately $13,181,332 in 2018, $14,122,332 in 2019, and $2,148,970 in 2020. The Company will convey the Project Equipment to the City and the Project Equipment will be leased to the Company. The 2018 Project Equipment will be given 100% tax exemption with no PILOTS for the first 10 years (2019 to 2028) and 100% tax exemption for the next 5 years (2029 to 2033) with PILOTS equal to 50% of the Personal Property tax otherwise due. The 2019 Project Equipment will be given 100% tax exemption with no PILOTS for the first 10 years (2020 to 2029) and 100% tax exemption for the next 5 years (2030 to 2034) with PILOTS equal to 50% of the Personal Property Taxes otherwise due. The 2020 Project Equipment will be given 100% tax exemption with no PILOTS for the first 10 years (2021 to 2030) and 100% tax exemption for the next 5 years (2031 to 2035) with PILOTS equal to 50% of the Personal Property Taxes otherwise due. Total projected value of abatement is $3,808,005. Value of abatement for FY 2025 is $316,362.

4. In November 2020, the City issued Industrial Revenue Bonds in an amount not to exceed $9,600,000 to provide tax abatement to Durvet Inc. for the purpose of the design, construction, installation and improvement of an approximately 54,080 square-foot warehouse and office expansion. Pursuant to the Bond Documents, Lease Agreement and Performance Agreement, so long as the City owns title to the Project, the Project will be exempt from ad valorem taxes on real property. Bond Documents and Lease Agreement, while the project is owned by the City and is subject to the lease, the Project and leasehold interest of the Company in the Project will be exempt from all ad valorem real property taxes, producing ten years of tax abatement. During each year of the Exemption period, Durvet will make annual payments in lieu of taxes (PILOTS) in the amounts set forth in Exhibit B of the Performance Agreement. Total projected value of abatement is $1,593,697. Value of abatement for FY 2025 is $157,730.

5. In December 2020, the City issued Industrial Revenue Bonds in an amount not to exceed $30,000,000 to provide tax abatement to Blue Springs 70 Logistics LLC for the purpose of acquiring, constructing and installing an approximately 585,660 square foot Class-A industrial building. The Project Improvements will be given 100% tax abatement for 10 years beginning in 2022 through 2031. During that time the Company will make PILOT Payments to the Central Jackson County Fire Protection District on the Project Improvements in December 1st of each year equal to 75% of real property taxes had the Project Improvements been constructed without tax abatement. Other than the Fire District PILOT Payments, the Company shall not be required to make PILOTS Payments during the period of Tax Abatement. Total projected value of abatement is $5,672,204. Value of abatement for FY 2025 is $550,377.

Note 12. Tax Abatements (Continued)

The gross dollar amount by which the City's tax revenues were reduced during FY 2025 as a result of Chapter 100 agreements was $1,927,536.

Chapter 353 – Redevelopment Corporations: Under Chapter 353, RSMo, real property tax abatement is available within "blighted areas." An Urban Redevelopment Corporation is created under the general corporations laws of Missouri and, once created, it has the power to operate one or more redevelopment projects pursuant to a city-approved redevelopment plan.

With this program, an eligible city may approve a redevelopment plan that provides for tax abatement for up to 25 years, thus encouraging the redevelopment of the blighted area. To be eligible for the abatement, the Urban Redevelopment Corporation must take title to the property to be redeveloped. During the first 10 years of tax abatement, (1) 100% of the incremental increase in real property taxes on the land are abated, (2) 100% of the real property taxes on all improvements are abated, and (3) the property owner continues to pay real property taxes on the land in the amount of such taxes in the year before the redevelopment corporations takes title.

During the next 15 years, between 50% and 100% of the incremental real property taxes on all land and all improvements are abated. Payments in lieu of taxes (PILOTS) may be imposed on the Urban Redevelopment Corporation by contract with the city, as applicable, to achieve an effective tax abatement that is less than the abatement established by statute. PILOTS are paid on an annual basis and allocated to each taxing district according to their proportionate share of ad valorem property taxes.

Under Chapter 353, the City has 10 projects as of September 30, 2025:

1. In 1997, the City approved a redevelopment project with the Adams Pointe Redevelopment Corporation for the construction of a 5-story Courtyard Marriott hotel, providing a 100% tax abatement for 10 years. This agreement was amended in 2011, providing an additional 10-year 100% tax abatement from 2011 to 2020. Full taxation resumes in 2021. The agreement was again amended in 2021 which authorized an additional 4 years of 100% tax abatement (except for the Central Jackson County Fire Protection District which is only a 25% abatement) for the tax years 2021 through 2024. Total projected value of abatement is $3,274,706. Value of abatement for FY 2025 is $176,556.

2. In 2006, the City approved a redevelopment project with the Village Gardens Redevelopment Corporation for the construction of a two-story, 8,600 sq. foot retail building, providing 100% tax abatement for the first 10 years and 50% tax abatement for the next 15 years. Full taxation resumes in 2032. Total projected value of abatement is $392,050. Value of abatement for FY 2025 is $15,093.

3. In 2013, the City approved a redevelopment project with the Main Center Redevelopment Corporation for the renovation of 1105 West Main Street for Pizza Shoppe, providing 50% tax abatement for 15 years. Full taxation resumes in 2029. Total projected value of abatement is $77,841. Value of abatement for FY 2025 is $5,312.

4. In 2013, the City approved a redevelopment project with the Main Center Redevelopment Corporation for the renovation of the America's Community Bank building at 1100 West Main Street, providing 100% tax abatement for 10 years and 50% tax abatement for the next 15 years. Full taxation resumes in 2039. Total projected value of abatement is $151,026. Value of abatement for FY 2025 is $7,525.

Note 12. Tax Abatements (Continued)

5. In 2017, the City approved a redevelopment project with the Main Center Redevelopment corporation for the renovation and conversion of the property at 1201 W. Main Street into a brewery and taproom, East Forty Brewing, providing 100% tax abatement for 10 years and 50% tax abatement for the next 15 years. Full taxation resumes in 2044. Total projected value of abatement is $294,861. Value of abatement for FY 2025 is $15,949.

6. In 2019, the City approved a development project with the Main Center Redevelopment Corporation for the construction of a new single-story, 3,371 square-foot dental facility at 709 W. Main Street, providing 100% tax abatement for 25 years on the improved property with the exception of the Central Jackson County Fire District capturing 75% of the taxes it would have ordinarily received per Senate Bill 870. Tax abatement for the property will be terminated prior to the 25-year duration if the value of the abatement exceeds the cost of improvements. The project cost is estimated to be $1,540,820. Total projected value of abatement is $753,553. Value of the abatement for FY 2025 is $27,451.

7. In 2019, the City approved a development project with the Main Center Redevelopment Corporation for the construction of five two-story buildings with ten residential units at 106 SW 8th Street and 108 SW 8th Street, providing 100% tax abatement for five years and 50% for five years for a total of 10 years of tax abatement with the exception of the Central Jackson County Fire District capturing 75% of the taxes it would have ordinarily received per Senate Bill 870. Tax abatement will be terminated prior to the 10-year duration if the value of the abatement exceeds the cost of improvements. The project cost is estimated to be $1,528,000. Total projected value of abatement is $151,202. Value of the abatement for FY 2025 is $33,246.

8. In 2019, the City approved a redevelopment project with the Main Center Redevelopment Corporation for the renovation of an existing single-story block building at 209 NW 11th Street into a shared photography studio and art space, Anthem Photography, providing 100% tax abatement for 10 years on the improved property with the exception of the Central Jackson County Fire District capturing 75% of the taxes it would have ordinarily received per Senate Bill 870. Tax abatement will be terminated prior to the 10-year duration if the value of the abatement exceeds the cost of improvements. The project cost is estimated to be $50,000. Total projected value of abatement is $30,301. Value of the abatement for FY 2025 is $2,999.

9. In 2020, the City approved a redevelopment plan with RGH Redevelopment Corporation consisting of two phases. The first phase consists of two projects: (1) the first project, located at 2501 NW South Outer Road, for the remodel and construction of an approximately 13,000 square-foot Fun Run children's party and play center, as well as 10,000 square feet of retail and/or office space on the upper level, and (2) the second project, located at 2525 NW South Outer Road, for the remodel and construction of a curling facility with four curling lanes and lounge with approximately 16,000 square feet of retail and/or office space on the upper level. The second phase will include the construction of two new 5,000 square foot commercial buildings. The second phase has not yet been implemented. The redevelopment plan will provide 100% tax abatement for 20 years on the improved property with the exception of the Central Jackson County Fire District capturing 75% of the taxes it would have ordinarily received per Senate Bill 870. The total project cost is estimated to be $7,090,443. Total projected value of abatement is $2,322,639. Total projected value of abatement for Phase 1 is $1,677,068. Value of the abatement for FY 2025 is $77,361.

Note 12. Tax Abatements (Continued)

10. In 2022, the City approved a redevelopment project with the Main Center Redevelopment Corporation for the renovation and redevelopment of property located at 201 NW 11th Street for an office and warehouse space for Loving Cup, LLC dba Scooter's Coffee, providing 100% tax abatement for 10 years followed by 50% for the next 15 years on the improved property with the exception of the Central Jackson County Fire District capturing 75% of the taxes it would have ordinarily received per Senate Bill 870. Tax abatement will be terminated prior to the 25-year duration if the value of the abatement exceeds the cost of improvements. The total project cost is estimated to be $4,355,000. Total projected value of abatement is $492,580. Value of the abatement for FY 2025 is $26,694.

The gross dollar amount by which the City's tax revenues were reduced during FY 2025 as a result of Chapter 353 agreements was $387,547.

Tax Increment Financing: The Real Property Tax Increment Allocation Redevelopment Act, Sections 99.800 to 99.865, RSMo, as amended, commonly referred to as the TIF Act, makes available tax increment financing for redevelopment projects in certain areas determined by the governing body of a city to be a "blighted area", "conservation area", or "economic development area", each as defined in the TIF Act. Tax Increment Financing does not diminish the amount of property tax revenues currently collected by the City in an affected area, but instead acts to freeze such revenues at current levels and deprives the City and other taxing districts of future increases (in whole or in part, depending on the terms of the agreement) in ad valorem property tax revenues that otherwise would have resulted from increases in assessed valuation in such areas until the tax increment financing obligations issued are repaid or the reimbursable project costs have been reimbursed.

Note 13. Adoption and Pending Governmental Accounting Standards Board (GASB) Statements

The City has adopted the following new accounting pronouncements during FY2025:

- GASB Statement No. 101, *Compensated Absences* clarifies the recognition and measurement guidance for compensated absences. This Statement requires that liabilities for compensated absences be recognized for (1) leave that has not been used and (2) leave that has been used but not yet paid in cash or settled through noncash means. See Note 14 for additional information on the impact of this Statement on the City's financial statements.

- GASB Statement No. 102, *Certain Risk Disclosures* will improve financial reporting by providing users of financial statements with essential information that currently is not often provided. The disclosures will provide users with timely information regarding certain concentrations or constraints and related events that have occurred or have begun to occur that make a government vulnerable to a substantial impact. As a result, users will have better information with which to understand and anticipate certain risks to a government's financial condition. No impact to the City for the year ending September 30, 2025.

The GASB has issued several statements that are not yet effective and have not yet been implemented by the City of Blue Springs, Missouri. The statements which might impact the City are as follows:

- GASB Statement No. 103, *Financial Reporting Model Improvements* will improve key components of the financial reporting model to enhance its effectiveness in providing information that is essential for decision making and assessing a government's accountability. This statement also addresses certain application issues. The statement will be effective for the City with its year ending September 30, 2026.

Note 13. Adoption and Pending Governmental Accounting Standards Board (GASB) Statements (Continued)

- GASB Statement No. 104, *Disclosure of Certain Capital Assets* will improve financial reporting by provided issuers of financial statements with essential information about certain types of capital assets in order to make informed decisions and assess accountability. Additionally, the disclosure requirements will improve consistency and comparability between governments. The statement will be effective for the City with its year ending September 30, 2026.

- GASB Statement No. 105, *Subsequent Events* will improve financial reporting by clarifying the subsequent events time frame and the subsequent events that constitute recognized and nonrecognized events. Additionally this will specifying the information items that are required to be disclosed about subsequent events. The statement will be effective for the City with its year ending September 30, 2027.

The City's management has not yet determined the effect these statements will have on the City's financial statements.

Note 14. Accounting Change - Change in Financial Reporting Entity and Change in Accounting Principle

Governmental Accounting Standards Board Statement No. 101, *Compensated Absences*, was implemented during fiscal year 2025. The objective of this Statement is to better meet the needs of the financial statement users by improving accounting and financial reporting for compensated absences by governments.

As a result of the implementation, the following balances changed from the financial statements as of September 30, 2024.

	Aggregate Remaining Fund Information		Total Governmental Activities	
	Compensated Absences	Net Position	Compensated Absences	Net Position
Balances September 30, 2024 as previously reported	$ 747	$ 265,355	$ 1,552,184	$ 86,850,814
Implementation of GASB 101	2,604	(2,604)	698,860	(698,860)
Balances September 30, 2024 as restated	$ 3,351	$ 262,751	$ 2,251,044	$ 86,151,954

	Business-type Activities							
	Water Utility		Sewer Utility		Fieldhouse		Total Proprietary Funds	
	Compensated Absences	Net Position	Compensated Absences	Net Position	Compensated Absences	Net Position	Compensated Absences	Net Position
Balances September 30, 2024, as previously reported	$ 44,134	$ 34,748,162	$ 60,963	$ 65,708,012	$ 15,494	$ 46,266,076	$ 120,591	$ 153,104,634
Implementation of GASB 101	16,562	(16,562)	25,927	(25,927)	2,800	(2,800)	45,289	(45,289)
Balances September 30, 2024, as restated	$ 60,696	$ 34,731,600	$ 86,890	$ 65,682,085	$ 18,294	$ 46,263,276	$ 165,880	$ 153,059,345

Note 14. Accounting Change - Change in Financial Reporting Entity and Change in Accounting Principle (Continued)

The Capital Projects Fund was presented as nonmajor in fiscal year 2024 and major in fiscal year 2025.

	Capital Projects Funds	Nonmajor Governmental Funds
Fund balance, September 30, 2024, as previously reported	$ -	$ 20,640,170
Change within the financial reporting entity	10,378,879	(10,378,879)
Fund balance, September 30, 2024 as adjusted	$ 10,378,879	$ 10,261,291

Note 15. Subsequent Events

Jackson County is in the process of implementing the Missouri State Tax Commission's ruling, which requires corrections to prior year property assessments and limits future increases, resulting in adjustments to the tax base used for local levies. The financial impact to the City remains uncertain, as the use of tax credits and potential recoupment levies to address prior overcollections may shift future tax rates and distributions, creating variability in both levy calculations and the timing of revenue recognition.

City of Blue Springs, Missouri

Required Supplementary Information—Unaudited
Schedule of Changes in Net Pension Liability and Related Ratios - General Division LAGERS
Local Government Employees Retirement System

Fiscal year ending September 30,	**2025**	2024	2023
Total Pension Liability			
Service cost	**$ 994,619**	$ 967,975	$ 910,348
Interest on the total pension liability	**3,436,984**	3,380,662	3,152,161
Benefit changes	**-**	-	-
Difference between expected and actual experience	**1,270,618**	(1,117,622)	1,347,091
Assumption changes	**-**	-	-
Benefit payments, including refunds	**(2,606,982)**	(2,277,594)	(2,073,128)
Net change in total pension liability	**3,095,239**	953,421	3,336,472
Total pension liability, beginning	**49,892,320**	48,938,899	45,602,427
Total pension liability, ending	**$ 52,987,559**	$ 49,892,320	$ 48,938,899
Plan Fiduciary Net Position			
Contributions-employer	**$ 764,019**	$ 647,536	$ 599,482
Contributions-employee	**176,127**	165,098	164,182
Pension plan net investment income	**3,285,664**	2,777,174	1,893,468
Benefit payments, including refunds	**(2,606,982)**	(2,277,594)	(2,073,128)
Pension plan administrative expense	**(48,946)**	(50,700)	(58,302)
Other	**186,656**	(2,064,227)	386,458
Net change in plan fiduciary net position	**1,756,538**	(802,713)	912,160
Plan fiduciary net position, beginning	**53,000,272**	53,802,985	52,890,825
Plan fiduciary net position, ending	**$ 54,756,810**	$ 53,000,272	$ 53,802,985
Employer net pension liability (asset)	**$ (1,769,251)**	$ (3,107,952)	$ (4,864,086)
Plan fiduciary net position as a percentage of the total pension liability	**103%**	106%	110%
Covered payroll	**$ 8,451,581**	$ 8,179,000	$ 8,283,166
Employer's net pension liability (asset) as a percentage of covered payroll	**(20.93)%**	(38.00)%	(58.72)%

Note: Changes in assumptions—In 2016, amounts reported as changes in assumptions resulted primarily from the changes in the mortality table, inflation rate and salary increase.

In 2021, amounts reported as changes in assumptions resulted primarily from the change in the mortality table and decrease in the long-term rate of return.

In 2022, amounts reported as benefit changes resulted primarily from an increase in the City's retirement plan. The plan was modified from L-7 to L-6, increasing the benefit multiplier from 1.5% to 2.0%.

2022	2021	2020	2019	2018	2017	2016
$ 658,451	$ 674,867	$ 708,146	$ 688,862	$ 672,142	$ 665,554	$ 635,691
2,542,597	2,606,614	2,564,768	2,414,954	2,298,450	2,181,147	1,986,335
5,418,492	-	-	-	-	-	-
1,903,777	(383,582)	(1,201,744)	343,201	(109,415)	(3,901)	(84,070)
-	(878,003)	-	-	-	-	1,293,491
(1,809,495)	(1,480,218)	(1,475,130)	(1,307,977)	(1,218,471)	(1,237,343)	(1,083,458)
8,713,822	539,678	596,040	2,139,040	1,642,706	1,605,457	2,747,989
36,888,605	36,348,927	35,752,887	33,613,847	31,971,141	30,365,684	27,617,695
$ 45,602,427	$ 36,888,605	$ 36,348,927	$ 35,752,887	$ 33,613,847	$ 31,971,141	$ 30,365,684
$ 3,660,391	$ 491,258	$ 471,652	$ 507,140	$ 473,034	$ 471,888	$ 521,249
124,971	-	-	-	-	-	-
35,791	10,953,703	515,640	2,554,338	4,417,044	3,898,265	(82,517)
(1,809,495)	(1,480,218)	(1,475,130)	(1,307,977)	(1,218,471)	(1,237,343)	(1,083,458)
(39,777)	(36,162)	(46,657)	(42,021)	(29,111)	(27,224)	(27,511)
523,976	45,681	(65,789)	(43,630)	(29,253)	225,158	239,677
2,495,857	9,974,262	(600,284)	1,667,850	3,613,243	3,330,744	(432,560)
50,394,968	40,420,706	41,020,990	39,353,140	35,739,897	32,409,153	32,841,713
$ 52,890,825	$ 50,394,968	$ 40,420,706	$ 41,020,990	$ 39,353,140	$ 35,739,897	$ 32,409,153
$ (7,288,398)	$ (13,506,363)	$ (4,071,779)	$ (5,268,103)	$ (5,739,293)	$ (3,768,756)	$ (2,043,469)
116%	137%	111%	115%	117%	112%	107%
$ 7,747,084	$ 7,717,469	$ 7,897,305	$ 8,229,838	$ 7,652,661	$ 7,669,016	$ 7,672,873
(94.08)%	(175.01)%	(51.56)%	(64.01)%	(75.00)%	(49.14)%	(26.63)%

City of Blue Springs, Missouri

Required Supplementary Information—Unaudited
Schedule of Changes in Net Pension Liability and Related Ratios - Police Division LAGERS
Local Government Employees Retirement System

Fiscal year ending September 30,	**2025**	2024	2023
Total Pension Liability			
Service cost	**$ 823,500**	$ 744,625	$ 733,751
Interest on the total pension liability	**3,094,336**	2,785,525	2,652,960
Benefit changes	**-**	-	-
Difference between expected and actual experience	**1,291,538**	2,799,471	374,026
Assumption changes	**-**	-	-
Benefit payments, including refunds	**(1,931,687)**	(1,981,073)	(1,767,138)
Net change in total pension liability	**3,277,687**	4,348,548	1,993,599
Total pension liability, beginning	**44,749,524**	40,400,976	38,407,377
Total pension liability, ending	**$ 48,027,211**	$ 44,749,524	$ 40,400,976
Plan Fiduciary Net Position			
Contributions-employer	**$ 857,299**	$ 727,965	$ 631,760
Contributions-employee	**149,847**	133,677	118,022
Pension plan net investment income	**2,769,390**	2,388,415	1,653,773
Benefit payments, including refunds	**(1,931,687)**	(1,981,073)	(1,767,138)
Pension plan administrative expense	**(23,535)**	(23,678)	(25,574)
Other	**(673,178)**	86,699	701,498
Net change in plan fiduciary net position	**1,148,136**	1,332,005	1,312,341
Plan fiduciary net position, beginning	**45,748,413**	44,416,408	43,104,067
Plan fiduciary net position, ending	**$ 46,896,549**	$ 45,748,413	$ 44,416,408
Employer net pension liability (asset)	**$ 1,130,662**	$ (998,889)	$ (4,015,432)
Plan fiduciary net position as a percentage of the total pension liability	**98%**	102%	110%
Covered payroll	**$ 7,211,842**	$ 6,359,104	$ 5,798,844
Employer's net pension liability (asset) as a percentage of covered payroll	**15.68 %**	(15.71)%	(69.25)%

Note: Changes in assumptions—In 2016, amounts reported as changes in assumptions resulted primarily from the changes in the mortality table, inflation rate and salary increase.

In 2021, amounts reported as changes in assumptions resulted primarily from the change in the mortality table and decrease in the long-term rate of return.

In 2022, amounts reported as benefit changes resulted primarily from an increase in the City's retirement plan. The plan was modified from L-7 to L-6, increasing the benefit multiplier from 1.5% to 2.0%.

2022	2021	2020	2019	2018	2017	2016
$ 561,110	$ 570,339	$ 570,692	$ 534,682	$ 515,560	$ 509,054	$ 489,493
2,147,679	2,172,837	2,098,716	1,933,498	1,787,109	1,720,040	1,558,815
5,194,653	-	-	-	-	-	-
930,646	(300,001)	(528,855)	852,710	668,843	(401,868)	453,912
-	(337,132)	-	-	-	-	625,453
(1,636,383)	(1,152,542)	(1,084,693)	(1,035,592)	(890,434)	(919,710)	(907,487)
7,197,705	953,501	1,055,860	2,285,298	2,081,078	907,516	2,220,186
31,209,672	30,256,171	29,200,311	26,915,013	24,833,935	23,926,419	21,706,233
$ 38,407,377	$ 31,209,672	$ 30,256,171	$ 29,200,311	$ 26,915,013	$ 24,833,935	$ 23,926,419
$ 3,675,168	$ 482,346	$ 463,269	$ 444,542	$ 440,305	$ 436,579	$ 456,662
95,235	-	-	-	-	-	-
41,017	8,790,265	421,186	1,992,918	3,462,794	2,948,366	(32,475)
(1,636,383)	(1,152,542)	(1,084,693)	(1,035,592)	(890,434)	(919,710)	(907,487)
(18,121)	(16,748)	(21,515)	(19,203)	(13,147)	(12,644)	(12,873)
274,002	272,527	(92,760)	120,050	647,990	(269,508)	733,500
2,430,918	8,375,848	(314,513)	1,502,715	3,647,508	2,183,083	237,327
40,673,149	32,297,301	32,611,814	31,109,099	27,461,591	25,278,508	25,041,181
$ 43,104,067	$ 40,673,149	$ 32,297,301	$ 32,611,814	$ 31,109,099	$ 27,461,591	$ 25,278,508
$ (4,696,690)	$ (9,463,477)	$ (2,041,130)	$ (3,411,503)	$ (4,194,086)	$ (2,627,656)	$ (1,352,089)
112%	130%	107%	112%	116%	111%	106%
$ 6,066,483	$ 6,239,674	$ 6,379,857	$ 6,289,741	$ 5,779,939	$ 5,722,246	$ 5,527,188
(77.42)%	(151.67)%	(31.99)%	(54.24)%	(72.56)%	(45.92)%	(24.46)%

City of Blue Springs, Missouri

Required Supplementary Information—Unaudited
Schedule of Changes in Net Pension Liability and Related Ratios - Public Safety Division LAGERS
Local Government Employees Retirement System

Fiscal year ending September 30,	**2025**	2024
Total Pension Liability		
Service cost	**$ 109,611**	$ 35,556
Interest on the total pension liability	**176,249**	939
Benefit changes	**-**	2,552,831
Difference between expected and actual experience	**221,877**	(36,495)
Assumption changes	**-**	-
Benefit payments, including refunds	**(164,005)**	(8,253)
Net change in total pension liability	**343,732**	2,544,578
Total pension liability, beginning	**2,544,578**	-
Total pension liability, ending	**$ 2,888,310**	$ 2,544,578
Plan Fiduciary Net Position		
Contributions-employer	**$ 125,980**	$ 72,330
Contributions-employee	**19,839**	14,465
Pension plan net investment income	**139,670**	139,150
Benefit payments, including refunds	**(164,005)**	(8,253)
Pension plan administrative expense	**(2,772)**	(2,676)
Other	**7,130**	2,041,609
Net change in plan fiduciary net position	**125,842**	2,256,625
Plan fiduciary net position, beginning	**2,256,625**	-
Plan fiduciary net position, ending	**$ 2,382,467**	$ 2,256,625
Employer net pension liability (asset)	**$ 505,843**	$ 287,953
Plan fiduciary net position as a percentage of the total pension liability	**82%**	89%
Covered payroll	**$ 969,518**	$ 915,715
Employer's net pension liability (asset) as a percentage of covered payroll	**52.17 %**	31.45 %

Ultimately 10 fiscal years will be displayed. Information for prior years is not available.

In 2024, amounts reported as benefit changes resulted primarily from a plan reclassification for Detention Service Officers and Dispatchers. These positions were moved from the General category to the Public Safety category, which reduced the retirement eligibility age from 60 to 55.

City of Blue Springs, Missouri

Required Supplementary Information—Unaudited
Schedule of Changes in Net Pension Liability and Related Ratios - Total LAGERS
Local Government Employees Retirement System

Fiscal year ending September 30,	**2025**	2024	2023
Total Pension Liability			
Service cost	**$ 1,927,730**	$ 1,748,156	$ 1,644,099
Interest on the total pension liability	**6,707,569**	6,167,126	5,805,121
Benefit changes	**-**	2,552,831	-
Difference between expected and actual experience	**2,784,033**	1,645,354	1,721,117
Assumption changes	**-**	-	-
Benefit payments, including refunds	**(4,702,674)**	(4,266,920)	(3,840,266)
Net change in total pension liability	**6,716,658**	7,846,547	5,330,071
Total pension liability, beginning	**97,186,422**	89,339,875	84,009,804
Total pension liability, ending	**$ 103,903,080**	$ 97,186,422	$ 89,339,875
Plan Fiduciary Net Position			
Contributions-employer	**$ 1,747,298**	$ 1,447,831	$ 1,231,242
Contributions-employee	**345,813**	313,240	282,204
Pension plan net investment income	**6,194,724**	5,304,739	3,547,241
Benefit payments, including refunds	**(4,702,674)**	(4,266,920)	(3,840,266)
Pension plan administrative expense	**(75,253)**	(77,054)	(83,876)
Other	**(479,392)**	64,081	1,087,956
Net change in plan fiduciary net position	**3,030,516**	2,785,917	2,224,501
Plan fiduciary net position, beginning	**101,005,310**	98,219,393	95,994,892
Plan fiduciary net position, ending	**$ 104,035,826**	$ 101,005,310	$ 98,219,393
Employer net pension liability (asset)	**$ (132,746)**	$ (3,818,888)	$ (8,879,518)
Plan fiduciary net position as a percentage of the total pension liability	**100%**	104%	110%
Covered payroll	**$ 16,632,941**	$ 15,453,819	$ 14,082,010
Employer's net pension liability (asset) as a percentage of covered payroll	**(0.80)%**	(24.71)%	(63.06)%

Note: Changes in assumptions—In 2016, amounts reported as changes in assumptions resulted primarily from the changes in the mortality table, inflation rate and salary increase.

In 2021, amounts reported as changes in assumptions resulted primarily from the change in the mortality table and decrease in the long-term rate of return.

In 2022, amounts reported as benefit changes resulted primarily from an increase in the City's retirement plan. The plan was modified from L-7 to L-6, increasing the benefit multiplier from 1.5% to 2.0%.

In 2024, amounts reported as benefit changes resulted primarily from a plan reclassification for Detention Service Officers and Dispatchers. These positions were moved from the General category to the Public Safety category, which reduced the retirement eligibility age from 60 to 55.

2022	2021	2020	2019	2018	2017	2016
$ 1,219,561	$ 1,245,206	$ 1,278,838	$ 1,223,544	$ 1,187,702	$ 1,174,608	$ 1,125,184
4,690,276	4,779,451	4,663,484	4,348,452	4,085,559	3,901,187	3,545,150
10,613,145	-	-	-	-	-	-
2,834,423	(683,583)	(1,730,599)	1,195,911	559,428	(405,769)	369,842
-	(1,215,135)	-	-	-	-	1,918,944
(3,445,878)	(2,632,760)	(2,559,823)	(2,343,569)	(2,108,905)	(2,157,053)	(1,990,945)
15,911,527	1,493,179	1,651,900	4,424,338	3,723,784	2,512,973	4,968,175
68,098,277	66,605,098	64,953,198	60,528,860	56,805,076	54,292,103	49,323,928
$ 84,009,804	$ 68,098,277	$ 66,605,098	$ 64,953,198	$ 60,528,860	$ 56,805,076	$ 54,292,103
$ 7,335,559	$ 973,604	$ 934,921	$ 951,682	$ 913,339	$ 908,467	$ 977,911
220,206	-	-	-	-	-	-
76,808	19,743,968	936,826	4,547,256	7,879,838	6,846,631	(114,992)
(3,445,878)	(2,632,760)	(2,559,823)	(2,343,569)	(2,108,905)	(2,157,053)	(1,990,945)
(57,898)	(52,910)	(68,172)	(61,224)	(42,258)	(39,868)	(40,384)
797,978	318,208	(158,549)	76,420	618,737	(44,350)	973,177
4,926,775	18,350,110	(914,797)	3,170,565	7,260,751	5,513,827	(195,233)
91,068,117	72,718,007	73,632,804	70,462,239	63,201,488	57,687,661	57,882,894
$ 95,994,892	$ 91,068,117	$ 72,718,007	$ 73,632,804	$ 70,462,239	$ 63,201,488	$ 57,687,661
$ (11,985,088)	$ (22,969,840)	$ (6,112,909)	$ (8,679,606)	$ (9,933,379)	$ (6,396,412)	$ (3,395,558)
114%	134%	109%	113%	116%	96%	97%
$ 13,813,567	$ 13,957,143	$ 14,277,162	$ 14,519,579	$ 13,432,600	$ 13,391,262	$ 13,200,061
(86.76)%	(164.57)%	(42.82)%	(59.78)%	(73.95)%	(47.77)%	(25.72)%

City of Blue Springs, Missouri

Required Supplementary Information—Unaudited
Schedule of Contributions - Total LAGERS
Last Ten Fiscal Years

	2025	2024	2023	2022
Actuarially determined contribution	**$ 1,853,244**	$ 1,503,793	$ 1,209,811	$ 1,370,525
Contributions in relation to the actuarially determined contribution	**1,835,471**	1,503,793	1,209,811	1,370,525
Contribution deficiency (excess)	**$ 17,773**	$ -	$ -	$ -
Covered payroll	**$ 17,794,087**	$ 16,012,057	$ 14,289,778	$ 14,133,122
Contributions as a percentage of covered payroll	**10.32%**	9.39%	8.47%	9.70%

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal and Modified Terminal Funding
Amortization Method	A level percentage of payroll amortization method is used to amortize the UAAL over a closed period of years. If the UAAL (excluding the UAAL associated with benefit changes) is negative, then this amount is amortized over the greater of (i) the remaining initial amortization period or (ii) 15 years.
Remaining Amortization Period	Multiple bases from 15 to 18 years
Asset Valuation Method	5-Year smoothed market; 20% corridor
Inflation	2.75% wage inflation; 2.25% price inflation
Salary Increases	2.75% to 6.75% including wage inflation (General and Public Safety Divisions) 2.75% to 6.55% including wage inflation (Police Division)
Investment Rate of Return	7.00%, net of investment expenses
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	The healthy retiree mortality tables, for post-retirement mortality, used in evaluating allowance to be paid were 115% of the PubG-2010 Retiree Mortality Table for males and females. The disabled retiree mortality tables, for post-retirement mortality, used in evaluating allowance to be paid were 115% of the PubNS-2010 Disabled Retiree Mortality Table for males and females. The pre-retirement mortality tables used were 75% of the PubG-2010 Employee Mortality Table for males and females of General groups and 75% of the PubS-2010 Employee Mortality Table for males and females of Police, Fire and Public Safety groups. Mortality rates for a particular calendar year are determined by applying the MP-2020 mortality improvement scale to the above described tables.
Other	None

2021	2020	2019	2018	2017	2016
$ 989,286	$ 924,037	$ 968,812	$ 916,999	$ 893,308	$ 985,036
989,287	924,036	968,812	916,999	893,308	985,036
$ (1)	$ 1	$ -	$ -	$ -	$ -
$ 14,008,769	$ 14,382,778	$ 14,470,138	$ 13,899,354	$ 13,776,909	$ 14,033,009
7.06%	6.42%	6.70%	6.60%	6.48%	7.02%

City of Blue Springs, Missouri

Required Supplementary Information—Unaudited
Schedule of Revenues, Expenditures and Changes in Fund Balances
Budget and Actual—General Fund
Year Ended September 30, 2025

	Original Budget	Final Budget	Actual (Budget Basis)	Variance With Final Budget
Revenues:				
Taxes	$ 22,225,816	$ 22,225,816	$ 22,463,108	$ 237,292
Licenses and permits	1,262,100	1,262,100	1,226,749	(35,351)
Intergovernmental revenues	4,698,081	4,698,081	5,018,606	320,525
Charges for services	1,638,597	1,638,597	1,521,204	(117,393)
Administrative charges	2,307,147	2,307,147	2,307,147	-
Fines and forfeits	424,191	424,191	731,731	307,540
Investment income (loss)	650,419	650,419	977,513	327,094
Donations	88,450	46,906	97,835	50,929
Other	337,194	426,959	1,120,965	694,006
Total revenues	33,631,995	33,680,216	35,464,858	1,784,642
Expenditures:				
General government:				
City Council	358,003	501,668	330,104	(171,564)
Legal services	204,000	204,000	211,514	7,514
City prosecutor	218,659	218,659	209,192	(9,467)
Municipal court	535,362	535,362	522,239	(13,123)
City administration	1,011,281	1,036,391	1,045,735	9,344
Public relations and communications	278,908	371,208	306,100	(65,108)
Human resources	792,807	832,807	823,734	(9,073)
Economic development	202,469	218,669	211,401	(7,268)
Community development	1,265,978	1,299,655	786,620	(513,035)
Business services	164,452	164,452	119,281	(45,171)
Codes administration	965,772	1,054,465	921,440	(133,025)
Geographic information systems	122,835	122,835	134,150	11,315
Finance—accounting and budget	922,520	944,042	960,934	16,892
Information systems	936,685	1,032,725	722,506	(310,219)
Public works, engineering and administration	816,309	1,258,902	590,824	(668,078)
Highways and streets, street maintenance	3,246,089	3,661,929	3,375,285	(286,644)
Public safety:				
Police administration	738,926	758,925	710,728	(48,197)
Staff services	2,897,626	2,903,775	2,680,074	(223,701)
Operations	7,734,259	7,877,051	7,897,895	20,844
Community youth outreach unit	3,409,439	3,421,545	3,343,598	(77,947)
Parks:				
Parks administration	606,045	644,059	600,779	(43,280)
Recreation	1,009,303	1,065,091	803,494	(261,597)
Parks maintenance	1,966,705	2,337,478	2,002,446	(335,032)
Vesper hall (50+ programs)	764,914	804,440	577,040	(227,400)
Building maintenance	963,248	972,854	861,089	(111,765)
Capital outlay	1,047,000	1,047,000	2,095,320	1,048,320
Total expenditures	33,179,594	35,289,987	32,843,522	(2,446,465)
Excess (deficiency) of revenues over expenditures	452,401	(1,609,771)	2,621,336	4,231,107

(Continued)

City of Blue Springs, Missouri

Required Supplementary Information—Unaudited
Schedule of Revenues, Expenditures and Changes in Fund Balances (Continued)
Budget and Actual—General Fund
Year Ended September 30, 2025

	Original Budget	Final Budget	Actual (Budget Basis)	Variance With Final Budget
Other financing sources (uses):				
Transfers in	$ 50,954	$ 129,210	$ 126,863	$ (2,347)
Transfers out	(503,354)	(4,956,354)	(5,033,948)	(77,594)
Total other financing sources (uses)	(452,400)	(4,827,144)	(4,907,085)	(79,941)
Net change in fund balance	$ 1	$ (6,436,915)	(2,285,749)	$ 4,151,166
Fund balance, beginning of year			18,378,685	
Fund balance, end of year—budget basis			16,092,936	
Adjustments, encumbrances and other			(135,717)	
Fund balance, end of year—GAAP basis			$ 15,957,219	
Net change in fund balance - budget basis			$ (2,285,749)	
Adjustments:				
Encumbrances—beginning of year			(1,099,510)	
Issuance of leases			184,704	
Issuance of SBITAs			476,971	
Proceeds from sales of capital assets			162,208	
Principal retirement			(671,675)	
Encumbrances—end of year			811,585	
Net change in fund balance—GAAP basis			$ (2,421,466)	

See note to required supplementary information.

City of Blue Springs, Missouri

Required Supplementary Information—Unaudited
Schedule of Revenues, Expenditures and Changes in Fund Balances
Budget and Actual—Park Sales Tax Fund
Year Ended September 30, 2025

	Original Budget	Final Budget	Actual (Budget Basis)	Variance With Final Budget
Revenues:				
Taxes	$ 5,446,456	$ 5,446,456	$ 5,676,133	$ 229,677
Intergovernmental revenues	-	-	473,949	473,949
Investment income	565,866	565,866	56,369	(509,497)
Total revenues	6,012,322	6,012,322	6,206,451	194,129
Expenditures:				
Capital outlay	5,220,000	7,516,003	6,596,816	(919,187)
Debt service:				
Principal retirement	550,000	575,000	575,000	-
Interest and fiscal charges	1,660,194	1,635,194	1,634,914	(280)
Total expenditures	7,430,194	9,726,197	8,806,730	(919,467)
Net change in fund balances	$ (1,417,872)	$ (3,713,875)	(2,600,279)	$ 1,113,596
Fund balance, beginning of year			3,374,585	
Fund balance, end of year—budget basis			774,306	
Adjustments, encumbrances			(367,985)	
Fund balance, end of year—GAAP basis			$ 406,321	
Net change in fund balance—budget basis			$ (2,600,279)	
Adjustments:				
Encumbrances—beginning of year			(909,375)	
Encumbrances—end of year			541,390	
Net change in fund balance—GAAP basis			$ (2,968,264)	

See note to required supplementary information.

City of Blue Springs, Missouri

Note to Required Supplementary Information

The legal level of control is at the fund level. City management cannot amend the budget without receiving the approval of the City Council. The City Administrator is authorized to approve overspending of budgeted line items within any fund as long as the total expenditures within the fund do not exceed the total approved budgeted expenditures for that fund. However, overspending of total expenditures of any fund requires approval by the City Council.

NONMAJOR GOVERNMENTAL FUNDS

Hotel Motel Tax Fund—established to account for the financial activity related to the collection of the hotel occupancy taxes.

Public Safety Sales Tax Fund—established to account for the collection of the City's public safety sales tax and related expenditures including equipment, additional personnel and facility renovations.

Blue Springs Land Bank Agency – established to account for foreclosed properties, primarily those in the City's Neighborhood Improvement District, to sell for back taxes.

American Rescue Plan Act Fund—accounts for federal grant revenues allocated through the American Rescue Plan Act and uses of those grant funds.

City of Blue Springs, Missouri

Combining Balance Sheet
Nonmajor Governmental Funds
September 30, 2025

	Hotel Motel Tax	Public Safety Sales Tax	Blue Springs Land Bank Agency
Assets			
Cash and investments	$ 1,836,247	$ 6,559,388	$ 56,718
Receivables, net of allowance for uncollectibles:			
Property taxes	-	-	-
Other taxes	133,949	941,874	-
Accounts	-	-	618
Prepaid items	-	182,044	-
Land held for resale	-	-	190,278
Restricted cash and investments	-	1,534,643	-
Total assets	$ 1,970,196	$ 9,217,949	$ 247,614
Liabilities and Fund Balance			
Liabilities			
Accounts payable	$ 19,572	$ 60,251	$ -
Accrued liabilities	-	126,094	-
Due to other funds	-	67,506	-
Deposit	-	-	10,000
Total liabilities	19,572	253,851	10,000
Deferred inflows of resources:			
Unavailable revenue—property taxes	-	-	618
Unavailable revenue—other	59,574	-	-
Total deferred inflows of resources	59,574	-	618
Fund balance:			
Nonspendable:			
Prepaid items	-	182,044	-
Restricted:			
Tourism	1,891,050	-	-
Public safety building improvements	-	8,782,054	-
Land	-	-	236,996
Total fund balance	1,891,050	8,964,098	236,996
Total liabilities and fund balance	$ 1,970,196	$ 9,217,949	$ 247,614

	American Rescue Plan Act		Total Nonmajor Governmental Funds
$	8,949	$	8,461,302
	-		-
	-		1,075,823
	-		618
	-		182,044
	-		190,278
	-		1,534,643
$	8,949	$	11,444,708
$	8,949	$	88,772
	-		126,094
	-		67,506
	-		10,000
	8,949		292,372
	-		618
	-		59,574
	-		60,192
	-		182,044
	-		1,891,050
	-		8,782,054
	-		236,996
	-		11,092,144
$	8,949	$	11,444,708

City of Blue Springs, Missouri

Combining Statement of Revenues, Expenditures and Changes in Fund Balances—Nonmajor Governmental Funds
Year Ended September 30, 2025

	Hotel Motel Tax	Public Safety Sales Tax	Blue Springs Land Bank Agency
Revenues:			
Taxes	$ 736,427	$ 5,277,347	$ 167,803
Intergovernmental revenues	-	-	-
Investment income (loss)	63,241	331,548	23,108
Other	-	-	4,474
Total revenues	799,668	5,608,895	195,385
Expenditures:			
Current:			
General government	326,598	-	205,411
Public safety	-	3,221,696	-
Capital outlay	-	306,297	-
Debt service:			
Principal retirement	-	780,887	-
Interest and fiscal charges	-	765,182	-
Total expenditures	326,598	5,074,062	205,411
Excess (deficiency) of revenues over expenditures	473,070	534,833	(10,026)
Other financing sources (uses):			
Issuance of SBITAs	-	29,648	-
Transfers out	(196,672)	-	-
Total other financing sources (uses)	(196,672)	29,648	-
Net change in fund balances	276,398	564,481	(10,026)
Fund balances, beginning, as originally reported	1,614,652	8,399,617	247,022
Changes to, or within, the financial reporting entity	-	-	-
Fund balances, beginning, as adjusted	1,614,652	8,399,617	247,022
Fund balances, ending	$ 1,891,050	$ 8,964,098	$ 236,996

American Rescue Plan Act	Capital Projects	Total Nonmajor Governmental Funds
$ -	$ -	$ 6,181,577
2,390,651	-	2,390,651
-	-	417,897
-	-	4,474
2,390,651	-	8,994,599
-	-	532,009
-	-	3,221,696
2,390,651	-	2,696,948
-	-	780,887
-	-	765,182
2,390,651	-	7,996,722
-	-	997,877
-	-	29,648
-	-	(196,672)
-	-	(167,024)
-	-	830,853
-	10,378,879	20,640,170
-	(10,378,879)	(10,378,879)
-	-	10,261,291
$ -	$ -	$ 11,092,144

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances Budget and Actual—Hotel Motel Tax Fund Year Ended September 30, 2025

	Original Budget	Final Budget	Actual (Budget basis)	Variance With Final Budget
Revenues:				
Taxes	$ 737,974	$ 737,974	$ 735,805	$ (2,169)
Fines and forfeits	5,723	5,723	622	(5,101)
Investment income	35,355	35,355	63,241	27,886
Total revenues	779,052	779,052	799,668	20,616
Expenditures, current, general government	380,000	498,461	354,277	(144,184)
Excess of revenues over expenditures	399,052	280,591	445,391	164,800
Other financing uses:				
Transfers out	(196,672)	(196,672)	(196,672)	-
Net change in fund balances	$ 202,380	$ 83,919	248,719	$ 164,800
Fund balance, beginning of year			1,614,652	
Fund balance, end of year—budget basis			1,863,371	
Adjustments, encumbrances			27,679	
Fund balance, end of year—GAAP basis			$ 1,891,050	
Net change in fund balance—budget basis			$ 248,719	
Adjustments:				
Encumbrances—beginning of year			(1,406)	
Encumbrances—end of year			29,085	
Net change in fund balance—GAAP basis			$ 276,398	

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances Budget and Actual—Public Safety Sales Tax Fund Year Ended September 30, 2025

	Original Budget	Final Budget	Actual (Budget Basis)	Variance With Final Budget
Revenues:				
Taxes	$ 5,166,412	$ 5,166,412	$ 5,277,347	$ 110,935
Investment income (loss)	300,554	300,554	331,548	30,994
Total revenues	5,466,966	5,466,966	5,608,895	141,929
Expenditures:				
Current:				
Public safety	3,387,262	3,444,180	3,229,789	(214,391)
Capital outlay	600,000	600,000	405,542	(194,458)
Capital improvements	85,000	1,217,762	133,015	(1,084,747)
Debt service:				
Principal retirement	630,000	630,000	630,000	-
Interest and fiscal charges	742,313	742,313	747,098	4,785
Total expenditures	5,444,575	6,634,255	5,145,444	(1,488,811)
Net change in fund balance	$ 22,391	$ (1,167,289)	463,451	$ 1,630,740
Fund balance, beginning of year			8,399,617	
Fund balance, end of year—budget basis			8,863,068	
Adjustments, encumbrances and SBITA			101,030	
Fund balance, end of year—GAAP basis			$ 8,964,098	
Net change in fund balance—budget basis			$ 463,451	
Adjustments:				
Encumbrances—beginning of year			(1,087,125)	
Issuance of SBITA			29,648	
Encumbrances—end of year			1,158,507	
Net change in fund balance—GAAP basis			$ 564,481	

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances Budget and Actual—Blue Springs Land Bank Agency Year Ended September 30, 2025

	Original Budget	Final Budget	Actual (Budget basis)	Variance With Final Budget
Revenues:				
Taxes	$ 339,570	$ 151,728	$ 167,803	$ 16,075
Investment income	8,000	5,000	23,108	18,108
Other	-	-	4,474	4,474
Total revenues	347,570	156,728	195,385	38,657
Expenditures, current, general government	350,943	162,228	205,411	43,183
Net change in fund balances	$ (3,373)	$ (5,500)	(10,026)	$ (4,526)
Fund balance, beginning of year			247,022	
Fund balance, end of year—budget basis			-	
Adjustments, encumbrances			-	
Fund balance, end of year—GAAP basis			$ 236,996	
Net change in fund balance—budget basis			$ (10,026)	
Adjustments:				
Encumbrances—beginning of year			-	
Encumbrances—end of year			-	
Net change in fund balance—GAAP basis			$ (10,026)	

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances Budget and Actual—General Obligation Debt Service Fund Year Ended September 30, 2025

	Original Budget	Final Budget	Actual	Variance With Final Budget
Revenues:				
Taxes	$ 2,065,240	$ 2,065,240	$ 2,148,628	$ 83,388
Investment income	118,365	118,365	142,122	23,757
Total revenues	2,183,605	2,183,605	2,290,750	107,145
Expenditures:				
Current, general government	-	-	34,592	34,592
Debt service:				
Principal retirement	1,335,000	1,335,000	1,335,000	-
Interest and fiscal charges	397,648	397,648	925,606	527,958
Total expenditures	1,732,648	1,732,648	2,295,198	562,550
Net change in fund balance	$ 450,957	$ 450,957	(4,448)	$ (455,405)
Fund balance, beginning of year			3,236,738	
Fund balance, end of year			$ 3,232,290	

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances
Budget and Actual—Capital Projects Fund
Year Ended September 30, 2025

	Original Budget	Final Budget	Actual (Budget Basis)	Variance With Final Budget
Revenues:				
Taxes	$ 5,009,436	$ 5,009,436	$ 5,281,435	$ 271,999
Intergovernmental revenues	400,000	400,000	292,525	(107,475)
Investment income (loss)	113,500	113,500	970,420	856,920
Total revenues	5,522,936	5,522,936	6,544,380	1,021,444
Expenditures:				
Current:				
Land/Buildings	-	3,000,000	3,130,649	130,649
Streets and Highways	5,768,650	46,663,987	24,473,119	(22,190,868)
Capital outlay	-	3,188,862	(167,091)	(3,355,953)
Total expenditures	5,768,650	52,852,849	27,436,677	(25,416,172)
Excess (deficiency) of revenues over expenditures	(245,714)	(47,329,913)	(20,892,297)	26,437,616
Other financing sources (uses):				
Issuance of bonds	-	33,275,369	33,024,572	(250,797)
Transfers in	453,354	4,906,354	5,001,118	94,764
Transfers out	-	(183,554)	(185,304)	(1,750)
Total other financing sources (uses)	453,354	37,998,169	37,840,386	(157,783)
Net change in fund balances	$ 207,640	$ (9,331,744)	16,948,089	$ 26,279,833
Fund balance, beginning of year			10,378,879	
Fund balance, end of year—budget basis			27,326,968	
Adjustments, encumbrances			13,228,301	
Fund balance, end of year—GAAP basis			$ 40,555,269	
Net change in fund balance—budget basis			$ 16,948,089	
Adjustments:				
Encumbrances—beginning of year			(8,903,651)	
Encumbrances—end of year			22,131,952	
Net change in fund balance—GAAP basis			$ 30,176,390	

City of Blue Springs, Missouri

Combining Balance Sheet—TIF Fund Projects
September 30, 2025

	Woods Chapel TIF	Adams Farm TIF	White Oaks TIF
Assets			
Cash	$ -	$ 352,692	$ 96,098
Receivables:			
Property taxes	148,996	2,012,415	334,731
Other taxes	7,171	-	37,212
Interest	-	-	4,836
Due from other funds	5,356	225,694	57,148
Due from other governments	3,878	478,056	37,282
Restricted cash and investments	-	4,337,240	2,170,591
Total assets	$ 165,401	$ 7,406,097	$ 2,737,898
Liabilities			
Accounts payable	$ -	$ -	$ -
Due to other funds	41	1,764	786
Total liabilities	41	1,764	786
Deferred inflows of resources			
Unavailable revenue—property taxes	148,996	2,012,415	334,731
Unavailable revenue—other	2,594	78,402	10,255
Total deferred inflows of resources	151,590	2,090,817	344,986
Fund balance			
Restricted, debt service	13,770	5,313,516	2,392,126
Total fund balance	13,770	5,313,516	2,392,126
Total liabilities, deferred inflows of resources and fund balance	$ 165,401	$ 7,406,097	$ 2,737,898

White Oak A TIF	Total
$ 209,680	$ 658,470
229,777	2,725,919
-	44,383
-	4,836
-	288,198
-	519,216
-	6,507,831
$ 439,457	$ 10,748,853
$ 209,680	$ 209,680
-	2,591
209,680	212,271
229,777	2,725,919
-	91,251
229,777	2,817,170
-	7,719,412
-	7,719,412
$ 439,457	$ 10,748,853

City of Blue Springs, Missouri

Combining Schedule of Revenues, Expenditures and Changes in Fund Balances—
TIF Fund Projects
Year Ended September 30, 2025

	Woods Chapel TIF	Adams Farm TIF	White Oaks TIF
Revenues:			
Taxes	$ 22,183	$ 1,429,352	$ 193,880
Intergovernmental activity taxes	185,959	3,774,042	832,377
Investment income	-	163,563	81,936
Total revenues	208,142	5,366,957	1,108,193
Expenditures:			
Current, economic development	80,171	271,988	47,383
Debt service:			
Principal retirement	187,456	3,615,000	565,000
Interest and fiscal charges	-	1,493,051	388,115
Total expenditures	267,627	5,380,039	1,000,498
Excess (deficiency) of revenues over expenditures	(59,485)	(13,082)	107,695
Other financing sources (uses):			
Issuance of developer costs	60,281	-	-
Transfers out	(843)	(17,097)	(5,851)
Total other financing sources (uses)	59,438	(17,097)	(5,851)
Net change in fund balances	(47)	(30,179)	101,844
Fund balances, beginning of year	13,817	5,343,695	2,290,282
Fund balances, end of year	$ 13,770	$ 5,313,516	$ 2,392,126

White Oak A TIF	Total
$ -	$ 1,645,415
227,655	5,020,033
-	245,499
227,655	6,910,947
65,687	465,229
209,680	4,577,136
-	1,881,166
275,367	6,923,531
(47,712)	(12,584)
32,662	92,943
(2,240)	(26,031)
30,422	66,912
(17,290)	54,328
17,290	7,665,084
$ -	$ 7,719,412

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances—
Budget and Actual—Woods Chapel TIF
Year Ended September 30, 2025

	Original Budget	Final Budget	Actual	Variance With Final Budget
Revenues:				
Taxes and intergovernmental activity taxes	$ 202,871	$ 202,871	$ 208,142	$ 5,271
Expenditures:				
Current, economic development	11,322	11,322	80,171	68,849
Debt service:				
Principal retirement	189,520	189,520	187,456	(2,064)
Total expenditures	200,842	200,842	267,627	66,785
Excess of revenues over expenditures	2,029	2,029	(59,485)	(61,514)
OFS: Issuance of developer costs	-	-	60,281	60,281
Other financing (uses), transfers out	(2,029)	(2,029)	(843)	1,186
Net change in fund balances	$ -	$ -	(47)	$ (47)
Fund balances, beginning of year			13,817	
Fund balances, end of year			$ 13,770	

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances—
Budget and Actual—Adams Farm TIF
Year Ended September 30, 2025

	Original Budget	Final Budget	Actual	Variance With Final Budget
Revenues:				
Taxes and intergovernmental activity taxes	$ 5,148,311	$ 5,148,311	$ 5,203,394	$ 55,083
Investment income	176,603	176,603	163,563	(13,040)
Total revenues	5,324,914	5,324,914	5,366,957	42,043
Expenditures:				
Current, economic development				
Economic development	332,019	332,019	271,988	(60,031)
Debt service:				
Principal retirement	3,401,502	3,616,502	3,615,000	(1,502)
Interest and fiscal charges	1,571,393	1,571,393	1,493,051	(78,342)
Total expenditures	5,304,914	5,519,914	5,380,039	(139,875)
Excess (deficiency) of revenues over expenditures	20,000	(195,000)	(13,082)	181,918
Other financing (uses), transfers (out)	(20,000)	(20,000)	(17,097)	2,903
Net change in fund balances	$ -	$ (215,000)	(30,179)	$ 184,821
Fund balances, beginning of year			5,343,695	
Fund balances, end of year			$ 5,313,516	

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances—
Budget and Actual—White Oaks TIF
Year Ended September 30, 2025

	Original Budget	Final Budget	Actual	Variance With Final Budget
Revenues:				
Taxes and intergovernmental activity taxes	$ 1,021,823	$ 1,021,823	$ 1,026,257	$ 4,434
Investment income	57,981	57,981	81,936	23,955
Total revenues	1,079,804	1,079,804	1,108,193	28,389
Expenditures:				
Current, economic development	48,517	48,517	47,383	(1,134)
Debt service:				
Principal retirement	600,000	600,000	565,000	(35,000)
Interest and fiscal charges	428,287	425,287	388,115	(37,172)
Total expenditures	1,076,804	1,073,804	1,000,498	(73,306)
Excess (deficiency) of revenues over expenditures	3,000	6,000	107,695	101,695
Other financing sources (uses), transfers (out)	(6,000)	(6,000)	(5,851)	149
Net change in fund balances	$ (3,000)	$ -	101,844	$ 101,844
Fund balances, beginning of year			2,290,282	
Fund balances, end of year			$ 2,392,126	

City of Blue Springs, Missouri

Schedule of Revenues, Expenditures and Changes in Fund Balances—
Budget and Actual—White Oaks A TIF
Year Ended September 30, 2025

	Original Budget	Final Budget	Actual	Variance With Final Budget
Revenues:				
Taxes and intergovernmental activity taxes	$ 328,141	$ 328,141	$ 227,655	$ (100,486)
Total revenues	328,141	328,141	227,655	(100,486)
Expenditures:				
Current, economic development	34,741	34,741	65,687	30,946
Debt service:				
Principal retirement	291,300	291,300	209,680	(81,620)
Total expenditures	326,041	326,041	275,367	(50,674)
Excess (deficiency) of revenues over expenditures	2,100	2,100	(47,712)	(49,812)
OFS: Issuance of developer costs	-	-	32,662	32,662
Other financing sources (uses), transfers (out)	(2,100)	(2,100)	(2,240)	(140)
Net change in fund balances	$ -	$ -	(17,290)	$ (17,290)
Fund balances, beginning of year			17,290	
Fund balances, end of year			$ -	

CUSTODIAL FUNDS

Custodial Funds are used to account for resources received by the City as agent.

Woods Chapel Community Improvement District—accounts for amounts collected on behalf of the District.

Adams Dairy Landing Community Improvement District—accounts for amounts collected on behalf of the District.

Adams Farm Transportation Development District—accounts for amounts collected on behalf of the District.

White Oaks Community Improvement District—accounts for amounts collected on behalf of the District.

Fall Creek Community Improvement District—accounts for amounts collected on behalf of the District.

Sunset Plaza Community Improvement District— accounts for amounts collected on behalf of the District.

North Blue Springs Community Improvement District—accounts for amounts collected on behalf of the District.

Downtown Blue Springs Community Improvement District—accounts for amounts collected on behalf of the District.

Colonial Gardens Community Improvement District—accounts for amounts collected on behalf of the District.

City of Blue Springs, Missouri

Combining Statement of Fiduciary Net Position
Custodial Funds
September 30, 2025

	Woods Chapel CID	Adams Dairy Landing CID	Adams Farm TDD	White Oak CID
Assets				
Cash	$ -	$ -	$ -	$ -
Receivables:				
Sales taxes	7,370	-	1,190	3,690
Special assessments	-	461,699	-	-
Restricted cash and investments	-	499,395	-	-
Total assets	$ 7,370	$ 961,094	$ 1,190	$ 3,690
Liabilities				
Accounts payable	$ -	$ -	$ 1,190	$ 3,690
Accrued interest	-	61,156	-	-
Due to developer	-	84,978	-	-
Bonds payable, net of discount	-	2,535,900	-	-
Total liabilities	-	2,682,034	1,190	3,690
Deferred inflows of resources				
Special assessment taxes for next year	-	397,684	-	-
Net position (deficit)				
Net position restricted	7,370	-	-	-
Unrestricted deficit	-	(2,118,624)	-	-
Total net position (deficit)	7,370	(2,118,624)	-	-
Total liabilities, deferred inflows of resources and net position (deficit)	$ 7,370	$ 961,094	$ 1,190	$ 3,690

Fall Creek CID	Sunset Plaza CID	North Blue Springs CID	Downtown Blue Springs CID	Colonial Gardens CID	Total
$ 144,348	$ 6,610	$ 17,919	$ 160,339	$ 40,296	$ 369,512
21,921	10,283	18,585	8,031	2,399	73,469
-	-	-	-	-	461,699
-	-	-	-	-	499,395
$ 166,269	$ 16,893	$ 36,504	$ 168,370	$ 42,695	$ 1,404,075
$ 93,489	$ 6,784	$ 18,902	$ 9,658	$ 3,063	$ 136,776
-	-	-	-	-	61,156
-	1,448	-	-	-	86,426
-	-	-	-	-	2,535,900
93,489	8,232	18,902	9,658	3,063	2,820,258
-	-	-	-	-	397,684
72,780	8,661	17,602	158,712	39,632	304,757
-	-	-	-	-	(2,118,624)
72,780	8,661	17,602	158,712	39,632	(1,813,867)
$ 166,269	$ 16,893	$ 36,504	$ 168,370	$ 42,695	$ 1,404,075

City of Blue Springs, Missouri

Combining Statement of Changes in Fiduciary Net Position
Custodial Funds
Year Ended September 30, 2025

	Woods Chapel CID	Adams Dairy Landing CID	Adams Farm TDD	White Oak CID
Additions:				
Sales taxes for other governments	$ 3,226	$ -	$ 7,186	$ 6,813
Special assessments	-	415,730	-	-
Total additions	3,226	415,730	7,186	6,813
Deductions:				
Professional services and other expenses	3,124	28,406	7,185	6,814
Payments to developers for project costs	-	-	-	-
Interest and amortization expense	-	192,549	-	-
Total deductions	3,124	220,955	7,185	6,814
Change in net position	102	194,775	1	(1)
Net position (deficit), beginning of year	7,268	(2,313,399)	(1)	1
Net position (deficit), end of year	$ 7,370	$ (2,118,624)	$ -	$ -

Fall Creek CID	Sunset Plaza CID	North Blue Springs CID	Downtown Blue Springs CID	Colonial Gardens CID	Total
$ 125,424	$ 58,919	$ 224,547	$ 56,400	$ 43,895	$ 526,410
-	-	-	-	-	415,730
125,424	58,919	224,547	56,400	43,895	942,140
10,041	5,074	4,107	6,044	4,263	75,058
86,570	56,116	236,551	43,095	-	422,332
-	-	-	-	-	192,549
96,611	61,190	240,658	49,139	4,263	689,939
28,813	(2,271)	(16,111)	7,261	39,632	252,201
43,967	10,932	33,713	151,451	-	(2,066,068)
$ 72,780	$ 8,661	$ 17,602	$ 158,712	$ 39,632	$ (1,813,867)

City of Blue Springs, Missouri

Statistical Section
Contents

The statistical section of the City's comprehensive annual financial report presents detailed information as a context for understanding what the information presented in the financial statements, note disclosures and required supplementary information say about the City's overall financial health.

Contents	Page
Financial Trends These schedules contain trend information to help the reader understand how the City's financial performance and well being have changed over time.	114-118
Revenue Capacity These schedules contain information to help the reader assess the City's two most significant local revenue sources: sales tax and property tax.	119-125
Debt Capacity These schedules present information to help the reader assess the affordability of the City's current levels of outstanding debt and the City's ability to issue additional debt in the future.	126-130
Demographic and Economic Information These schedules offer demographic and economic indicators to help the reader understand the environment within which the City's financial activities take place.	131-132
Operating Information These schedules contain service and infrastructure data to help the reader understand how the information in the City's financial report relates to the services the City provides and the activities it performs.	133-135

Sources: Unless otherwise noted, the information in these schedules is derived from the comprehensive annual financial report for the relevant year.

City of Blue Springs, Missouri

Net Position By Component
Last Ten Fiscal Years
(accrual basis of accounting)
(Unaudited)

	Fiscal Year									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Governmental activities:										
Net investment in capital assets	$ 50,935,498	$ 48,088,930	$ 63,608,289	$ 67,324,094	$ 78,330,229	$ 79,538,083	$ 90,632,320	$ 92,198,602	$ 91,364,950	$ 102,379,099
Restricted	10,961,851	17,419,058	16,400,993	25,743,995	25,519,150	30,734,242	28,088,525	42,559,821	26,660,632	27,600,376
Unrestricted (deficit)	(18,022,927)	(26,327,731)	(24,445,071)	(30,805,302)	(26,294,288)	(25,269,841)	(20,500,841)	(43,135,253)	(31,174,768)	(36,071,953)
Total governmental activities net position	$ 43,874,422	$ 39,180,257	$ 55,564,211	$ 62,262,787	$ 77,555,091	$ 85,002,484	$ 98,220,004	$ 91,623,170	$ 86,850,814	$ 93,907,522
Business-type activities:										
Net investment in capital assets	$ 51,265,320	$ 50,407,815	$ 50,424,392	$ 51,053,164	$ 52,889,750	$ 54,001,343	$ 53,129,887	$ 81,549,668	$ 96,834,583	$ 95,140,781
Restricted	1,575,649	1,575,505	1,571,849	1,545,511	1,388,165	1,744,335	1,808,522	1,342,221	1,175,745	985,152
Unrestricted	40,936,386	41,071,883	42,989,179	42,504,639	44,393,402	46,142,263	47,605,638	49,253,465	55,094,306	58,898,408
Total business-type activities net position	$ 93,777,355	$ 93,055,203	$ 94,985,420	$ 95,103,314	$ 98,671,317	$ 101,887,941	$ 102,544,047	$ 132,145,354	$ 153,104,634	$ 155,024,341
Primary government:										
Net investment in capital assets	$ 102,200,818	$ 98,496,745	$ 114,032,681	$ 118,377,258	$ 131,219,979	$ 133,539,426	$ 143,762,207	$ 173,748,270	$ 155,029,533	$ 164,924,880
Restricted	12,537,500	18,994,563	17,972,842	27,289,506	26,907,315	32,478,577	29,897,047	43,902,042	27,836,377	28,585,528
Unrestricted	22,913,459	14,744,152	18,544,108	11,699,337	18,099,114	20,872,422	27,104,797	6,118,212	57,089,538	55,421,455
Total primary government net position	$ 137,651,777	$ 132,235,460	$ 150,549,631	$ 157,366,101	$ 176,226,408	$ 186,890,425	$ 200,764,051	$ 223,768,524	$ 239,955,448	$ 248,931,863

City of Blue Springs, Missouri

Changes In Net Position
Last Ten Fiscal Years
(accrual basis of accounting)
(Unaudited)

	Fiscal Year									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Expenses:										
Governmental activities:										
General government	$ 6,420,523	$ 7,257,755	$ 6,389,183	$ 7,269,330	$ 6,657,046	$ 10,395,918	$ 8,008,240	$ 8,056,546	$ 12,001,747	$ 9,674,596
Public works	701,230	735,017	706,567	700,843	935,938	410,133	1,414,310	669,718	2,197,308	1,502,590
Highways and streets	8,365,757	10,975,662	8,385,717	11,198,828	9,327,948	14,181,379	10,661,731	10,709,918	10,546,156	14,392,068
Public safety	16,788,117	15,198,731	15,581,118	15,706,926	15,878,979	15,787,835	17,642,896	17,350,162	19,569,867	20,596,953
Parks and recreation	4,269,900	4,514,983	4,320,343	4,845,702	5,607,363	4,285,655	8,435,631	5,825,337	8,168,607	10,081,489
Economic development	267,098	5,324,067	5,314,852	945,637	813,949	1,662,054	787,342	1,356,847	2,401,871	465,229
Interest and fiscal charges	4,064,700	4,829,799	4,143,672	4,050,603	3,673,128	3,546,963	3,190,926	5,456,512	4,805,429	5,409,434
Total governmental activities expenses	40,877,325	48,836,014	44,841,452	44,717,869	42,894,351	50,269,937	50,141,076	49,425,040	59,690,985	62,122,359
Business-type activities:										
Water	9,424,854	10,317,418	10,877,316	11,037,502	10,692,410	11,269,956	11,605,650	12,716,565	12,270,849	13,583,719
Sewer	9,599,824	9,713,317	9,650,812	9,959,618	8,331,954	9,298,038	10,121,704	9,604,411	9,479,289	10,228,552
Golf course	1,658,105	1,736,689	1,682,473	1,747,726	1,702,350	1,936,774	2,214,435	2,260,750	2,481,856	2,476,738
Non-major: Fieldhouse	1,012,307	1,122,838	1,214,815	1,228,526	1,273,061	993,036	1,197,813	1,219,393	3,720,158	5,627,841
Total business-type activities expenses	21,695,090	22,890,262	23,425,416	23,973,372	21,999,775	23,497,804	25,139,602	25,801,119	27,952,152	31,916,850
Total primary government expenses	62,572,415	71,726,276	68,266,868	68,691,241	64,894,126	73,767,741	75,280,678	75,226,159	87,643,137	94,039,209
Program revenue:										
Governmental activities:										
Charges for services:										
General government	3,598,475	3,838,541	4,156,925	4,305,466	3,914,728	4,381,973	4,728,947	3,924,068	4,449,832	4,218,279
Public works	162,531	208,751	41,511	228,626	82,737	223,109	190,652	92,858	38,871	59,844
Highways and streets	-	-	-	-	-		-	-	-	
Public safety	1,332,713	1,197,668	1,373,040	1,160,475	909,864	981,399	825,393	908,438	892,657	1,149,228
Parks and recreation	449,467	490,733	513,432	496,512	204,693	322,215	424,039	510,389	541,148	628,765
Operating grants and contributions	471,559	642,130	762,087	901,885	1,833,776	3,277,891	1,581,931	2,064,204	2,400,666	3,656,064
Capital grants and contributions	609,823	2,245,519	13,509,858	2,378,011	10,392,626	3,882,101	6,478,815	8,657,171	3,108,759	4,706,248
Total governmental activities program revenue	6,624,568	8,623,342	20,356,853	9,470,975	17,338,424	13,068,688	14,229,777	16,157,128	11,431,933	14,418,428
Business-type activities:										
Charges for services:										
Water	9,797,233	10,516,119	11,146,296	10,691,171	10,876,477	11,586,906	12,111,004	12,285,378	12,351,475	12,309,337
Sewer	7,482,274	7,814,538	8,894,100	8,946,731	9,304,720	9,912,844	10,294,794	10,914,458	12,132,830	12,883,621
Golf course	1,458,922	1,497,416	1,530,581	1,459,303	1,635,983	1,960,590	2,333,283	2,459,487	2,620,056	2,768,370
Fieldhouse	664,541	978,482	1,037,866	1,113,227	829,611	831,078	1,020,276	1,117,181	2,489,428	3,321,238
Capital grants and contributions	230,991	248,589	1,149,415	276,103	144,739	451,068	627,310	752,021	283,736	259,367
Total business-type activities program revenues	19,633,961	21,055,144	23,758,258	22,486,535	22,791,530	24,742,486	26,386,667	27,528,525	29,877,525	31,541,933
Total primary government program revenues	$ 26,258,529	$ 29,678,486	$ 44,115,111	$ 31,957,510	$ 40,129,954	$ 37,811,174	$ 40,616,444	$ 43,685,653	$ 41,309,458	$ 45,960,361

(Continued)

City of Blue Springs, Missouri

Changes In Net Position (Continued)
Last Ten Fiscal Years
(accrual basis of accounting)
(Unaudited)

	Fiscal Year									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Net (expense) revenue:										
Governmental activities	$ (34,252,757)	$ (40,212,672)	$ (24,484,599)	$ (35,246,894)	$ (25,555,927)	$ (37,201,249)	$ (35,911,299)	$ (33,267,912)	$ (48,259,052)	$ (47,703,931)
Business-type activities	(2,061,129)	(1,835,118)	332,842	(1,486,837)	791,755	1,244,682	1,247,065	1,727,406	1,925,373	(374,917)
Total primary government net expense	$ (36,313,886)	$ (42,047,790)	$ (24,151,757)	$ (36,733,731)	$ (24,764,172)	$ (35,956,567)	$ (34,664,234)	$ (31,540,506)	$ (46,333,680)	$ (48,078,848)
General revenues and other changes in net position:										
Governmental activities:										
Taxes:										
Sales taxes	$ 16,518,994	$ 16,573,548	$ 21,502,149	$ 21,791,422	$ 22,598,463	$ 24,950,480	$ 26,255,118	$ 27,716,890	$ 28,942,108	$ 29,542,798
Property taxes	6,122,937	5,940,624	6,146,648	6,356,809	6,303,805	6,894,685	7,107,137	7,482,727	8,477,137	8,425,711
Franchise tax	4,860,305	4,766,919	4,970,652	4,591,354	4,428,829	4,397,357	4,722,375	5,015,625	4,862,010	4,587,909
Intergovernmental activity taxes	3,952,005	4,590,028	5,151,086	5,222,871	4,687,553	5,072,645	5,421,502	5,289,238	5,297,986	5,020,033
Motor Vehicle	1,844,525	1,889,309	1,885,785	1,896,881	1,826,151	1,980,766	2,194,397	2,709,705	2,848,411	3,158,806
Hotel	591,123	613,430	544,598	548,466	423,550	597,422	765,984	761,709	694,626	736,427
Other taxes	364,960	383,330	414,475	411,062	445,081	433,681	2,263,717	651,870	666,186	657,532
Interest	386,448	442,397	540,230	952,152	598,571	261,382	(170,976)	2,496,138	2,987,935	2,608,185
Miscellaneous	410,308	534,546	566,742	555,846	610,253	443,489	702,276	798,120	4,672,180	144,515
Gain on disposal of capital assets					541,444		110,610	-	551,502	860,637
Transfers	(311,824)	(215,624)	(710,113)	(381,393)	(1,615,469)	(383,265)	(256,442)	(26,250,944)	(16,513,385)	(283,054)
Total governmental activities	34,739,781	35,518,507	41,012,252	41,945,470	40,848,231	44,648,642	49,115,698	26,671,078	43,486,696	55,459,499
Business-type activities:										
Interest	950,212	897,342	902,509	1,223,338	1,650,779	618,452	140,612	1,622,957	2,520,522	2,056,859
Transfers	311,824	215,624	710,113	381,393	1,615,469	383,265	256,442	26,250,944	16,513,385	283,054
Total business-type activities	1,262,036	1,112,966	1,612,622	1,604,731	3,266,248	1,001,717	397,054	27,873,901	19,033,907	2,339,913
Total primary government	$ 36,001,817	$ 36,631,473	$ 42,624,874	$ 43,550,201	$ 44,114,479	$ 45,650,359	$ 49,512,752	$ 54,544,979	$ 62,520,603	$ 57,799,412
Changes in net position:										
Governmental activities	487,024	(4,694,165)	16,527,653	6,698,576	15,292,304	7,447,393	13,204,399	(6,596,834)	(4,772,356)	7,755,568
Business-type activities	(799,093)	(722,152)	1,945,464	117,894	3,568,003	2,246,399	1,644,119	29,601,307	20,959,280	1,964,996
Total primary government	$ (312,069)	$ (5,416,317)	$ 18,473,117	$ 6,816,470	$ 18,860,307	$ 9,693,792	$ 14,848,518	$ 23,004,473	$ 16,186,924	$ 9,720,564

City of Blue Springs, Missouri

Fund Balances, Governmental Funds
Last Ten Fiscal Years
(modified accrual basis of accounting)
(Unaudited)

	Fiscal Year									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
General Fund:										
Nonspendable	$ 2,389,927	$ 2,436,877	$ 2,649,026	$ 2,872,873	$ 2,677,560	$ 2,373,915	$ 2,331,167	$ 2,528,125	$ 2,612,832	$ 2,808,250
Restricted	66,897	77,917	150,050	93,442	65,979	71,479	92,335	117,813	177,234	216,524
Committed	7,841,276	10,969,379	7,680,711	8,244,564	8,075,350	7,547,702	7,372,183	8,448,947	8,527,212	9,650,763
Assigned	1,542,188	474,644	729,539	644,144	522,279	1,234,832	5,923,705	4,742,700	698,932	522,699
Unassigned	2,217,410	1,337,706	3,160,724	4,299,621	8,113,165	7,689,796	1,972,025	4,306,890	6,362,475	2,758,983
Total General Fund	$ 14,057,698	$ 15,296,523	$ 14,370,050	$ 16,154,644	$ 19,454,333	$ 18,917,724	$ 17,691,415	$ 20,144,475	$ 18,378,685	$ 15,957,219
All other governmental funds:										
Nonspendable,										
Special revenue funds	$ 67,619	$ 53,015	$ 164,692	$ 88,132	$ 67,370	$ 69,025	$ 70,002	$ 88,106	$ 145,912	$ 182,044
Capital projects funds	326,911	-			-	-	-	-	326,911	-
Restricted/Committed/Assigned:										
Capital projects funds	4,704,131	5,637,222	6,437,127	3,489,828	3,109,151	884,709	4,551,845	5,315,869	10,051,968	48,274,681
Public Safety Sales Tax fund (1)	4,496,847	4,744,824	-	-	-	-	-	7,335,486	8,253,705	8,782,054
Debt Service fund (1)	-	-	894,421	-	-	-	-	2,678,670	3,236,738	3,232,290
Other governmental funds	7,065,198	12,503,696	15,238,059	17,814,128	18,003,386	20,467,136	18,305,393	25,525,697	12,901,343	2,534,367
Unassigned	-	(29,750)	-	-	-	-	(2,186,341)	-	-	
Total all other government funds	$ 16,660,706	$ 22,909,007	$ 22,734,299	$ 21,392,088	$ 21,179,907	$ 21,420,870	$ 20,740,899	$ 40,943,828	$ 34,916,577	$ 63,005,436

(1) Public Safety Sales Tax fund is not recognized as a major fund in FY2025; Debt Service fund is recognized as a major fund in FY2025 due to 2025 GO Bonds

City of Blue Springs, Missouri

Changes In Fund Balances, Governmental Funds
Last Ten Fiscal Years
(modified accrual basis of accounting)
(Unaudited)

	Fiscal Year									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues:										
Taxes	$ 27,837,343	$ 27,987,328	$ 33,222,499	$ 33,229,356	$ 34,033,665	$ 36,983,321	$ 38,904,131	$ 41,104,151	$ 43,074,717	$ 43,396,298
Intergovernmental activity taxes	3,949,611	5,018,954	5,295,540	5,417,477	4,687,553	5,072,645	5,421,502	5,289,238	5,297,986	5,020,033
Licenses, fees and permits	977,939	1,135,665	1,385,463	1,495,370	1,283,648	1,502,636	1,766,913	1,170,334	1,449,354	1,226,749
Intergovernmental	3,326,434	3,454,177	3,499,500	3,678,198	4,581,609	5,758,858	6,305,809	5,523,460	6,074,180	7,701,784
Charges for services	1,361,123	1,437,539	1,324,601	1,461,165	851,190	1,525,428	1,627,182	1,355,783	1,572,340	1,521,206
Administrative charges	1,839,701	1,874,568	1,930,456	1,930,456	2,004,252	2,063,759	2,016,260	2,105,084	2,147,395	2,307,147
Fines, forfeitures and court costs	1,033,510	902,432	1,061,126	882,616	580,544	553,379	492,342	521,615	490,931	731,731
Investment income (loss)	386,448	442,397	540,229	952,152	598,571	261,382	(170,976)	2,496,138	2,987,935	2,608,185
Donations	37,383	72,023	104,528	64,202	33,375	62,074	57,047	89,128	130,721	571,783
Other	412,066	525,709	555,150	590,016	610,253	443,489	702,276	798,120	1,273,574	860,637
Total revenues	41,161,558	42,850,792	48,919,092	49,701,008	49,264,660	54,226,971	57,122,486	60,453,051	64,499,133	65,945,553
Expenditures:										
General government	6,017,583	6,197,037	6,006,634	6,146,384	5,918,310	8,129,849	6,748,294	7,095,459	8,548,858	7,445,554
Public works	701,230	676,063	717,984	667,293	689,064	916,418	919,180	757,772	780,289	569,632
Highways and streets	2,792,470	2,581,952	3,100,881	5,784,931	2,650,963	2,893,416	2,705,607	2,740,299	2,695,450	3,414,229
Public safety	14,963,894	13,168,457	13,534,211	13,572,670	13,440,592	16,744,644	14,579,856	14,755,042	16,425,221	17,938,837
Parks and recreation	3,685,781	3,753,671	5,185,979	7,500,496	3,540,630	4,102,376	4,144,321	4,711,943	4,737,432	4,816,563
Economic development	267,098	3,743,117	4,062,286	575,907	450,368	1,033,441	448,302	455,838	785,065	465,229
Capital outlay	4,375,399	3,829,446	6,997,406	4,612,171	10,295,712	11,036,184	18,729,650	9,038,462	11,542,721	25,809,329
Debt service:										
Principal	4,682,255	5,936,176	18,025,120	6,001,963	4,716,979	5,115,634	7,630,615	6,823,745	7,513,141	8,052,362
Interest	3,480,693	4,259,195	4,277,205	4,047,895	3,588,775	3,700,315	3,390,462	5,179,365	4,861,131	5,534,330
Bond Issuance Costs	-	300,406	174,335	-	-	-	-	-	-	-
Total expenditures	40,966,403	44,445,520	62,082,041	48,909,710	45,291,393	53,672,277	59,296,287	51,557,925	57,889,308	74,046,065
Excess of revenues over (under) expenditures	195,155	(1,594,728)	(13,162,949)	791,298	3,973,267	554,694	(2,173,801)	8,895,126	6,609,825	(8,100,512)
Other financing sources (uses):										
Issuance of leases	-	-	-	-	-	-	8,123	1,381,627	940,650	176,919
Issuance of SBITAs	-	-	-	-	-	-	-	114,909	1,019,023	506,619
Issuance of bonds	-	9,265,000	-	-	-	-	-	34,370,000	-	31,427,248
Issuance of developer costs	-	-	-	-	-	-	-	-	-	124,140
Refunded bond proceeds	-	-	11,915,000	-	-	-	-	-	-	-
Premium/(Discount) on issuance	-	-	824,403	-	-	-	-	1,176,018	-	1,684,745
Payment to refunded bond escrow agent	-	-	-	-	-	-	-	-	-	-
Capital lease issuance	-	-	-	-	61,500	-	-	-	-	-
Transfers in	1,745,057	2,057,902	9,597,611	1,733,243	2,191,629	943,261	5,518,981	2,243,702	5,130,494	5,127,981
Transfers out	(2,024,403)	(2,241,048)	(10,275,246)	(2,082,158)	(3,774,620)	(1,811,852)	(5,742,945)	(25,609,745)	(21,875,016)	(5,441,955)
Sale of capital assets	-	-	-	-	635,732.00	18,251	457,731	84,352	73,963	162,208
Total other financing sources (uses)	(279,346)	9,081,854	12,061,768	(348,915)	(885,759)	(850,340)	241,890	13,760,863	(14,710,886)	33,767,905
Net changes in fund balances	$ (84,191)	$ 7,487,126	$ (1,101,181)	$ 442,383	$ 3,087,508	$ (295,646)	$ (1,931,911)	$ 22,655,989	$ (8,101,061)	$ 25,667,393
Debt service as a percentage of noncapital expenditures	22.5%	24.4%	42.0%	24.8%	22.2%	18.1%	23.5%	26.6%	24.0%	23.8%

City of Blue Springs, Missouri

Total City Taxable Sales by Category
Current Fiscal Year and Prior Nine Years

Sales by Retail Category:	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Retail	$ 760,521	$ 588,608	$ 611,365	$ 596,911	$ 654,800	$ 720,255	$ 756,075	$ 815,612	$ 830,372	$ 847,044
Manufacturing	9	14,550	20,549	19,951	11,987	15,424	16,376	16,643	18,237	17,651
Restaurants	39,186	93,942	108,330	104,610	107,053	122,717	141,569	144,492	156,325	176,396
Services	33,807	105,500	101,604	108,221	95,623	96,949	113,661	108,827	105,922	89,223
All other outlets	24,686	58,141	61,535	73,543	73,983	80,614	80,408	71,238	76,740	72,808
Total	$ 858,209	$ 860,741	$ 903,383	$ 903,236	$ 943,446	$ 1,035,959	$ 1,108,089	$ 1,156,812	$ 1,187,596	$ 1,203,122

Note: Amounts are in thousands of dollars. NAICS codes were updated in 2017 reflecting changes in some categories.

Source: Missouri Department of Revenue

City of Blue Springs, Missouri

Sales Tax Rates
Direct and Overlapping Governments
Last Ten Calendar Years
(in percent)

	Fiscal Year									
Direct Sales Tax Rate City of Blue Springs	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
General fund	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Transportation	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Public Safety	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Parks		-	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Direct sales tax rate City of Blue Springs	2.000	2.000	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500
Total Local Option Sales Tax Rate										
State of Missouri	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000
Mo. State Conservation	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Mo. State Parks and Soil	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Jackson County	1.125	1.250	1.250	1.250	1.250	1.250	1.250	1.375	1.375	1.375
City of Blue Springs	2.000	2.000	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500
Central Jackson County Fire Protection District	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Zoo	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Total direct and overlapping sales tax rate	7.975	8.100	8.600	8.600	8.600	8.600	8.600	8.725	8.725	8.725
Transportation Development Districts & Community Improvement Districts										
Adams Farm Transportation Development District	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Home Depot Transportation Development District	0.500	0.500	0.500	-	-	-	-	-	-	-
Coronado Drive Transportation Development District	0.500	0.500	0.500	0.500	-	-	-	-	-	-
Oaks at Woods Chapel Community Improvement District	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
White Oak Community Improvement District	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Fall Creek Community Improvement District	-	-	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sunset Plaza Community Improvement District	-	-	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000
North Blue Springs Community Improvement District	-	-	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Downtown Blue Springs Community Improvement District	-	-	-	-	-	1.000	1.000	1.000	1.000	1.000
Colonial Gardens Community Improvement District	-	-	-	-	-	-	-	-	1.000	1.000

Note: The rates shown for the Transportation Development Districts and Community Improvement Districts are in addition to the direct and overlapping rates and apply within those districts only.

Source: Missouri Department of Revenue.

City of Blue Springs, Missouri

Assessed Value and Estimated Actual Value of Taxable Property
Last Ten Fiscal Years
(Unaudited)

Fiscal Year	Real Property				Other Property		Total Taxable Assessed Value	Total Direct Tax Rate	Estimated Market Value	Assessed Value as a Percentage of Actual Value
	Residential Property	Agricultural Property	Commercial Property	Total	Personal Property	Railroads & Utilities				
2016	$ 515,457,495	$ 176,724	$ 114,610,010	$ 630,244,229	$ 134,012,963	$ 14,284,738	$ 778,541,930	0.7281	$ 3,519,644,302	22.12
2017	523,141,324	179,919	122,135,174	645,456,417	141,360,112	14,391,221	801,207,750	0.7281	3,606,024,540	22.22
2018	553,128,990	175,489	137,007,429	690,311,908	142,107,728	13,665,988	846,085,624	0.7184	3,810,271,981	22.21
2019	567,284,999	166,284	137,657,977	705,109,260	150,784,513	14,164,124	870,057,897	0.7175	3,914,346,632	22.23
2020	665,200,915	167,342	191,837,168	857,205,425	152,796,151	14,280,190	1,024,281,766	0.6463	4,605,416,008	22.24
2021	657,268,639	167,850	169,726,058	827,162,547	156,325,904	14,990,987	998,479,438	0.6817	4,507,395,301	22.15
2022	739,091,573	172,316	177,625,274	916,889,163	177,072,506	15,643,330	1,109,604,999	0.6366	5,027,105,269	22.07
2023	759,128,461	164,994	188,907,583	948,201,038	225,415,201	16,982,933	1,190,599,172	0.6366	5,317,118,291	22.39
2024	995,255,180	154,355	221,393,830	1,216,803,365	205,944,066	18,131,222	1,440,878,653	0.5759	6,606,437,886	21.81
2025	989,371,099	161,531	216,968,203	1,206,500,833	193,897,678	18,134,666	1,418,533,177	0.5801	6,525,534,177	21.74

Note: The assessed value is set at 19% for residential property; 12% for agricultural property; and 32% for commercial property of the estimated fair market value.

Source: Jackson County Assessor's Office

City of Blue Springs, Missouri

Direct and Overlapping Governments
Last Ten Fiscal Years
(rate per $100 assessed value)

	City Direct Rates (1)			Overlapping Rates (2 & 3)					
Fiscal Year	Basic/ General Rate	Debt Service	Total Direct	Central Jackson County Fire	Metropolitan Junior College	Blue Springs School District	Jackson County	State	Total Overlapping
2016	0.5781	0.1500	0.7281	1.1731	0.2343	5.7286	1.0038	0.0300	8.1698
2017	0.5781	0.1500	0.7281	1.1762	0.2339	5.7286	1.0117	0.0300	8.1804
2018	0.5684	0.1500	0.7184	1.1566	0.2297	5.7286	1.0685	0.0300	8.2134
2019	0.5675	0.1500	0.7175	1.1519	0.2305	5.7286	1.2867	0.0300	8.4277
2020	0.4963	0.1500	0.6463	1.0292	0.2047	5.5500	1.1371	0.0300	7.9510
2021	0.5317	0.1500	0.6817	1.0886	0.2128	5.7286	1.1511	0.0300	8.2111
2022	0.4866	0.1500	0.6366	1.3440	0.2028	5.7286	1.1032	0.0300	8.4086
2023	0.4866	0.1500	0.6366	1.3449	0.2028	5.7286	1.1109	0.0300	8.4172
2024	0.4259	0.1500	0.5759	1.1847	0.1780	5.0635	0.9696	0.0300	7.4258
2025	0.4301	0.1500	0.5801	1.2078	0.1806	5.1685	0.9914	0.0300	7.5783

Notes: 1 The General Fund levy rates are limited by Missouri Statues to $1.00 per $100.00 assessed valuation. There is no limit on the levy rates for General Debt and Interest.

2 County Tax Breakdown for Current Year:

Health & Welfare Fund	0.1440
General Fund	0.2010
Road & Bridge Fund	0.0644
Park Fund	0.0962
Senior Services	-
Mid-Continent Public Library	0.3152
Handicap	0.0732
Mental Health	0.0974
Total County	0.9914

3 Two other school districts are in the City of Blue Springs. School tax rates for the current year in these districts are:

Grain Valley Reorganized #5	4.7382
Lee's Summit Reorganized #7	4.7309

Note: Taxes are due November 1, delinquent after December 31. Interest of 1.5% per month, up to a maximum of 18% annually is added for each month of delinquency. Collections are enforced through the attachment and sale of the property. Commercial real property is also assessed an additional "replacement tax" of 1.437 per $100 assessed value.

City of Blue Springs, Missouri

Principal Property Taxpayers
Current Year and Nine Years Ago
(Unaudited)

	2025			2016		
Taxpayer	Taxable Assessed Value	Rank	Percentage of Total Taxable Assessed Value	Taxable Assessed Value	Rank	Percentage of Total Taxable Assessed Value
Evergy West (KCPL / Aquila)	$ 19,813,950	1	22.33	$ 15,323,392	1	28.09
MPT of Blue Springs LLC	11,520,000	2	12.98	$ 9,428,060	2	17.29
ADL Retail Associates LLC	12,260,089	3	13.82			
BSEC Holdings LLC	8,004,542	4	9.02			
Wal-Mart Stores, Inc.	7,802,515	5	8.79	6,514,697	3	11.94
KQ Blue Springs LLC	7,602,299	6	8.57			
Kohl's Department Store	6,153,834	7	6.93	5,620,567	4	10.30
Fike Metal Products Corp.	5,781,471	8	6.51	3,804,441	5	6.98
RS Rental III-A LLC	4,992,706	9	5.63			-
PI BVT LLC	4,810,784	10	5.42			-
Prime Healthcare Services of Blue Springs LLC				3,292,544	6	6.04
Comcast of MO Inc.				3,185,077	7	5.84
Blue Springs Senior Community LLC				2,721,826	8	4.99
George & Jeanette Ward				2,536,365	9	4.65
Sunnyside Gardens Apts-Blue Springs LLC				2,116,873	10	3.88
Total	$ 88,742,190		100.00	$ 54,543,842		100.00

Source: Jackson County Collection Department

City of Blue Springs, Missouri

Property Tax Levies and Collections
Last Ten Fiscal Years
(Unaudited)

Fiscal Year Ended September 30:	Taxes Levied for the Fiscal Year	Collected Within the Fiscal Year of the Levy		Collections in Subsequent Years	Total Collections to Date	
		Amount	Percentage of Levy		Amount	Percentage of Levy
2016	$ 7,424,315	$ 7,267,788	97.89	$ 155,202	$ 7,422,990	99.98
2017	7,605,288	7,442,336	97.86	162,090	7,604,426	99.99
2018	8,051,212	7,881,226	97.89	169,944	8,051,170	100.00
2019	8,452,816	8,281,118	97.97	171,544	8,452,662	100.00
2020	9,196,613	9,031,772	98.21	139,643	9,171,415	99.73
2021	9,031,004	8,893,167	98.47	109,503	9,002,670	99.69
2022	9,001,098	8,852,178	98.35	111,722	8,963,900	99.59
2023	9,782,166	9,546,727	97.59	168,357	9,715,083	99.31
2024	10,423,190	10,175,906	97.63	63,328	10,239,233	98.24
2025	10,289,822	9,724,431	94.51			

City of Blue Springs, Missouri

Ratios of Outstanding Debt
Last Ten Fiscal Years
(Unaudited)

	Governmental Activities						Business-type Activities						
Fiscal Year	General Obligation Bonds	Leasehold Revenue Bonds	Special Obligation Bonds	Leased assets & subscription liability	Certifications of Participation	Development Agreement	Leased assets & subscription liability	Certificates of Participation	Neighborhood Improvements	State Revolving Fund Loan	Total Primary Government	Percentage of Personal Income	Per Capita (1)
2016	$ 22,195,204	$ -	$ 45,796,685	$ 3,412,143	$ 20,555,474	$ 8,745,327	$ 54,542	$ 2,714,450	$ 15,317,127	$ 18,813,200	$ 137,604,152	8.87	2541.26
2017	21,304,597	-	52,323,200	2,822,029	20,275,500	8,860,208	61,931	2,452,846	14,437,559	17,722,900	140,260,770	8.50	2576.85
2018	20,454,693	-	49,969,715	2,213,175	19,990,528	8,826,501	243,322	2,176,241	13,507,991	16,611,201	133,993,367	8.15	2438.68
2019	19,385,388	-	47,211,230	1,584,931	19,695,557	7,847,426	258,675	1,894,636	10,704,789	15,477,601	124,060,233	7.17	2251.38
2020	18,242,401	-	45,377,745	986,624	19,682,201	7,063,833	171,811	1,608,031	9,896,810	14,321,601	117,351,057	6.38	2101.97
2021	17,059,418	-	43,309,260	357,548	19,668,843	6,390,888	83,133	1,306,426	8,978,831	13,142,901	110,297,248	5.99	1882.11
2022	15,811,433	-	38,450,775	115,813	19,425,489	5,762,424	45,535	999,821	8,025,852	11,941,001	100,578,143	4.80	1692.38
2023	14,508,446	-	69,739,107	1,232,428	18,832,133	6,254,608	262,895	678,217	7,032,873	10,715,401	129,256,108	4.94	2171.71
2024	13,165,460	-	65,501,422	2,498,337	18,213,777	3,558,915	290,342	346,611	5,989,895	9,465,701	119,030,460	4.85	1966.18
2025	44,822,350	-	60,718,736	2,280,689	17,570,421	3,251,880	230,351	-	4,896,915	8,191,301	141,962,643	5.46	2317.91

Notes: See Table 16 for personal income and population data. The 2006 ratios are calculated using personal income and population data from table 16 which is an estimate.

City of Blue Springs, Missouri

Ratios of General Bonded Debt Outstanding
Last Ten Fiscal Years
(Unaudited)

Fiscal Year	General Bonded Debt Outstanding: General Obligation Bonds	Less Amounts Available in Debt Service	Total	Percentage of Est. Actual Taxable Value of Property (1)	Per Capita (2)
2016	$ 22,195,204	$ (768,675)	$ 21,426,529	0.61	395.70
2017	21,304,597	(837,157)	20,467,440	0.57	376.03
2018	20,454,693	(891,692)	19,563,001	0.51	356.05
2019	19,385,388	(1,102,861)	18,282,527	0.47	331.78
2020	18,242,401	(1,404,496)	16,837,905	0.37	301.60
2021	17,059,418	(1,740,230)	15,319,188	0.34	261.41
2022	15,811,433	(2,223,166)	13,588,267	0.27	228.64
2023	14,508,446	(2,678,670)	11,829,776	0.22	198.76
2024	13,165,460	(3,236,738)	9,928,722	0.15	164.01
2025	44,822,350	(3,232,290)	41,590,060	0.64	679.07

Notes: 1 See Table 7 for property value data.

2 See Table 16 for population data.

City of Blue Springs, Missouri

Direct and Overlapping Governmental Activities Debt
For the Year Ended September 30, 2025
(Unaudited)

Name of Governmental Unit	Debt Outstanding	Estimated Percentage Applicable	Estimated Share of Overlapping Debt
Debt repaid with property taxes			
City of Blue Springs	128,644,076	100.00%	128,644,076
Total direct debt	128,644,076		128,644,076
Blue Springs Reorganized #4 School District	353,645,000	54.85%	193,974,283
Grain Valley Reorganized #5 School District	61,675,000	9.77%	6,025,648
Central Jackson County Fire Protection District	23,170,000	71.33%	16,527,161
Lee's Summit School District	264,392,000	2.50%	6,609,800
Total overlapping debt	702,882,000		223,136,891
Total direct and overlapping debt	$ 831,526,076		$ 351,780,967

Note: Overlapping governments are those that coincide, at least in part, with the geographic boundaries of the City. This schedule estimates the portion of the outstanding debt of those overlapping governments that is borne by the residents and businesses of Blue Springs. This process recognizes that, when considering the City's ability to issue and repay long-term debt, the entire debt burden borne by the residents and businesses should be taken into account. However, this does not imply that every taxpayer is a resident, and therefore responsible for repaying the debt, of each overlapping government.

Source: The debt outstanding data and applicable percentages provided by each governmental entity.

City of Blue Springs, Missouri

Legal Debt Margin Information
Last Ten Fiscal Years
(Unaudited)

	Fiscal Year									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Debt Limit (1)	$ 155,708,386	$ 160,241,550	$ 169,217,125	$ 174,011,579	$ 204,856,353	$ 199,695,888	$ 221,921,000	$ 238,119,834	$ 288,175,731	$ 283,706,635
Total net debt applicable to limit	21,426,529	20,467,440	19,560,272	18,282,527	16,837,905	15,319,188	13,588,267	11,829,776	9,928,722	41,590,060
Legal debt margin	$ 134,281,857	$ 139,774,110	$ 135,254,441	$ 155,729,052	$ 188,018,448	$ 184,376,700	$ 208,332,733	$ 226,290,059	$ 278,247,009	$ 242,116,575
Total net debt to the limit as a percentage of debt limit	13.76%	12.77%	20.07%	10.51%	8.22%	7.67%	6.12%	4.97%	3.45%	14.66%

Legal Debt Margin Calculation for Fiscal Year 2025	
Assessed Value	$ 1,418,533,177
Debt Limit (20% of assessed value)	283,706,635
General obligation:	
City-wide	44,822,350
Total Bonded Debt	44,822,350
Less:	
Debt Service Fund Balance	3,232,290
Total net debt applicable to limit	41,590,060
Legal debt margin	$ 242,116,575

Notes:
1 - Article 6, Section 26(b) of the Missouri Constitution permits any county or city, by vote of four-sevenths of qualified electors voting thereon, to incur an indebtedness for city purposes not to exceed 5 percent of the value of the taxable tangible property therein, as shown by the last assessment.

1 - Article 6, Section 26(c) of the Missouri Constitution permits any county or city, by vote of four-sevenths of qualified electors voting thereon, to incur additional indebtedness for city purposes not to exceed 5 percent of the value of the taxable tangible property therein, as shown by the last assessment.

1 - Article 6, Section 26(d) & (e) of the Missouri Constitution provides that any city may become indebted not exceeding in the aggregate an additional 10 percent of the value of the taxable tangible property for the purpose of acquiring right-of-ways, constructing, extending and improving streets and avenues and/or sanitary or storm sewer systems and an additional 10 percent for purchasing or construction of waterworks, electric or other light plants provided the total general obligated indebtedness of the city does not exceed 20 percent of the assessed valuation.

City of Blue Springs, Missouri

Pledged-Revenue Coverage
Last Ten Fiscal Years
(Unaudited)

Fiscal Year	Revenues	Less Operating Expenses (1)	Net Available Revenue	Debt Service		Coverage
				Principal	Interest (2)	
2016	$ 17,279,507	$ 14,664,073	$ 2,615,434	$ 1,069,200	$ 297,492	1.91
2017	18,330,657	15,507,334	2,823,323	1,090,300	281,626	2.06
2018	20,040,396	16,006,996	4,033,400	1,111,700	264,384	2.93
2019	19,637,902	16,444,642	3,193,260	1,133,600	248,204	2.31
2020	20,181,197	14,784,307	5,396,890	1,156,000	230,888	3.89
2021	21,499,750	15,472,099	6,027,651	1,178,700	213,231	4.33
2022	22,405,798	17,576,647	4,829,151	1,201,900	195,227	3.46
2023	23,193,638	18,080,299	5,113,339	1,225,600	176,869	3.65
2024	24,664,305	17,926,281	6,738,024	1,249,700	158,148	4.79
2025	25,192,958	19,960,045	5,232,913	1,274,400	139,059	3.70

Details regarding the City's outstanding debt can be found in the Notes to the Financial Statements.

Notes: 1 Operating expenses excludes depreciation, interest expense, amortization and non-operating expenses.
2 Includes estimated fiscal charges.

City of Blue Springs, Missouri

Demographic and Economic Statistics
Last Ten Fiscal Years
(Unaudited)

Fiscal Year Ended September 30, (3)	Population (1)	Personal Income (in thousands)	Per Capita Personal Income (1)	Median Age (1)	School Enrollment (2)	Unemployment Rate (1)
2016	54,148	$ 1,641,875,656	$ 28,663	35.60	14,382	4.90%
2017	54,431	1,650,456,782	30,322	35.40	14,738	4.90%
2018	54,945	1,644,339,015	29,927	35.90	14,880	3.70%
2019	55,104	1,729,604,352	31,388	34.50	15,067	2.10%
2020	55,829	1,839,788,866	32,954	34.50	15,087	3.30%
2021	58,603	1,840,016,994	31,398	35.40	15,194	3.90%
2022	59,430	2,095,501,800	35,260	36.40	15,285	1.80%
2023	59,518	2,616,173,208	40,843	36.40	15,477	2.50%
2024	60,539	2,452,071,656	40,504	36.60	15,439	2.90%
2025	61,246	2,598,239,058	42,423	36.70	15,549	3.30%

Sources: 1 Information provided by KCADC through the Blue Springs Economic Development Council - Claritas report
2 Information provided by school districts. In 2017, numbers were updated to include all 3 private schools
3 The information shown is for fiscal years.

City of Blue Springs, Missouri

Principal Employers
Current Year and Nine Years Ago
(Unaudited)

	2025			2016		
Employer	Employees	Rank	Percentage of Total City Employment	Employees	Rank	Percentage of Total City Employment
Blue Springs School District	2,037	1	6.74%	1,998	1	6.90%
St. Mary's Hospital of Blue Springs	575	2	1.90%	545	2	1.88%
Hy-Vee	545	3	1.80%	460	3	1.59%
Fike Corporation	510	4	1.69%	460	3	1.59%
Forvia (formerly Faurecia Interiors Systems Inc)	500	5	1.65%			
Wal-Mart Stores, Inc.	426	6	1.41%	355	5	1.23%
City of Blue Springs	339	7	1.12%	289	7	1.00%
Price Chopper	331	8	1.10%	335	6	1.16%
Kohl's Distribution Center	200	9	0.66%			
Target	168	10	0.56%	135	9	0.47%
Home Depot				147	8	0.51%
Texas Roadhouse				130	10	0.45%
Total	5,631		18.62%	4,854		16.77%

Source: Blue Springs Chamber of Commerce

City of Blue Springs, Missouri

Full-Time Equivalent City Government Employees by Functions/Programs
Last Ten Fiscal Years
(Unaudited)

Function/Program	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
General Government:										
Administration	6.00	7.00	10.50	9.50	8.50	9.50	9.50	9.50	10.50	10.50
Legal	2.00	2.00	2.00	3.00	3.00	3.00	4.00	4.00	3.00	1.00
Public relations and communications	3.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Human resources	2.00	2.50	2.50	3.00	3.00	3.00	3.00	3.00	4.00	4.00
Information services	5.00	5.00	5.00	5.00	5.00	5.00	5.00	6.00	7.00	7.00
Community development	8.65	8.25	8.25	8.25	8.25	8.25	8.25	8.25	9.25	7.25
Codes administration	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
Geographic information systems	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Economic development	N/A	2.00	2.00	1.00	-	-	1.00	1.00	1.00	1.00
Finance	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50
Municipal court	6.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62
Public Works	7.00	7.00	7.00	7.00	6.00	6.00	6.00	6.00	6.00	6.00
Highways and streets	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80
Public Safety:										
Administration	3.00	4.00	4.00	4.00	4.00	4.00	6.00	6.00	6.00	6.00
Operations	81.00	81.00	81.00	79.00	79.00	79.00	78.00	78.00	78.00	82.00
Staff services	28.00	28.00	28.00	30.00	30.00	30.00	30.00	30.00	30.00	28.00
Professional standards	-	-	-	-	-	-				
Community/youth outreach	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	30.00
Parks and recreation										
Administration	4.00	4.00	4.00	4.00	4.00	4.00	5.00	5.00	5.00	4.00
Building maintenance	3.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	5.00
50-Plus Programs	7.47	7.47	7.47	7.47	7.47	7.47	7.47	7.47	8.47	8.47
Parks maintenance	21.21	15.46	15.46	15.46	15.46	15.46	15.46	15.46	15.46	13.46
Recreation	5.30	5.30	5.30	8.08	7.08	7.08	8.08	8.08	8.08	11.58
Swimming pool										
Fieldhouse	23.78	23.78	23.78	16.36	16.35	16.35	16.35	16.35	32.99	32.49
Water:										
Operations	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Maintenance	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Sewer:										
Operations	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Maintenance	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Sni-A-Bar treatment plant	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Fleet Maintenance Fund	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Total	318.79	315.14	318.64	313.50	309.49	310.49	314.49	315.49	336.13	339.13

Source: City of Blue Springs Budget

City of Blue Springs, Missouri

Operating Indicators by Function/Program
Last Ten Fiscal Years
(Unaudited)

Function/Program	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Police,										
Number of citations issued	10,562	10,542	11,443	8,031	6,903	4,691	4,227	5,115	6,422	9,046
Public Works:										
Street overlay (lane miles)	21.00	23.00	-	-	3.50	18.76	13.21	19.66	11.00	53.00
Potholes repaired	4,273	3,700	3,588	6,499	8,509	9,462	11,774	11,247	12,064	9,491
Crack sealing (lane miles)	39.00	70.00	79.84	16.42	4.00	0.90	1.57	1.00	0.80	40.48
Slurry seal (sq. yds.)	-	-	-	-	-	71,663	69,918	-	-	-
Parks and Recreation:										
Park shelter reservations	941	899	949	815	290	737	648	833	798	841
Vesper Hall rentals	104	144	78	168	50	66	105	99	70	60
Number of participants in recreation programs	156,560	164,388	172,607	173,000	69,170	82,170	94,516	32,094	33,159	62,524
Community Development:										
Building permits issued	914	1,009	1,164	1,268	1,303	1,425	1,338	1,344	1,154	1,215
Number of nuisance violations cited	3,621	3,226	3,405	2,441	2,258	1,970	2,119	1,931	1,855	2,108
Water:										
Number of customers	21,458	21,265	21,361	21,462	22,372	22,745	23,003	23,274	23,476	23,740
Water main breaks	54	74	73	123	67	87	135	190	117	129
New water connections	83	126	217	155	115	70	74	75	71	55
Sewer:										
Number of customers	20,923	21,315	21,446	21,717	21,862	22,226	22,485	22,751	22,951	23,208
New sewer connections	161	145	145	363	365	394	215	216	164	173

Source: City of Blue Springs, Missouri Budget

City of Blue Springs, Missouri

Capital Asset Statistics by Function/Program
Last Ten Fiscal Years
(Unaudited)

Function/Program	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Police:										
Police stations	1	1	1	1	1	1	1	1	1	1
Police sub-stations	3	3	3	3	3	3	3	3	3	3
Patrol Vehicles	24	24	24	24	24	28	28	32	32	32
Motorcycles	-	2	2	2	2	2	2	2	2	2
Public Works:										
Total area (square miles)	22.26	22.26	22.26	22.26	22.27	22.27	22.27	22.27	22.27	22.83
Paved miles (lane miles-previously line miles) (1)	599.72	599.72	614.00	614.00	616.35	619.26	624.11	510.80	510.80	564.74
Street lights	2,670	2,735	2,735	2,810	3,005	3,006	3,006	2,987	3,006	3,073
Storm sewers (miles)	123.00	123.00	126.00	126.00	131.91	144.90	134.53	134.53	134.53	139.00
Parks and Recreation:										
Park acreage - developed & golf course	558.00	558.00	554.00	554.00	554.00	554.00	554.00	604.00	604.00	604.00
Park acreage - undeveloped & preserved	271.00	271.00	291.00	291.00	291.00	291.00	291.00	212.00	212.00	212.00
Parks - developed (2)	16	16	16	16	16	16	15	14	14	14
Parks - undeveloped (2)	6	6	6	6	6	6	6	6	6	6
Aquatic Center	-	-	-	-	-	-	-	-	1	1
Swimming pools	2	2	2	2	-	-	-	-	-	-
Splash pad	-	-	-	1	1	1	1	1	1	1
Soccer fields	12	12	12	12	12	12	12	12	12	12
Tennis courts	20	20	20	20	20	20	19	20	20	20
Pickleball courts	-	-	-	-	-	-	4	4	4	4
Skate parks	2	2	2	2	2	2	2	2	2	2
Baseball fields	8	8	8	8	8	8	10	8	8	8
Softball fields	15	15	15	15	15	15	16	15	15	15
Miles of walking/bike trails	18	18	18	18	18	18	19	19	19	19
Community centers	1	1	1	1	1	1	1	1	1	1
Conference centers	1	1	1	1	1	1	1	1	1	1
Public golf courses	2	2	2	2	2	2	2	2	2	2
Football fields	3	3	3	3	3	3	3	3	3	3
BMX race track	1	1	1	1	1	1	1	1	1	1
Basketball courts	7	7	7	7	7	7	7	7	7	7
Sand volleyball courts	11	11	11	11	11	11	10	11	10	10
Picnic shelters (3)	17	17	17	17	17	17	17	18	18	18
Gazeebo (3)	1	1	1	1	1	1	1	2	2	2
Playgrounds	15	15	15	15	15	15	15	15	15	15
Dog park facility	1	1	1	1	1	1	1	1	1	1
Fieldhouse	-	1	1	1	1	1	1	1	1	1
Water:										
Water mains (miles)	277.04	277.04	278.00	279.00	279.00	281.16	278.98	278.98	278.98	279.44
Fire hydrants	2,481	2,497	2,518	2,528	2,539	2,554	2,565	2,565	2,565	2,589
Average daily consumption (millions of gallons)	5.10	4.50	4.40	4.50	4.20	4.35	4.63	4.77	4.73	4.60
Sewer:										
Number of treatment plants	1	1	1	1	1	1	1	1	1	1
Sewer mains (miles)	273.00	273.00	278.74	281.00	283.46	291.07	285.53	285.53	295.62	289.70
Average daily treatment (millions of gallons)	4.70	4.30	4.20	3.90	5.37	4.92	4.70	4.40	4.30	4.10
Manhole lined	21	56	13	55	-	82	-	-	-	42
Mains lined	147	134	129	133	27	136	48	48	115	67
Main point repairs	3	2	2	2	2	3	2	-	-	2

Source: City of Blue Springs, Missouri Budget
Note (1): Advances in GIS technology have enabled us to more specifically identify total paved miles. These numbers have been restated for 2013 through 2017 to be reflected in Lane Miles.
Note (2): Developed and Undeveloped Parks were updated as part of the Parks Open Space Master Plan that was completed in fiscal year 2016.
Note (3): Parks shelters were updated to separate the Gazeebo in 2022.

RSM US LLP

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February 23, 2026

Honorable Mayor and
Members of the City Council
City of Blue Springs, Missouri
Blue Springs, Missouri

This letter is to inform the Honorable Mayor and City Council of the City of Blue Springs, Missouri (the City) about significant matters related to the conduct of our audit as of and for the year ended September 30, 2025, so that you can appropriately discharge your oversight responsibility and we comply with our professional responsibilities.

The following required communications summarize our responsibilities regarding the financial statement audit as well as observations from our audit that are significant and relevant to your responsibility to oversee the financial reporting process.

Our Responsibilities

We described our responsibilities under auditing standards generally accepted in the United States of America and *Government Auditing Standards* issued by the Comptroller General of the United States to you in our engagement letter dated September 8, 2025. Our audit of the basic financial statements (hereafter, the financial statements) does not relieve management or you of your responsibilities, which are also described in that letter.

Planned Scope and Timing of the Audit

We have previously issued a separate communication dated November 25, 2025 regarding the planned scope and timing of our audit and identified significant risks.

Significant Accounting Practices, Including Policies, Estimates and Disclosures

In our meeting with you, we will discuss our views about the qualitative aspects of the City's significant accounting practices, including significant accounting policies, significant unusual transactions, accounting estimates and financial statement disclosures. The following is a list of the matters that will be discussed, including the significant estimates, which you may wish to monitor for your oversight responsibilities of the financial reporting process:

Significant Accounting Estimates:

- Depreciable Useful Life of Capital Assets
- Fair Value of Investments
- Net Pension Liability Assumptions
- Allowance for uncollectable receivables
- Compensated absences liability, implementation of GASB Statement No. 101, *Compensated Absences*
- Lease liability

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Adoption of, or Change in, Accounting Policies:

- GASB Statement No. 101, *Compensated Absences*, was implemented by the City for the fiscal year ended September 30, 2025. The standard was designed to better meet the information needs of financial statement users by updating the recognition and measurement guidance for compensated absences. That objective is achieved by aligning the recognition and measurement guidance under a unified model and by amending certain previously required disclosures. As a result of this implementation, the financial statements have been restated as of October 1, 2024 as this standard requires a retroactive implementation for the earliest period presented in the financial statements, see further information in Note 14 to the financial statements.

- GASB Statement No. 102, *Certain Risk Disclosures*, was implemented by the City for the fiscal year ended September 30, 2025. Management concluded there was no material impact, with no specific disclosures meeting the criteria.

Audit Adjustments and Uncorrected Misstatements

Management corrected the following material misstatements that were identified as a result of our audit procedures:

Business-Type Activities

	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Factual Misstatement					
Remove asset and liability recognition for asset not received by the City until fiscal year 2026	$ (294,719)	$ 294,719	$ -	$ -	$ -
Remove duplicated capital asset	(30,830)	-	-	-	30,830
Total impact	$ (325,549)	$ 294,719	-	$ -	$ 30,830
Effect of current year net position			30,830		
Total			$ 30,830		

Sewer Fund

	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Factual Misstatement					
Remove asset and liability recognition for asset not received by the City until fiscal year 2026	$ (294,719)	$ 294,719	$ -	$ -	$ -
Effect of current year net position			-		
Total			$ -		

Golf Fund

	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Factual Misstatement					
Remove duplicated capital asset	$ (30,830)	$ -	$ -	$ -	$ 30,830
Effect of current year net position			30,830		
Total			$ 30,830		

We identified the following uncorrected misstatements that management has concluded are not, individually or in the aggregate, material to the financial statements. We agree with management's conclusion in that regard. Uncorrected misstatements or matters underlying them could potentially cause future-period financial statements to be materially misstated, even if we have concluded that the uncorrected misstatements are immaterial to the financial statements under audit.

Governmental Activities

	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Carryover impact from previous years	$ -	$ -	$ -	$ -	$ -
Current year misstatement, factual:					
Adjust compensated absences	-	216,132	207,873	-	(424,005)
Correct court bond assets and liability into custodial funds	(287,083)	287,083	-	-	-
Current year misstatement, judgmental:					
Estimated understatement of net pension asset and liability for the netting of the LAGERS divisions	1,358,862	(1,358,862)	-	-	-
Total	$ 1,071,779	$ (855,647)	207,873	$ -	$ (424,005)
Effect of current year passed adjustments on net position			(424,005)		
Total			$ (216,132)		

General Fund

	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Carryover impact from previous years	$ -	$ -	$ -	$ -	$ -
Current year misstatement, factual:					
Correct court bond assets and liability into custodial funds	(287,083)	287,083	-	-	-
Total	$ (287,083)	$ 287,083	-	$ -	$ -
Effect of current year passed adjustments on fund balance			-		
Total			$ -		

Aggregate Remaining Fund Information

	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Carryover impact from previous years	$ -	$ -	$ -	$ -	$ -
Current year misstatement, factual:					
Correct court bond assets and liability into custodial funds	287,083	(287,083)	-	-	-
Total	$ 287,083	$ (287,083)	-	$ -	$ -
Effect of current year passed adjustments on fund balance			-		
Total			$ -		

Internal Control Matters and Compliance Findings

We have separately communicated internal control matters and compliance findings over financial reporting identified during our audit of the basic financial statements and major awards, as required by *Government Auditing Standards* and when applicable, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* at 2 CFR 200 (Uniform Guidance). This communication is included in the City of Blue Springs, Missouri Compliance Report for the year ended September 30, 2025.

Other Matters

The current year Independent Auditor's Report includes the following Emphasis of Matter paragraph:

Emphasis of Matter

As discussed in Note 14 to the basic financial statements, the City adopted Governmental Accounting Standards Board (GASB) Statement No. 101, Compensated Absences, as of October 1, 2024. The implementation of this standard resulted in the restatement of beginning net position of the governmental activities, business-type activities, water utility fund, sewer utility fund, fieldhouse fund, and aggregate remaining fund information opinion units. Our opinions are not modified with respect to this matter.

Shared Responsibilities for Independence

Independence is a **joint responsibility** and is managed most effectively when management, audit committees (or their equivalents), and audit firms work together in considering compliance with American Institute of Certified Public Accountants (AICPA) and *Government Accountability Office* (GAO) independence rules. For RSM to fulfill its professional responsibility to maintain and monitor independence, management, the Honorable Mayor and City Council, and RSM each play an important role.

Our Responsibilities

- AICPA and GAO rules require independence both of mind and in appearance when providing audit and other attestation services. RSM is to ensure that the AICPA and GAO's General Requirements for performing non-attest services are adhered to and included in all letters of engagement.
- Maintain a system of quality management over compliance with independence rules and firm policies.

The City's Responsibilities

- Timely inform RSM, before the effective date of transactions or other business changes, of the following:
  - New affiliates, directors, or officers.
  - Changes in the organizational structure or the reporting entity impacting affiliates such as subsidiaries, partnerships, related entities, investments, joint ventures, component units, jointly governed organizations.
- Provide necessary affiliate information such as new or updated structure charts, as well as financial information required to perform materiality calculations needed for making affiliate determinations.
- Understand and conclude on the permissibility, prior to the City and its affiliates, officers, directors, or persons in a decision-making capacity, engaging in business relationships with RSM.
- Not entering into arrangements of nonaudit services resulting in RSM being involved in making management decisions on behalf of the City.

- Not entering into relationships resulting in close family members of RSM covered persons, temporarily or permanently acting as an officer, director, or person in an accounting, financial reporting or compliance oversight role at the City.

Management Representations

Attached is a copy of the management representation letter.

Closing

We will be pleased to respond to any questions you have about the foregoing. We appreciate the opportunity to continue to be of service to the City.

This report is intended solely for the information and use of the Honorable Mayor and City Council and management, and is not intended to be, and should not be, used by anyone other than these specified parties.

RSM US LLP

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February 23, 2026

RSM US LLP
4622 Pennsylvania Ave, Suite 1100
Kansas City, MO 64112

This representation letter is provided in connection with your audit of the basic financial statements of the City of Blue Springs, Missouri (the City) as of and for the year ended September 30, 2025 for the purpose of expressing an opinion on whether the financial statements are presented fairly, in all material respects, in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP).

We confirm, to the best of our knowledge and belief, that as of February 23, 2026:

Financial Statements

1. We have fulfilled our responsibilities, as set out in the terms of the audit engagement letter dated September 8, 2025, for the preparation and fair presentation of the financial statements referred to above in accordance with U.S. GAAP.

2. We acknowledge our responsibility for the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

3. We acknowledge our responsibility for the design, implementation and maintenance of controls to prevent and detect fraud.

4. The methods, data, and significant assumptions used by us in making accounting estimates and their related disclosures are appropriate to achieve recognition, measurement, or disclosure that is reasonable in the context of U.S. GAAP, and reflect our judgment based on our knowledge and experience about past and current events, and our assumptions about conditions we expect to exist and courses of action we expect to take.

5. Related-party transactions have been recorded in accordance with the economic substance of the transaction and appropriately accounted for and disclosed in accordance with the requirements of U.S. GAAP. Types of related party transactions engaged in by the City include:

    a. Those with component units for which the City is accountable.

    b. Interfund transactions, including interfund accounts and advances receivable and payable, sale and purchase transactions, interfund transfers, long-term loans, leasing arrangements and guarantees.

6. All funds that meet the quantitative criteria in Government Accounting Standards Board (GASB) Statement No. 34; *Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments,* as amended, and No. 37, *Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments: Omnibus—an amendment of GASB Statements No. 21 and No. 34,* for presentation as major are identified and presented as such and all other funds that are presented as major are particularly important to financial statement users.

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7. The financial statements properly classify all funds and activities in accordance with Government Accounting Standards Board (GASB) Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions*, as amended.

8. The City followed either its established accounting policy regarding which resources (that is, restricted, committed, assigned or unassigned) are considered to be spent first for expenditures for which more than one resource classification is available or followed paragraph 18 of GASB Statement No. 54 to determine the fund balance classifications for financial reporting purposes.

9. The financial statements include all fiduciary activities required by GASB Statement No. 84, *Fiduciary Activities*, as amended.

10. All events subsequent to the date of the financial statements, and for which U.S. GAAP requires adjustment or disclosure, have been adjusted or disclosed.

11. The effects of all known actual or possible litigation and claims have been accounted for and disclosed in accordance with U.S. GAAP.

12. Management has followed applicable laws and regulations in adopting, approving and amending budgets.

13. Risk disclosures associated with deposit and investment securities are presented in accordance with GASB requirements.

14. Provisions for uncollectible receivables have been properly identified and recorded.

15. Capital assets, including infrastructure, intangible assets, and right of use assets are properly capitalized, reported and, if applicable, depreciated.

16. The government properly separated information in debt disclosures related to direct borrowings and direct placements of debt from other debt and disclosed any unused lines of credit, collateral pledged to secure debt, terms in the debt agreements related to significant default or termination events with finance-related consequences and significant subjective acceleration clauses in accordance with GASB Statement No. 88, *Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements*.

17. Components of net position (net investment in capital assets, restricted, and unrestricted) and classifications of fund balance (nonspendable, restricted, committed, assigned, and unassigned) are properly classified and, if applicable, approved.

18. Revenues are appropriately classified in the statement of activities within program revenues and general revenues.

19. Expenses have been appropriately classified in or allocated to functions and programs in the statement of activities, and allocations have been made on a reasonable basis.

20. Interfund, internal, and intra-entity activity and balances have been appropriately classified and reported.

21. The City's policy regarding whether to first apply restricted or unrestricted resources when an expense is incurred for purposes for which both restricted and unrestricted net position is available and appropriately disclosed and that net position is properly recognized under the policy.

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22. The government disclosed the names of entities with which it has a tax abatement agreement, the total gross amount of taxes abated during the period, the specific taxes that were abated and whether any commitments other than to reduce taxes were made as part of any tax abatement agreement as required by GASB Statement No. 77, *Tax Abatement Disclosures*.

23. The government disclosed tax abatements entered into by other governments that affect its revenues, including the names of the governments that entered into the agreements, the specified taxes being abated, and the gross dollar amount of taxes abated during the period, as required by GASB Statement No. 77.

24. Leases have been properly identified, recorded, and disclosed in accordance with GASB Statement No. 87, *Leases*.

25. Subscription-based information technology arrangements (SBITAs) have been properly identified, recorded, and disclosed in accordance with GASB Statement No. 96, *Subscription-Based Information Technology Arrangements.*

26. The government has properly measured, recorded, and disclosed compensated absences and other salary-related payments in accordance with GASB Statement No. 101, *Compensated Absences.*

27. There are no concentrations or constraints requiring disclosure in accordance with GASB Statement No. 102, *Certain Risk Disclosures.*

28. In the audit engagement letter dated September 8, 2025, we requested that you perform the following nonaudit services in connection with your audit:

    a. Preparation of the ACFR draft, including printing and binding the final report.

    b. Assistance with the preparation of the data collection form.

    With respect to these services:

    a. We have made all management decisions and performed all management functions;

    b. We assigned an appropriate individual to oversee the service;

    c. We evaluated the adequacy and results of the services performed, and made an informed judgment on the results of the service performed;

    d. We have accepted responsibility for the results of the service; and

    e. We have accepted responsibility for all significant judgments and decisions that were made.

29. We have no direct or indirect legal or moral obligation for any debt of any organization, public or private, or to special assessment bond holders, that is not disclosed in the financial statements.

30. The government has properly disclosed or recognized conduit debt obligations and/or certain arrangements associated with conduit debt obligations in accordance with GASB Statement No. 91, *Conduit Debt Obligations*.

31. We have complied with all aspects of laws, regulations and provisions of contracts and agreements that would have a material effect on the financial statements in the event of noncompliance.

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32. We have reviewed the GASB Statements effective for the fiscal year ending September 30, 2025, and concluded the implementation of the following Statements did not have a material impact on the basic financial statements:

    a. GASB Statement No. 102, *Certain Risk Disclosures*.

33. We believe the implementation of the GASB Statements listed below is appropriate:

    a. GASB Statement No. 101, *Compensated Absences* – Adopted methodology for determining the liability consistent with the guidance, enhanced footnote disclosures consistent with the new statement, and restated beginning net position in accordance with retroactive implementation.

34. We have informed you of all uncorrected misstatements.

    As of and for the year ended September 30, 2025, we believe that the effects of the uncorrected misstatements aggregated by you and summarized below are quantitatively and qualitatively immaterial, both individually and in the aggregate, to the opinion units of the basic financial statements. For purposes of this representation, we consider items to be material, regardless of their size, if they involve the misstatement or omission of accounting information that, in light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would be changed or influenced by the omission or misstatement.

Governmental Activities

	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Carryover impact from previous years	$ -	$ -	$ -	$ -	$ -
Current year misstatement, factual:					
Adjust compensated absences	-	216,132	207,873	-	(424,005)
Correct court bond assets and liability into custodial funds	(287,083)	287,083	-	-	-
Current year misstatement, judgmental:					
Estimated understatement of net pension asset and liability for the netting of the LAGERS divisions	1,358,862	(1,358,862)	-	-	-
Total	$ 1,071,779	$ (855,647)	207,873	$ -	$ (424,005)
Effect of current year passed adjustments on net position			(424,005)		
Total			$ (216,132)		

General Fund

	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Carryover impact from previous years	$ -	$ -	$ -	$ -	$ -
Current year misstatement, factual:					
Correct court bond assets and liability into custodial funds	(287,083)	287,083	-	-	-
Total	$ (287,083)	$ 287,083	-	$ -	$ -
Effect of current year passed adjustments on fund balance			-		
Total			$ -		

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Aggregate Remaining Fund Information	Debit (Credit) to Correct the Misstatements				
	Assets	Liabilities	Net Position	Revenue	Expense
Description:					
Carryover impact from previous years	$ -	$ -	$ -	$ -	$ -
Current year misstatement, factual:					
Correct court bond assets and liability into custodial funds	287,083	(287,083)	-	-	-
Total	$ 287,083	$ (287,083)	-	$ -	$ -
Effect of current year passed adjustments on fund balance			-		
Total			$ -		

35. We have requested an unsecured electronic copy of the auditor's report and basic financial statements and agree that the auditor's report and basic financial statements will not be modified in any manner.

Information Provided

36. We have provided you with:

    a. Access to all information of which we are aware that is relevant to the preparation and fair presentation of the basic financial statements such as records, documentation and other matters.

    b. Additional information that you have requested from us for the purpose of the audit.

    c. Unrestricted access to persons within the City from whom you determined it necessary to obtain audit evidence.

    d. Minutes of the meetings of the governing board and committees, or summaries of actions of recent meetings for which minutes have not yet been prepared.

37. All transactions have been recorded in the accounting records and are reflected in the basic financial statements.

38. We have disclosed to you the results of our assessment of risk that the basic financial statements may be materially misstated as a result of fraud.

39. We have no knowledge of allegations of fraud or suspected fraud affecting the City's basic financial statements involving:

    a. Management.

    b. Employees who have significant roles in internal control.

    c. Others where the fraud could have a material effect on the basic financial statements.

40. We have disclosed to you all information that we are aware of regarding any allegations of fraud or suspected fraud affecting the City's basic financial statements received in communications from employees, former employees, analysts, regulators, or others.

41. We have no knowledge of noncompliance or suspected noncompliance with laws and regulations.

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42. We are not aware of any pending or threatened litigation, claims or assessments; unasserted claims or assessments that our lawyer has advised us are probable of assertion and must be disclosed in accordance with Government Accounting Standards Board (GASB) Codification Section C50, Claims and Judgments; or other matters, including gain or loss contingencies, whose effects should be considered when preparing the financial statements.

    There are no other unasserted claims or assessments which are probable of assertion.

43. We have disclosed to you the identity of all of the City's related parties and all the related-party relationships and transactions of which we are aware.

44. We have informed you of all deficiencies in internal control over financial reporting, including significant deficiencies or material weaknesses, in the design or operation of internal controls that could adversely affect the City's ability to record, process, summarize and report financial data.

45. There have been no communications from regulatory agencies concerning noncompliance with, or deficiencies in, financial reporting practices.

46. It is our responsibility to inform you of all current and potential affiliates of the City as defined by the "State and Local Government Client Affiliates" interpretation (ET sec. 1.224.020). Financial interests in, and other relationships with, affiliates of the City may create threats to independence. We have:

    a. Provided you with all information we are aware of with respect to current and potential affiliates, including degree of influence assessments and materiality assessments.

    b. Notified you of all changes to relevant considerations that may impact our determination of the existence of current or potential affiliates involving (i) changes in the determination of the materiality of an entity to the City's financial statements as a whole, (ii) the level of influence the City has over an entity's financial reporting process or (iii) the level of control or influence the City or a potential or current affiliate has over an investee that is not trivial or clearly inconsequential, sufficiently in advance of their effective dates to enable the City and RSM US LLP to identify and eliminate potential impermissible services and relationships between RSM US LLP or its associated entities and those potential affiliates, prior to the effective dates.

    c. Made you aware, to the best of our knowledge and belief, of any nonaudit services that the City or any of our affiliates has engaged RSM US LLP or any of its associated entities to perform.

47. We agree with the findings of the specialists in evaluating the investment valuations and pension liability and have adequately considered the qualifications of the specialists in determining the amounts and disclosures used in the financial statements and underlying accounting records. We did not give instructions, or cause any instructions to be given, to the specialists with respect to the values or amounts derived in an attempt to bias their work, and we are not otherwise aware of any matters that have had an impact on the independence or objectivity of the specialists.

48. We believe that the actuarial assumptions and methods used by the actuary for funding purposes and for determining accumulated Plan benefits are appropriate in the circumstances. We did not give instructions, or cause any instructions to be given, to the actuary with respect to the values or amounts derived in an attempt to bias their work, and we are not otherwise aware of any matters that have had an impact on the independence or objectivity of the plan's actuary.

49. During the course of your audit, you may have accumulated records containing data that should be reflected in our books and records. All such data have been so reflected. Accordingly, copies of such records in your possession are no longer needed by us.

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Supplementary Information

50. With respect to supplementary information presented in relation to the basic financial statements as a whole:

    a. We acknowledge our responsibility for the presentation of such information.

    b. We believe such information, including its form and content, is fairly presented in accordance with U.S. GAAP.

    c. The methods of measurement or presentation have not changed from those used in the prior period.

    d. When supplementary information is not presented with the audited basic financial statements, we will make the audited basic financial statements readily available to the intended users of the supplementary information no later than the date of issuance of the supplementary information and the auditor's report thereon.

51. With respect to management's discussion and analysis, pension information, and budgetary comparison schedules presented as required by the Governmental Accounting Standards Board to supplement the basic financial statements:

    a. We acknowledge our responsibility for the presentation of such required supplementary information.

    b. We believe such required supplementary information is measured and presented in accordance with guidelines prescribed by U.S. GAAP.

    c. The methods of measurement or presentation have not changed from those used in the prior period.

    d. The actuarial assumption for the pension plan are underlying significant assumptions or interpretations regarding the measurement or presentation of such information.

Compliance Considerations

In connection with your audit conducted in accordance with *Government Auditing Standards*, we confirm that management:

52. Is responsible for the preparation and fair presentation of the financial statements in accordance with the applicable financial reporting framework.

53. Is responsible for compliance with the laws, regulations and provisions of contracts and grant agreements applicable to the auditee.

54. Is not aware of any instances of identified and suspected fraud and noncompliance with provisions of laws, regulations, contracts, and grant agreements that have a material effect on the financial statements.

55. Is responsible for the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

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56. Acknowledges its responsibility for the design, implementation and maintenance of controls to prevent and detect fraud.

57. Has a process to track the status of audit findings and recommendations.

58. Has identified for the auditor previous audits, attestation engagements and other studies related to the objectives of the audit and whether related recommendations have been implemented.

59. Is not aware of any investigations or legal proceedings that have been initiated with respect to the period under audit.

In connection with your audit of federal awards conducted in accordance with Subpart F of Title 2 U.S. Code of Federal Regulations (CFR) Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance), we confirm:

60. Management is responsible for complying, and has complied, with the requirements of Uniform Guidance.

61. Management is responsible for understanding and complying with the requirements of laws, regulations, and the provisions of contracts and grant agreements related to each of its federal programs.

62. Management is responsible for the design, implementation, and maintenance, and has designed, implemented and maintained, effective internal control over compliance for federal programs that provides reasonable assurance that the auditee is managing federal awards in compliance with federal statutes, regulations, and the terms and conditions of the federal award that could have a material effect on its federal programs.

63. Management is responsible for the preparation of the schedule of expenditures of federal awards, acknowledges and understands its responsibility for the presentation of the schedule of expenditures of federal awards in accordance with the Uniform Guidance; believes the schedule of expenditures of federal awards, including its form and content, is fairly presented in accordance with the Uniform Guidance; asserts that methods of measurement or presentation have not changed from those used in the prior period, or if the methods of measurement or presentation have changed, the reasons for such changes have been communicated; and is responsible for any significant assumptions or interpretations underlying the measurement or presentation of the schedule of expenditures of federal awards.

64. Management will make the audited financial statements readily available to the intended users of the schedule no later than the issuance date by the entity of the schedule of expenditures of federal awards and the auditor's report thereon.

65. Management has identified and disclosed all of its government programs and related activities subject to the Uniform Guidance compliance audit.

66. Management has identified, disclosed to the auditor and applied the correct version of the Uniform Guidance applicable to each federal program administered during the audit period. This determination was based on the effective dates of the Uniform Guidance provisions and the terms and conditions of each federal award.

67. Management has identified and disclosed to the auditor the requirements of federal statutes, regulations, and the terms and conditions of federal awards that are considered to have a direct and material effect on each major program.

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68. Management has made available all federal awards (including amendments, if any) and any other correspondence relevant to federal programs and related activities that have taken place with federal agencies or pass-through entities.

69. Management has identified and disclosed to the auditor all amounts questioned and all known noncompliance with the direct and material compliance requirements of federal awards or stated that there was no such noncompliance.

70. Management believes that the auditee has complied with the direct and material compliance requirements.

71. Management has made available all documentation related to compliance with the direct and material compliance requirements, including information related to federal program financial reports and claims for advances and reimbursements.

72. Management has provided to the auditor its interpretations of any compliance requirements that are subject to varying interpretations.

73. Management is aware of no communications from federal awarding agencies and pass-through entities concerning possible noncompliance with the direct and material compliance requirements, including communications received from the end of the period covered by the compliance audit to the date of the auditor's report.

74. There are no findings and related corrective actions taken for previous audits, attestation engagements, and internal or external monitoring that directly relate to the objectives of the compliance audit, including findings received and corrective actions taken from the end of the period covered by the compliance audit to the date of the auditor's report.

75. Management is responsible for taking corrective action on audit findings of the compliance audit that meets the requirements of the Uniform Guidance.

76. Management has provided the auditor with all information on the status of the follow-up on prior audit findings by federal awarding agencies and pass-through entities, including all management decisions.

77. There are no subsequent events that provide additional evidence with respect to conditions that existed at the end of the reporting period that affect noncompliance during the reporting period.

78. Management has disclosed all known noncompliance with direct and material compliance requirements occurring subsequent to the period covered by the auditor's report or stated that there were no such known instances.

79. Management has disclosed whether any changes in internal control over compliance or other factors that might significantly affect the entity's system of internal control, including any corrective action taken by management with regard to significant deficiencies and material weaknesses in internal control over compliance, have occurred subsequent to the period covered by the auditor's report.

80. Federal program financial reports and claims for advances and reimbursements are supported by the books and records from which the basic financial statements have been prepared.

81. The copies of federal program financial reports provided to the auditor are true copies of the reports submitted, or electronically transmitted, to the federal agency or pass-through entity, as applicable.

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82. Management has monitored subrecipients, as necessary, to determine that they have expended pass-through assistance in accordance with applicable laws and regulations and the terms and conditions of the subaward and have met the other pass-through entity requirements of the Uniform Guidance.

83. Management has considered the results of subrecipient monitoring and audits, and has made any necessary adjustments to the auditee's own books and records.

84. Management has charged costs to federal awards in accordance with applicable cost principles.

85. Management is responsible for, and has accurately prepared, the summary schedule of prior audit findings to include all findings required to be included by Uniform Guidance.

86. The reporting package does not contain protected personally identifiable information.

87. Management has accurately completed the appropriate sections of the data collection form.

City of Blue Springs, Missouri

Signed by:
Karen Van Winkle
D372D50632BA4ED...

Karen Van Winkle
Senior Director of Finance

Signed by:
Christine Cates
51090F010390450...

Christine Cates,
City Administrator

City of Blue Springs, Missouri

Compliance Report
Year Ended September 30, 2025

Contents

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Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance With *Government Auditing Standards*

Independent Auditor's Report

Honorable Mayor and Members of the City Council
City of Blue Springs, Missouri

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States (*Government Auditing Standards*), the financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City of Blue Springs, Missouri (the City), as of and for the year ended September 30, 2025, and the related notes to the financial statements, which collectively comprise the City's basic financial statements, and have issued our report thereon dated February 23, 2026. Our report includes an emphasis of matter for the implementation of GASB Statement No. 101, *Compensated Absences*. Our opinions were not modified with respect to this matter.

Report on Internal Control Over Financial Reporting
In planning and performing our audit of the financial statements, we considered the City's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the City's internal control. Accordingly, we do not express an opinion on the effectiveness of the City's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

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Report on Compliance and Other Matters
As part of obtaining reasonable assurance about whether the City's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of This Report
The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

RSM US LLP

Kansas City, Missouri
February 23, 2026

**Report on Compliance for Each Major Federal Program;
Report on Internal Control Over Compliance;
and Report on Schedule of Expenditures of
Federal Awards Required by the Uniform Guidance**

Independent Auditor's Report

Honorable Mayor and Members of the City Council
City of Blue Springs, Missouri

Report on Compliance for Each Major Federal Program

Opinion on Each Major Federal Program

We have audited the City of Blue Springs, Missouri's (the City) compliance with the types of compliance requirements identified as subject to audit in the OMB *Compliance Supplement* that could have a direct and material effect on each of the City's major federal programs for the year ended September 30, 2025. The City's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

In our opinion, the City complied, in all material respects, with the compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended September 30, 2025.

Basis for Opinion on Each Major Federal Program

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America (GAAS); the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States (*Government Auditing Standards*); and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Our responsibilities under those standards and the Uniform Guidance are further described in the Auditor's Responsibilities for the Audit of Compliance section of our report.

We are required to be independent of the City and to meet our other ethical responsibilities, in accordance with relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on compliance for each major federal program. Our audit does not provide a legal determination of the City's compliance with the compliance requirements referred to above.

Responsibilities of Management for Compliance

Management is responsible for compliance with the requirements referred to above and for the design, implementation, and maintenance of effective internal control over compliance with the requirements of laws, statutes, regulations, rules and provisions of contracts or grant agreements applicable to the City's federal programs.

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Auditor's Responsibilities for the Audit of Compliance
Our objectives are to obtain reasonable assurance about whether material noncompliance with the compliance requirements referred to above occurred, whether due to fraud or error, and express an opinion on the City's compliance based on our audit. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS, *Government Auditing Standards*, and the Uniform Guidance will always detect material noncompliance when it exists. The risk of not detecting material noncompliance resulting from fraud is higher than for that resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Noncompliance with the compliance requirements referred to above is considered material, if there is a substantial likelihood that, individually or in the aggregate, it would influence the judgment made by a reasonable user of the report on compliance about the City's compliance with the requirements of each major federal program as a whole.

In performing an audit in accordance with GAAS, *Government Auditing Standards*, and the Uniform Guidance, we

- Exercise professional judgment and maintain professional skepticism throughout the audit.

- Identify and assess the risks of material noncompliance, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the City's compliance with the compliance requirements referred to above and performing such other procedures as we considered necessary in the circumstances.

- Obtain an understanding of the City's internal control over compliance relevant to the audit in order to design audit procedures that are appropriate in the circumstances and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of the City's internal control over compliance. Accordingly, no such opinion is expressed.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and any significant deficiencies and material weaknesses in internal control over compliance that we identified during the audit.

Report on Internal Control Over Compliance
A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the Auditor's Responsibilities for the Audit of Compliance section above and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies in internal control over compliance. Given these limitations, during our audit we did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses, as defined above. However, material weaknesses or significant deficiencies in internal control over compliance may exist that were not identified.

Our audit was not designed for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, no such opinion is expressed.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

Report on Schedule of Expenditures of Federal Awards Required by the Uniform Guidance
We have audited the financial statements of the governmental activities, business-type activities, each major fund, and the aggregate remaining fund information of the City as of and for the year ended September 30, 2025, and the related notes to the financial statements, which collectively comprise the City's basic financial statements. We issued our report thereon dated February 23, 2026, which contained unmodified opinions on those financial statements. Our auditor's report includes an emphasis of matter paragraph for the implementation of GASB Statement No. 101, *Compensated Absences*. Our opinions were not modified with respect to this matter. Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the basic financial statements. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by the Uniform Guidance and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

RSM US LLP

Kansas City, Missouri
February 23, 2026

City of Blue Springs, Missouri

Schedule of Expenditures of Federal Awards
Year Ended September 30, 2025

Federal Grantor/Pass-Through Grantor/ Program or Cluster Title	Federal Assistance Listing Number	Pass Through Entity Identifying Number	Other Identifying Grant Information	Total Federal Expenditures	Provided to Subrecipients
U.S. Department of Housing and Urban Development					
Direct Funding:					
Community Development Block Grant Cluster—Entitlement/Special Purpose Grants Cluster:					
Community Development Block Grants/Entitlement Grants	14.218		N/A	$ 465,513	$ 40,853
Total U.S. Department of Housing and Urban Development				465,513	40,853
U.S. Department of Justice					
Direct Funding:					
Bulletproof Vest Partnership Program	16.607		OMB-1121-0235	15,918	-
Grants to Encourage Arrest Policies and Enforcement of Protection Orders Program - Domestic Violence	16.590		15JOVW-22-GG-01822-ICJR	157,799	-
Passed through Jackson County:					
Edward Byrne Memorial Justice Assistance Grant Program–Drug Task Force	16.738	15-PBJA-23-GG-02992-MUMU-F07-BS		46,842	-
Total U.S. Department of Justice				220,559	-
U.S. Department of Transportation					
Passed through Missouri Department of Transportation–					
Division of Highway Safety:					
Alcohol Open Container Requirements–DWI Saturation Enforcement	20.607	25-ENF-03-021		7,956	-
Highway Safety Cluster:					
State and Community Highway Safety–Hazardous Moving Violations	20.600	25-PT-02-020		5,868	-
Total U.S. Department of Transportation				13,824	-

(Continued)

City of Blue Springs, Missouri

Schedule of Expenditures of Federal Awards (Continued)
Year Ended September 30, 2025

Federal Grantor/Pass-Through Grantor/ Program or Cluster Title	Federal Assistance Listing Number	Pass Through Entity Identifying Number	Other Identifying Grant Information	Total Federal Expenditures	Provided to Subrecipients
U.S. Department of Health & Human Services					
Passed Through Mid America Regional Council:					
Special Programs for the Aging, Title III, Part D, Disease Prevention and Health Promotion Services	93.043	2401MOOAPH/2501MOOAPH		3,150	-
Aging Cluster:					
Special Programs for the Aging, Title III, Part B, Grants for Supportive Services and Senior Centers	93.044	2501MOOASS/2501MOOASS		4,121	-
Special Programs for the Aging, Title III, Part C, Nutrition Services (Title IIIC1 cong)	93.045	2401MOOAHD/2501MOOACM		98,455	-
Special Programs for the Aging, Title III, Part C, Nutrition Services (Title IIIC2 hdm)	93.045	2401MOOAHD/2501MOOAHD		31,830	-
Special Programs for the Aging, Title III, Part C, Nutrition Services (Program Inc cong)	93.045	2401MOOAHD/2501MOOACM		27,404	-
Special Programs for the Aging, Title III, Part C, Nutrition Services (Program Inc hdm)	93.045	2401MOOAHD/2501MOOAHD		560	-
Subtotal 93.045				158,249	-
Nutrition Services Incentive Program	93.053	2501MOOANS		14,116	-
Subtotal Aging Cluster				176,486	-
Social Services Block Grant	93.667	2401MOSOSR		1,847	-
Total U.S. Department of Health & Human Services				181,483	-
U.S. Department of the Treasury					
Direct Funding:					
COVID-19–Coronavirus State and Local Fiscal Recovery Funds, American Plan Rescue Plan Act (ARPA)	21.027		SLT-3291	2,390,651	-
Total U.S. Department of the Treasury				2,390,651	-
U.S. Department of Energy					
Direct Funding:					
Energy Efficiency and Conservation Block Grant Program (EECBG)	81.128		EECEQ-00950	88,693	-
Total U.S. Department of Energy				88,693	-
Total expenditures of federal awards				$ 3,360,723	$ 40,853

See notes to schedule of expenditures of federal awards.

City of Blue Springs, Missouri

Notes to Schedule of Expenditures of Federal Awards
Year Ended September 30, 2025

Note 1. Basis of Presentation

The accompanying schedule of expenditures of federal awards (the Schedule) includes the federal award activity of the City of Blue Springs, Missouri (the City) under programs of the federal government for the year ended September 30, 2025. The information in this Schedule is presented in accordance with the requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Because the Schedule presents only a selected portion of the operations of the City, it is not intended to and does not present the financial position, changes in net position, or cash flows of the City.

Note 2. Summary of Significant Accounting Policies

Expenditures reported on the Schedule are reported on the accrual basis of accounting. Such expenditures are recognized following the cost principles contained in the Uniform Guidance, wherein certain types of expenditures are not allowable or are limited as to reimbursement.

Note 3. Indirect Cost Rate

The City has elected not to use the de minimis indirect cost rate allowed under the Uniform Guidance.

SUMMARY SCHEDULE OF PRIOR AUDIT FINDINGS

FOR THE YEAR ENDED SEPTEMBER 30, 2025

Identifying Number: 2024-001 – Restatement of beginning net position in the aggregate remaining fund information to correct an error related to custodial fund debt – material weakness

Finding:

Criteria: Management is responsible for establishing and maintaining effective internal controls over financial reporting which should be designed to prevent or detect and correct misstatements on a timely basis.

Condition: Financial statements of fiduciary funds should be reported using the economic resources measurement focus and the accrual basis of accounting. This includes when resources associated with long-term liabilities flow through the custodial fund. One of the custodial funds includes an outstanding bond that is being repaid by resources collected by the City and flowing through the custodial fund, however this was not previously presented as a liability, the collections and disbursements of principal and interest payments were being recognized through the change in fiduciary net position.

Cause: The implementation of GASB Statement No. 84, Fiduciary Activities, changed how governments recognized activities in custodial funds. A statement of changes in fiduciary net position was required as a result of the requirement to report custodial funds following the accrual basis of accounting. Because the bond proceeds had been expended prior to implementation of GASB Statement No. 84, management continued to report the collection of taxes and payment of principal as additions and deductions versus in accordance with the accrual basis of accounting. The City has no other custodial funds with outstanding debt.

Effect or potential effect: Beginning net position of the aggregate remaining fund information was lowered by approximately $3.3 million to correct the presentation of the custodial fund to recognize outstanding bonds payable and deferred inflows of resources related to special assessments in the fund. There was no impact on governmental activities.

Recommendation: We recommend management implement the necessary procedures to review that fund accounting for each fund type has been presented in accordance with generally accepted accounting principles

Views of responsible officials: Management agrees with this finding.

Corrective Actions Taken

Contact: Karen Van Winkle, Senior Director of Finance

Completion Date: April 14, 2025

Corrective Action: The City acknowledges the audit finding related to the reporting of long-term liabilities in custodial funds under GASB Statement No. 84. This issue was not previously identified by either City staff or the auditors during the initial implementation of the standard for the City's fiscal year ending September 30, 2020. The City continued to report collections and disbursements associated with the outstanding bond as additions and deductions to fiduciary net position, consistent with prior practices.

To prevent future misstatements, the Director of Finance and Assistant Director of Finance have incorporated an additional audit procedure into the year-end financial review process to evaluate custodial funds for the presence of long-term obligations and ensure compliance with the reporting requirements of GASB Statement No. 84. Additionally, the Director of Finance will work with the City's external auditors during the annual audit planning meeting to assess the impact of newly issued GASB standards on the City's financial reporting and to determine any necessary implementation measures.

City of Blue Springs, Missouri

Schedule of Findings and Questioned Costs
Year Ended September 30, 2025

I. Summary of Auditor's Results

Financial Statements

Type of report the auditor issued on whether the financial statements audited were prepared in accordance with GAAP: Unmodified

Internal control over financial reporting:

- Material weakness(es) identified? ___ Yes _x_ No
- Significant deficiency(ies) identified? ___ Yes _x_ None Reported

Noncompliance material to financial statements noted? ___ Yes _x_ No

Federal Awards

Internal control over major federal programs:

- Material weakness(es) identified? ___ Yes _x_ No
- Significant deficiency(ies) identified? ___ Yes _x_ None Reported

Type of auditor's report issued on compliance for major federal programs: Unmodified

- Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a) of the Uniform Guidance ___ Yes _x_ No

Identification of major federal programs:

Assistance Listing Number(s)	Name of Federal Program or Cluster
21.027	COVID-19 - Coronavirus State and Local Fiscal Recovery Funds

Dollar threshold used to distinguish between type A and type B programs: $1,000,000

Auditee qualified as low-risk auditee? ___ Yes _x_ No

(Continued)

II. Financial Statement Findings

A. Internal Control

No matters reported.

B. Compliance Findings

No matters reported.

III. Findings and Questioned Costs for Federal Awards

A. Internal Control

No matters reported.

B. Instances of Noncompliance

No matters reported.

CITY OF BLUE SPRINGS, MISSOURI

Financial Report Presentation

September 30, 2025

Data portrayed in the attached graphic presentations were derived from the City's financial statements which were audited by RSM US LLP whose report thereon is February 23, 2026. The data presented should be read in conjunction with the City's financial statements.

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Agenda

- Required communication with City officials
- Summarize September 30, 2025 financial performance

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Required Communication with City Officials

- Auditor responsibilities, unmodified (clean) opinion
- Adoption of, or change in, accounting policies—GASB 101, *Compensated Absences (*Note 14*)* & GASB 102, *Certain Risk Disclosures*
- Management judgments and accounting estimates
- Audit adjustments—two related to capital assets
- Uncorrected immaterial misstatements—three items
- Disagreements with management—none
- Difficulties encountered in performing the audit—none
- Future accounting pronouncements—Footnote 13
- GFOA Certificate of Achievement

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Summary of Compliance Report

- Internal Control Over Financial Reporting
  - No deficiencies noted
- Single Audit
  - Tested in Accordance with Uniform Grant Guidance
  - 1 major program tested:
    - Coronavirus State and Local Fiscal Recovery Funds (ARPA)
  - 71% of total federal expenditures subjected to testing for compliance
  - Unmodified or “clean” opinion issued for major program
  - No findings or questioned costs reported

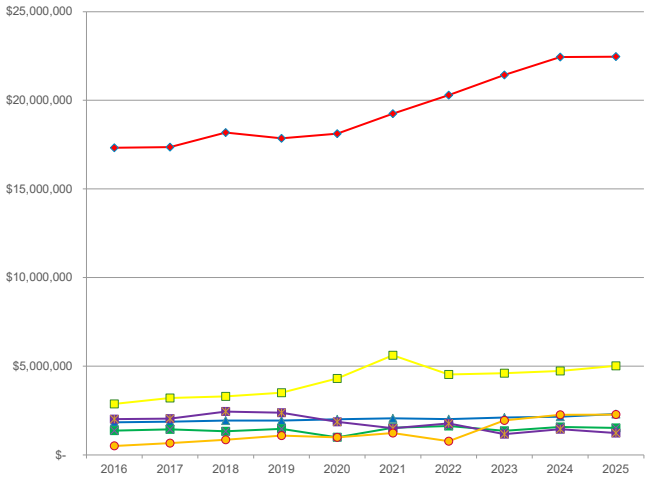
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Revenue by Type—General Fund



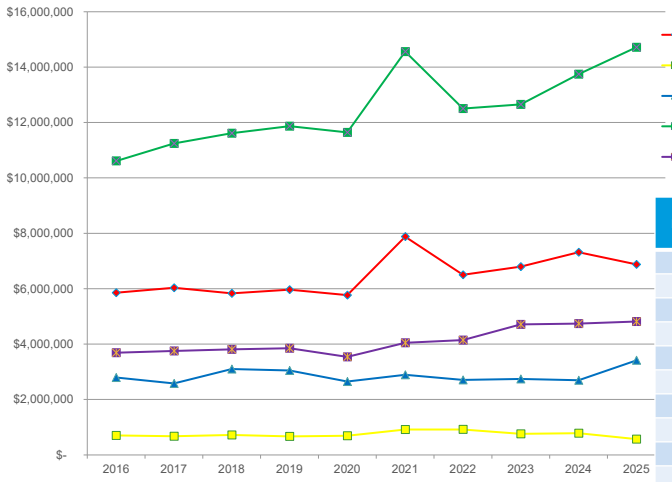
Fiscal Year	Total Revenue (in thousands)
2025	$34,811
2024	$34,598
2023	$32,614
2022	$31,003
2021	$31,176
2020	$28,271
2019	$28,210
2018	$28,037
2017	$26,575
2016	$25,914

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Expenditures by Function, Excluding Capital Outlay and Debt Service—General Fund



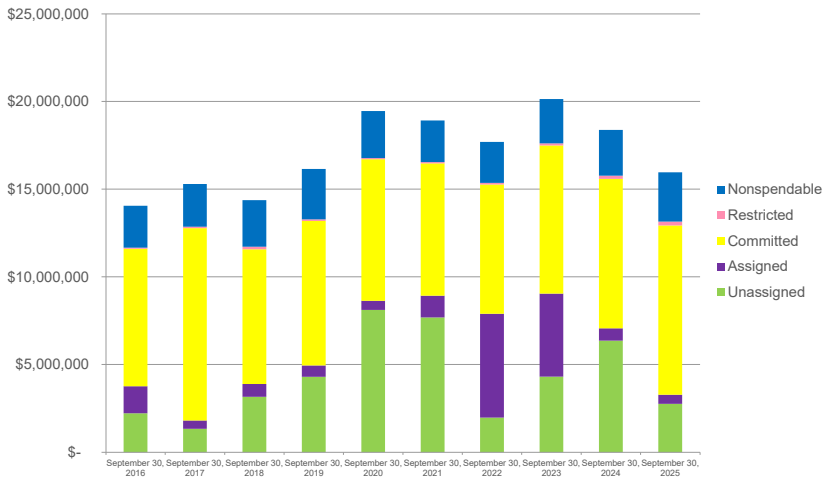
Fiscal Year,	Total Expenditures (in thousands)
2025	$33,162
2024	$32,392
2023	$29,799
2022	$28,467
2021	$30,828
2020	$25,071
2019	$25,956
2018	$25,555
2017	$24,824
2016	$23,645

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Fund Balance by Category—General Fund



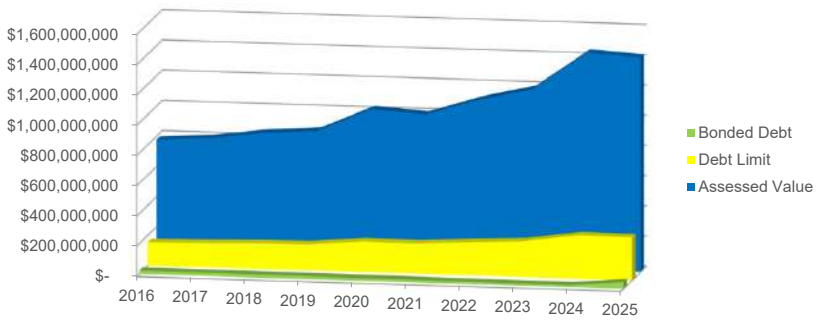
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Legal Debt Margin



Legal Debt Margin as of September 30, 2025 is $242.1 million

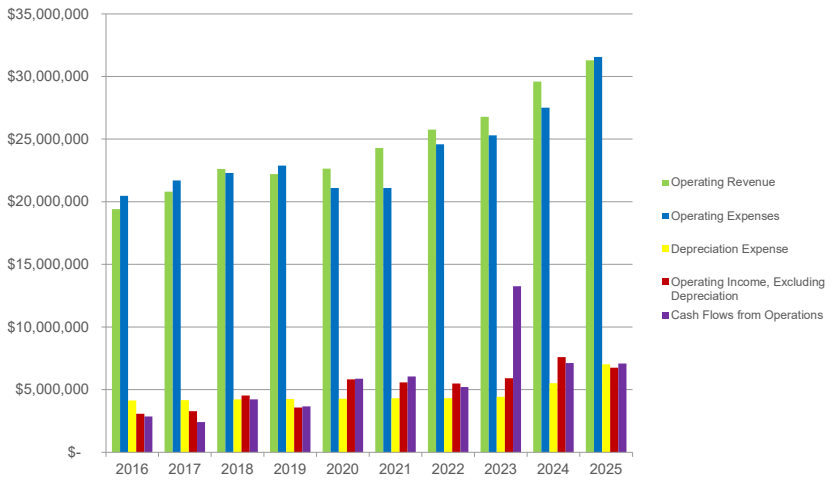
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Operating Results—Enterprise Funds



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