

PROJECT MANUAL

City of Pevely, Missouri

312 Main Street

Sanitary Sewer Improvements

Cochran Project Number: SC19-1030

July, 2022

Presented to:

City of Pevely, Missouri



July 20, 2022

Date

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INVITATION FOR BIDS

Sealed bids for the City of Pevely (hereinafter "Owner") Sanitary Sewer Project, 312 Main Street, SC19-1030 (hereinafter "Project") will be received by the City Clerk at City Hall, 401 Main Street, Pevely, Missouri 63070, until 2:00 p.m. local time, on Thursday, August 11, 2022, at which time the bids will be publicly opened and read aloud.

The Scope of Work includes installing sanitary sewer and appurtenances on 312 Main Street. Project includes removal of improvements, pavement repair, concrete approaches, sanitary sewer main and manholes, traffic control and other incidental items and work described in the Project Manual, or reasonably inferable therefrom. The City of Pevely anticipates issuing notice to proceed as soon as practical.

Bid packages will be distributed electronically via an ftp link at no cost to the bidder. 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. When requesting the ftp link, you will be required to provide your company name, a 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. To request the electronic ftp link, email Mike Spalding at mbspalding@cochraneng.com. Project and bidding questions shall be conducted exclusively via e-mail. Any questions regarding this project must be submitted to: mbspalding@cochraneng.com, by 4:00 pm local time on August 8, 2022. 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.

State Prevailing Wage rates will apply if the bid is greater than \$75,000.00.

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.

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 within sixty (60) days of beginning work on the construction project.

The City of Pevely, Missouri hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, businesses owned and controlled by socially and economically disadvantaged individuals 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, religion, creed, sex, age, ancestry, or national origin in consideration for an award.

THE OWNER INTENDS TO AWARD THE CONTRACT TO THE LOWEST, RESPONSIVE, RESPONSIBLE BIDDER. 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, Performance and Payment Bond, the Specifications, the Drawings, the Construction Schedule, all Addenda, and all Modifications.

1.2 **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.

1.3 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.

1.4 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.

1.5 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.

1.6 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.

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

1.8 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 digital copies of the Bidding Documents in the manner as defined in the Invitation to Bid. Bidders must complete all contact information requested on the Plan Holders List to obtain the Bidding Documents.

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. See the Invitation for Bids for contact information.

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 legibly handwritten 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.

4.2 **BID SECURITY**

4.2.1 Each bid shall be accompanied by a certified check 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 any Alternates ("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 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 the following for their bid to be considered responsive:

1. A completed, signed and sealed Bid Form acknowledging receipt of all addenda, or acknowledging that there were none.
2. A signed Subcontractor Approval Form including each 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.
3. A signed Subcontractor Certification Regarding Affirmative Action.
4. The Bid Security required by the Project Manual
5. A signed E-Verify Affidavit and Memo of Understanding (MOU).
6. 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

4.3.2 All copies of the bid, the Bid Security and all documents listed above that are 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 project name, 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 ninety (90) 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.

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, with MoDOT concurrence, if all bids are rejected.

5.3 ACCEPTANCE OF BID (AWARD)

5.3.1 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.

5.3.2 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. Alternates shall be accepted in the order established in the Bid Form Proposal.

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 Persons and entities proposed by the bidder and to whom the Owner has made no objection 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.

ARTICLE 8**PERFORMANCE 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 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. The Performance Bond and the Labor and Material Payment Bond may be in one or in separate instruments, however if combined into one the amount shall be for two hundred percent (200%) of the Contract Sum.

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.

ARTICLE 10

BID FORM PROPOSAL

PROJECT NAME: 2022 Sanitary Sewer Project BID TIME: 2:00 p.m.

PROJECT LOCATION: 312 Main Street BID DATE: August 11, 2022

BIDDER NAME: _____

TO: City of Pevely, MO (“Owner”)

In response to the Invitation for Bids for Project No. SC19-1030, 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:

<p>BASE BID:</p> <p>_____ Dollars (Amount in Words)</p> <p style="text-align: center;">(\$ _____)</p>
--

The Base Bid amount is more fully itemized as follows:

BIDDER NAME: _____

ITEMIZED BID FORM

Each bidder shall specify a unit price for each of the separate items listed. The bidder shall show the products of the respective unit prices and quantities in the column provided. In cases of errors or discrepancies in extensions, the unit prices shall govern.

Bid No.	Description	Unit	Quantity	Unit Cost	Extended Cost
1	Mobilization	LS	1		
2	Removal of Improvements	LS	1		
3	Traffic Control	LS	1		
4	Mailbox Relocation	EA	1		
5	Water Meter Relocation	EA	1		
6	Concrete Approach, 6" (Remove and Replace)	SF	245		
7	Utility Cut Pavement Repair	SF	80		
8	Core Hole in Manhole & Re-Shape Invert	EA	2		
9	Concrete Encasement	EA	1		
10	Sanitary Sewer (8" PVC)	LF	213		
11	Seed, Mulch and Fertilize	LS	1		
	Total Base Bid				

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 there are no Addenda write "None" in the space provided:

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 ninety (90) 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 Corporation)

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 text 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 projects 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 ensure that each of its subcontractors, which meet this criterion, executes and submits to the commission this certification also.

Company

By: _____

Date: _____

Title

SUBCONTRACTOR APPROVAL FORM

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

1. Name of Bidder: _____

2. Address Bidder: _____

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

<u>Names and Addresses of Subcontractor Which the Contractor Anticipates Utilizing</u>	<u>Nature of Participation</u>	<u>\$ Value of Subcontractor</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

ANTI-COLLUSION STATEMENT

STATE OF _____

CITY/COUNTY OF _____

_____ being first duly sworn, deposes and says that he is

_____ Title of Person Signing

of _____

_____ Name of Bidder

that all statements made and facts set out in the proposal for the above project are true and correct; and the bidder (The person, firm, association, or corporation making said bid) has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with said bid or any contract which may result from its acceptance.

Affiant further certifies that bidder is not financially interested in, or financially affiliated with, any other bidder for the above project.

BY _____

BY _____

BY _____

SWORN to before me this _____ day of _____ 20 ____.

_____ Notary Public

My Commission Expires _____

WORKER ELIGIBILITY AND OSHA REQUIREMENTS

WORKER ELIGIBILITY REQUIREMENTS: Execution of the construction contract for this project is dependent upon the awarded bidder providing an Affidavit of Compliance AND E-Verify Memorandum-of-Understanding (MOU) between the bidder and Department of Homeland Security to the Contracting Authority as required by section 285.530 RSMo.

A sample Affidavit of Compliance can be found at the Missouri Attorney General's website at the following link:

https://ago.mo.gov/docs/default-source/pdf-forms/affidavit_of_compliance.pdf

All bidders must also be enrolled in the E-Verify Program, and include their MOU prior to contract execution. Bidders who are not enrolled will need to go to the following website link and select "Enroll in the Program" to get started. After completing the program, they will receive their E-Verify MOU with Department of Homeland Security. This document will need to be printed out and kept on file so that a copy can be attached to the Affidavit of Compliance.

http://www.dhs.gov/files/programs/gc_1185221678150.shtm

This requirement also applies to subcontractors and contract labor, but this contract only requires submittal of the verification documents for the prime contractor. It is the prime contractor's responsibility to verify the worker eligibility of their subcontractors in order to protect their own company from liability as required by section 285.530 RSMo.

OSHA TEN HOUR TRAINING REQUIREMENTS: Missouri Law, 292.675 RSMO, requires any awarded contractor and its subcontractor(s) to provide a ten-hour Occupational Safety and Health Administration (OSHA) Construction Safety Program (or a similar program approved by the Missouri Department of Labor and Industrial Relations as a qualified substitute) for their on-site employees (laborers, workmen, drivers, equipment operators, and craftsmen) who have not previously completed such a program and are directly engaged in actual construction of the improvement (or working at a nearby or adjacent facility used for construction of the improvement). The awarded contractor and its subcontractor(s) shall require all such employees to complete this ten-hour program, pursuant to 292.675 RSMO, unless they hold documentation on their prior completion of said program. Penalties, for Non-Compliance include contractor forfeiture to the Contracting Authority in the amount of \$2,500, plus \$100 per contractor and subcontractor employee for each calendar day such employee is employed beyond the elapsed time period for required program completion under 292.675 RSMO.

OWNER-CONTRACTOR AGREEMENT

This is an Agreement made and entered into the ____ day of _____, 20____, by and between City of Pevely (hereinafter called the "Owner") and _____, a _____ with offices located at _____, (hereinafter called the "Contractor").

The project is identified as 2022 Sanitary Sewer Project, located at 312 Main Street in Pevely, MO, Project No. SC19-1030, (hereinafter called "Project")

The Engineer is Cochran, with offices located at 737 Rudder Road, Fenton, Missouri 63026 (hereinafter called the "Engineer").

WITNESSETH:

The Contractor and the Owner, for the consideration set forth herein, agree as follows:

ARTICLE I

The Contract Documents

The Contract Documents include the Conditions of the Contract (General Conditions of Owner-Contractor Agreement, Supplementary Conditions and other Conditions), State Wage Determination, Performance and Payment Bond, Drawings, Specifications, the Construction Schedule, all Addenda issued prior to the execution of this Contract, and all Modifications issued after execution of this Contract, which together with this Agreement form the Contract, and are all as fully a part of the Contract as if attached to this Agreement or repeated herein. All definitions set forth in the General Conditions of Owner-Contractor Agreement are applicable to this Agreement.

The Contract represents the entire and integrated agreement between the parties, and supersedes prior negotiations, representations and agreements, whether written or oral. An enumeration of the Contract Documents, other than Modifications, is set forth in Article X.

ARTICLE II**Scope of Work**

The Contractor, acting as an independent contractor, shall faithfully and fully perform the Work described in, and shall do everything required by, the Contract Documents or reasonably inferable therefrom, for the complete construction of the project. The Contractor represents and warrants that he has special skills which qualify him to perform the Work in accordance with the Contract and that he is free to perform all such Work and is not a party to any other agreement, written or oral, the performance of which would prevent or interfere with the performance, in whole or in part, of the Work.

ARTICLE III**Time of Completion**

(a) All time limits stated in the Contract Documents are of the essence. The Work to be performed under the Contract shall commence within seven (7) consecutive calendar days of the date of the written Notice to Proceed from the Owner to the Contractor, and shall be completed within **30** consecutive calendar days from and including the date of said written Notice to Proceed, subject to adjustments of this Contract Time as provided in the Contract Documents.

(b) Contractor shall pay, as liquidated damages and not as a penalty, the sum of **\$750.00** for each consecutive calendar day after the Final Completion date that the Work has not been completed. The total amount so payable to the Owner as liquidated damages may be deducted from any sums due or to become due to Contractor from Owner.

ARTICLE IV**The Contract Sum and Payments**

The Owner agrees to pay, and the Contractor agrees to accept, for the performance of the Contract, the sum of _____ (\$_____), subject to additions and deductions as provided in the Contract Documents. Based upon proper Applications for Payment submitted by the Contractor to the Owner on or before the twentieth day of the month for Work performed, payment will be made in the form of progress payments as follows and as provided elsewhere in the Contract Documents:

(1) On or about the tenth day of each following month, one hundred percent (100%) of the portion of the Contract Sum properly allocable to labor, materials and equipment incorporated into the Work, and one hundred percent (100%) of the portion of the Contract Sum properly allocable to materials and equipment suitably stored at the site to be incorporated into the Work, through the period ending up to the twentieth day of the preceding month, less the aggregate of all previous progress payments;

(2) Final payment within 30 days after the Work is fully completed and accepted by the Owner and the Contract is fully performed.

ARTICLE V**Performance of the Work**

(a) Within 10 days after being awarded the Contract, the Contractor shall prepare and submit for the Owner's approval, (1) a Construction Schedule for the Work in a Gantt Chart format, which Construction Schedule shall indicate the dates for starting and completing the various stages of construction, and (2) a Traffic Control Plan indicating the location of all proposed signage, detours, road closures throughout the Project which adequately address the Traffic Control Plan of the proposed Work. All traffic control shall be according to the standards of the latest edition of the Manual on Uniform Traffic Control Devices developed by the Federal Highway Administration. No Work will commence until the Contractor's Schedule and Traffic Control Plan is submitted and approved by the Owner.

(b) Completion of the Work in accordance with the time limits set forth in the Construction Schedule is an essential condition of the Contract.

(c) After commencement of the Work, and until final completion of the Work, the Contractor shall report to the Owner at such intervals as the Owner may reasonably direct, the actual progress of the Work compared to the Construction Schedule. If the Contractor falls behind the Construction Schedule for any reason, he shall promptly take, and cause his Subcontractors to take, such action as is necessary to remedy the delay, and shall submit promptly to the Owner for approval a supplementary schedule or progress chart demonstrating the manner in which the delay will be remedied; provided, however, that if the delay is excusable under Article VI hereof, the Contractor will not be required to take, or cause his Subcontractors to take, any action which would increase the overall cost of the Work (whether through overtime premium pay or otherwise), unless the Owner shall have agreed in writing to reimburse the Contractor for such increase in cost. Any increase in cost incurred in remedying a delay which is not excusable under Article VI hereof shall be borne by the Contractor.

ARTICLE VI

Delays Beyond Contractor's Control

(a) If the Contractor fails to complete the Work in accordance with the Construction Schedule as a result of the act or neglect of the Owner, or by strikes, lockouts, fire or other similar causes beyond the Contractor's control, then, and to the extent of such delays, the Contractor shall not be required to pay liquidated damages to the Owner pursuant to Paragraph (b) of Article III hereof, provided the Contractor uses his best efforts to remedy the delay in the manner specified in Paragraph (c) of Article V hereof. If, as a result of any such cause beyond the Contractor's control, the delay in completion of the Work in accordance with the Construction Schedule is so great that it cannot be remedied in the aforesaid manner, or if the backlog of work is so great that it cannot be remedied without incurring additional cost which the Owner does not authorize, then the time of completion and the Construction Schedule shall be extended pursuant to a Change Order for the minimum period of delay occasioned by such cause. The period of delay and extension shall be determined by the Owner.

(b) Notwithstanding the foregoing Paragraph (a), no extension of time shall be granted for any delay the cause of which occurs more than seven (7) days before claim therefor is made in writing by the Contractor to the Owner, and no extension of time shall be granted if the Contractor could have avoided the need for such extension by the exercise of reasonable care and foresight. In the case of a continuing cause of delay, only one claim is necessary.

(c) Except to the extent that a delay is caused by the Owner, the Contractor's sole remedy shall consist of his rights under this Article VI.

ARTICLE VII

Changes in the Work

(a) The Owner may make changes within the general scope of the Contract by altering, adding to or deducting from the Work, the Contract Sum being adjusted accordingly. All such changes in the Work shall be executed under the conditions of the Contract. No extra work or change shall be made except pursuant to a Change Order from the Owner in accordance with the General Conditions. Any claim for an increase in the Contract Sum resulting from any such change in the Work shall be made by the Contractor in accordance with the General Conditions.

(b) If the requested change would result in a delay in the Construction Schedule, the provisions of Paragraph (c) of Article V and of Article VI hereof shall apply. If the requested change would result in a decrease in the time required to perform the Work, the completion date and the Construction Schedule shall be adjusted by agreement between the parties to reflect such decrease.

(c) Any adjustment in the Contract Sum for duly authorized extra work or change in the Work shall be determined based on the unit prices previously specified, to the extent such unit prices are applicable. To the extent such unit prices are not applicable, the adjustment in the Contract Sum shall, at the option of the Owner, be determined by an acceptable lump sum properly itemized and supported by sufficient substantiating data to permit evaluation, or by an acceptable cost plus percentage or fixed fee.

ARTICLE VIII

Termination by Owner

(a) If the Contractor is adjudged a bankrupt, or if the Contractor makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of the Contractor's insolvency, or if the Contractor persistently or repeatedly fails, except in cases for which extension of time is provided, to make progress in accordance with the Construction Schedule, or if the Contractor fails to make prompt payment to Subcontractors for material or labor, or persistently disregards laws, ordinances or the instructions of the Owner, or otherwise breaches any provision of the Contract, the Owner may, without prejudice to any other right or remedy, by giving written notice to the Contractor and his Surety, terminate the Contract, take possession of the Work and of all materials and equipment thereon and finish the Work by whatever method the Owner may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment

until the Work is finished. If the unpaid balance of the Contract Sum shall exceed the expenses of finishing the Work, including additional architectural, managerial and administrative expenses, such excess shall be paid to the Contractor. If such expenses shall exceed the unpaid balance of the Contract Sum, the Contractor shall pay the difference to the Owner promptly upon demand.

In the event of termination pursuant to this Paragraph, the Contractor, upon the request of the Owner, shall promptly

(i) assign to the Owner in the manner and to the extent directed by the Owner all right, title and interest of the Contractor under any subcontracts, purchase orders and construction equipment leases to which the Contractor is a party and which relate to the Work or to construction equipment required therefor, and

(ii) make available to the Owner, to the extent directed by the Owner, all construction equipment owned by the Contractor and employed in connection with the Work.

(b) Performance of the Work hereunder may be terminated by the Owner by giving three (3) days prior written notice to the Contractor if the Owner, in its sole discretion, decides to discontinue or suspend construction. In the event of such termination, as opposed to termination pursuant to Paragraph (a) of this Article VIII, the Contract Sum shall be reduced in an equitable manner by agreement between the parties. The Contractor will not be entitled to payment of profit on work not performed.

ARTICLE IX

Contractor's Liability Insurance

The Contractor shall purchase and maintain in full force and effect the following insurance coverage with an insurance carrier acceptable to the Owner:

The policy shall be endorsed to cover the contractual liability of the Contractor under the General Conditions.

The Contractor and his Subcontractors shall procure and maintain during the life of this Agreement insurance of the types and minimum amounts as follows:

(a) Workers' Compensation in full compliance with statutory requirements of Federal and State of Missouri law and Employers' Liability coverage in the amount of \$3,000,000.

(b) Comprehensive General Liability and Bodily Injury

Including Death: \$3,000,000 each person

\$3,000,000 each occurrence

Property Damage:	\$3,000,000 each occurrence
	\$3,000,000 aggregate
(c) Comprehensive Automobile Liability, Bodily Injury	
Including Death:	\$3,000,000 each person
	\$3,000,000 each occurrence
Property Damage:	\$3,000,000 each accident
(d) Owner's Protective Bodily Injury	
Including Death:	\$1,000,000 each occurrence
Property Damage:	\$1,000,000 each occurrence
	\$1,000,000 aggregate

The Owner's Protective Policy shall name the Owner as the insured. Certificates evidencing such insurance shall be furnished the Owner prior to Contractor commencing the Work on this Project. The certificates must state, **"The City of Pevely, 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."**

ARTICLE X

Enumeration of The Contract Documents

The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:

- (a) Job Special Provisions
- (b) Owner-Contractor Agreement
- (c) General Conditions of the Owner-Contractor Agreement
- (d) The Drawings identified as follows:
City of Pevely, 2022 Sanitary Sewer Project, 312 Main Street, SC19-1030
- (e) Technical Specifications
- (f) Performance and Payment Bond
- (g) State Wage Determination
- (h) Subcontractor Approval Form

IN WITNESS WHEREOF, the parties hereto have executed this Agreement:

The City of Pevely
(Owner)

By _____

Title

(SEAL)

Attest: _____

Title

Date: _____

Contractor Name
(Contractor)

By _____

(Print Name)

Title

(SEAL)

Attest: _____

Date: _____

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.

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FORM OF CONTRACT PERFORMANCE - PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____, as Principal, and _____, as Surety, are held and firmly bound unto the _____, hereinafter called the "Owner," in the penal sum of _____ Dollars (\$ _____) lawful money of the United States, well and truly to be paid unto the said Owner for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has by written agreement dated _____, entered into a Contract with the Owner for the construction of the work designated as _____ located at _____ in the State of Missouri, in accordance with the Contract, which Contract is by this reference made a part hereof, and is hereinafter referred to as the "Contract."

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal shall faithfully perform the Contract on its part, and satisfy all claims and demands incurred by the Principal in the performance of the Contract, and shall fully indemnify and save harmless the Owner from all cost and damage which the Owner may suffer by reason of the failure of the Principal to do so, and shall fully reimburse and repay to the Owner all costs, damages, and expenses which the Owner may incur in making good any default by the Principal including, but not limited to, any default based upon the failure of the Principal to fulfill its obligation to furnish maintenance, repairs or replacements for any period of time after the Work is completed as provided for in the Contract, and shall for use in the prosecution of the Work required by the Contract whether by Subcontract or otherwise, and shall pay all valid claims and demands whatsoever, and shall defend, indemnify and hold harmless the Owner and its agents against loss or expense from bodily injury, including death, or damage or destruction of property, including loss of use resulting therefrom, arising out of or resulting from the performance of the Work, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

The Owner may sue on this Bond, and any person furnishing material or performing labor, either as an individual or as a Subcontractor shall have the right to sue on this Bond in the name of the Owner for his use and benefit, all in accordance with the provisions of MO. Rev. Stat. SS 522.300, and any amendments thereto.

Whenever Principal shall be in default under the Contract, the Surety shall promptly remedy the default, or shall promptly, (1) complete the Contract in accordance with its terms and conditions, or (2) obtain bids for completing the Contract in accordance with its terms and conditions, and upon determination by the Owner of the lowest responsible bidder, arrange for a



Contract between the Owner and such bidder, and made available as the Work progresses sufficient funds to pay the costs of completion, not exceeding the amount of this Bond.

It is hereby stipulated and agreed that any suit based upon any default of the Principal in fulfilling his obligation to furnish maintenance, repairs or replacements for any period of time after the Work is completed as provided for in the Contract, may be brought at any time up to one year after the expiration of the time specified in the Contract during which the Contractor has agreed to furnish such maintenance or make such repairs or replacements.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

Signed and sealed this _____ day of _____, 20____,

In the presence of : _____ (SEAL)

By: _____

(SEAL)

By: _____

SAMPLE

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 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. The Performance Bond and the Labor and Material Payment Bond may be in one or in separate instruments. however if combined into one the

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, the Performance Payment Bond, the Drawings, the Specifications, the Construction Schedule, all Addenda and all Modifications issued after execution of the Contract. 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.

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.

2.5 SUSPENSIONS OF WORK ORDERED BY THE ENGINEER

2.5.1 If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

2.5.2 Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The contractor will be notified of the engineer's determination whether or not an adjustment of the contract is warranted.

2.5.3 No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.

2.5.4 No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

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 ten dollars (\$10.00) 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.

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 Missouri law, 292.675 RSMo, requires the Contractor and its subcontractor(s) to provide a ten-hour occupational safety and health administration (OSHA) construction safety program (or a similar program approved by the Missouri Department of Labor and Industrial Relations as a qualified substitute) for their on-site employees (laborers, workmen, drivers, equipment operators, and craftsmen) who have not previously completed such a program and are directly engaged in actual construction of the improvement (or working at a nearby or adjacent facility used for construction of the improvement). The Contractor and its subcontractor(s) shall require all such employees to complete this ten-hour program, pursuant to 292.675 RSMo, unless they hold documentation on their prior completion of said program. Penalties for non-compliance include Contractor forfeiture to the City of Pevely in the amount of \$2,500, plus \$100 per contractor and subcontractor employee for each calendar day such employee is employed beyond the elapsed time period for required program completion under 292.675 RSMo.

3.3.5 The Contractor shall execute and complete the Work in such a manner that avoids jurisdictional and other disputes among labor unions.

3.3.6 When state and federal wage rates are both required the higher of the two for each job classification shall be used.

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.

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 insure 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 Contractor shall not subcontract more than seventy percent (70%) of the total Contract cost.

4.2.3 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.

4.2.4 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.

4.2.5 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.

4.2.6 The Contractor shall not make any substitution for any proposed Subcontractor or person or organization who 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 All Testing for product acceptance and associated costs shall be performed by the Owner.

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.

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 By 12:00 P.M. on or before the twentieth 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 In accordance with the Missouri Prompt Pay act (34.057 RSMo), the owner may withhold payment for any of the reasons outlined in RsMO34.057, or as determined by the engineer.

8.3.3 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. 1994, 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; 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 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: **"The City of Pevely, 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 and 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: **"The City of Pevely, 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 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 effected by written Field Order or by other written order. Such changes shall be binding on the Owner and the Contractor.

12.3 DIFFERING SITE CONDITIONS

12.3.1 During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.

12.3.2 Upon written notification, the engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding anticipated profits,

will be made and the contract modified in writing accordingly. The engineer will notify the contractor of the determination whether or not an adjustment of the contract is warranted.

12.3.3 No contract adjustment which results in a benefit to the contractor will be allowed unless the contractor has provided the required written notice.

12.3.4 No contract adjustment will be allowed under this clause for any effects caused on unchanged work.

12.4 CLAIMS AND DISPUTES

12.4.1 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 12.4.5. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

12.4.2 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.

12.4.3 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 12.4.5.

12.4.4 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.

12.4.5

- a. 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.
- b. 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.

- c. 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.
- d. 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).
- e. 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 12.4.5 shall survive completion or termination of this Agreement.
- f. 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 2.3.

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 MATERIAL CHANGES IN THE SCOPE OF THE WORK

14.6.1 The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

14.6.2 If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

14.6.3 If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contract, the altered work will be paid for as provided elsewhere in the contract.

14.6.4 The term "significant change" shall be construed to apply only to the following circumstances:

- (a) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or

(b) When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

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 Where the term "Standard Specifications" is used, such reference shall mean the current 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. The QA/QC testing requirements are waived for this project.

14.12 CONSTRUCTION STAKING

14.12.1 The Contractor shall be responsible for construction staking on this project.

JOB SPECIAL PROVISIONS

(Job Special Provisions shall prevail over all other contract documents whenever in conflict therewith.)

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15. Construction Request for Information Form



July 20, 2022

Date

Tary Todd, P.E. #E-24182
State of Missouri
Registered Professional Engineer for
Cochran

1. ORDER OF GOVERNING DOCUMENTS

In the event of any conflict or inconsistency in the Contract Documents, the ranking of the governing document shall be as follows:

1. Job Special Provisions
2. Owner Contractor Agreement
3. General Conditions of the Owner-Contractor Agreement
4. Project Specific Drawings
5. Technical Specifications
6. Current edition of the Missouri Standard Specifications for Highway Construction
7. Missouri Standard Drawings for Highway Construction

2. WORK ZONE TRAFFIC MANAGEMENT PLAN

Work Zone Traffic Management Plans shall be submitted to the Engineer for review prior to the start of work. The Plans shall include the proposed traffic control measures, hours that the traffic control will be in place, actual construction activity working hours, and anticipated beginning and ending dates.

The Contractor shall notify the Engineer prior to lane closures or shifting traffic onto detours. The engineer shall be notified as soon as practical of any postponement due to weather, material or other circumstances.

Traffic Delay. The contractor shall be responsible for maintaining the existing traffic flow through the job site during construction (specifically, this means two-way traffic shall be maintained at all times). If disruption of the traffic flow occurs and traffic is backed up in queues of 15-minute delays or longer, then the contractor shall review the construction operations which contributed directly to disruption of the traffic flow and make adjustments to the operations to prevent the queues from occurring again.

During all construction phases - all traffic control shall be according to the standards of the latest edition of the Manual on Uniform Traffic Control Devices developed by the Federal Highway Administration. At all times, the Contractor shall be responsible to follow the Work Zone Traffic Management Plan, and shall maintain signs, cones, lane delineators, and other facilities that may be necessary, even if not addressed on the Work Zone Traffic Management Plan, to comply with the MUTCD, and to protect the work and provide for safe travel through the construction area. Contractor trucks and equipment will not be allowed to drive on previously paved roadways.

In order to ensure minimal traffic interference, the Contractor shall schedule lane closures for the absolute minimum amount of time required to complete the work. Lanes shall not be closed until material is available for continuous construction and the Contractor is prepared to diligently pursue the work until the closed lane is opened to traffic.

Traffic Congestion. The contractor shall, upon approval of the engineer, take proactive measures to reduce traffic congestion in the work zone.

Traffic Safety. Where traffic queues routinely extend to within 1000 feet (300 m) of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet (150 m) of the ROAD WORK AHEAD, or similar, sign on an undivided highway, the contractor shall extend the advance warning area, as approved by the engineer.

When a traffic queue extends to within 1000 feet (300 m) of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet (150 m) of the ROAD WORK AHEAD, or similar, sign on an undivided highway due to non-recurring congestion, the contractor shall deploy a means of providing advance warning of the traffic congestion, as approved by the engineer. The warning location shall be

no less than 1000 feet (300 m) and no more than 0.5 mile (0.8 km) in advance of the end of the traffic queue on divided highways and no less than 500 feet (150 m) and no more than 0.5 mile (0.8 km) in advance of the end of the traffic queue on undivided highways.

Work Hour Restrictions. There are three major summer holiday periods: Memorial Day, Independence Day, and Labor Day. All lanes shall be scheduled to be open to traffic during these holiday periods, from 12:00 noon on the last working day preceding the holiday until 9:00 a.m. on the first working day subsequent to the holiday.

Payment for all costs incurred in handling traffic during construction other than as provided for in the bid form will be considered incidental to the construction of the project.

3. PROJECT CONTACT FOR CONTRACTOR/BIDDER QUESTIONS

All questions concerning this project during the bidding process shall be forwarded to the project contact listed below:

Tary Todd, P.E.
737 Rudder Road, Fenton, MO 63026
314-842-4033
ttodd@cochraneng.com

4. EMERGENCY PROVISIONS AND INCIDENT MANAGEMENT

The contractor shall have communication equipment on the construction site or immediate access to other communication systems to request assistance from the police or other emergency agencies for incident management. In case of traffic accidents or the need for police to direct or restore traffic flow through the job site, the contractor shall notify police or other emergency agencies immediately as needed. The engineer's office shall also be notified when the contractor requests emergency assistance.

Cochran
Gary Scheipeter
(636) 249-4627

City of Pevely
Wade Amsden
Sewer Department Supervisor
(636) 475-4452

In addition to the 911 emergency telephone number for ambulance, fire or police services, the following agencies may also be notified for accident or emergency situation within the project limits.

Dunklin Fire Protection District
(636) 479-3797

Pevely Police Department
(636) 475-5301

Jefferson County Sheriff Department
(636) 797-5000

Joachim Plattin Ambulance District
(636) 937-2224

This list is not all inclusive. Notification of the need for wrecker or tow truck services will remain the responsibility of the appropriate police agency.

The contractor shall notify enforcement and emergency agencies before the start of construction to request their cooperation and to provide coordination of services when emergencies arise during the construction at the project site. When the contractor completes this notification with enforcement and emergency agencies, a report shall be furnished to the engineer on the status of incident management.

No direct pay will be made to the contractor to recover the cost of the communication equipment, labor, materials or time required to fulfill the above provisions.

5. **ALTERED QUANTITIES**

The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

See **MATERIAL CHANGES IN THE SCOPE OF WORK** in the General Conditions of this Project Manual for full details.

6. **INCIDENTAL ITEMS**

Project coordination, preliminary site investigation, submittal requirements, general administrative duties, scheduling and product shipping and handling are considered incidental to the contract and no direct payment will be made for this work.

A partial list of work items to be considered incidental to the construction shall include, but not be limited to:

- Any traffic control items, other than those listed in the bid form, necessary to meet the standards of the MUTCD shall be considered incidental to the contract.
- Any erosion control items, other than those listed in the bid form, necessary to prevent silt from leaving the site shall be considered incidental to the contract.
- All Pavement Edge Treatment necessary for the elimination of any pavement edge differential to be in accordance with MoDOT Standards.
- Stripping as defined in Section 2000.
- Protection of trees.
- Temporary walkways and bridges.
- Earthwork
- Hauling and disposal off site of all excavated material, regardless of type.
- Sanitary sewer testing, identification tape, sheeting and bracing required and backfill.
- Concrete footings for new signs or sign and mailbox relocations.
- All utility adjustments.
- Asphalt tack and fabric tack coat.
- Any saw cutting.
- Aggregate base for asphalt or concrete pavement/sidewalk.
- Joint sealing.
- Reinforcing steel work.
- Construction site cleanup.
- Temporary Concrete Washout Facilities
- Temporary pavement markings.
- Maintenance of lawns or landscaping as required in the specifications.

If there is no line item shown in the Itemized Bid Form, any work shown in the Plans or Project Manual shall be considered as a subsidiary obligation of the Contractor covered under the other contract items.

7. CONTRACTORS DAILY WORK SCHEDULE

Work hours will be 7:00 a.m. through 7:00 p.m., Monday through Friday. All other times shall be preapproved by the Owner at least 48 hours in advance of work.

In all cases, the Contractor shall notify the Engineer sufficiently in advance of operations, in order to provide for suitable inspection of the preparation work performed by the Contractor. In no case shall the Contractor be permitted to begin operations without prior approval by the Engineer.

The Engineer shall be notified as soon as practical of any postponement due to weather, material or other circumstances.

The Contractor shall submit the entire and completed project construction schedule to the Engineer one week prior to the pre-construction meeting. The schedule will specifically identify the order of the work, and will be used as a tool to communicate the order and phasing of construction activities with the residents, property owners, and business owners in the area.

8. CONSTRUCTION ACTIVITY/NOTIFICATION LETTERS

The Contractor will be required to notify affected property owners, by letter, at the start of each construction phase and prior to each major construction activity. This project will have one category of construction requiring letters:

- 1) Beginning of construction

If any phase of the work occurs concurrently with another phase, one letter may address both phases.

The Contractor shall mail or hand-deliver each letter one week prior to each phase. Letters shall be given to each household and business to be affected by construction.

The letters should give an expected start date and timeframe, and state that there could be delays due to weather. In the event of delays of more than three days, a new letter shall be delivered. The Engineer shall approve all letters prior to distribution.

9. LANE CLOSURES

Lane closures will be allowed during construction operations for installation of sanitary sewer. At all other times, the contractor shall be required to maintain two lane, two way traffic.

The Contractor will be required to provide a minimum of two competent flagmen during lane closures. One lane of roadway, with two-way traffic, shall be maintained at all times during construction activities.

10. CLEANING UP

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 job site.

At the end of each work day the Contractor shall remove all remaining waste materials from and about the project as well as all tools, construction equipment, machinery and surplus materials, and shall clean all surfaces (streets, sidewalks, curbs, tree boxes, private property, and cars) and leave the job site

"broomclean" or its equivalent. **Failure to comply with this section will result in an immediate Stop Work order.**

11. STORAGE OF EQUIPMENT

Equipment and materials shall be stored at locations as directed and approved by the Engineer.

12. COORDINATION WITH PUBLIC SERVICES

The Contractor will be responsible to notify: a) school district, b) ambulance district, c) fire and police, d) the City's Trash Hauler and e) the United States Postal Service of the construction sequence and schedule. The Contractor shall coordinate trash collection for the residents during construction activities.

13. DUST CONTROL

The Contractor shall take all reasonable precautions to avoid the creation of excessive dust as a result of construction operations. Should excessive dust result from the Contractor's operations, or complaints regarding dust be received from private property owners, the Contractor will be required to take immediate corrective action to alleviate and resolve the dust concern. Should any private property be damaged by excessive dust as a result of the Contractor's operations, the damage shall be repaired at the Contractor's expense. No direct payment will be made to the Contractor for any reason of their compliance with this provision.

14. PORTABLE TOILET FACILITIES

The Contractor shall furnish and maintain an adequate number of portable restroom facilities for his employees for the duration of the project.

15. CONSTRUCTION REQUEST FOR INFORMATION

The Contractor shall submit request for information for conditions requiring clarification during construction utilizing the attached Request for Information Form.



CONSTRUCTION REQUEST FOR INFORMATION

RFI #:	
PROJECT:	
SUBMITTED DATE:	
SUBMITTED BY:	
INFORMATION REQUESTED:	
ATTACHMENTS:	

RESPONSE DATE:	
RESPONSE FROM:	
RESPONSE:	
ATTACHMENTS:	

END OF CONSTRUCTION RFI

8 East Main Street
Wentzville, MO 63385
Phone: 636-332-4574
Fax: 636-327-0760

737 Rudder Road
Fenton, MO 63026
Phone: 314-842-4033
Fax: 314-842-5957

530A East Independence Drive
Union, MO 63084
Phone: 636-584-0540
Fax: 636-584-0512

534 Maple Valley Drive
Farmington, MO 63640
Phone: 573-315-4810
Fax: 573-315-4811

767 North 20th Street
Ozark, MO 65721
Phone: 417-595-4108
Fax: 417-595-4109

905 Executive Drive
Osage Beach, MO 65065
Phone: 573-525-0299
Fax: 573-525-0298

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

Annual Wage Order No. 29

Section 050
JEFFERSON 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 _____

Todd Smith, Director
Division of Labor Standards

Filed With Secretary of State: _____ **March 10, 2022**

Last Date Objections May Be Filed: **April 11, 2022**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$64.13
Boilermaker	\$25.15*
Bricklayer	\$60.24
Carpenter	\$55.31
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	\$54.84
Plasterer	
Communications Technician	\$63.71
Electrician (Inside Wireman)	\$71.44
Electrician Outside Lineman	\$25.15*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	\$25.15*
Glazier	\$25.15*
Ironworker	\$65.47
Laborer	\$47.04
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$47.98
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$65.07
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	\$36.79
Plumber	\$73.18
Pipe Fitter	
Roofer	\$54.60
Sheet Metal Worker	\$71.37
Sprinkler Fitter	\$78.32
Truck Driver	\$25.15*
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 Section 290.210 RSMo.

Heavy Construction Rates for
JEFFERSON County

Section 050

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$61.83
Millwright	
Pile Driver	
Electrician (Outside Lineman)	\$25.15*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	\$50.76
General Laborer	
Skilled Laborer	
Operating Engineer	\$64.84
Group I	
Group II	
Group III	
Group IV	
Truck Driver	\$25.15*
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. 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 Section 290.210 RSMo.

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.

SECTION 1000 - COORDINATION AND SITE CONDITIONS**1. GENERAL**

- A. Requirements for coordinating and sequencing the work under the Contract and requirements regarding existing site conditions.

2. SITE CONDITIONS**A. Information on Site Conditions:**

1. General: Information obtained by the Owner regarding site conditions, topography and subsurface information obtained by the Engineer's investigation of surface and subsurface conditions, shall be considered part of the Contract Documents. Neither the Engineer nor the Owner assumes any responsibility for its accuracy or completeness or for the Contractor's interpretation of such information.
2. Existing Elevations: Elevations are expected to vary ± 0.1 feet from the elevations shown. The Contractor shall verify existing elevations prior to start of new work.

B. Existing Utilities and Facilities:**1. Location:**

- a. Known utilities and facilities adjacent to or within the work area are shown on the Drawings. The locations shown are taken from existing records and the best information available from existing utility plans; however, it is expected that there may be some discrepancies and omissions in the locations and quantities shown. Those shown are for the convenience of the Contractor only, and no responsibility is assumed by either the Owner or the Engineer for their accuracy or completeness. Contractor's request for additional compensation or Contract time resulting from encountering utilities not shown will be considered incidental to the contract. Excessive delays that affect the "critical path" of project scheduling shall be considered for contract time extensions and additional compensation. This decision shall be made by the Owner.
- b. Contractor shall exercise reasonable care to verify locations of utilities and facilities shown on the drawings and to determine the presence of those not shown. Immediate and adjacent areas where excavations are to be made shall be thoroughly checked by visual examination for indications of underground facilities, and also checked with electronic metal and pipe detection equipment. Where there is reasonable cause to verify the presence or absence of an underground facility, make exploratory excavations prior to proceeding with major excavation in the area.
- c. Contractor shall call 1-800-344-7483 (Missouri One Call) for location of underground utilities prior to beginning any excavation work on this project.

2. Preconstruction Survey and Monitoring:

- a. After the Contract is awarded and before starting the work, the Contractor shall perform a preconstruction survey of the site. Make a thorough examination, providing color photographs, and a color video in a format approved by the Owner and Engineer of all existing buildings, structures and other improvements which might be damaged by the Contractor's operations. The examination shall be made jointly by representatives of the Contractor, the Owner and the Engineer. The scope of the examination and photographs shall include cracks in structures, settlement, leakage, and similar conditions. The Contractor shall be responsible for all documentation, including videocassettes, photos, etc.
- b. The Contractor shall establish vertical and horizontal survey control points from the initial base survey control provided by the Engineer on all structures and improvements located in the vicinity of the work prior to beginning work and shall periodically check the points for movements. The Contractor shall furnish the Engineer with copies of the survey notes for each survey and a copy of the layout of the survey control points.
- c. Records of all observations shall be prepared in triplicate by the Contractor. Two copies of each document and photograph and one copy of the video shall be provided to the Engineer.
- d. The above records and photographs are intended for use as evidence in ascertaining the extent of any damage, which may occur as a result of the Contractor's operations and are for the protection of the Contractor and the Owner. The records will provide a means of determining whether and to what extent damage may have occurred as a result of the Contractor's operations. The records will also be utilized to guide the restoration phase of this project.
- e. The Contractor shall document all property corners that may be affected by the work. Any property corner disrupted by the construction shall be reset by a Professionally Licensed Surveyor after the construction is complete. If there is no line item provided for this work, all costs associated with reestablishing the property corners shall be the responsibility of the Contractor.

3. Contractor's Responsibilities:

- a. Contractor shall call 1-800-344-7483 (Missouri One Call) and 314-340-4100 (MoDOT) for location of underground utilities prior to beginning any excavation work on this project.
- b. Where Contractor's operations could cause damage or inconvenience to railway, telegraph, telephone, television, power, oil, gas, water, sewer, or irrigation systems, the Contractor shall make arrangements necessary for the protection of these utilities and services. Replace existing utilities removed or damaged during construction, unless otherwise provided for in these Contract Documents.
- c. Notify utility offices that are affected by construction operations at least 72 hours in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted,

locate, expose, and provide temporary support for the utilities.

- d. Contractor shall be solely and directly responsible to Owner and operator of such properties for damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of injuries or damage which may result from construction operations under this Contract.
- e. Neither Owner nor its officers or agents shall be responsible to Contractor for damages as a result of Contractor's failure to protect utilities encountered in the work.
- f. In event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental damage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration as promptly as possible and pay for repair. Prevent interruption of utility service unless granted by the utility owner.
- g. In the event Contractor encounters water service lines that interfere with trenching, obtain prior approval of the water utility, cut the service, dig through, and restore service to previous conditions using equal materials.

C. Interfering Structures:

1. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground. An attempt has been made to show major structures on the drawings. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed.
2. Protect existing structures from damage, whether or not they lie within limits of easements obtained by the Owner. Where existing fences, gates, barns, sheds, buildings, or other structure must be removed to properly carry out work, or are damaged during the work, restore them to original condition and to the satisfaction of property Owner.
3. Contractor may remove and replace in equal or better than original condition, to the Owner's satisfaction, small structures such as fences, and signposts that interfere with Contractor's operations, with the prior notification and approval of the Owner.

D. Construction Layout

1. The Contractor, or the Contractor's Surveyor, shall layout all proposed work in accordance with the Plans and requirements listed in the Job Special Provisions. The Contractor may confer with the Engineer for guidance in laying out the proposed work, but it will be the Contractor's responsibility to ensure the proposed work meets all the requirements of the project documents. This layout includes, but is not limited to storm sewer installation, sidewalk alignment and elevation, curb alignment and elevation, driveway location and drivability, placement of grade breaks, curb transitions, gutter flow lines, truncated dome placement, pavement markings, flares, landing limits and ramp limits. It is critical that the Contractor layout this work properly to achieve the construction of a compliant pedestrian facility. This layout work shall be incidental to the construction with no extra compensation paid.

- E. Connecting to Existing Facilities: Unless otherwise shown or specified, determine methods of connecting new work to existing facilities, and obtain Engineer's review and acceptance of proposed connections prior to initiation of work.
1. Determine location, elevation, nature, materials, dimensions, and configurations of existing facilities where necessary for connecting new work.
 2. Inspect existing record drawings and shop drawings, conduct exploratory excavations and field inspections, and conduct similar activities as needed.
 3. Shutdown of Owner's existing facility prior to connection, if necessary, shall be by Owner or as specified.
 4. Prior to beginning connection work, the Contractor shall meet the notice requirements specified herein.

3. PROJECT MEETINGS

- A. Preconstruction Conference: See Section 1200, PROGRESS SCHEDULES.
- B. Progress Meetings: Engineer will schedule regular progress meetings to review work progress, schedules, and other matters needing discussion and resolution. See Section 1200, PROGRESS SCHEDULES for details on progress meetings.
- C. Coordination Meetings: The Engineer will conduct weekly coordination meetings between the Contractor, Owner, and the Engineer for the purposes of discussing and resolving various project elements requiring interface or coordination with the Owner's treatment.
1. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified.
- D. Time of Work: No work shall be done between 7:00 p.m. and 7:00 a.m., or on weekends or legal holidays, without prior approval of the Owner. However, maintenance or emergency work during these hours may be done without prior permission.
- E. Overtime Notice: If Contractor for convenience should desire to carry on work at night or outside regular hours, submit written notice to the Engineer and allow ample time for satisfactory arrangements to be made for inspecting work in progress.

4. PAYMENT

- A. General:
1. Payment for work in this section will be considered as incidental to the contract.
 2. Any extension of contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for work under this section.

END SECTION 1000

SECTION 1100 - SUBMITTALS**1. GENERAL**

- A. Requirements and procedures necessary for scheduling, preparation, and submission of submittals.
- B. Individual specifications sections in these Contract Documents contain additional and special submittal requirements.

2. SUBMITTAL PROCEDURES

- A. Owner reserves the right to modify the procedures and requirements for submittals, as necessary to accomplish the specific purpose of each submittal. Direct inquires to Engineer regarding the procedure, purpose, or extent of any submittal.
- B. Review, acceptance, or approval of substitutions, schedules, shop drawings, lists of materials, and procedures submitted or requested by Contractor shall not add to the Contract amount, and additional costs, which may result therefrom, shall be solely the obligation of Contractor.
- C. Owner is not precluded, by virtue of review, acceptance, or approval, from obtaining a credit for construction savings resulting from allowed concessions in the work or materials therefore.
- D. Owner is not responsible to provide engineering or other services to protect Contractor from additional costs accruing from such approvals.
- E. The Contractor shall submit four (4) copies of all technical shop drawings unless otherwise indicated.

3. ADMINISTRATIVE SUBMITTALS

- A. Provide administrative submittals required by the Instructions to Bidders, General Conditions, Job Special Provisions, and as may be specifically required in other parts of the Contract Documents.

4. SCHEDULES**A. General:**

- 1. Submit estimated progress schedule and preliminary schedule of submittals to Engineer.
- 2. Revise and resubmit as specified, and identify all changes made from previous schedule submittal.

- B. Progress Schedule: See Section 1200, PROGRESS SCHEDULES for requirements.

C. Schedule of Submittals:

1. Submit Preliminary and Finalized Schedules of Submittals, in triplicate to the Engineer. Preliminary Schedule of Submittals shall be submitted within 10 days after the date of Notice to Proceed. The Finalized Schedule of Submittals shall be submitted no later than 10 days after the Contractor receives the Engineer's review comments on the Preliminary Schedule of Submittals.
2. Preliminary Schedule of Submittals: Indicate submittals required by specification section number with brief description, starting and completion dates for respective submittal preparation, and submittal review by Engineer.
3. Finalized Schedule of Submittals: Furnish sub network to the progress schedule indicating respective progress schedule activity, which sequentially follows the submittal activity.

5. SHOP DRAWINGS

A. General:

1. Shop drawings, as defined herein, consist of all drawings, diagrams, illustrations, schedules, and other data which are specifically prepared by or for the Contractor to illustrate some portion of the work; and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams, and other information prepared by a manufacturer and submitted by Contractor to illustrate material or equipment for distinct portions of the work. The Contractor shall submit, as applicable, the following for all prefabricated or manufactured structural, mechanical, electrical, plumbing, process systems, and equipment:
 - a. Shop drawings or equipment drawings, including dimensions, size and location of connections to other work, and weight of equipment.
 - b. Catalog information and cuts.
 - c. Wiring and control diagrams of systems and equipment.
 - d. Complete manufacturer's specifications, including materials description and paint system.
 - e. Suggested spare parts list with current price information.
 - f. List of special tools required for checking, testing, parts replacement, and maintenance (special tools are those which have been specifically designed or adapted for use on parts of the equipment, and which are not customarily and routinely carried by maintenance mechanics).
 - g. List of special tools furnished with the equipment.
 - h. List of materials and supplies furnished with the equipment.
 - i. Samples of finish colors for selection.

- j. Special handling and lubrication instructions.
 - k. Requirements for storage and protection prior to installation.
 - l. Requirements for installation and recommended installation procedures.
 - m. List of all spare parts and tools that shall be provided to the Owner.
2. Submittal of incomplete or unchecked shop drawings will not be acceptable. Shop drawing submittals, which do not clearly show Contractor's review stamp or specific written indication of Contractor review will be returned to Contractor for resubmission.
 3. Submittal of shop drawings not required under these Contract Documents and not shown on the schedule of submittals will be returned to Contractor unreviewed and unstamped by Engineer.
 4. Shop drawing submittals processed by Engineer do not become Contract Documents and are not Change Orders; the purpose of shop drawing review is to establish a reporting procedure and is intended for Contractor's convenience in organizing the work and to permit Engineer to monitor Contractor's progress and understanding of the design.
 5. Delays caused by the need for resubmittal shall not constitute basis for claim.
 6. Each submittal will receive up to two reviews by the Engineer at no cost to the Contractor. If a given submittal fails to reach a completed status (reviewed and marked "No Exceptions Taken" or "Make Corrections Noted") on the second submittal, the Contractor shall have the costs associated with further reviews by the Engineer deducted from the contract amount. These costs will be computed based on the Engineer's actual direct labor costs, indirect labor costs, plus profit.
 7. Sequentially number the transmittal forms; resubmittals to have original number with an alphabetic suffix.
 8. Identify project, Contractor, specification section number, pertinent drawing sheet and detail number(s), products, units and assemblies, and the system or equipment identification or tag number as shown.
 9. Apply Contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction work, and coordination of information, is in accordance with requirements of the Contract Documents.
 10. Transmit submittals in accordance with finalized schedule of submittals, and deliver to:

Cochran
737 Rudder Road
Fenton, Missouri 63026
 11. Provide space for Engineer review stamp.

12. Revise and resubmit submittals as required; identify all changes made since previous submittal.
 13. Submittals will be acted upon by Engineer and transmitted to Contractor not later than 10 working days after receipt by Engineer.
 14. When shop drawings have been reviewed by Engineer, two copies will be returned to Contractor appropriately annotated. When required by the Engineer's review comments, correct and resubmit the shop drawings in the same manner and quantity as specified for the original submittal.
 15. If major changes or corrections are necessary, shop drawings may be rejected and one set will be returned to Contractor with general direction on the requirements of a reviewable submittal.
- B. Material and Equipment Colors: Engineer will provide a schedule of selected colors within 30 days after approval of submittals and after receiving samples of the manufacturers' standard colors for those items requiring Owner's selection.

6. SAMPLES AND TEST SPECIMENS

- A. Where required in the specifications, and as determined necessary by Engineer, submit test specimens or samples of materials, appliances, and fittings to be used or offered for use in connection with the work. Include information as to their sources, prepay cartage charges, and submit such quantities and sizes for proper examination and tests to establish the quality or equality thereof, as applicable.
- B. Submit samples and test specimens in ample time to enable Engineer to make tests or examinations necessary, without delay to the work.
- C. Submit additional samples required by Engineer to ensure equality with the original approved sample and/or for determination of specification compliance.
- D. Tests required by the specifications to be performed by an independent laboratory shall be made by a laboratory licensed or certified in accordance with state statutes.
 1. Submit certified test results of specified tests in duplicate to Engineer.
- E. Samples and laboratory services shall be at the expense of Contractor and included in the prices bid for the associated work.
- F. Approved sample items (fixtures, hardware, etc.) may be incorporated into the work upon approval and when no longer needed by Engineer for reference.

7. QUALITY CONTROL SUBMITTALS

A. Manufacturers' Certificate(s): Where Manufacturers' Certificate(s) are required in the specifications, the manufacturer shall provide certification stating the following:

1. The product or system has been installed in accordance with the manufacturer's recommendations.
2. The product or system has been inspected by a manufacturer's authorized representative.
3. Applicable safety equipment has been properly installed.
4. Proper electrical and mechanical connections have been made.
5. Proper adjustments have been made and the product or system is ready for functional testing and operation.

B. Certification and Compliance:

1. Where specified, furnish certification of compliance for products specified to a recognized standard or code prior to the use of such products in the work.
 - a. Engineer may permit use of certain materials or assemblies prior to sampling and testing if accompanied by a certification of compliance.
 - b. Certifications shall be signed by the manufacturer of the product; state that the components involved comply in all respects with the requirements of the specifications.
 - c. Furnish certification of compliance with each lot delivered to the jobsite and clearly identify the lot so certified.
2. Products used on the basis of a certification of compliance may be sampled and tested at any time. The fact that a product is used on the basis of a certification of compliance shall not relieve Contractor of responsibility for incorporating products in the work, which conforms to requirements of the Contract Documents. Products not conforming to such requirements will be subject to rejection whether in-place or not.
3. Engineer reserves the right to refuse permission for use of products on the basis of a certification of compliance.

C. Functional Test Certification: Where functional testing is specified for certain equipment, Contractor (as applicable to the equipment furnished) shall state in writing that:

1. Necessary electrical and piping systems have been successfully tested.
2. In completing the recommended spare parts list portion of the Equipment Data Form, the data provided in the "Part No." and "Description" columns shall be consistent with the terminology used in the equipment manufacturer's Bill of Material/Parts List provided with the O & M Manuals. Spare parts provided by this Contract must be

identified by placing two asterisks after the part number. The term "Unit" is the unit of measure for ordering the part, e.g. each, lot of 3, box of 100, etc. The term "Quantity" is the number of units recommended. The term "Unit Cost" is the purchase price of a unit at the time the Equipment Data Form is completed.

8. CONTRACT CLOSEOUT SUBMITTALS

A. Record Drawings:

1. Submit complete sets of reproducible final shop drawings before, or at the time of, delivery of equipment to the site.
2. Submit complete set of "As-Built" drawings recording all changes made during construction. "As-Built" drawings shall be reproducible and in good condition.

B. O & M Manuals:

1. Submit final revised O & M Manual incorporating field testing results and additional instructions deemed necessary by Engineer after testing and startup.
2. Revise and resubmit manuals, or portions of manuals, found to be missing or incomplete from Engineer's punch list.

9. CONSTRUCTION PHOTOGRAPHS

- ##### A.
- The Owner and/or his authorized agents will take construction progress photographs as the work progresses. The Owner/Engineer reserves all rights to take other photographs and videotapes of the construction work.

10. PAYMENT

A. General:

1. Payment for work in this section will be considered as incidental to the contract.
2. Any extension of contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for work under this section.

END SECTION 1100

SECTION 1200 - PROGRESS SCHEDULES**1. GENERAL**

- A. Detailed scheduling requirements and procedures including preparation and overall schedule.
- B. Preconstruction conference requirements.
- C. Monthly progress report requirements.

2. SUBMITTALS

- A. Submit the following items as specified in this section:
 - 1. Overall schedule
 - 2. Network diagrams
 - 3. Progress reports
 - 4. Cash flow summary

3. PROGRESS OF THE WORK**A. General:**

- 1. Execute work with such progress as necessary to prevent delay to the overall completion of the project.
- 2. Execute work at such times and on such parts of the project, and with such forces, materials, and equipment, to assure completion in the time established by the Contract.

4. PRECONSTRUCTION CONFERENCE

- A. A preconstruction conference shall be held as soon as possible after the award of the Contract but before the Notice to Proceed. Contractor shall meet with Owner and Engineer for discussion of scheduling requirements, procedures for handling shop drawings and other submittals, processing application for payment, and establishing a working understanding among the parties. The conference shall be held at the jobsite or at a location selected by the Owner. The conference shall be attended by:
 - 1. Contractor's office representative.
 - 2. Contractor's general superintendent.
 - 3. Subcontractor's representative whom Contractor may desire or Engineer may request to attend.
 - 4. Engineer's representative.
 - 5. Owner's representative.
 - 6. Representative of utility companies.

5. OVERALL SCHEDULE

A. General:

1. Contractor shall prepare and submit, within 10 days after the award of Contract, an Overall Schedule comprised of all construction operations in connection with the Contract.
2. Overall Schedule shall indicate the sequence of work, by phase and by station, and the time of starting and completion of each activity. Activities shall include, but not be limited to, the following items as they pertain to the Contract.
 - a. Each subcontractor's items of work.
 - b. Shop drawing submittal from Contractor, checking and coordination, submittal to the Engineer, review, and return to Contractor.
 - c. Material and equipment order, manufacture, delivery, installation, and checkout.
 - d. Move in and site preparation.
 - e. Concrete placement sequence.
 - f. Backfilling, grading, seeding, paving, etc.
 - g. Electrical activities.
 - h. Plumbing and piping activities.
 - i. Final cleaning.
 - j. Allowable for inclement weather.
3. The Overall Schedule shall show all stipulated milestone dates, constraints, substantial completion and final completion dates.

B. Network Diagram:

1. The Contractor shall submit a time-scaled network diagram as part of the Overall Schedule. Draw or print the network diagram on reproducible paper, not larger than 24 inches by 36 inches, and show the sequence and interdependence of activities required for complete performance of all items of work.
2. Produce a legible and accurate diagram. Group activities related to a specific physical area of the project for ease of understanding and simplification. Label each activity with a complete description as well as estimated duration in working days.
3. Activity durations shall be not less than 1 day or more than 30 working days, unless otherwise approved by the Engineer, except for Engineer's submittal review and material and equipment fabrication/delivery.
4. Indicate critical path of activities on the network diagram.

5. Contractor(s) shall not be permitted to sequester shared float through such strategies as extending duration estimates to consume available float time, extensive crew/resource sequencing, etc.

C. Schedule Reports:

1. Prepare schedule listings of the information in the network diagram in tabular format, sorted according to:
 - a. Early-start, within responsibility.
 - b. Early-start.
 - c. Activity number sequence.
 - d. Activity number sequence with predecessor and successor activity.
2. Schedule listings shall show activity numbers, description, responsibility, total duration in workdays, percent complete, early-start date, late-start date, early-finish date, and total float for each activity in the network diagram.
3. Overall Schedule and subsequent revisions shall reflect actual progress of the project to within 5 working days prior to submittal. The Contractor shall sign and submit three copies of the initial Overall Schedule and each revision.
4. If initial submittal or a subsequent revision does not meet the requirements specified, Contractor shall revise the Overall Schedule and resubmit until it is acceptable to the Engineer. Failure to submit and adequately update the Overall Schedule, including network diagram and schedule reports, will be considered cause for withholding partial payments otherwise due under the Contract.

D. Progress Reports:

1. Once each month on a date mutually agreed upon by the Contractor, Owner and Engineer, a jobsite progress meeting will be held at which time the schedule will be reviewed. Immediately prior to the meeting, Contractor shall obtain the necessary information to update the Overall Schedule to reflect progress to date. Furnish sufficient copies of the updated schedule at the meeting for review.
2. In updating the schedule, progress will be reviewed:
 - a. To identify those activities started and completed during the previous period.
 - b. For remaining duration, from the date of update, required to complete each activity started but not completed.
 - c. For review of remaining durations for selected activities not yet started.
 - d. For addition of Change Orders and proposed sequencing changes to the network diagram and schedule listings.
3. At least once each month, and utilizing data accumulated during the previous joint Owner-Engineer-Contractor reviews, the Contractor shall revise the network diagram and the Overall Schedule and generate updated schedule reports. Also, revise and submit the network diagram and schedule reports when one of the following conditions occur:

- a. Delay in completion of a work item or sequence of work items causes an estimated extension of project completion by 15 or more working days.
 - b. Delays in submittals, deliveries, or work stoppages are encountered which require replanning rescheduling of work.
 - c. Schedule no longer represents actual prosecution and progress of work.
4. Whenever revised scheduling documents are submitted, they shall be accompanied by a written Narrative Report which shall:
- a. Describe amount of progress since the last revision in terms of activities started, continuing, and completed.
 - b. Describe problem areas, current and anticipated delay factors, and their estimated impact on performance of other activities and completion dates.
 - c. Explain corrective action taken or proposed.

E. Correcting Delays:

1. If at any time during the project the Contractor fails to complete an activity by its latest scheduled completion date, which late completion will impact the end date of the work part of the Contract completion date, submit within 7 calendar days plans to reorganize the work force to return to the current schedule.
2. The Owner may require Contractor to add construction forces, as well as increase working hours, if operations fall behind schedule at any time.
3. Addition of equipment or construction forces, increasing working hours, or other method, manner, or procedure to return to the contractually required completion date will not be justification for Contract modification.
4. Contractor shall plan, schedule, and coordinate construction operations and activities in a manner that will facilitate progress of work.

6. CASH FLOW

- A. Contractor shall submit a cash flow summary with the initial Overall Schedule submittal and each monthly update. Cash flow summary shall be based on the submitted Overall Schedule and equal in total the Contractor's bid plus approved Contract modifications. Include expected payment requests for each month, as well as cumulative payment requests to date after deducting retainage. Failure to submit and adequately update an acceptable cash flow summary will be considered cause for withholding partial payments otherwise due under the Contract.

7. PAYMENT

A. General:

1. Payment for work in this Section will be considered incidental to the contract.
2. Any extension of contract time that may be granted by the Owner will not of itself constitute

a claim for additional payment for work under this section.

END SECTION 1200

SECTION 1300 - PRODUCT SHIPMENT, HANDLING, STORAGE & PROTECTION1. GENERAL

- A. Requirements and procedures for work necessary for shipment handling, storage, and protection of material and equipment products.

2. SUBMITTALS

- A. Contractor shall submit the following:

1. Assembly instructions for parts shipped unassembled.
2. Manufacturer's instructions for unloading, handling, storage, and protection prior to installation, with each shipment of each product type.
3. Copy of manufacturer's notice of shipment for products critical to project schedule.
4. Statements of new products delivered each week.
5. Documentation of products in storage, submitted with each progress payment request.

3. PREPARATION FOR SHIPMENT

- A. When practical, products shall be factory assembled.

1. Furnish assembly instructions for parts and assemblies that are shipped unassembled.
2. Mark or tag the separate parts and assemblies for field assembly.
3. Cover machined and unpainted parts that may be damaged by the elements with a strippable protective coating.

- B. Package or crate products to provide protection from damage during shipping, handling, and storage.

1. Mark or tag outside of each package or crate to indicate its purchase order number, bill of lading number, contents by name, name of project and Contractor, equipment number, and approximate weight.

- C. Mark spare parts and special tools to identify the associated products by name, equipment, and part number. Package parts for protection against damage from the elements during shipping, handling, and storage. Ship in boxes or containers marked to indicate the contents and as stated above. Deliver spare parts and special tools before the associated equipment is scheduled for the initial test run.

- D. Where specified for specific product, factory test results shall be reviewed and accepted before such product is shipped.

4. RECEIVING, INSPECTION, AND UNLOADING

- A. Contractor shall record the receipt of products at the jobsite.
- B. Upon receipt of products at the jobsite, Contractor shall inspect for completeness and evidence of damage during shipment.
 - 1. Owner or Engineer and manufacturer's representative may be present for inspection.
 - 2. Should there appear to be damage, notify the Engineer immediately and inform the manufacturers and the transportation company.
 - 3. Expedite replacement of damaged, incomplete, or lost items.
- C. After completion of inspection, unload products in accordance with manufacturer's instructions for unloading, or as specified. Do not unload damaged or incomplete products to be returned to manufacturer for replacement, except as necessary to expedite return shipment.

5. HANDLING, STORAGE, AND MAINTENANCE

- A. Handle products in accordance with the manufacturer's written recommendations, and in a manner to prevent damage.
- B. Store products prior to installation as recommended by the manufacturer.
 - 1. Store products such as pipe, fittings and reinforcing steel off the ground in approved storage yards.
 - 2. Store items subject to damage by the elements, vandalism, or theft in secure buildings.
 - 3. Provide environmentally controlled storage facilities for items requiring environmental control for protection.
- C. Provide manufacturer's recommended maintenance during storage, installation, and until products are accepted for use by Owner.

6. PAYMENT

- A. General:
 - 1. Payment for work in this section will be considered as incidental to the contract.
 - 2. Any extension of contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for work under this section.

END SECTION 1300

SECTION 1400 - CONTRACT CLOSEOUT**1. GENERAL**

A. Procedures to be followed in closing out the Contract.

2. FINAL SUBMITTALS

A. No Contract will be finalized until all of the following have been submitted as required in Section 1100, SUBMITTALS:

1. Prevailing Wage Affidavits from Prime Contractor and all Subcontractors.
2. Affidavit regarding settlement of claims from Prime Contractor and all Subcontractors.
3. Release from Bonding Companies
4. Final shop drawings.
5. Record drawings.
6. Interface information.
7. Operation and Maintenance Manuals.
8. Equipment maintenance summaries.
9. Manufacturer's certification of proper installation.
10. Material certification for each item provided stating that it meets the requirements of the Specifications.
11. Sewer "as-builts".

B. No Contract will be finalized until all guarantees, bonds, certifications, licenses, and affidavits required for work or equipment as specified are satisfactorily filed with the Engineer and Owner.

3. RELEASE OF LIENS OR CLAIMS

A. No Contract will be finalized until satisfactory evidence of release of liens has been submitted to Owner as required by the General Conditions.

4. EXECUTION

A. FINAL CLEANING. At completion of work and immediately prior to final inspection, clean entire project according to the following provisions:

1. Clean, sweep, wash, and polish work and equipment provided under the Contract, including finishes. Leave the structures and site in a complete and finished condition to the satisfaction of the Engineer.
2. Should Contractor not remove rubbish or debris or not clean the facilities and site as specified above, the Owner reserves the right to have final cleaning done at the sole expense of the Contractor.

B. The Contractor shall:

1. Employ experienced workers or professional cleaners for final cleaning.
2. Conduct final inspection of exposed interior and exterior surfaces and of concealed spaces.
3. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exposed interior and exterior finished surfaces; polish surfaces designed to shine finish.
4. Repair, patch, and touch up marred surfaces to specified finish, and match adjacent surfaces.
5. Broom clean paved surfaces; rake clean other surfaces.
6. Remove from the Owner's property temporary structures and materials, equipment, and appurtenances not required as part of, or appurtenant to, the completed work.
7. Leave watercourses, gutters, and ditches open and in condition satisfactory to Engineer.

5. FINAL INSPECTION

- A. After final cleaning and upon written notice from Contractor that the work is completed, Engineer will make preliminary inspection with the Owner and Contractor present. Upon completion of preliminary inspection, Engineer will notify Contractor in writing of particulars in which the completed work is defective or incomplete.
- B. Upon receiving written notice from Engineer, Contractor shall immediately undertake work required to remedy defects and complete the work to the satisfaction of Engineer.
- C. After the items as listed in Engineer's written notice are corrected or completed, inform Engineer in writing that required work has been completed. Upon receipt of this notice, Engineer, in the presence of Owner and Contractor, will make final inspection of the project.

6. PAYMENT

A. General:

1. Payment for work in this section will be considered as incidental to the contract.
2. Any extension of contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for work under this section.

END SECTION 1400

SECTION 1500 – MOBILIZATION AND TRAFFIC CONTROL

1. MOBILIZATION

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings, and other facilities necessary for work on the project except as provided in the contract as separate pay items; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various items on the project site.

A. GENERAL

1. **QUALITY ASSURANCE.** The Engineer shall have the right to reject construction tools, equipment, materials, and supplies that are, in their opinion, unsafe, improper, or inadequate. The Contractor shall bring rejected tools, equipment, materials, and supplies to acceptable conditions or remove them from the project site.
2. **DELIVERY.** Delivery to the project site of construction tools, equipment, materials, and supplies shall be accomplished in conformance with local governing regulations.

B. EXECUTION

Provide personnel, construction tools, equipment, materials, and supplies that will facilitate the timely execution of the work. Upon completion of the work, remove construction tools, apparatus, equipment, unused materials and supplies, plants, and personnel from the project site.

2. TRAFFIC CONTROL

- A. During all construction phases - all traffic control shall be according to the standards of the latest edition of the Manual on Uniform Traffic Control Devices developed by the Federal Highway Administration. At all times, the Contractor shall be responsible to follow the Work Zone Traffic Management Plan, and shall maintain signs, cones, lane delineators, and other facilities that may be necessary, even if not addressed on the Work Zone Traffic Management Plan, to comply with the MUTCD, and to protect the work and provide for safe travel through the construction area. Contractor trucks and equipment will not be allowed to drive on previously paved roadways.
- B. Traffic control shall consist of furnishing, installing, relocating, maintaining and removing, temporary or permanent traffic control devices in accordance with the contract and as directed by the Engineer. Traffic control shall be the responsibility of the Contractor and shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- C. Safety Requirements.
 1. All workers within highway right of way who are exposed to traffic or construction equipment shall wear high-visibility safety apparel meeting Class 2 or Class 3 requirements of ANSI/ISEA 107-2004 publication entitled, "American National Standard for High-Visibility Safety Apparel and Headwear".

2. All traffic control devices shall be in accordance with the MUTCD and any applicable safety and design codes.
3. The Contractor shall: (a) Designate a trained person at the project level who has the primary responsibility, with sufficient authority, for implementing the traffic management plan and other safety and mobility aspects of the project. The name of that person and a 24-hour contact number for that person shall be provided to the Engineer at the pre-construction meeting. (b) Ensure all Contractor personnel are trained in traffic control to a level commensurate with their responsibilities. (c) Advise the Engineer, as required, at least two working days before any work requiring a lane closure begins and 14 calendar days prior to the imposition of height, width and weight restrictions. (d) Perform quality control of work zones to promote consistency and ensure compliance with contract documents, policies and guidelines.

B. Construction Requirements.

1. Performance and operational aspects of the devices shall be in accordance with the latest editions of the MUTCD and the Missouri Quality Standards for Temporary Traffic Control Devices.
2. All traffic control devices shall be removed as soon as practical when the devices are no longer needed. When work is suspended for short periods of time, traffic control devices that are no longer appropriate shall be turned away from traffic, removed or covered. All temporary traffic control devices shall be removed after the completion of construction and shall remain the property of the Contractor unless specified otherwise. All permanent traffic control devices that are in conflict with temporary traffic control devices shall be covered or removed as shown on the plans or as directed by the Engineer. Upon completion of the work, all permanent traffic control devices to remain in place shall be restored to original condition.
3. All sign covers shall meet the requirements of the MoDOT Quality Standards for Temporary Traffic Control Devices.
4. All permanent traffic control devices relocated on a temporary basis shall be moved in the timeframe designated by the Engineer, and shall remain visible to the traveling public during all stages of construction. The Contractor shall place temporarily relocated permanent traffic control devices in the final location when construction is complete. Damaged devices shall be replaced by the Contractor at the Contractor's expense.
5. With the Engineer's approval, the Contractor may add to the traffic control plan any temporary traffic control devices or services the Contractor considers necessary to adequately protect the public and the work.
6. All changes to the traffic control plan resulting from Contractor staging revisions, including proposed total road closures for the Contractor's convenience, shall be submitted in writing to the Engineer for review and acceptance prior to implementation.

7. If the Engineer determines the need for additional traffic control devices not included in the traffic control plan, the Contractor will be notified in writing to provide the additional devices at no cost to the project.
8. The Contractor shall monitor traffic flow through the project and verify that all traffic control devices are in place and functioning properly during both daytime and nighttime conditions, as applicable. If the Contractor determines that a deficiency in any traffic control device exists, the Contractor shall take corrective action. No payment will be made for the corrective action.
9. As soon as possible after observing a traffic control deficiency, the Engineer will report the deficiency to the Contractor, either verbally or in writing. After receiving notification, if the Contractor does not make corrections within 24 hours, suspension of the work may occur. Regardless of the severity of the deficiency, corrections shall be made as soon as possible to maintain a quality work zone.
10. The Contractor shall provide written notice to the Engineer of any pedestrian or vehicular accident when physical evidence or other information suggests an accident has occurred in the work zone. The Contractor shall obtain and provide to the Engineer copies of law enforcement accident reports for any accidents in the work zone.

C. Lighting Requirements.

1. Work zone lighting shall be provided between dusk and dawn. Lighting systems shall be positioned such that the lighting systems do not cause glare or hot spots, i.e. concentrated areas of high lighting intensity when compared to the average, for motorists, spillover to adjacent properties or become safety concerns.
2. Work area lighting shall be provided in areas where construction equipment and labor are active only.

3. TEMPORARY TRAFFIC CONTROL DEVICES

- A. Scope. This specification covers material to be used for temporary traffic control devices.
- B. General Requirements. All temporary traffic control devices shall be manufactured as shown on the plans and as specified, in accordance with MUTCD requirements and shall be NCHRP 350 compliant. All temporary traffic control devices shall exhibit good workmanship and shall be free of objectionable marks or defects that affect appearance or serviceability.
- C. Channelizers and Tubular Markers. All channelizers and tubular markers shall be manufactured from a non-metallic material, pigmented and molded of a Highway Orange color throughout and stabilized against fading by ultraviolet or other light rays by the incorporation of adequate inhibitors. Channelizers shall be Trim-line type.
- D. Signs.
 1. Rigid Signs.

- (a) Sign Substrate. All signs shall be fabricated of substrate designed to provide satisfactory structural rigidity.
- (b) Sign Sheeting. All signs shall have a retroreflectorized background. Sheeting shall be applied to the sign substrate in accordance with the manufacturer's recommendations and the surface shall be free of air bubbles, wrinkles or other blemishes as determined by the Engineer.

2. Roll-up Signs.

- (a) Sign Substrate. Sign and overlay blanks shall consist of fluorescent orange microprismatic retroreflective sheeting sealed to a heavy-duty coated fabric or vinyl material.

4. MEASUREMENT AND PAYMENT

A. Mobilization: Partial payments will be allowed on the payment estimates as follows:

- 1. When 5 percent or more of the original contract amount is earned, 25 percent.
- 2. When 10 percent or more of the original contract amount is earned, an additional 25 percent.
- 3. When 25 percent or more of the original contract amount is earned, an additional 25 percent.
- 4. When 50 percent or more of the original contract amount is earned, the final payment.
- 5. Nothing herein shall be construed to limit or preclude partial payments otherwise provided by the contract.

B. Channelizers will be measured and paid for per each used on the project. The price shall include all labor, tools, and materials necessary to install and maintain channelizers for the duration of the project.

C. Signs shall be measured and paid for per each sign installed. The price shall include all labor, tools, and materials necessary to install and maintain signs for the duration of the project.

D. Any traffic control items, other than those listed in the bid form, necessary to meet the standards of the MUTCD shall be considered incidental to the contract. No direct payment shall be made for additional traffic control items.

E. Any extension of contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for work under this section.

END SECTION 1500

SECTION 2000 – CLEARING, GRUBBING AND STRIPPING**1. GENERAL**

- A. This section covers the work necessary to remove **all** interfering or objectionable materials from the designated areas of work when they are in conflict with the new construction whether or not it is shown on the drawings or designated in the specifications and shall also include the preservation from injury or defacement of all vegetation and existing objects designated to remain, as shown or as specified herein.
- B. Review with the Engineer the location, limits, and methods to be used prior to commencing the work under this section.
- C. Provide all equipment and materials, suitable and in adequate quantity, required to accomplish the work as specified herein.

2. DEFINITIONS

- A. Clearing. Clearing shall consist of cutting, removing, and disposing of trees (all trees not labeled on plans to be removed as individual tree and stump removal), snags, stumps, shrubs, brush, limbs, and other vegetative growth, and shall be performed in such a manner as to remove all evidence of their presence from the surface. It shall also include the trimming of trees (regardless of branch caliper) near sidewalks to provide for adequate height clearances required by ADA code (84" minimum clearance).
- B. Grubbing. Grubbing shall consist of the removal and disposal of wood or root matter up to 18" below the ground surface remaining after clearing and shall include stumps, trunks, roots or root systems greater than 2 inches in diameter or thickness.
- C. Stripping shall include the removal and disposal of all organic sod, topsoil, grass and grass roots, and other objectionable material remaining after clearing and grubbing from the areas designated to be stripped. The exact depth of stripping will be adjusted to minimize the amount of topsoil in the strippings.
- D. Locations. All locations of this work may or may not be shown on the plans, but shall include all removals of existing vegetation that interferes with the construction of the improvements.
- E. Disposal. The contractor shall dispose of all trees, stumps, brush, roots and all other objectionable matter removed in the clearing grubbing and stripping process. Open burning will not be allowed.
- F. Tree and Stump Removal. Shall consist of cutting, removing and disposing of trees labeled on the plans as "To be removed" and their related stumps, roots and other vegetative growth and shall be performed in such a manner as to remove all evidence of their presence from the surface.

3. MEASUREMENT AND PAYMENT

- A. Final measurement and payment for Clearing, Grubbing and Stripping will not be made as all work associated with the item is considered incidental to the construction and no direct payment for the work will be made.
- B. Tree and Stump Removal. Payment for this work shall be per each tree and associated stump removed and shall be full compensation for all equipment, labor and materials necessary to perform the work. If a tree is labeled as "(1) Tree" on the plans, payment shall be for one tree regardless of the number of "stems" or "trunks". For trees not labeled on the plans, (1) tree shall be considered any tree or group of trees, whether single stem or multi-stem, that share the same root system or are so close to each other as to appear to use the same root system.

END SECTION 2000

SECTION 2200 – REMOVAL OF IMPROVEMENTS

1. DESCRIPTION

A. This section covers the preparation of existing pavement surfaces for overlay, removal of existing pavement (other than driveways), and other miscellaneous items. This work shall consist of the removal and disposal of all existing improvements from the right of way and within the limits of any construction area outside the right of way, except improvements designated or permitted to remain in place or to be removed under other items of work. Removal of improvements shall include, but not be limited to, removing (whether designated for removal or for the preparation for new improvements), or movement if appropriate, of all drainage structures, pavement (excluding driveways), surfacing and base courses, curb, gutter, sidewalks, house walks, steps, retaining walls, foundation walls, columns, footings, concrete floors, cisterns, catch basins, uncontaminated storage tanks, manholes, drainage and sewer pipes, water and gas main pipes, signs, mailboxes, planters, fences, scattered or piled bricks, stones, broken masonry, rubbish, debris, outdoor advertising signs, etc., from existing improvements. The plans may not show a complete list of all items to be removed. There may be an undetermined number of abandoned utilities, basement or foundation walls, columns, footings or other improvements encountered. The contractor shall determine the extent of the work to be performed under this item. No additional payment will be made for items not shown on the plans that require removal.

2. GENERAL

A. Disposal of Material: All improvements not designated to remain shall be removed or disposed of by the Contractor as required. The work may involve the generation of excess material, which may be solid waste under the definitions of the MDNR Solid Waste Management Program. The Contractor shall dispose of solid waste in accordance with the Missouri Solid Waste Management Law and implementing regulations, 10 CSR 80.

1. Regulated solid waste, including waste tires, shall be handled, transported and disposed of in accordance with applicable regulations. Documentary proof of proper transport and disposal of this waste, including transport forms, disposal forms, scale tickets, cancelled checks and receipts, shall be provided to MDNR and to the Engineer prior to acceptance of and payment for the work.

2. Material designated for use elsewhere shall not be removed from the project. Open burning will not be allowed.

B. Relocating Items: All items that may be damaged by the construction, that are not labeled "TO BE REMOVED" shall be temporarily removed by the Contractor prior to work beginning at that location, stored in a safe place where damage will not occur to the item and shall be reinstalled at a location designated by the Engineer in a condition as good or better than the existing condition, to the satisfaction of the Owner. This shall include, but not be limited by: mailboxes, signs, planters, etc.

C. Damaged Items: Any item damaged by the Contractor's operations that is designated to remain in place, to be used elsewhere, or to be used by the public or an adjoining property Owner, shall be repaired or replaced at the Contractor's expense, in a manner

satisfactory to the Engineer.

- D. Contractor shall use extreme caution during all removal and milling operations at intersections. Any damage to existing traffic signal loops will be the responsibility of the Contractor. If a traffic signal loop is damaged during the Contractors operations, the Contractor, at his own expense, will replace the loop, in its entirety to the controller, in accordance with MoDOT Standards.
- E. Dust and Emissions Control: All operations during demolition and removal shall be adequately controlled to prevent dust and visible emissions, unless otherwise approved by the Engineer. All measures taken shall be provided by the Contractor at the Contractor's expense unless specified otherwise.
- F. Salvage: All material designated in the contract to be salvaged for Owner use from existing structures or improvements shall be removed without damage, in sections that may be readily handled, transported and stored as approved by the Engineer. Unless otherwise designated in the contract, cold milled material shall remain the property of the Contractor. Guardrail material will remain the property of the Owner and stockpiled as specified in the contract or as directed by the Engineer. All buildings, material and equipment of any description not designated for salvage by the Owner shall become the property of the Contractor, unless owned and claimed by a political subdivision or utility company. Salvaged material becoming the property of the Contractor shall not be stored on the right of way, or shall any portion of the right of way or land owned by the Owner be used by the Contractor as a place of sale for salvaged material.

3. REMOVAL OF IMPROVEMENTS

- A. Pavements: Removal of pavement (excluding driveways), curb, gutter, sidewalk and other similar improvements, and where a portion of such improvements are to be left in place, shall be to an existing joint. Sufficient removal shall be made to provide for proper grades and connections in the new work regardless of removal limits shown on the plans. All subgrade material will be restored as required with compacted material.

All saw cuts shall be a full depth saw cut completely through the pavement, unless otherwise stated or allowed by the Engineer, and shall be considered incidental to the contract.

1. Removal of concrete or asphalt material shall consist of breaking up and disposing of the material in areas furnished at the contractor's expense. The existing pavement to be removed shall be freed from the pavement to remain by saw cutting. The pavement inside the full depth saw cut shall be broken by methods suitable to the Contractor and approved by the Engineer.
2. The Contractor shall use the appropriate ramp details in the Plans and identify the removal limits for the sidewalk and curb. If the Contractor determines the removal limits are not adequate to meet ADA standards, the contractor shall stop work immediately and consult the Engineer to determine the best solution. Once the Engineer and the Contractor reach agreement on how to proceed, the Contractor may finish the removals.
3. The Contractor's removal operation shall not cause damage to utilities, drainage structures, or sprinkler systems. Any damage shall be repaired by

the Contractor at no expense to the Owner.

- B. Sewers and Drains: All sewers, drainage pipes and floor drains that have been or are to be abandoned shall be permanently sealed at the ends with a minimum 8-inch thick bulkhead constructed of Class B concrete, a commercial mix concrete or brick masonry. The use of salvaged brick will be permitted for constructing bulkheads, provided the brick is clean and sound.
- C. Backfill: All trenches, holes and pits resulting from the removal of improvements, contaminated material, soil, tanks and piping shall be backfilled and graded to shape and finish disturbed areas. Material shall be placed in the same manner and compacted to the requirements of Section 2300 EARTHWORK and shall be done in such a manner as to ensure proper drainage.

Backfill material may consist of previously stockpiled uncontaminated clay soil or may be obtained from the right of way if approved by the Engineer. Only approved material free of trees, stumps, rubbish and any other deleterious material shall be used in the construction of backfills. Rock, broken concrete or other solid material shall not be placed in bridge fill areas. No slope shall be steeper than 3:1. In the event there is insufficient material in the immediate vicinity, the contractor shall provide material, at the contractor's expense, from a source obtained by the contractor and approved by the Engineer.

D. Hazardous Material:

1. The contractor may encounter small quantities of hazardous material as defined by MDNR. This material shall be recycled or disposed of in a manner that maintains the material's qualifications as "small quantities" in accordance with MDNR regulations.
2. In the event the contractor encounters what is reasonably suspected to be large quantities of hazardous material, the contractor shall immediately cease work and notify the Engineer in accordance with the contract requirements. If the Engineer determines the suspect material is not hazardous or does not constitute a large quantity of hazardous material, the contractor will be notified to continue the work. If the Engineer determines the suspect material is hazardous or constitutes a large quantity of hazardous material, the Engineer may require the contractor to perform work necessary to abate the hazardous material.

4. REMOVAL OF DRIVEWAYS AND DRIVEWAY APPROACHES

1. Where driveway approaches are to be removed:
 - (a) A full-depth, straight, smooth saw cut shall be required in front (streetside) of the driveway approach. Base concrete (8" thick) shall be required in front of driveway (street side) over-dig area. This work shall be considered as incidental to the approach work.
 - (b) Where the new driveway meets an asphalt driveway, the contractor shall be required to saw cut full-depth behind the new

driveway for a smooth transition. The Engineer shall designate the location of the saw cut. The saw cut shall be considered incidental.

- (c) For concrete driveways, the Contractor will be required to meet grade at the nearest joint, specified by the Engineer, for a smooth transition or to an Engineer approved saw cut which will be considered incidental to the Contract.

- 2. No separate payment shall be made for driveway removal work. This work shall be considered included in the unit bid price for Concrete Approach, 6", and shall include saw cutting and the removal, hauling and disposal of all items in this section.

5. METHOD OF MEASUREMENT

- A. Removal of Improvements. This work will not be measured for payment, but will be considered a lump sum unit. The work will include the removal of all items, regardless of whether the items are shown on the plans or encountered during construction.

6. PAYMENT

- A. These prices shall be full compensation for the execution of the pay items indicated including all material, equipment, labor and incidentals necessary to complete these items, including disposal off site.
- B. Removal of Improvements. Accepted work will be paid for at the contract lump sum price. If no lump sum unit price is included in the contract, the work required to complete the contract, or as directed by the Engineer, will be considered incidental to the work and no direct payment for the removal will be made.

END SECTION 2200

SECTION 2300 - EARTHWORK**1. GENERAL**

- A. This section covers the work necessary to bring the cross section to the required grade within reasonable tolerances by backsloping, ditching, removing stone and boulders from the surface, or any other work necessary, including but not limited to; any cut or earth fill required, rock excavation, subgrade preparation, subgrade repair, and disposal of all excess and waste materials.

2. DEFINITIONS

- A. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D 1557 (Modified Proctor). Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Engineer.
- B. Optimum Moisture Content: Determined by the ASTM standard specified to determine the maximum dry density for relative compaction. Field moisture content shall be determined on the basis of the fraction passing the 3/4-inch sieve.
- C. Well-Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes. Well-graded does not define any numerical value that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters. Well-graded is used to define a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.
- D. Gradation Test: Unless otherwise specified herein, determine the percent of material by weight passing the No. 200 sieve in accordance with ASTM D1140, then determine the particle size distribution of the portion of material retained on the No. 200 sieve in accordance with ASTM D422.
- E. Liquid Limit and Plastic Limit: As determined by ASTM D4318.
- F. Influence Area: The area within planes sloped downward and outward at an angle of 60 degrees from the horizontal from (a) 1 foot outside the outermost edge at the base of foundations or slabs; or (b) 1 foot outside the outermost edge at the surface of roadways or shoulder; or (c) 0.5 foot outside the exterior edge at the spring line of pipes and culverts.
- G. Borrow: Material excavated on the site or taken from designated borrow areas on or near the site.
- H. Selected Backfill Material: Material available on site that the Engineer determines to be suitable for a specific use.
- I. Imported Material: Material obtained by the Contractor from sources off the site.
- J. Embankment: The fill material required to raise the existing grade in areas other than under structures.

3. SUBMITTALS

- A. Submittals shall be made in accordance with the General Conditions, Division 1 of the Technical Specifications, and the requirements of this section.
- B. Provide the following submittals:
 - 1. Certification, test results, source, and sample for all imported material.
 - 2. Catalog and manufacturer's data sheets for compaction equipment.
 - 3. Certification and mill certificates for geotextile.
 - 4. Copies of permits obtained for excavation, hauling, etc., that are required by state and local governing authorities.

4. IMPORTED MATERIAL ACCEPTANCE

- A. All imported materials specified in this section are subject to the following requirements:
 - 1. Certification that the material conforms to the Specification requirements shall be submitted to the Engineer for approval at least 21 calendar days before the material is required for use. All material samples shall be furnished by the Contractor at the Contractor's sole expense. Samples shall be representative and be clearly marked to show the source of the material and the intended use on the project. Sampling of the material source shall be done by the Contractor in accordance with ASTM D75. Notify the Engineer at least 24 hours prior to sampling. The Engineer may, at the Engineer's option, observe the sampling procedure. Tentative acceptance of the material source shall be based on an inspection of the source by the Engineer and/or the certified test results submitted by the Contractor to the Engineer, at the Engineer's discretion. No imported materials shall be delivered to the site until the proposed source and materials tests have been tentatively accepted in writing by the Engineer. Final acceptance will be based on tests made on samples of material taken from the completed and compacted course. The completed course is defined as a course or layer that is ready for the next layer or the next phase of construction. Testing for final acceptance shall be performed by the Engineer.
 - 2. Gradation tests shall be performed by the Engineer at the Engineers discretion.
 - 3. If tests conducted by the Engineer indicate that the material does not meet Specification requirements, material placement will be terminated until corrective measures are taken. Material, which does not conform to the Specification requirements and is placed in the work shall be removed and replaced at the Contractor's sole expense.

5. SHORING, SHEETING, BRACING, AND SLOPING

- A. Install and maintain shoring, sheeting, bracing, and sloping necessary to support the sides of the excavation, to keep and to prevent any movement, which may damage adjacent pavements, utilities, or structures, damage or delay the work, or endanger life and health. Install and maintain shoring, sheeting, bracing, and sloping as required by

OSHA and other applicable governmental regulations and agencies.

6. EXCAVATION SAFETY

- A. The Contractor shall be solely responsible for making all excavations in a safe manner. Provide appropriate measures to retain excavation side slopes and prevent rock falls to ensure that persons working in or near the excavation are protected.

7. CODES, ORDINANCES, AND STATUTES

- A. Contractors shall familiarize themselves with, and comply with, all applicable codes, ordinances, statutes, and bear sole responsibility for the penalties imposed for noncompliance.

8. TOLERANCES

- A. All material limits shall be constructed within a tolerance of 0.1 foot except where dimensions or grades are shown or specified as minimum. All grading shall be performed to maintain slopes and drainage as shown. No reverse slopes will be permitted.

9. PRODUCTS

- A. Provide all labor, materials, and equipment necessary to accomplish the work specified in this section.

10. EXCAVATION

- A. Complete all excavation regardless of the type, nature, or condition of the materials encountered. The Contractor shall make his own estimate of the kind and extent of the various materials to be excavated in order to accomplish the work.

11. EARTH FILL

- A. Earth fill shall be clayey or silty sand material free from clay clods, roots, organic matter, peat, debris, rocks larger than 3 inches, and other deleterious materials. Earthwork shall contain 15 to 40 percent by weight passing the No. 200 sieve. Soil materials shall comply with ASTM D 287 soil classification groups GW, GP, GM, SM, SW, and SP. Select earthwork from onsite excavations or provide imported material of equivalent quality, if required to accomplish the work.

12. GRANULAR FILL

- A. Imported granular material, naturally or artificially graded mixture of natural or crushed gravel, well graded from coarse to fine, free from clay lumps, roots, or organic material, maximum size 2 inches with a minimum of 8 percent by weight passing the No. 200 sieve.

13. SAND

- A. Imported natural sand or sand produced from crushed gravel or crushed rock, free from

clay and organic material, maximum size 1/4 inch, with 95 percent passing a No. 4 sieve, and a maximum of 8 percent by weight passing the No. 200 sieve.

14. TOPSOIL

- A. Provide topsoil as specified in Section 9000, SODDING.

15. WATER FOR COMPACTION

- A. Furnish as required.

16. COMPACTION EQUIPMENT

- A. Compaction equipment shall be of suitable type and adequate to obtain the densities specified, and shall provide satisfactory breakdown of materials to form a dense fill.
- B. Compaction equipment shall be operated in strict accordance with the manufacturer's instructions and recommendations. Equipment shall be maintained in such condition that it will deliver the manufacturer's rated compactive effort. If inadequate densities are obtained, larger and/or different types of additional equipment shall be provided by the Contractor. Hand-operated equipment shall be capable of achieving the specified densities.

17. MOISTURE CONTROL EQUIPMENT

- A. Equipment for applying water shall be of a type and quality adequate for the work, shall not leak, and shall be equipped with a distributor bar or other approved device to assure uniform application. Equipment for mixing and drying out material shall consist of blades, discs, or other approved equipment.

18. DEWATERING

- A. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.
1. Do not allow water to accumulate in excavations. Remove water to prevent soil changes detrimental to stability of subgrades. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
- B. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.
- C. Water removal from excavation shall be disposed of according to local, State, and Federal requirements. Obtain the necessary permits and meet water quality requirements for total suspended solids, oil, grease, BOD, COD, and other limits listed on the permits from local, State, and Federal agencies.

19. STORAGE OF EXCAVATED MATERIALS

- A. Dispose of excess excavated soil material and materials not acceptable for use as backfill or fill off of the site immediately unless otherwise authorized by the Engineer.

20. LIMITS OF EXCAVATION

- A. Excavate to depths and widths, as shown. Allow for forms, working space, granular backfill, structural base, earth fill and finish topsoil as shown or required. Do not carry excavations deeper than the elevation shown. Excavation carried below the grade lines shown or established by the Engineer shall be replaced with the same fill material as specified for the overlying fill or backfill, and compacted as required for such overlying fill or backfill. Where the overlying area is not to receive fill or backfill, replace the overexcavated material and compact to a density not less than that of the underlying ground. Cuts below grade shall be corrected by similarly cutting adjoining areas and creating a smooth transition. Correct all overexcavated areas at the Contractor's sole expense.
- B. Excavation widths beyond those shown shall be minimized. The Contractor shall design and use sloping, sheeting, and bracing as necessary to protect existing structures from damage.

21. BACKFILL AND FILL

- A. General: Place soil material in layers to required subgrade elevations, listed below, using materials specified in this Section.
 - 1. Under pavements, use subbase material. Subbase material shall consist of quarried limestone reduced to a maximum size of 12 inches or less, without soil fines.
 - 2. Under piping, use granular drainage materials for bedding for correction of unauthorized excavation.
 - 3. Backfill trenches with granular drainage material.
- B. Backfill excavations under new pavement and in trenches as promptly as work permits, but not until inspection, testing, and approval of construction below grade have been performed and recorded.

22. PLACEMENT AND COMPACTION

- A. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills.
- B. Place backfill and fill materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- C. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

- D. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density, in accordance with ASTM D 1557 (Modified Proctor Test):
1. Under pavements, compact each layer of backfill or fill material at 95 percent maximum density.
 2. Under lawn or unpaved areas, compact top 6 inches of subgrade and each layer of backfill or fill material at 90 percent maximum density.
- E. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.
1. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

23. GRADING

- A. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.
- B. Finish surfaces free from irregular surface changes and as follows:
1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 foot above or below required subgrade elevations.
 2. Pavements: Shape surface of areas under pavement to line, grade, and cross-section, with finish surface not more than ½ inch above or below required subgrade elevation.

24. FIELD QUALITY CONTROL

- A. Quality Control Testing during Construction: The Engineer shall perform field quality control during construction at his/her discretion.
1. Field density tests shall be performed by the nuclear method in accordance with ASTM D 2922.
 2. If field tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.
- B. Paved Areas: Perform at least one field density test of subgrade for every 2,000 sq. ft. of paved area, but in no case fewer than three (3) tests per daily operation. In each compacted fill layer, perform one field density test for every 2,000 sq. ft. of paved area, but in no case fewer than five (5) tests per daily operation.

- C. If in opinion of Engineer, based on testing service reports and inspection, subgrade or fills that have been placed are below specified density, perform additional compaction and testing until specified density is obtained.

25. DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash, and debris, and dispose of it off Owner's property.

26. SUBGRADE

- A. In advance of setting line and grade stakes, all depressions or ruts, which contain water, shall be drained. The grade shall then be bladed and dragged to remove inequalities and scarified as necessary to secure a uniform surface.
- B. Excavation: Excavate and shape the subgrade to line, grade and cross section shown on the drawings.
- C. Embankment:
 - 1. Place embankment in lifts not to exceed 9 inches in compacted thickness.
 - 2. Each lift shall be sprinkled with water or aerated and dried, as required, to obtain the optimum moisture required for the specified compaction.
 - 3. Compact each lift to 90 percent relative compaction before placing the next lift of embankment material.
 - 4. Construct the embankment to the line, grade and cross section shown on the drawings.
- D. Completed Subgrade
 - 1. The completed bottom surface of the excavations and top surface of the embankment shall be defined as the subgrade.
 - 2. The subgrade shall be sprinkled with water or aerated and dried, as required, to obtain the optimum moisture required for the specified compaction.
 - 3. Roll the subgrade until the top 6 inches is compacted to 95 percent relative compaction.
- E. The finished subgrade shall be within a tolerance of ± 0.1 foot of the grade and cross section shown, and shall be smooth and free from irregularities and at the specified density.
- F. The subgrade shall be considered to extend over the full width of the base course. Compaction shall extend 1 foot beyond the edge of paving, curb, or form.

27. PROOF-ROLLING

- A. Following completion of the subgrade repair and final compaction, the entire subgrade area shall be proof-rolled.
- B. Proof-roll the entire subgrade with a minimum of two complete surface coverages with the wheels of a loaded 10-yard dump truck or other approved equipment.
 - 1. The dump truck shall have dual wheels on tandem rear axles (eight rear wheels total) and shall be loaded with a minimum of 10 cubic yards of crushed rock.
- C. During proof-rolling of the compacted subgrade, the Engineer will observe and record all soft areas and unstable areas that show subgrade movement during proof-rolling.
- D. The limits of subgrade failure that were developed during proof-rolling will be marked by the Engineer. The designated areas shall then be excavated an additional one (1) foot below the elevation of the bottom of the aggregate base course.
- E. Backfill the excavated areas with 2" minus aggregate base course material as follows:
 - 1. Backfill subgrade repair area in two lifts, 6 inches compacted thickness each, to the elevation of the bottom of the aggregate base course.
 - 2. Compact lift to 90 percent relative compaction before placing the next lift of subgrade repair material.
- F. The subgrade in the area of the completed backfill shall be rolled until the top 6 inches is compacted to 95 percent relative compaction.
- G. If the excavation below subgrade is required because of the results of the Contractor's operations, the necessary excavation, backfilling and compaction required to restore the subgrade satisfactorily shall be at the Contractor's sole expense.

28. PROTECTION OF SUBGRADE

- A. After preparing the subgrade as above specified, all unnecessary traffic shall be kept off. Should it be found necessary to haul over the prepared subgrade, the Contractor shall drag and roll the traveled way as frequently as may be necessary to remove ruts, cuts, and breaks in the surface. All cuts, ruts, and breaks in the surface of the subgrade that are not removed by the above operations shall be raked and hand tampered. All equipment used for transporting materials over the prepared subgrade shall be equipped with pneumatic tires.
- B. Continued use of sections of prepared subgrade for hauling, so as to cut up or deform it from the true cross section, will not be permitted. The Contractor shall protect the prepared subgrade from traffic.
- C. The Contractor will be required, at the Contractor's sole expense, to plank the subgrade before hauling materials or equipment over it.
- D. The subgrade shall be maintained in the finished condition until the first succeeding

course is placed.

29. METHOD OF MEASUREMENT

- A. Earthwork. This work will not be measured for payment, but will be considered incidental to the contract. The work will include all excavation, embankment, base rock, subbase, backfill, compaction and finish grading required, regardless of whether the items are shown on the plans or encountered during construction.

30. PAYMENT

- A. If there is no quantity shown in the bidding schedule, the work covered by this section shall be considered as a subsidiary obligation of the Contractor covered under the other contract items. Only accepted work will be measured.
- B. Earthwork. Payment for this work shall be considered incidental to the contract. This work includes furnishing and placing all materials, furnishing equipment, labor, tools and incidentals necessary to complete these items.

END OF SECTION 2300

SECTION 2350 – EROSION CONTROL**1. GENERAL**

- A. This work shall consist of furnishing, installing, maintaining and removing temporary pollution, erosion and sediment control measures; furnishing and placing permanent erosion control features; or a combination of both as shown on the plans or as directed by the Engineer.

2. SUBMITTALS

- A. Prior to the preconstruction conference and the start of construction, the Contractor shall submit schedules for the implementation of temporary and permanent erosion control work, as applicable, for construction operations. No work shall start until the erosion control schedules and methods of operations have been approved by the Engineer.

3. GENERAL CONSTRUCTION

- A. The Engineer may direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other bodies of water. Such work may involve the construction of temporary berms, dikes, dams, sediment basins and slope drains, and use of temporary mulches, seeding or other control devices or methods as necessary to control erosion and pollution.
- B. If the Engineer determines ditch checks, as shown on the plans, are not suitable due to site conditions, a combination of ditch checks and erosion control blankets or rock blankets shall be designed to effectively reduce flow velocities.
- C. The Contractor shall exercise effective management practices throughout the life of the project to control pollution. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage or other harmful material shall not be discharged on or from the project. Temporary pollution control measures, such as storage and handling of petroleum products and other pollutants, shall be coordinated with temporary and permanent erosion control features specified in the contract to ensure economical, effective and continuous erosion and pollution control. These requirements will also apply to work within easements designated by the Owner.
- D. The Contractor shall incorporate all permanent erosion and pollution control features into the project at the earliest practical time. Temporary measures shall be used to correct conditions that develop during construction which were not foreseen during the design stage, that are needed prior to installation of permanent pollution control features, or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.
- E. Erosion control features shall be in place prior to any clearing and grubbing of the construction site.
- F. Erosion from construction operations and pollution control measures shall not cause water pollution. In the event of conflict between these requirements and the pollution control laws, rules or regulations of other federal, state or local agencies, the more restrictive laws, rules or regulations will apply.

- G. Unless otherwise specified, or directed by the Engineer, all temporary erosion control measures shall be removed by the Contractor after permanent erosion control measures are established. All temporary erosion control measures shall be removed prior to acceptance of the project and before final payment.

4. TEMPORARY BERMS

Temporary berms shall consist of graded material from within the project limits or any other suitable material approved by the Engineer and shall be constructed as required.

- A. Type A Berms: shall be machine compacted with a minimum of one pass over the entire width of the berm.
- B. Type B Berms: shall be machine compacted with a minimum of three passes over the entire width of the berm. Material removed from Type B berms shall be incorporated in the embankment when possible. The Contractor shall remove and dispose of any excess or unsuitable material to a location approved by the Engineer.

Type A and Type B Berms. Temporary berms shall drain to a compacted outlet at a slope drain. On transverse berms, the top width of the berms may be wider and the sideslopes flatter to allow equipment to pass over these berms with minimal disruption.

- C. Type C Berms: shall be constructed of rock base material as approved by the Engineer. Vegetative mulch or an equivalent erosion control blanket shall be placed on the upslope side of the Type C berm. The vegetative mulch shall be placed in such a manner that the final compacted thickness is 2 inches. The straw layer or equivalent erosion control blanket shall be removed and replaced as directed by the Engineer.

5. TEMPORARY SLOPE DRAINS

This work shall consist of constructing and maintaining temporary slope drains to carry water down slopes and to reduce erosion. The method selected shall be approved by the Engineer prior to construction.

- A. The Contractor shall provide temporary, impermeable slope drains to carry water or water with suspended solids down fill slopes until permanent erosion control measures are established. The Contractor shall provide temporary slope drains on fill slopes at approximately 500-foot intervals or as directed by the Engineer. All temporary slope drains shall be adequately anchored to the slope to prevent disruption of flow. Inlet ends shall be properly constructed to channel water into the temporary slope drain. Outlet ends shall have some means of dissipating the energy of the water to reduce erosion downstream. The Contractor shall restore the site of the slope drains to the satisfaction of the Engineer.

6. TEMPORARY DITCH AND INLET CHECKS

This work shall consist of constructing and maintaining temporary ditch and inlet checks, removing sediment deposits from these checks and disposing of the sediment at a location approved by the Engineer.

- A. Materials

1. Posts: Wood, steel or synthetic posts may be used. Posts shall be of sufficient length, but no less than 4 feet, to ensure adequate embedment while fully supporting the silt fence and shall have sufficient strength to resist damage during installation and to support applied loads while in service.
 2. Support Fence: All geotextile silt fences shall be supported either externally by wire or other approved mesh to a height of at least 24 inches or by a suitably designed support system capable of keeping the material erect. Either method shall be strong enough to withstand applied loads.
- B. Type I Ditch Checks: shall be constructed of silt fence or an approved alternative erosion control measure as specified in the contract. Type I ditch checks shall not be used where drainage areas exceed 3 acres or where ditch slopes exceed 10 percent. Type II ditch checks may be substituted for Type I ditch checks at the Contractor's expense. Silt fence ditch checks shall be constructed as shown on the plans in accordance with the contract documents. Approved alternate Type I ditch checks shall be installed and maintained according to the manufacturer's recommendations.
- C. Ditch Checks: Approved alternate Type II ditch checks may be used as shown in the contract. Type II ditch checks shall not be used where drainage areas exceed 50 acres or where ditch slopes exceed 10 percent.
- D. Rock Ditch Checks: Shall be constructed with clean rock. A minimum of 50 percent of the rock shall have a diameter of 6 inches or greater, with a maximum size of 9 inches. Silt fence or an equivalent filter fabric shall be placed beneath the rock ditch check as shown on the plans.
- E. Sand Bag Ditch Checks: Sand or rock for sand bags shall be a uniform granulation with a maximum aggregate size of 2 inches, shall be clean to allow percolation of water through the sand bag and shall meet the approval of the Engineer. Sand bags shall be of tightly woven burlap or other material that is sufficiently durable to remain intact for the time intended. Sand bags shall be filled approximately three-fourths full, shall laid in horizontal courses, and successive courses shall break joints with preceding ones. The bags shall be packed against each other and tamped to provide a uniform surface.
- F. Drop Inlet Checks: Shall be constructed adjacent to the drop inlets as shown on the plans or as directed by the Engineer, as necessary to prevent sediment from entering the inlet. Material shall be in accordance with the requirements of the Type II Ditch Checks or as approved by the Engineer.
- G. Maintenance: The Contractor shall replace checks as directed by the Engineer. Periodic sediment removal shall include removal and disposal of sediment to a location where sediment will not erode into construction areas, streams or other bodies of water. The Contractor shall inspect the ditch checks for sediment accumulation after each storm event and shall remove the sediment when deposits reach approximately one-half the original height of the check. Alternate temporary erosion control methods shall be maintained in accordance with the manufacturer and as directed by the Engineer.

7. SEDIMENT BASINS

This work shall consist of constructing sediment basins as shown on the plans or as directed by the Engineer to detain sediment. This work shall also include disposal of excavated material, sediment and basin removal and site restoration.

- A. The area where a sediment basin is to be constructed shall be cleared of vegetation to enable sediment removal. The sediment basin shall be an excavated or dammed storage area with defined side slopes. Inlet and outlet areas shall be lined with rock riprap.
- B. The inlet of a sediment basin shall be constructed with a wide cross-section and a minimum grade to prevent turbulence and to allow deposition of soil particles. When the depth of sediment reaches one-half the original depth of the sediment basin in any part of the pool, all accumulation shall be removed.
- C. The Contractor shall dispose of accumulated sediment and excavated material removed during the construction of the sediment basin in locations where the material will not erode into the construction areas, streams or other bodies of water.
- D. Sediment basins shall remain in service until all disturbed areas draining into the structure have been satisfactorily stabilized. When use of a temporary sediment basin is to be discontinued, the Contractor shall remove any sediment and backfill, properly compact all excavations, restore the area to the existing ground's natural or intended condition, and sod.

8. TEMPORARY SEEDING AND MULCHING

This work shall consist of furnishing and applying fertilizer, seed, vegetative mulch or other acceptable cover authorized by the Engineer. This work shall produce a quick ground cover to reduce erosion in disturbed areas expected to be redisturbed at a later date. Finish grading of areas will not be required. Hydraulic seeding and fertilizing will be permitted.

- A. Seeding and mulching shall be a continuous operation on all cut and fill slopes, excess material sites and borrow pits during the construction process. All disturbed areas shall be seeded and mulched as necessary to eliminate erosion.
- B. The Contractor shall provide permanent sodding as shown on the plans following temporary seeding.
- C. Temporary seeding mixtures of cereal grains shall be applied at a rate of 100 pounds per acre (110 kg/ha). All erodible seeded areas shall provide a minimum of 20 plants of the species planted per square foot on at least two random counts per acre in representative areas of the field. For areas with a large percentage of rock, the number of living plants shall be proportional to the percentage of erodible surface, as determined by the Engineer. The counts will be conducted 60 days after the species is planted.
- D. Fertilizer shall be applied at a rate of 40 pounds nitrogen (N) per acre.

9. SILT FENCE

This work shall consist of furnishing, installing, maintaining, removing and disposing of a silt fence designed to remove suspended particles from sheet flow passing through the fence and

to prevent sediment from polluting nearby streams or other bodies of water. At the Engineer's discretion, the location may be modified to fit field conditions. Such variations in quantity will not be considered as a change in work.

A. Materials

1. Posts: Wood, steel or synthetic posts may be used. Posts shall be of sufficient length, but no less than 4 feet, to ensure adequate embedment while fully supporting the silt fence and shall have sufficient strength to resist damage during installation and to support applied loads while in service.
2. Support Fence: All geotextile silt fences shall be supported either externally by wire or other approved mesh to a height of at least 24 inches or by a suitably designed support system capable of keeping the material erect. Either method shall be strong enough to withstand applied loads.
3. Prefabricated Fence: Prefabricated fence systems may be used if the systems meet all of the above material requirements.

B. Fabric Fence: The Contractor shall install silt fence as shown on the plans and at other locations directed by the Engineer. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading. Fabric at the bottom of the fence shall be buried a minimum of 6 inches to prevent flow under the barrier. The trench shall be backfilled, and the soil compacted over the fabric. Fabric splices with a minimum 2-foot overlay shall be located only at a support post. Any installation method acceptable to the Engineer will be allowed as long as the effectiveness and intent of the silt fence is achieved.

C. Post spacing shall not exceed 5 feet. Posts shall be driven a sufficient depth into the ground or placed on closer spacing as necessary to ensure adequate resistance to applied loads.

D. The silt fence shall be fastened securely to the upslope side of the post. When wire support fence is used, the wire shall extend into the trench a minimum of 2 inches.

E. Maintenance: The Contractor shall maintain the integrity of silt fences as long as the fences are necessary to contain sediment runoff. The Contractor shall inspect all silt fences immediately after each rainfall and at least daily during prolonged rainfalls. Any deficiencies shall be immediately corrected by the Contractor. In addition, the Contractor shall make a daily review of the silt fences in areas where construction activities have changed the natural contour and drainage runoff to ensure the silt fences are properly located for effectiveness. Where deficiencies exist, additional silt fences shall be installed as approved or directed by the Engineer.

F. Sediment: The Contractor shall remove and dispose of sediment when accumulations reach approximately one-half the fence height, or sooner when directed by the Engineer. If required by heavy sediment loading, a second silt fence shall be installed as directed by the Engineer.

G. Removal: The silt fence shall remain in place until removal is directed by the Engineer. Upon removal, the Contractor shall remove and dispose of any excess silt accumulation, grade and dress the area to the satisfaction of the Engineer, and establish vegetation on

all bare areas in accordance with the contract requirements. The fence material shall remain the property of the Contractor.

10. TEMPORARY PIPE

This work shall consist of installing and removing temporary pipe utilized to carry water under temporary roadways, silt fences, berms or other locations determined by the Engineer and to prevent the Contractor's equipment from coming in direct contact with water when crossing an active stream, intermittent streams created during heavy rainfalls or other bodies of water. Any pipe approved by the Engineer may be used.

- A. Installation of temporary pipe shall be in accordance with the specifications for permanent pipe and shall prevent water from causing erosion around the pipe. All backfill material for pipes shall be placed in 6-inch lifts and mechanically compacted. Compaction tests will not be required. Temporary pipe placed in intermittent or active streams shall be backfilled with clean rock.

11. TEMPORARY EROSION CONTROL BLANKETS

This work shall consist of furnishing and placing erosion control blankets on slopes or ditches for short-term or long-term protection of seeded areas at locations as needed or as directed by the Engineer.

- A. Erosion control blankets shall be used as designated in the contract or as approved by the Engineer. The Contractor shall provide prequalified erosion control blankets of the class and type specified in the contract documents or as approved by the Engineer. Erosion control blankets shall be installed and maintained according to the manufacturer's recommendations.

12. TEMPORARY STREAM CROSSING

This work shall consist of constructing a temporary stream crossing to facilitate the movement of equipment across a stream.

- A. The Contractor shall be responsible for the design, installation, maintenance and removal of the temporary stream crossing and any structures installed for the construction of the temporary stream crossing. Appropriate measures shall be taken to maintain near normal downstream flows and to minimize flooding upstream. The temporary stream crossing shall be constructed to permit the free movement of the stream's aquatic life.
- B. Prior to construction of the temporary stream crossing, all information shall be submitted to the Engineer as needed for the issuance or modification of the Corps of Engineer permit. The Contractor shall not begin construction on any temporary stream crossing without written permission from the Engineer.
- C. All approaches to the temporary stream crossing shall be maintained such that all storm water runoff is diverted to retention devices.
- D. When the temporary stream crossing is no longer needed, the crossing shall be removed as soon as possible and the area shall be restored to pre-project conditions or to the satisfaction of the Engineer.

13. GENERAL MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.
- C. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.
- D. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

14. MEASUREMENT AND PAYMENT

- A. Any erosion control items as described above, other than those listed in the bid form, necessary to meet these erosion control standards shall be considered incidental to the contract as is a subsidiary obligation of the Contractor. No direct payment shall be made for erosion control items when needed.
- B. Maintenance of Erosion Control. No direct payment for any maintenance of erosion control measures as required above will be made as it is considered incidental to the construction.

END OF SECTION 2350

SECTION 3050 – SANITARY SEWER**1. GENERAL**

- A. This section covers the work necessary for the installation and abandonment of sanitary and combination sewers.
- B. Where the term "Standard Specifications" is used, such reference shall mean the latest revision of the Metropolitan St. Louis Sewer District Revised Standard Construction Details and Specifications, 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.
- C. All underground work contemplated in the area of the subgrade shall be completed and backfilled properly before subgrade work is started.

2. SUBMITTALS

- A. Product Data: Provide data on pipe materials, pipe fittings, and accessories. Provide shop drawings for precast manholes and junction boxes.
- B. Manufacturer's Certificate: Certify that products meet or exceed specified local requirements.
- C. Project Record Documents
 - 1. Accurately record actual locations of pipe runs, connections, manholes, junction boxes, cleanouts, and invert elevations.
 - 2. Identify and describe unexpected variations to subsoil conditions and location of uncharted utilities.

3. MATERIALS

- A. POLYVINYL CHLORIDE (PVC) SOLID WALL SEWER PIPE. Pipe and fittings under these Specifications shall be PVC solid wall pipe with bell and spigot gasketed joints, manufactured of materials and methods meeting the tests set forth in the latest revision of ASTM D-3034 and ASTM D-3212. PVC sewer pipe shall have a maximum standard dimension ratio of 35. Pipe must be continually marked with manufacturer's name, pipe size, cell classification, SDR rating, and ASTM D 3034 classification.
- B. FRAMES, COVERS, AND LADDER RUNGS. Frames, covers and ladder rungs shall conform to the plan dimensions and to the following Specification requirements for the designated materials:
 - 1. All frames and covers shall be ductile iron, conforming to ASTM A 48, Class 30, and shall be designed for heavy duty traffic if located in the roadway pavement.
 - 2. Carbon-steel castings shall conform to the requirements of AASHTO M 103. Grade shall be optional unless otherwise designated.

3. All manhole covers shall have the words "SANITARY SEWER" cast into the top in letters approximately three inches high or similar wording to reflect the presence of a sanitary sewer. City approval of the wording shall be granted prior to ordering materials.
4. Structural steel shall conform to the requirements of AASHTO M 183.
5. Manhole steps shall be constructed of polypropylene conforming to ASTM D 4101 and shall meet current state and federal safety standards.
6. Galvanizing, where specified for these units, shall conform to the requirements of AASHTO M 111.
7. Malleable iron castings shall conform to the requirements of ASTM A 47. Grade shall be optional unless otherwise designated.

C. IMPORTED GRANULAR MATERIAL.

1. Imported granular material shall be used for pipe base and pipe zone backfill for pipe installations.
2. Granular material shall be durable crushed rock, well graded from coarse to fine, and shall be free from debris, roots, or other deleterious material. The presence of fine clay or loam particles is acceptable, but shall not exceed 8 percent by weight passing the No. 200 sieve as determined by ASTM D 1140. Clay or loam lumps are not permitted.
3. Maximum size aggregate for granular pipe base and pipe zone shall be a compacted, well graded 1" minus aggregate.

4. SEWER PIPES

- A. All sanitary sewer pipe shall be laid accurately to the line and grades indicated on the approved plans. The trench excavation shall be of sufficient width to properly construct the joints and to allow for inspection of proper bedding of the pipe. In all cases, the bottom quadrant of the pipe trench should be carefully shaped at proper intervals so that the pipe bells support no part of the load. The full load should rest on the barrel of the pipe.
- B. To assure stable pipe bedding, mechanical excavation should be made to allow for the minimum required depth of aggregate base below the bottom of the pipe grade. Minimum depth of aggregate base shall be 4 inches.
 1. Hand-grade base to proper grade ahead of pipe placement. Base shall provide a firm, unyielding support along entire pipe length
- C. The grades to which all sewer lines are laid shall be accurately controlled, providing grade stakes and batter board at 25-foot intervals and checking invert elevations with a grade rod from an established grade line.
- D. A laser beam may be used to attain proper alignment of sewer pipe during construction.

However, if such a device is used, a blower of sufficient capacity to prevent diffraction of the beam by fumes from joint lubricant must be used.

- E. No pipe shall be installed in the trench until the bottom of the trench has been properly shaped and its conditions, line, and grade have been approved by the Owner.
- F. All sewers must be laid in a straight line so that a light can be seen from one end to the other. Pipe shall be laid with the spigot end downstream entering the bell to full depth, and in such manner as not to drag earth into the joints. Pipe sections shall be fitted together and matched so that, when laid, they will form a sewer with a smooth and uniform invert. Installation shall be in accordance with manufacturer's recommendations.
- G. Wherever obstructions are encountered during the progress of the work and interfere to such an extent that an alteration in the Plan is required, the Owner shall have the authority to change the approved plans and order a deviation from the line and grade. The Contractor shall arrange with the Owners of the structures for the removal, relocation, or reconstruction of the obstructions.

6. PRECAST MANHOLES

- A. Precast manholes shall be 48" diameter and conform with ASTM C478 and to design dimensions. Cones and sections shall be substantially free from fractures, large or deep cracks and surface roughness.
- B. All lift holes shall be thoroughly wetted and then be completely filled with mortar, smoothed and pointed to insure water-tightness.
- C. All joints between precast elements on manholes shall be made with an approved bitumastic material or an approved rubber gasket.
- D. The precast base section shall be positioned and carefully adjusted to true grade and alignment. Manhole connections for inlet pipes shall be of the compression type joint in accordance with the approved plans. All inlet pipes shall be properly installed with the base section so as to form an integral watertight unit. The base section shall have an extended base at least 6" beyond the barrel of the manhole.
- E. Precast sections shall be placed and aligned to provide vertical sides and vertical alignment of the ladder rungs. The completed manholes shall be rigid, true to dimensions, and watertight.
- F. Tops of manholes shall be built up to the elevations indicated on the approved plans. Where no elevation is indicated, they shall be built to the existing ground surface unless the Owner shall direct otherwise.

7. FRAMES AND COVERS

Frames and covers shall be heavy duty and rated for traffic if located in the roadway pavement. Iron castings shall conform to the latest revision of ASTM Specifications A-48, Class 20. All castings shall be true to pattern in forms and dimensions, free from faults, sponginess, cracks, blowholes, and other defects affecting their strength. Bearing surfaces between cast frames

and covers shall be machined, fitted together, and match-marked to prevent rocking.

8. CUTTING AND TRENCHING EXCAVATION

- A. Underground pipe construction shall be in accordance with the recommended practice as outlined by the pipe manufacturer.
- B. All excavations shall be made to such depths and widths as will give ample room for building all structures, sewers, and appurtenances as detailed on the approved plans.
- C. If local conditions permit their reuse, all surface materials suitable for reuse in restoring the surface shall be kept separate from the general excavation material.
- D. All excavated material unsuitable for backfill shall be removed and disposed of off the site, by and at the expense of the Contractor.
- E. All excavated material shall be piled in a manner that will not endanger the work and that will not avoid obstructing walks and driveways. Ditches shall be kept clear or other satisfactory provisions made for drainage.
- F. No excavated trench shall be wider than 1.4 times the pipe diameter in inches plus 12 inches ($\text{width} = 1.4d + 12$) or two feet wide or as designated by the Owner.
- G. Granular backfill material shall be tamped into the trench uniformly on both sides of the pipeline for the full width of the trench, up to the horizontal diameter of the pipeline before the remainder of the backfilling operations take place. Backfill shall be in accordance with the trench detail in the plans.
- H. No large rocks shall be allowed in contact with the pipe either in the bed or the backfill. Large rocks occurring in the bed shall be removed and the resulting hole filled with granular material.
- I. Bell holes shall be of ample depth to permit the barrel of the pipe totally flat on the trench bottoms, but they shall not be larger than necessary for properly making the joint.
- J. All excavations shall meet OSHA rules and regulations.

9. TRENCH BOXES

- A. Furnish and use adequate trench boxes as may be required to support the sides of the excavation and to prevent any movement which could in any way injure the sewers, diminish the necessary width of the excavation or otherwise injure or delay the work or endanger adjacent pavements, buildings, sewers, pipes, drains, conduits or other structures, or the lives or workmen employed thereon. All excavations and trench boxes shall meet the requirements of OSHA.

10. LAYING PIPE

- A. The pipelines shall be constructed of such sizes and laid accurately to such lines and grade as are shown in the approved plans. Pipe material shall meet the requirements of the Material Specifications. The sewer at the end of the day's laying shall be closed with

dirt-tight temporary stopper.

- B. The interior of the sewers shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description. On all diameter sewers, an approved swab or drag shall be kept in the pipeline and pulled forward past each joint immediately after its completion.
- C. Variance from established line and grade shall not exceed 1/2 inch, provided that any such variation does not result in a level or reverse sloping invert; provided also, that variation in the invert elevation between adjoining ends of pipe due to non-concentricity of joining surface and pipe interior surfaces, does not exceed 1/4 inch maximum.
- D. Unless otherwise permitted, at least four finished joints shall be left exposed for inspection throughout the working day, and any and all sections of pipe laid shall be made accessible for inspection at any time while the work is progressing.
- E. Pipe shall not be laid in water. No walking on the pipe will be permitted after they are laid except as may be necessary for backfilling and tamping.
- F. Pipe shall be laid true to line and grade shown in the approved plans and shall be firmly supported for its entire length when laid in trench.

11. BACKFILLING FOR TRENCHES

- A. GENERAL. When the pipe is laid, the Contractor shall backfill under and around the pipe as specified in "Pipe Bedding." The remainder of the trench shall then be carefully backfilled and compacted simultaneously on both sides of the pipe. Broken concrete or pavement, blasted rock and large boulders shall not be used as backfill materials. Any trenches improperly backfilled, or where settlement occurs, shall be repaired as directed by the Owner.
- B. BACKFILL IN PAVED AREAS. In areas of existing or proposed pavement or rock surfaces, the entire backfill shall consist of well-graded 1 inch minus crushed limestone. The backfill material shall be compacted to 95% of the Standard Proctor density by an acceptable method to ensure that no pavement settlement of the completed backfill will occur. All areas of existing pavement damaged during construction shall be repaired using the Utility Cut Pavement Repair detail as shown in the plans. Edges of the existing pavement shall be neatly cut in a straight line, removing all damaged pavement prior to repaving.
- C. BACKFILL IN AREAS THAT ARE NOT PAVED. The entire backfill for trenches in these areas shall be compacted to 90% of the Standard Proctor density as directed by the Owner. It is the intent of these Specifications to secure a condition where no further settlement of trenches will occur after backfilling is completed.
- D. COMPACTION. Care shall be exercised not to disturb pipe when placing backfill. All backfill or trenches shall be placed in uncompacted lifts not to exceed 8 inches in thickness, and each lift shall be compacted in a manner approved by the Owner.
- E. RESPONSIBILITY OF CONTRACTOR FOR BACKFILL SETTLEMENT. The Contractor shall be responsible for the satisfactory compaction of backfill material described. If any

trenches or other excavation are found to have settled, they shall be immediately reworked by the Contractor and restored to the specified grades. In addition, the Contractor shall be responsible for all damage or damages, which might result from settlement or backfill made by him on the fulfillment of his Contract within and during the period of one year from and after the date of final acceptance thereof by the Owner.

- F. FINISH GRADING. The finishing of side slopes, cuts, and fills shall be reasonably smooth uniform surfaces that will merge with the adjacent terrain without noticeable break. Finishing shall be done in accordance with grades shown on the Approved plans and without variations that are readily discernible.

12. IDENTIFICATION TAPE

- A. Identification tape shall be 6 inches wide.
1. For nonmetallic utilities or pipes, provide detectable tape.
 2. For metallic utilities or pipes, provide detectable or nondetectable tape.
 3. The tape shall read "CAUTION BURIED INSTALLATION BELOW" or shall identify the appropriate utility.
- B. Place identification tape within the trench backfill at a uniform depth below finish grade.
1. Where the utility or pipe has less than 4-1/2 feet of cover, place tape 1 foot below finished grade.
 2. Where the utility or pipe has 4-1/2 feet of cover or more, place tape 2-1/2 feet below finished grade.

13. TESTING OF SEWERS

- A. GENERAL. After construction and backfilling are completed and before any services are connected to the sewers, the completed lines shall be tested for leaks and visually checked for straightness of line and cracked pipe. The system or culvert shall have a true grade and line. Actual elevations shall be within 1/2 inch of the elevations given on the drawings. If any deficiencies in line or grade are found which will be detrimental to the proper functioning of the sewer, the deficiencies shall be corrected. Any damaged or cracked pipe shall be excavated and relayed in a manner satisfactory to the Owner. Any section of sewer, which is found to be leaking, shall be repaired.
- B. Cleaning and Testing
1. Visibly inspect and remove all debris and obstructions from sewer pipe. Test for infiltration and exfiltration by hydrostatic testing per ASTM C969. Manholes and pipe shall conform to ASTM C969 leakage criteria.
- C. Alignment Test
1. After backfill has been placed and compacted to a depth not less than one foot above top of pipe, a visual inspection shall be made by flashing a light between

manholes. Any displacement or misalignment of invert shall be corrected.

14. SEWERS NEAR WATER MAINS

- A. HORIZONTAL SEPARATION. Whenever possible, sanitary sewers and manholes shall be located at least 10 feet, horizontally, from any water main. When local conditions prevent a lateral separation of 10 feet, a sewer may be laid closer than 10 feet to a water main, provided that 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, both the water main and sewer must be constructed of mechanical joint ductile iron pipe and should be pressure-tested to assure water-tightness before backfilling.
- B. VERTICAL SEPARATION. Whenever sanitary sewers or house sewers must cross water mains, the sewer shall be laid at such an elevation that the bottom of the water main is 18 inches above the top of the drain or sewer. A full length of water main pipe shall be centered over the sewer line to be crossed as that the joints will be equally distant from the sewer and as remote there from as possible. This vertical separation shall be maintained for the portion of the water main located within 10 feet, horizontally, of any sewer or drain it crosses.
- C. UNUSUAL CONDITIONS. Where conditions prevent the minimum vertical separation set forth above from being maintained, or when it is necessary for the water main to pass under a sewer or drain, the water main shall be laid with mechanical joint ductile iron pipe, and the ductile iron pipe shall extend on each side of the crossing to a distance from the sewer of at least 10 feet. In making such a crossing, a full length of water main pipe must be centered over or under the sewer to be crossed, so that the joints will be equal distant from the sewer and as remote there from as possible. The sewer line must also be constructed of ductile iron pipe with mechanical joints until the normal distance from the sewer line to the water main is at least 10 feet.

15. METHOD OF MEASUREMENT

- A. Sanitary Sewer Main. The quantity measured shall be the lineal foot of pipe installed and accepted and shall include excavation, backfill, compaction and testing as specified in this section. Utility Cut Pavement Repair shall be measured and paid for as specified under Section 2300 Earthwork.
- B. Sanitary Sewer Laterals. The quantity measured shall be the lineal foot of pipe installed and accepted and shall include excavation, backfill, compaction and testing as specified in this section. Utility Cut Pavement Repair shall be measured and paid for as specified under Section 2300 Earthwork.
- C. Sanitary Sewer Manholes. The quantity measured shall be the number of precast manholes installed and accepted and shall include excavation, backfill, compaction, steps, frames and covers as specified in this section.

16. PAYMENT

- A. These prices shall be full compensation for the execution of the pay items indicated including all material, equipment, labor and incidentals necessary to complete these

items, including disposal off site.

- B. The preparation and submittal and acceptance of “as built” sewer drawings shall be considered incidental to the project.
- C. Sheeting and Bracing. All materials, labor and equipment necessary for this work shall be considered incidental to the cost of the project.
- D. Identification Tape. All materials, labor and equipment necessary for this work shall be considered incidental to the cost of the project.
- E. All testing shall be considered incidental to the work.
- F. Sanitary Sewer Main. Accepted work will be paid for at the contract unit bid price for Sanitary Sewer Main. If no unit price is included in the contract, the work required to complete the contract, or as directed by the Engineer, will be considered incidental to the work.
- G. Sanitary Sewer Laterals. Accepted work will be paid for at the contract unit bid price for Sanitary Sewer Laterals. If no unit price is included in the contract, the work required to complete the contract, or as directed by the Engineer, will be considered incidental to the work.
- H. Sanitary Sewer Manholes. Accepted work will be paid for at the contract unit bid price for Sanitary Sewer Manholes and will include all appurtenances to make the unit function as it has been specified. If no unit price is included in the contract, the work required to complete the contract, or as directed by the Engineer, will be considered incidental to the work.

END SECTION 3050

SECTION 3900 – UTILITY ADJUSTMENT

1. GENERAL

- A. Utility Adjustment. This work shall consist of minor (4" or less) adjustment to manhole covers, hand holes, inlets/sills and similar items as necessary to bring the utility to the grade of the improvements as shown on the plans. If greater than 4", work shall be paid as rebuild structure.
- B. Rebuild Structure. This work shall consist of rebuilding manholes, inlets and similar items that have significantly deteriorated as shown or as necessary to complete the work as shown on the plans. It also shall consist of major (greater than 4") adjustment to manhole covers, hand holes, inlets/sills and similar items as necessary to bring the utility to the grade of the improvements as shown on the plans.
- C. **All utility structures shall be adjusted to grade whether or not they are shown on the plans. Adjustment of all gas and water valves and meters shall be considered incidental to the construction, regardless of the amount of adjustment.**

2. EXECUTION

A. UTILITY ADJUSTMENT

- 1. It shall be the Contractors responsibility to perform, or coordinate, the necessary adjustments to all utilities affected by the work, regardless of the Owner. This work must be performed in a timely manner and delays to the work caused by entities other than the Engineer or Owner will not be cause for additional time to complete the Contract.
- 2. Existing frames and covers shall be salvaged and reused if possible. New manhole steps shall be provided as necessary. New adjusting rings (adapters) shall be provided if necessary.
- 3. The Owner of the Utility must be made aware of the work and necessary adjustments prior to commencement of the work. The Contractor will contact the Owner to discuss any adjustments to be performed.
- 4. Any adjustment performed by the Contractor must meet any standards, specifications or permitting requirements as required by the Owner or Governing Entity involved.

B. REBUILD STRUCTURE

- 1. This work shall include the rebuilding of existing structures to local sewer district or Owner standards.
- 2. In areas where it is discovered that the existing structure is not suitable for reuse, the Contractor shall notify the Engineer prior to performing any rebuilding operations.
- 3. If it is determined that the structure was damaged due to Contractor negligence, the Contractor will repair/rebuild the structure at no cost to the Owner.

3. MEASUREMENT

- A. Utility Adjustment. This work shall not be measured for payment as it is considered incidental to the contract.
- B. Rebuild Structures. The quantity measured shall be the vertical foot of structure repaired or adjusted and accepted. Measurement shall be made to the nearest 0.1 feet.

4. PAYMENT

- A. Utility Adjustment. Payment for this work will be considered as incidental to the contract. This work includes furnishing and placing all materials, and shall include, but is not limited to traffic signals, pull boxes, manhole covers, inlets and sewer vents.
- B. Rebuild Structures: Payment shall be at the unit price of rebuild structures which shall be full compensation for furnishing and placing all materials, include dismantling, providing additional materials, adjustment to grade, and reconstruction of existing cover (inlet stone and sill or cast iron cover) to be reused unless indicated. The amount of rebuilding shall be as directed by the engineer.

END SECTION 3900

SECTION 4000 – ASPHALT PAVEMENT**1. GENERAL**

- A. This Section includes: Construction of an asphaltic concrete pavement leveling course and surface overlay. The leveling and surface course shall be asphaltic concrete as specified in the current edition of the "Missouri Standard Specifications for Highway Construction."

2. DESCRIPTION OF WORK

- A. Extent of asphalt paving work is shown on drawings.

3. SUBMITTALS

- A. Material Certificates: Provide copies of materials certificates signed by material producer and Contractor certifying that each material item complies with, or exceeds, specified requirements.

4. SITE CONDITIONS

- A. Weather Limitations: Apply tack coat when pavement and ambient temperature is above 45°F (7°C), and when temperature has not been below 35°F (1 C) for 12 hours immediately prior to application. Do not apply when pavement surface is wet or contains an excess of moisture.
- B. Construct asphalt pavement when atmospheric temperature is above 45°F (7°C), and when base is dry.
- C. Grade Control: Establish and maintain required lines and elevations.

5. MATERIALS

- A. General: Use materials as specified in the Plans.
- B. Coarse Aggregate: Sound, durable rock meeting the requirements of the Missouri Standard Specifications for Highway Construction.
- C. Fine Aggregate: Fine, granular material meeting the requirements of the Missouri Standard Specifications for Highway Construction.
- D. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with the requirements of the Missouri Standard Specifications for Highway Construction.
- E. Asphalt Binder shall be homogenous and free from water, and shall not, on heating, foam below the specified minimum flash point. It shall be prepared by refining crude petroleum by suitable methods. It shall conform to the requirements of the Missouri Standard Specifications for Highway Construction.
- F. Tack Coat: Emulsified asphalt, AASHTO M 140 (ASTM D 997) or M 208 (D 2397); SS-1, SS-1H, CSS-1 or CSS-1H, diluted with one part water to one part emulsified asphalt.

- G. Blotter Aggregate: Washed concrete sand.
- H. Pavement Fabric. Pavement Fabric shall be a polypropylene or polyester geotextile, needle punched, nonwoven and heat treated on one side. Fabric shall meet AASHTO M 288-00 and shall conform to the following physical and mechanical properties:

PROPERTY	UNITS	TEST METHOD	MINIMUM AVERAGE ROLL VALUE
Mass Per Unit Area	oz/yd ²	ASTM D 5199-01	4.1
Grab Tensile Strength	lb	ASTM D 4632-91	102
Grab Elongation at Break	%	ASTM D 4632-91	50
Mullen Burst Strength	lb	ASTM D 3786-87	200
Asphalt Retention	gal/yd ²	ASTM D 6140-00	0.21

- I. Fabric Tack Coat: Shall be PG65-22 asphalt or approved equal.

6. ASPHALT AGGREGATE MIXTURE

- A. Provide plant-mixed, hot-laid asphalt aggregate mixture complying with the Missouri Standard Specifications for Highway Construction.

7. SURFACE PREPARATION

- A. Tack Coat: Apply to contact surfaces of previously constructed or prepared asphalt surfaces abutting or projecting into asphalt pavement. Distribute at rate of 0.05 to 0.15 gal. per sq. yd. of surface.
1. Allow to dry until at proper condition to receive asphalt pavement.
 2. Exercise care in applying asphalt materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.
- B. Spalled concrete surfaces shall be patched and compacted with asphalt pavement (Type BP-1) prior to applying tack coat.
- C. Fabric Tack Coat: The pressure distributor shall be capable of spraying the fabric tack coat uniformly and at the prescribed application rate. No drilling or skipping shall be permitted. The pressure Distributor shall have a working, calibrated meter that is clearly visible and easily accessible.

The application of the fabric tack coat and pavement fabric shall not begin until the subsurface preparation has been completed and approved by the Engineer.

Placement area to be covered with fabric shall be sprayed uniformly with fabric tack coat at a rate of 0.25 to 0.30 gallons per square yard as directed by the Engineer. Fabric tack coat application shall be accomplished with a pressure distributor for all surfaces except,

where the distributor does not have room to operate, hand spraying will be allowed. The width of the spray application shall be no more than six inches wider than the fabric and no less than the fabric width plus two inches unless otherwise approved by the Engineer. The fabric tack coat shall not be applied at a temperature greater than 325 degrees F. to avoid damage to the fabric. The fabric tack coat shall not be applied at a rate, which would create excessive bleeding through the pavement fabric.

- D. Pavement Fabric: The fabric laying equipment shall be approved by the Engineer. Fabric placement should begin immediately after spraying the fabric tack coat and before it loses its tackiness. Every effort must be made to lay the fabric as smoothly as possible to avoid wrinkles. In no case shall wrinkles large enough to cause laps of the fabric be permitted. Such wrinkles shall be cut and laid out flat. The fabric shall be broomed or squeegeed to remove air bubbles and make complete contact with the road surface. If needed, small quantities of blotter aggregate shall be used to blot excess asphalt to facilitate movement of construction equipment over the fabric during the overlay operations. Blotter aggregate shall not be applied until the fabric has been laid. All joints, both longitudinal and transverse, shall be lapped a minimum of two inches and a maximum of six inches, unless otherwise approved by the Engineer. If excessive bleeding through the fabric tack coat occurs, in the opinion of the Engineer, remove fabric and tack coat and reapply.

Pavement fabric shall be installed just prior to and on the same day as paving operations. In no case shall installed pavement fabric be left exposed overnight. Any installed pavement fabric left exposed overnight shall be replaced by the Contractor at the Contractor's expense.

8. PLACING MIX

- A. Pavers. Bituminous pavers shall be self-contained units, provided with an adjustable activated screed or strike-off assembly, heated if necessary and capable of spreading and finishing asphaltic pavement in lane widths and cross slopes applicable to the specified typical sections and thicknesses shown on the plans.
- B. General: Place asphalt pavement mixture on dry, prepared surface, spread and strike-off. Spread mixture at minimum temperature of 225°F (107°C). Place only when both air temperature and surface temperature are above 45°F. Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness.
- C. The mixture shall be spread only upon a clean and dry surface, and only when weather conditions are suitable.
- D. Paver Placing: Place in strips not less than 9' wide, unless otherwise acceptable to Resident Engineer. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. This procedure shall be followed until the full width of the street is complete. The Contractor will not be allowed to place asphalt on other streets until an entire street is complete. The intent is to avoid cold longitudinal joints on the surface course. If Contractor does not pave adjacent to the previous strip, the Contractor will be required to sawcut the longitudinal joint to create a vertical edge. Prior to the adjacent asphalt mat the Contractor shall clean the vertical edge and apply tack coat. This work shall be considered incidental to the contract.

- E. Hot Joints: prior to the first pavement strip's temperature dropping below 200 degrees Fahrenheit, the second strip will be required to be laid alongside the first pavement strip. This will create a hot joint, the density on both sides of the joint will be compacted together to form a solid bond. The intent is to avoid cold longitudinal joints; this includes longitudinal and transverse butt joints.
- F. Butt Joints: Saw cutting cold transverse butt joints will be required. All saw cuts will be incidental to the contract.

9. ROLLING

- A. General: Begin rolling when mixture will bear roller weight without excessive displacement.
- B. Compact mixture with hot hand tampers or vibrating plate compactors approved by the Engineer in areas inaccessible to rollers.
- C. Breakdown Rolling: Accomplish breakdown or initial rolling using an eight ton to twelve ton three wheel roller or two wheel tandem roller or self propelled pneumatic roller immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.
- D. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot with a pneumatic tire oscillating-type roller developing at least 80 pounds per square inch contact pressure for all wheels. Continue second rolling until mixture has been thoroughly compacted.
- E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks with not less than a ten ton, two or three wheel tandem-type roller. Continue rolling until roller marks are eliminated and pavement has attained maximum density.
- F. The Contractor shall complete all Rolling activities prior to the asphalt mixture cooling below 185 degrees Fahrenheit.
- G. Patching: Remove and replace pavement areas mixed with foreign materials and defective areas. Cut-out such areas and fill with fresh, hot asphalt pavement mixture. Compact by rolling to maximum surface density and smoothness.
- H. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- I. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

10. FIELD QUALITY CONTROL

- A. General: Test in-place asphalt pavement courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable pavement as directed by Engineer.

11. THICKNESS

- A. In-place compacted thickness will not be acceptable if exceeding the following allowable variation from required thickness:
1. Surface Course: 2" nominal thickness, or as otherwise indicated on the plans, with a variance of no more than 1/4", plus or minus, 1-3/4" to 2-1/4".
 2. Spot Wedge: thickness as needed, or as otherwise indicated on the plans.
 3. Base Course: 3" nominal thickness per pass, or as otherwise indicated on the plans.

12. SURFACE SMOOTHNESS

- A. The surface of each layer shall be substantially free from waves or irregularities. The final surface shall not vary from a 10-foot straightedge, applied parallel to the centerline, by more than 1/8 inch. At transverse construction joints, the surface shall not vary from the 10-foot straightedge by more than 1/8 inch. The Profile Index (PRI) shall be no greater than 15 inches per mile, in accordance with the Missouri Standard Specifications for Highway Construction.
- B. Check surface areas at intervals as directed by Engineer.

13. ASPHALT DRIVEWAYS

All specifications for the construction of asphalt driveways shall be the same as previously specified in this section with the following exceptions:

A. THICKNESS

1. In-place compacted thickness will not be acceptable if exceeding the following allowable variation from required thickness:
 - a) Final thickness: 5" nominal thickness, or as otherwise indicated on the plans, with a variance of no more than 1/4", plus or minus, 4-3/4" to 5-1/4".

14. MEASUREMENT

- A. Tack and Fabric Tack Coat. No direct measurement of the tack or fabric tack coat will be performed.

15. PAYMENT

- A. Payment shall be at the unit prices as herein indicated. These prices shall be full compensation for the execution of pay items indicated including all material, furnishing equipment, labor, tools and incidentals necessary to complete these items.
- B. If there is no quantity shown in the bidding schedule, the work covered by this section shall be considered as a subsidiary obligation of the Contractor covered under the other

contract items. Only accepted work will be measured.

- C. Tack and Fabric Tack Coat. No direct payment for these items will be made and will be considered incidental and a subsidiary obligation of the Contractor covered under asphalt Pavement Mixture.

END SECTION 4000

SECTION 5000 - PORTLAND CEMENT CONCRETE**1. GENERAL**

- A. This Section includes the installation of concrete roadways, sidewalks (including curb ramps), driveways and curb and gutter sections and all associated reinforcing steel. The Work shall be accomplished in accordance with these Specifications and the applicable drawings.

2. SUMMARY

- A. The extent of Portland Cement Concrete paving is shown on drawings.
- B. Concrete and related materials are specified herein.

3. SUBMITTALS

- A. Provide samples, manufacturer's product data, test reports, and materials' certifications as required in referenced sections for concrete and joint fillers and sealers.
- B. For reinforcing steel provide:
1. Bending lists.
 2. Placing drawings.
 3. Certified Mill Test Reports

4. FORMS

- A. Forms. Steel, 2 inch dimensional wood or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.
1. Use flexible spring steel forms or laminated boards to form radius bends as required.
 2. Form material for the face of the curb shall not have any horizontal joints closer than 7 inches from the top of the curb.
 3. Provide stakes and bracing materials as required to hold forms securely in place.
 4. Tops of forms shall not depart from grade line more than 1/8 inch when checked with a 10-foot straightedge. Alignment of straight sections shall not vary more than 1/8 inch in 10 feet.
- B. Coat forms with a nonstaining form release agent that will not discolor or deface surface of concrete.

5. CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I.

1. Use one brand of cement throughout project, unless otherwise acceptable to Engineer.

B. Aggregate. All aggregate for concrete shall be in accordance with Section 1005 of the current edition of the Missouri Standard Specifications for Highway Construction.

C. Water: Potable.

D. Pozzolanic Admixtures: Pozzolanic admixtures or fly ash may not be used or substituted for other elements in the concrete mix.

E. Air-Entraining Admixtures: Air-entraining admixtures shall meet the requirements of ASTM C 260 and shall be added to the mixer in the amount necessary to produce the specified air content. The air-entrainment agent and the water reducer admixture shall be compatible.

F. Water-Reducing Admixtures: Only if approved by the Engineer; water-reducing, set-controlling admixtures shall meet the requirements of ASTM C 494, Type A, water-reducing or Type D, water-reducing and retarding admixtures, and shall be added at the mixer separately from air-entraining admixtures in accordance with the manufacturer's printed instructions.

G. Grout: The grout mixture can be any commercially made product for highway patching made of an epoxy base. The grout shall be compatible with concrete and steel and capable of binding the dowel with the concrete. The matrix may be extended with hard durable aggregate following the manufacturer's recommendations. The grout shall be discarded after 45 minutes and shall not be retempered. The minimum strength shall be equal to the strength of the concrete pavement. Samples of the grout shall be submitted to the Engineer before grouting begins. Grout shall have a minimum strength of 4,000 psi in 28 days.

H. Liquid-Membrane Forming and Sealing Curing Compound: Comply with ASTM C 309, Type I, Class A unless otherwise specified by the Engineer. Moisture loss no more than 0.055 gr./sq. cm. when applied at 150 sq. ft./gal. Only white-pigmented compound may be used.

I. Joint Sealing: See section 5200 Joint Sealing of these specifications for all joint sealing material.

6. CONCRETE SIDEWALK

A. CONCRETE MIX, DESIGN, AND TESTING

1. Design mix to produce normal-weight concrete consisting of Portland cement, aggregate, water-reducing or set retarding admixture, air-entraining admixture, and water to produce the following properties:

- a) Compressive Strength: 4,000 psi, minimum at 28 days, unless otherwise indicated.
- b) Air Content: 5-1/2 percent \pm 1-1/2 percent.

B. SURFACE PREPARATION

1. Bring the areas on which sidewalks are to be constructed to required grade and compact by sprinkling and rolling or mechanical tamping. As depressions occur, refill with suitable material and recompact until the surface is at the proper grade. The top 6 inches of the subgrade shall be compacted to 90 percent of relative compaction. Remove loose material from compacted subbase surface immediately before placing aggregate base.
2. Aggregate Base
 - a) The material to be used in the aggregate base shall be Type 5 Aggregate, unless otherwise approved by the Owner.
 - b) Aggregate shall be placed on the subgrade in a layer of uniform thickness 2 inches in compacted depth. The aggregate shall be handled and spread in a manner that will prevent segregation of sizes.
 - c) The aggregate base shall be cleaned of loose and foreign matter.
 - d) The aggregate shall be compacted to not less than 95 percent of the maximum laboratory density as determined by the Standard Proctor Test AASHTO T-99 (ASTM D-698).
 - e) Top surface of the compacted aggregate base course shall be finished by blading or with automated equipment specially designed for the purpose and compacted using vibratory compaction plates.
 - f) Surfaces of the completed aggregate base shall not deviate more than 1/4 inch when tested with a 4 foot straightedge. The completed compacted thickness of any course shall be within plus or minus 1/2 inch of indicated thickness, and the average thickness shall not be less than the design thickness indicated.
 - g) Do not order concrete until the Engineer has approved the compacted subbase and inspected all forms.

C. FORM CONSTRUCTION

1. Sidewalks shall be installed at the width specified in the drawings and shall be four (4") inches thick, with expansion joints at fifteen (15') foot intervals for the full width and depth with control joints at five (5') foot intervals or as directed by the Engineer.
2. Extend expansion joint fillers the full width and depth of the joint, not less than 1/2 inch nor more than 1 inch below finished surface where joint sealer is indicated.
3. Set forms to required grades and lines, braced and secured. Install forms to allow

continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

4. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.

D. CONCRETE PLACEMENT

1. Do not place concrete until subbase and forms have been checked by the Engineer for line and grade. Moisture subbase, if required, to provide a uniform dampened condition at time concrete is placed.
2. Place concrete by methods that prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with vibrator. Use only square-faced shovels for hand spreading and consolidation.
3. If applicable, match existing texture and finish of pavement being replaced.
4. Mixing and concreting operations shall be discontinued when a descending ambient temperature away from artificial heat reaches 40 degrees Fahrenheit and not resumed until an ascending ambient temperature away from artificial heat reaches 35 degrees Fahrenheit. Concrete shall not be placed on subgrade with a temperature less than 35 degrees Fahrenheit. Concrete temperature shall not drop below 65 degrees Fahrenheit for a period of no less than 6 days after placement. Concrete exposed to melting snow during daytime and freezing during nighttime shall be protected from freezing until strength of at least 3500-psi has been attained.
5. If approval has been granted for the Contractor to place the concrete while the ambient temperature is at or lower than 40 degrees Fahrenheit, the Contractor shall take precautionary measures to prevent damage by freezing, such as heating mixing water, heating aggregates, or applying heat directly to the contents of the mixer. Aggregates shall not be heated higher than 150 degrees Fahrenheit, and the temperature of the aggregates and mixing water combined shall be not higher than 100 degrees Fahrenheit, when the cement is added. Unless otherwise authorized, the temperature of the mixed concrete when heating is employed shall not be less than 50 degrees Fahrenheit and not more than 80 degrees Fahrenheit at the time of placement. Cement or fine aggregate containing lumps or crusts of hardened material or frost shall not be used. Concrete shall not be placed upon a frozen subgrade.

E. CONCRETE FINISHING

All edges and joints shall be finished with an edging tool having a radius of 1/4 inch.

1. Expansion Joints

- a) Transverse expansion joints, 1/2-inch thick, shall be installed at a maximum 15-foot interval along sidewalks and where ends of sidewalks abutting buildings, walls, steps, other rigid structures, poles, other protrusions through the sidewalk,

or other sidewalks.

- b) Transverse expansion joints in sidewalks running parallel and adjacent to concrete curb shall be installed to match the expansion joint in the curb.
- c) Install 1/2-inch thick expansion joints between sidewalks running parallel and adjacent to buildings, walks, other rigid structures, or the back of curb.

2. Contraction Joints

- a) Transverse contraction joints shall be 1/4 inches wide by 1-inch deep weakened plane joints. They shall be straight and at right angles to the surface of the sidewalks.
 - b) Transverse contraction joints in sidewalks running parallel and adjacent to concrete curb shall be installed to match the contraction joints location in the curb.
3. Broom the surface with a fine-hair broom at right angles to the length of the sidewalk and tool at all edges, joints, and markings as shown on the drawings. Mark the sidewalks transversely as shown on the drawings with a jointing tool. All sidewalks shall have a magnesium float finish prior to brooming. The Contractor shall prepare a sample of the broom finish for approval by the Engineer prior to the placement of any sidewalks.
 4. Contractor shall erect barricades to protect the new concrete sidewalk from traffic. Any markings in the sidewalk of any sort shall be removed or the defective sidewalk removed and replaced by the Contractor at his cost as directed by the Engineer.
 5. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects, as directed by the Engineer.

F. CURING

1. Protect and cure finished concrete paving using white pigmented membrane-forming curing and sealing compound applied at a minimum of one gallon per 150 square feet or approved moist-curing methods. Apply per manufacturer's recommendations.
2. Protect pavement from rain by an approved means during the curing process.

7. CONCRETE APPROACH

All specifications for the construction of concrete approaches and concrete driveways shall be the same as specified in the CONCRETE SIDEWALKS section of these specifications with the following exceptions:

A. CONCRETE MIX, DESIGN, AND TESTING

1. Design mix to produce normal-weight concrete consisting of Portland cement,

aggregate, water-reducing or set retarding admixture, air-entraining admixture, and water to produce the following properties:

2. Compressive Strength: 3,500 psi, minimum at 3 days, unless otherwise indicated.

B. AGGREGATE BASE

1. Type 5 aggregate base shall be placed on the subgrade in a layer of uniform thickness 2 inches in compacted depth.

C. FORM CONSTRUCTION

1. Approaches and Driveways shall be installed at the width specified in the plans and drawings and shall be six (6") inches thick, or as shown on the drawings, with expansion joints as directed by the Engineer.

8. MEASUREMENT

- A. Concrete Approach, 6". The quantity measured shall be the number of square feet of concrete approach in place, completed and accepted.
- B. Utility Cut Pavement Repair. The quantity measured shall be the square foot of utility pavement repair performed and accepted as described in the detail section of the plans.
- C. Measurement of aggregate base, reinforcing steel, saw cutting and joint sealing will not be directly made and shall be considered as part of the concrete work.

9. PAYMENT

- A. These prices shall be full compensation for the execution of the pay items indicated including all material, equipment, labor and incidentals necessary to complete these items.
- B. Concrete Approach, 6". Payment shall be at the unit price per square foot of concrete placed which shall be full compensation for excavating, including any removal of existing driveway necessary, furnishing and placing all materials, all dowels, joint material for new joints, saw cutting, finishing and curing.
- C. Utility Cut Pavement Repair. Accepted work will be paid for at the contract unit bid price for Utility Cut Pavement Repair and shall include all materials, saw cutting, any additional excavation required, compaction, concrete, asphalt, aggregate base, equipment, labor and incidentals necessary to complete the work as shown in the plans. If no unit price is included in the contract, the work required to complete the contract, will be considered incidental to the work.
- D. If aggregate base required shall be considered incidental to the price of the construction and should be included in the unit price of that item.
- E. All joint sealing shall be considered incidental to the price of the construction and should be included in the unit price of that item.

- F. All saw cutting shall be considered incidental to the construction.
- G. All reinforcing steel work, including the drilling and grouting of dowels, shall be considered incidental to the construction.
- H. Drilling and testing of cores to determine if concrete is defective will be considered incidental to the contract with no additional compensation made. Filling of the core hole as stated in Repairs and Protections of this Section will also be considered incidental to the contract.
- I. Final cleanup of the surfaces will be considered incidental to the contract.

END OF SECTION 5000

SECTION 9000 - FINISH GRADING AND LAWNS

1. GENERAL

- A. This section covers the work necessary for the finish grading and lawn establishment, complete, including furnishing and delivery of material, seed, and maintenance of lawns.
- B. All areas disturbed by the Contractor's operations shall be restored by seeding, mulching and fertilizing.

2. TOPSOIL

- A. Selected topsoil stripped at the site, properly stored and protected, free from roots, sticks, hard clay, and stones, which will not pass through a 1-inch square opening. Remove existing grass before topsoil is excavated. Provide imported topsoil if required to accomplish the work.

3. IMPORTED TOPSOIL

- A. Imported topsoil shall be a natural, friable soil, representative of productive soils in the vicinity. It shall be obtained from well-drained areas, free from admixture of subsoil and foreign matter, and objects larger than 2 inches in diameter, toxic substances, and any other deleterious material which may be harmful to plant growth and be a hindrance to grading, planting, and maintenance operations.
- B. Topsoil shall meet, or shall be improved to meet, the following mechanical requirements by adding sand and/or peat or manure and incorporating into the topsoil:

COMPONENT	MAX. PERCENTAGE
Sand	65 percent
Silt	50 percent
Clay	25 percent

- C. Topsoil shall be pulverized prior to being brought to the jobsite. It shall be pulverized to a size of 3/8 inches in diameter as the largest cross section.

4. PH CONTROL

- A. The following amendments shall be included in soils where required by the soils analysis tests:
 - 1. Soil sulfur
 - 2. Commercially packaged gypsum
 - 3. Ground dolomitic limestone

5. LIME

- A. Ground dolomitic limestone not less than 85 percent total carbonates and magnesium, ground so that 50 percent passes 100-mesh sieve and 90 percent 20-mesh sieve.

Coarser material will be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing the 100-mesh sieve.

6. FERTILIZER

- A. Commercial Fertilizer: A complete plant food containing 6 percent nitrogen, 24 percent available phosphoric acid, and 24 percent potash, at a rate of 50 lbs./5,000 sq. ft., conforming to applicable state fertilizer laws, availability of plant nutrients conforming to standards of the Association of Official Agricultural Chemists (AOAC), uniform in composition, dry, free-flowing, and delivered in original, unopened containers bearing manufacturer's guaranteed analysis.
- B. Superphosphate: Ammonium phosphate (16-20-0) containing 1.4 percent sulphur; granular, dry, free-flowing delivered in original bags.

7. TEXTURAL SOIL AMENDMENTS

- A. Peat: A natural residue formed by decomposition of reeds, sedges, or mosses from freshwater site, free from lumps, roots, and stones, absorbing at least four times its dry weight of water, organic matter not less than 90 percent on a dry weight basis. The maximum moisture content at time of delivery shall be 65 percent by weight.
- B. Manure: Well rotted, unleached stable or cattle manure, reasonably free from weed seed and refuse, containing no chemicals or materials harmful to plant life; not less than 4 months nor more than 2 years old. Sawdust or shavings shall not exceed 50 percent content.
- C. Sand: As specified in Section 2300, EARTHWORK.

8. SEED

- A. Seed Mixture: 20% Adventure Fescue
 20% Jaguar II Fescue
 20% Olympic Fescue
 20% Arid Fescue
 20% Regal Perennial

Apply at the rate of 350 pounds per acre.

Seed shall be labeled in accordance with U. S. Department of Agriculture Rules and Regulations under the Federal Seed Act. All seed shall be furnished in sealed standard containers unless exception is granted in writing by the Owner's Representative. Seed, which has become wet, moldy or otherwise damaged in transit or in storage, will not be acceptable.

9. MULCH

- A. Straw Mulch: Threshed straw of oats, wheat, or rye, free from seed of obnoxious weeds.

10. NETTING

- A. Jute Netting: Heavy, twisted jute netting, weighing 1 lb. per square yard. Openings

between strands approximately 1-inch square.

- B. Tackifier: Arn-Tak, as manufactured by American Excelsior or equal. Emulsion designed to retain moisture and heat in the soil. Mulch shall be chemically inert, nontoxic to plants, humans, and animals.

11. PROJECT SCHEDULE

- A. Within 20 calendar days of the date specified for commencement of work, submit to the Engineer a proposed time schedule indicating dates for beginning and completion of the following operations:
1. Delivery and source of materials.
 2. Preparation of sod/seed bed.
 3. Placing sod/seed.
 4. Maintenance.

12. CONSTRUCTION METHODS

- A. Preparation of Subgrade. After rough grading is completed and before topsoil is spread, thoroughly scarify ground to a minimum depth of 8 inches with a toothed ripping machine by running in two directions at right angles over the entire surface to be planted.
- B. Spreading of Topsoil. Spread topsoil and textural soil amendments, if required based on the results of the gradation test, over the prepared rough grade using a rubber-tired tractor with grader blade or equivalent not weighing more than 3-1/2 tons. Spread materials to make a finished thickness of a minimum of 4 inches.
- C. Liming and Fertilizing
1. Apply lime uniformly with a mechanical spreader to the entire area for grass at the rate determined from soil test.
 2. Apply commercial fertilizer uniformly with a mechanical spreader at a rate of 50 pounds per 5,000 square feet, or at rate determined from soil test.
- D. Finish Grading
1. Thoroughly mix the applied materials to a depth of 4 inches by running a rototiller over the entire area in two directions at right angles.
 2. Rake the top soiled area to a uniform grade so that all areas drain, as indicated on the grading plan.
 3. Lightly compact with a cultipacker before placing sod.
 4. Remove all trash and stones exceeding 1 inch in diameter from area to a depth of 2 inches prior to preparation and placing sod.
- E. Seeding
1. No seeding shall be done except in favorable weather conditions during the planting

seasons as follows:

Spring Planting Season:	March 1 through May 15
Fall Planting Season:	August 15 through October 1

2. The seed shall be uniformly distributed over the designated areas. All areas disturbed by the Contractor's operations shall be restored.
3. A method of sowing using mechanical power-drawn drills or seeders shall be employed, unless otherwise approved by the Engineer.
4. Care shall be taken to ensure that successive seeded strips shall overlap.
5. Half the seed shall be sown with the sower moving in one direction, and the remainder of the seed shall be sown with the sower moving at right angles to the first sowing.
6. The seed shall be covered to an average depth of 1/2-inch by means of a brush harrow, spike-tooth harrow, chain harrow, cultipacker, or other approved device.

F. Mulching

1. Mulch all areas by spreading a uniform light cover of straw mulch over the seeded area at a rate of 3-1/2 tons per acre no later than the day after seeding has been performed.
2. Mulch all areas with a slope steeper than 20 percent by placing jute netting in strips paralleling the slope to completely cover newly seeded areas. Pin mulch to ground with 6-inch long wire staples at 5-foot intervals immediately after seeding.
3. Mulch all areas with a slope steeper than 25 percent with a uniform cover of straw at the rate of 2-1/2 tons per acre not later than 2 days after seeding has been performed and tackify by applying tackifier at rate of 50 lbs. of tackifier per acre mixed with a minimum of 1,600 gallons of water per acre.

G. Protection

1. Protect newly seeded areas from pedestrian traffic by erecting a fence on 2-inch by 2-inch posts 4 feet high spaced 10 feet on center and strung with a single strand of No. 12-gauge wire marked with cloth strips at 3-foot intervals between posts.

13. INSPECTION FOR ACCEPTANCE

- A. Eight weeks after the start of maintenance on the last section of completed lawn, and on written notice from the Contractor, the Engineer will, within 15 days of such written notice, make an inspection to determine if a satisfactory stand has been produced. If a satisfactory stand has not been established, another inspection will be made after written notice from the Contractor that the lawn grass is ready for inspection following the next growing season.
- B. If, at the end of the 8-week lawn maintenance period, a satisfactory stand of lawn has not been produced, the Contractor shall renovate and re-seed the lawn according to the

original treatment or unsatisfactory portions thereof immediately. If it is not accepted, a complete restoration will be required during the planting season meeting all of the requirements specified under CONSTRUCTION METHODS.

- C. A satisfactory stand is defined as a lawn grass or section of lawn of 2,000 square feet or larger that has:
1. No bare spots larger than 3 square feet.
 2. Not more than 10 percent of total area with bare spots larger than 1 square foot.
 3. Not more than 15 percent of total area with bare spots larger than 6 inches square.

14. MEASUREMENT AND PAYMENT

- A. Final measurement of Seed, Mulch and Fertilize will be based on the established plan quantity except for authorized changes during construction. The revision or correction will be computed and added to or deducted from the contract quantity. Measurement of the Seed, Mulch & Fertilize placed will be made to the nearest square yard. Payment shall be at the unit price per square yard of seed placed. This price shall be full compensation for all work necessary to establish a satisfactory stand of lawn.

END SECTION 9000