

PROJECT MANUAL

Improvements to Storm Water and Wastewater Collection Systems

Missouri State Fairgrounds

Sedalia, Missouri

Designed By: Allstate Consultants LLC
3312 LeMone Industrial Boulevard
Columbia, MO 65201

Date Issued: August 30, 2024

Project No.: F2302-01

STATE *of* MISSOURI

OFFICE *of* ADMINISTRATION
Facilities Management, Design & Construction

SECTION 000107 - PROFESSIONAL SEALS AND CERTIFICATIONS

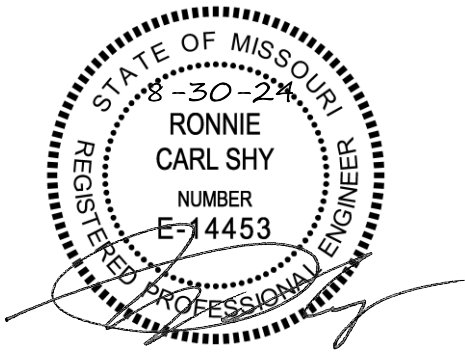
**PROJECT NAME: IMPROVEMENTS TO STORMWATER AND WASTEWATER
COLLECTION SYSTEMS, INFRASTRUCTURE –SEDALIA, MISSOURI**

PROJECT NUMBER: F2302-01

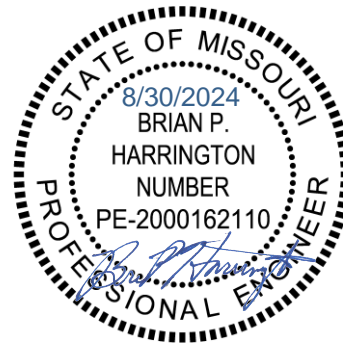
SITE NUMBER: 1501

FACILITY ASSET NUMBERS: 3511501138

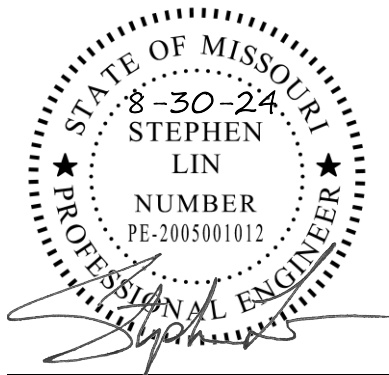
**THE FOLLOWING DESIGN PROFESSIONALS HAVE SIGNED AND SEALED THE ORIGINAL PLANS
AND SPECIFICATIONS FOR THIS PROJECT, WHICH ARE ON FILE WITH THE DIVISION OF
FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION:**



RONNIE CARL SHY
E-14453



BRIAN P. HARRINGTON
PE-2000162110



STEPHEN LIN
PE-2005001012

TABLE OF CONTENTS

SECTION	TITLE	NUMBER OF PAGES
DIVISION 00 – PROCUREMENT AND CONTRACTING INFORMATION		
000000 INTRODUCTORY INFORMATION		
000101	Project Manual Cover	1
000107	Professional Seals and Certifications	1
000110	Table of Contents	2
000115	List of Drawings	4
001116	INVITATION FOR BID (IFB) plus Missouri Buys instructions and special notice	2
002113	INSTRUCTIONS TO BIDDERS (Includes MBE/WBE/SDVE Information)	8
003144	MBE/WBE/SDVE Directory	1
The following documents may be found on MissouriBUYS at https://missouribuys.mo.gov/		
004000 PROCUREMENT FORMS & SUPPLEMENTS		
004113	Bid Form	*
004336	Proposed Subcontractors Form	*
004337	MBE/WBE/SDVE Compliance Evaluation Form	*
004338	MBE/WBE/SDVE Eligibility Determination Form for Joint Ventures	*
004339	MBE/WBE/SDVE Good Faith Effort (GFE) Determination Forms	*
004340	SDVE Business Form	*
004541	Affidavit of Work Authorization	*
004545	Anti-Discrimination Against Israel Act Certification form	*
005000 CONTRACTING FORMS AND SUPPLEMENTS		
005213	Construction Contract	3
005414	Affidavit for Affirmative Action	1
006000 PROJECT FORMS		
006113	Performance and Payment Bond	2
006325	Product Substitution Request	2
006519.16	Final Receipt of Payment and Release Form	1
006519.18	MBE/WBE/SDVE Progress Report	1
006519.21	Affidavit of Compliance with Prevailing Wage Law	1
007000 CONDITIONS OF THE CONTRACT		
007213	General Conditions	20
007300	Supplementary Conditions	2
007333	Supplementary General Conditions for Federally Funded/Assisted Construction Projects	21
007334	Terms and Conditions for Contractor Receipt of Federal ARPA SFRF Funds	9
007346	Wage Rate	4
DIVISION 1 – GENERAL REQUIREMENTS		
011000	Summary of Work	2
012100	Allowances	2
012300	Alternates	2
012600	Contract Modification Procedures	2
013100	Coordination	3
013115	Project Management Communications	4
013200	Schedules	5
013300	Submittals	5
013513.28	Site Security and Health Requirements	6
015000	Construction Facilities and Temporary Controls	7
017400	Cleaning	4
DIVISION 31 – EARTHWORK		
310000	Site Construction	1
310500	Demolition	1
311000	Site Clearing	1

SECTION	TITLE	NUMBER OF PAGES
DIVISION 31 – EARTHWORK (CONTINUED)		
312000	Subgrade	1
312213	Rough Grading	1
312316	Excavation	1
312323	Fill and Backfill	2
312500	Erosion Control/Storm Water Pollution and Prevention	10
DIVISION 32 – EXTERIOR IMPROVEMENTS		
320516	Rip-Rap and Supporting Material	1
321123	Aggregate Base	4
321216	Asphaltic Concrete Pavement	6
321310	Concrete for Paving, Walks, & Misc. Structures	11
329113	Placement of Topsoil	1
329219	Seeding	4
DIVISION 33 – UTILITIES		
331421	Plug Valve	2
331422	Check Valve	1
333100	Sanitary Sewers	16
333212	Solids Handling Wastewater Pump and Control Panel	3
333216	Grinder Pump Station	4
334200	Storm Sewers	5
APPENDICES		
APPENDIX 1:	Job Special Provisions	4
APPENDIX 2:	Storm Water Pollution Prevention Plan (SWPPP)	75
APPENDIX 3:	MDNR Land Disturbance Permit MOR1000038	34

END TABLE OF CONTENTS

SECTION 000115 – LIST OF DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section provides a comprehensive list of the drawings that comprise the Bid Documents for this project.

PART 2 - PROJECT INFORMATION

2.1 INFORMATION

- A. NAME: Improvements to Stormwater and Wastewater Collection Systems, Infrastructure – Sedalia, Missouri
- B. PROJECT NUMBER: F2302-01
- C. SITE NUMBER: 1501
- D. FACILITY ASSET NUMBERS: 3511501138

PART 3 - EXECUTION

3.1 LIST OF DRAWINGS

- A. The following list of drawings is a part of the Bid Documents:

	<u>TITLE</u>	<u>SHEET #</u>	<u>DATE</u>	<u>CAD #</u>
	PART 1: STORM WATER			
1.	Cover	Sheet C-001	08/30/24	C-COV-01
2.	Storm Sewer Plan Sheet Index	Sheet C-101	08/30/24	C-SIT-01
3.	Storm Sewer Plan & Profile Line A	Sheet C-102	08/30/24	C-SIT-02
4.	Storm Sewer Plan & Profile Line B	Sheet C-103	08/30/24	C-SIT-03
5.	Storm Sewer Plan & Profile Lines C, D, E, F, & H	Sheet C-104	08/30/24	C-SIT-04
6.	Storm Sewer Plan & Profile Lines G, I, & J	Sheet C-105	08/30/24	C-SIT-05
7.	Storm Sewer Plan & Profile Lines K, L, & M	Sheet C-106	08/30/24	C-SIT-06

8.	Storm Sewer Plan & Profile Line N	Sheet C-107	08/30/24	C-SIT-07
9.	Storm Sewer Line A Grading	Sheet C-108	08/30/24	C-SIT-08
10.	Storm Sewer Line A Grading	Sheet C-109	08/30/24	C-SIT-09
11.	Detention Pond	Sheet C-110	08/30/24	C-SIT-10
12.	Paving Improvement SE of Conservation Building	Sheet C-111	08/30/24	C-SIT-11
13.	Storm Sewer Details	Sheet C-112	08/30/24	C-SIT-12
14.	Storm Sewer Details	Sheet C-113	08/30/24	C-SIT-13

PART 2: WASTEWATER LATERALS

15.	Plan Sheet Index	Sheet C-201	08/30/24	C-SIT-14
16.	Replacement Plan Restroom 65, Restroom 66, And Old House	Sheet C-202	08/30/24	C-SIT-15
17.	Replacement Plan Wash Barns North of Charolais Barn	Sheet C-203	08/30/24	C-SIT-16
18.	Replacement Plan Wash Barns North of Cattle Barns	Sheet C-204	08/30/24	C-SIT-17
19.	Replacement Plan Cattle Barns Buildings 42-46	Sheet C-205	08/30/24	C-SIT-18
20.	Replacement Plan Empty Building Pad East of Cattle Barns	Sheet C-206	08/30/24	C-SIT-19
21.	Replacement Plan Restrooms, Wash Barn, and Lil' Trucks Place	Sheet C-207	08/30/24	C-SIT-20
22.	Replacement Plan Gerken Dairy	Sheet C-208	08/30/24	C-SIT-21
23.	Replacement Plan Youth Center	Sheet C-209	08/30/24	C-SIT-22
24.	Replacement Plan Building 38 and Donnelly Arena	Sheet C-210	08/30/24	C-SIT-23
25.	Replacement Plan Restrooms North of Grand Stands	Sheet C-211	08/30/24	C-SIT-24
26.	Replacement Plan	Sheet C-212	08/30/24	C-SIT-25

Missouri State Fairgrounds Improvements to Storm Water and Wastewater Collection Systems

	Women's Building – Gift Shop			
27.	Replacement Plan Lefty's Restaurant and the Pork Place	Sheet C-213	08/30/24	C-SIT-26
28.	Replacement Plan MO AG Theater and Farm Bureau Insurance	Sheet C-214	08/30/24	C-SIT-27
29.	Replacement Plan Old Admin Building	Sheet C-215	08/30/24	C-SIT-28
30.	Replacement Plan Hacienda, Biergarten and Moose Lodge	Sheet C-216	08/30/24	C-SIT-29
31.	Replacement Plan Grand Stands	Sheet C-217	08/30/24	C-SIT-30
32.	Replacement Plan Commercial Building	Sheet C-218	08/30/24	C-SIT-31
33.	Replacement Plan Family Fun Center and Good Time Charlie's	Sheet C-219	08/30/24	C-SIT-32
34.	Replacement Plan Cattleman's and Beef House	Sheet C-220	08/30/24	C-SIT-33
35.	Replacement Plan Home Econ Building and Jackson's	Sheet C-221	08/30/24	C-SIT-34
36.	Replacement Plan Varied Industries	Sheet C-222	08/30/24	C-SIT-35
37.	Replacement Plan Agriculture Building	Sheet C-223	08/30/24	C-SIT-36
38.	Replacement Plan 4-H Building	Sheet C-224	08/30/24	C-SIT-37
39.	Replacement Plan Swine Barn	Sheet C-225	08/30/24	C-SIT-38
40.	Replacement Plan Raise Top of MH 332 and Re-grade Surrounding Area	Sheet C-226	08/30/24	C-SIT-39
41.	Replacement Plan Restroom NE of Swine Barn	Sheet C-227	08/30/24	C-SIT-40
42.	Replacement Plan Poultry & Rabbit, Floriculture Buildings	Sheet C-228	08/30/24	C-SIT-41
43.	Replacement Plan Pump Station	Sheet C-229	08/30/24	C-SIT-42

Missouri State Fairgrounds Improvements to Storm Water and Wastewater Collection Systems

44.	Pump Station Details	Sheet C-230	08/30/24	C-SIT-43
45.	Pump Station Details	Sheet C-231	08/30/24	C-SIT-44
46.	Standard Details	Sheet C-232	08/30/24	C-SIT-45
47.	Standard Details	Sheet C-233	08/30/24	C-SIT-46
48.	Standard Details	Sheet C-234	08/30/24	C-SIT-47

END OF SECTION 000115

SECTION 001116 - INVITATION FOR BID

1.0 OWNER:

- A. The State of Missouri
Office of Administration,
Division of Facilities Management, Design and Construction
Jefferson City, Missouri

2.0 PROJECT TITLE AND NUMBER:

- A. Improvements to Storm Water and Wastewater Collection Systems
Missouri State Fairgrounds
Sedalia, Missouri
Project No.: F2302-01

3.0 BIDS WILL BE RECEIVED:

- A. Until: 1:30 PM, October 29, 2024
- B. **Only electronic bids on MissouriBUYS shall be accepted: <https://missouribuys.mo.gov>. Bidder must be registered to bid.**

4.0 DESCRIPTION:

- A. Scope: The project includes improvements to the Sanitary Sewer System and the Stormwater Conveyance System at the Missouri State Fairgrounds.
- B. MBE/WBE/SDVE Goals: MBE 10%, WBE 10%, and SDVE 3%. **NOTE: Only MBE/WBE firms certified by the State of Missouri Office of Equal Opportunity as of the date of bid opening, or SDVE(s) meeting the requirements of Section 34.074, RSMo and 1 CSR 30-5.010, can be used to satisfy the MBE/WBE/SDVE participation goals for this project.**

5.0 PRE-BID MEETING:

- A. Place/Time: 10:00 AM, October 15, 2024, at MSF Board Room, 2503 West 16th Street, Sedalia, Missouri 65301
- B. Access to State of Missouri property requires presentation of a photo ID by all persons.

6.0 HOW TO GET PLANS & SPECIFICATIONS:

- A. View Only Electronic bid sets are available at no cost or paper bid sets for a deposit of \$100.00 from American Document Solutions (ADS). MAKE CHECKS PAYABLE TO: American Document Solutions. Mail to: American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433, <https://www.adsplanroom.net>. NOTE: Prime contractors will be allowed a maximum of two bid sets at the deposit rate shown above. Other requesters will be allowed only one bid set at this rate. Additional bid sets or parts thereof may be obtained by any bidder at the cost of printing and shipping by request to American Document Solutions at the address shown above. **Bidder must secure at least one bid set to become a planholder.**
- B. **Refunds: Return plans and specifications in unmarked condition within 15 working days of bid opening to American Document Solutions, 1400 Forum Blvd., Suite 7A, Columbia, Missouri 65203. Phone 573-446-7768, Fax 573-355-5433. Deposits for plans not returned within 15 working days shall be forfeited.**
- C. Information for upcoming bids, including downloadable plans, specifications, Invitation for Bid, bid tabulation, award, addenda, and access to the ADS planholders list, is available on the Division of Facilities Management, Design and Construction's web site: <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans>.

7.0 POINT OF CONTACT:

- A. Designer: Allstate Consultants LLC, Brian Harrington, (573) 875-8799, email: bharrington@allstate75.com
- B. Project Manager: Jared Cook, (573) 690-6733, email: jared.cook2@oa.mo.gov

8.0 GENERAL INFORMATION:

- A. The State reserves the right to reject any and all bids and to waive all informalities in bids. No bid may be withdrawn for a period of 20 working days subsequent to the specified bid opening time. The contractor shall pay not less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed, as determined by the Missouri Department of Labor and Industrial Relations and as set out in the detailed plans and specifications.
- B. Bid results will be available at <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans> after it is verified that at least one bid is awardable and affordable.
- C. This is a federally funded/assisted construction project that requires compliance by the awarded contractor with applicable federal laws and regulations. The Bidder should review Section 007333, SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY FUNDED/ASSISTED CONSTRUCTION PROJECTS, which is made part of this solicitation and will be made part of the resulting contract by reference.

Very Important MissouriBUYS Instructions to Help Submit a Bid Correctly

- A. The bidder shall submit his or her bid and all supporting documentation on MissouriBUYS eProcurement System. No hard copy bids shall be accepted. Go to <https://missouribuys.mo.gov> and register. The bidder must register and complete a profile fully with all required documents submitted prior to submitting a bid.
- B. Once registered, log in.
1. Under "Solicitation" select "View Current Solicitations."
 2. Under "Filter by Agency" select "OA-FMDC-Contracts Chapter 8", then click "Filter Solicitation" button.
 3. Select "Active Solicitations" tab.
 4. To see the Solicitation Summary, click on the Project Number and the summary will open. Click each heading to open detailed information.
- C. Here are simplified instructions for uploading the bid to MissouriBUYS:
1. Find the solicitation by completing Steps 1 through 4 above.
 2. Select the three dots under "Actions." Select "Add New Response."
 3. When the Quote box opens, give the response a title and select "OK."
 4. The detailed solicitation will open. Select "Check All" for the Original Solicitation Documents, open each document, and select "Accept." If this step is not completed, a bid cannot be uploaded. Scroll to the bottom of the page and select "Add Attachments." If you do not see this command, not all documents have been opened and accepted.
 5. The Supplier Attachments box will open. Select "Add Attachment" again.
 6. The Upload Documents box will open. Read the instructions for uploading. Disregard the "Confidential" check box.
 7. Browse and attach up to 5 files at a time. Scroll to bottom of box and select "Upload." The Supplier Attachments box will open. Repeat Steps 5 through 7 if more than 5 files are to be uploaded.
 8. When the Supplier Attachments box opens again and uploading is complete, select "Done." A message should appear that the upload is successful. If it does not, go to the Bidder Response tab and select "Submit."
 9. The detailed solicitation will open. At the bottom select "Close."
- D. Any time a bidder wants to modify the bid, he or she will have to submit a new one. FMDC will open the last response the bidder submits. The bidder may revise and submit the bid up to the close of the solicitation (bid date and time). Be sure to allow for uploading time so that the bid is successfully uploaded prior to the 1:30 PM deadline; we can only accept the bid if it is uploaded before the deadline.
- E. If you want to verify that you are uploading documents correctly, please contact Paul Girouard: 573-751-4797, paul.girouard@oa.mo.gov ; April Howser: 573-751-0053, April.Howser@oa.mo.gov ; or Mandy Roberson: 573-522-0074, Mandy.Roberson@oa.mo.gov.
- F. If you are experiencing login issues, please contact Web Procure Support (Proactis) at 866-889-8533 anytime from 7:00 AM to 7:00 PM Central Time, Monday through Friday. If you try using a userid or password several times that is incorrect, the system will lock you out. Web Procure Support is the only option to unlock you! If you forget your userid or password, Web Procure Support will provide a temporary userid or password. Also, if it has been a while since your last successful login and you receive an "inactive" message, contact Web Procure (Proactis). If you are having a registration issue, you may contact Cathy Holliday at 573-751-3491 or by email: cathy.holliday@oa.mo.gov.

SECTION 002113 – INSTRUCTIONS TO BIDDERS

1.0 - SPECIAL NOTICE TO BIDDERS

- A. If awarded a contract, the Bidder's employees, and the employees of all subcontractors, who perform the work on the project must adhere to requirements in Section 013513 – Site Security and Health Requirements as applicable per Agency.
- B. The Bidder's prices shall include all city, state, and federal sales, excise, and similar taxes that may lawfully be assessed in connection with the performance of work, and the purchased of materials to be incorporated in the work. THIS PROJECT IS NOT TAX EXEMPT.

2.0 - BID DOCUMENTS

- A. The number of sets obtainable by any one (1) party may be limited in accordance with available supply.
- B. For the convenience of contractors, sub-contractors and suppliers, copies of construction documents are on file at the office of the Director, Division of Facilities Management, Design and Construction and on the Division's web site - <https://oa.mo.gov/facilities/bid-opportunities/bid-listing-electronic-plans>.

3.0 - BIDDERS' OBLIGATIONS

- A. Bidders must carefully examine the entire site of the work and shall make all reasonable and necessary investigations to inform themselves thoroughly as to the facilities available as well as to all the difficulties involved in the completion of all work in accordance with the specifications and the plans. Bidders are also required to examine all maps, plans and data mentioned in the specifications. No plea of ignorance concerning observable existing conditions or difficulties that may be encountered in the execution of the work under this contract will be accepted as an excuse for any failure or omission on the part of the contractor to fulfill in every detail all of the requirements of the contract, nor accepted as a basis for any claims for extra compensation.
- B. Under no circumstances will contractors give their plans and specifications to another contractor. Any bid received from a contractor whose name does not appear on the list of plan holders may be subject to rejection.

4.0 - INTERPRETATIONS

- A. No bidder shall be entitled to rely on oral interpretations as to the meaning of the plans and specifications or the acceptability of alternate products, materials, form or type of construction. Every request for interpretation shall be made in writing and submitted with all supporting documents not less than five (5) working days before opening of bids. Every interpretation made to a bidder will be in the form of an addendum and will be sent as promptly as is practicable to all persons to whom plans and specifications have been issued. All such addenda shall become part of the contract documents.
- B. Approval for an "acceptable substitution" issued in the form of an addendum as per Paragraph 4A above, and as per Article 3.1 of the General Conditions; ACCEPTABLE SUBSTITUTIONS shall constitute approval for use in the project of the product.
- C. An "acceptable substitution" requested after the award of bid shall be approved if proven to the satisfaction of the Owner and the Designer as per Article 3.1, that the product is acceptable in design, strength, durability, usefulness, and convenience for the purpose intended. Approval of the substitution after award is at the sole discretion of the Owner.
- D. A request for "Acceptable Substitutions" shall be made on the Section 006325 Substitution Request Form. The request shall be sent directly to the project Designer. A copy of said request should also be mailed to the Owner, Division of Facilities Management, Design and Construction, Post Office Box 809, Jefferson City, Missouri 65102.

5.0 - BIDS AND BIDDING PROCEDURE

- A. Bidders shall submit all submission forms and accompanying documents listed in SECTION 004113 – BID FORM, Article 5.0, ATTACHMENTS TO BID by the stated time or their bid will be rejected for being non-responsive.

Depending on the specific project requirements, **the following is a GENERIC list** of all possible bid forms that may be due with bid submittals and times when they may be due. Please check for specific project requirements on the proposal form (Section 004113). ***Not all of the following bid forms may be required to be submitted.***

Bid Submittal – due before stated date and time of bid opening (see IFB):

004113	Bid Form (all pages are always required)
004322	Unit Prices Form
004336	Proposed Subcontractors Form
004337	MBE/WBE/SDVE Compliance Evaluation Form
004338	MBE/WBE/SDVE Eligibility Determination for Joint Ventures
004339	MBE/WBE/SDVE GFE Determination
004340	SDVE Business Form
004541	Affidavit of Work Authorization
004545	Anti-Discrimination Against Israel Act Certification form

- B. All bids shall be submitted without additional terms and conditions, modification or reservation on the bid forms with each space properly filled. Bids not on these forms will be rejected.
- C. All bids shall be accompanied by a bid bond executed by the bidder and a duly authorized surety company, certified check, cashier's check or bank draft made payable to the Division of Facilities Management, Design and Construction, State of Missouri, in the amount indicated on the bid form, Section 004113. Failure of the contractor to submit the full amount required shall be sufficient cause to reject his bid. The bidder agrees that the proceeds of the check, draft or bond shall become the property of the State of Missouri, if for any reason the bidder withdraws his bid after closing, or if on notification of award refuses or is unable to execute tendered contract, provide an acceptable performance and payment bond, provide evidence of required insurance coverage and/or provide required copies of affirmative action plans within ten (10) working days after such tender.
- D. The check or draft submitted by the successful bidder will be returned after the receipt of an acceptable performance and payment bond and execution of the formal contract. Checks or drafts of all other bidders will be returned within a reasonable time after it is determined that the bid represented by same will receive no further consideration by the State of Missouri. Bid bonds will only be returned upon request.

6.0 - SIGNING OF BIDS

- A. A bid from an individual shall be signed as noted on the Bid Form.
- B. A bid from a partnership or joint venture shall require only one signature of a partner, an officer of the joint venture authorized to bind the venture or an attorney-in-fact. If the bid is signed by an officer of a joint venture or an attorney-in-fact, a document evidencing the individual's authority to execute contracts should be included with the bid form.
- C. A bid from a limited liability company (LLC) shall be signed by a manager or a managing member of the LLC.
- D. A bid from a corporation shall have the correct corporate name thereon and the signature of an authorized officer of the corporation manually written. Title of office held by the person signing for the corporation shall appear, along with typed name of said individual. Corporate license number shall be provided and, if a corporation organized in a state other than Missouri, a Certificate of Authority to do business in the State of Missouri shall be attached. In addition, for corporate proposals, the President or Vice-President should sign as the bidder. If the signatory is other than the corporate president or vice president, the bidder must provide satisfactory evidence that the signatory has the legal authority to bind the corporation.

- E. A bid should contain the full and correct legal name of the Bidder. If the Bidder is an entity registered with the Missouri Secretary of State, the Bidder's name on the bid form should appear as shown in the Secretary of State's records.
- F. The Bidder should include its corporate license number on the Bid Form and, if the corporation is organized in a state other than Missouri, a Certificate of Authority to do business in the State of Missouri shall be attached to the bid form.

7.0 - RECEIVING BID SUBMITTALS

- A. It is the bidder's sole responsibility to assure receipt by Owner of bid submittals by the date and time specified in the Invitation for Bid. Bids received after the date and time specified shall not be considered by the Owner.
- B. Bids must be submitted through the MissouriBUYS statewide eProcurement system (<https://www.missouribuys.mo.gov/>) in accordance with the instructions for that system. The Owner shall only accept bids submitted through MissouriBUYS. Bids received by the Owner through any other means, including hard copies, shall not be considered and will be discarded by the Owner unopened.
- C. To respond to an Invitation for Bid, the Bidder must first register with MissouriBUYS by going through the MissouriBUYS Home Page (<https://www.missouribuys.mo.gov/>), clicking the "Register" button at the top of the page, and completing the Vendor Registration. Once registered, the Bidder accesses its account by clicking the "Login" button at the top of the MissouriBUYS Home Page. Enter your USERID and PASSWORD, which the Bidder will select. Under Solicitations, select "View Current Solicitations." A new screen will open. Under "Filter by Agency" select "OA-FMDC-Contracts Chapter 8." Under "Filter by Opp. No." type in the State Project Number. Select "Submit." Above the dark blue bar, select "Other Active Opportunities." To see the Solicitation Summary, single click the Opp. No. (Project Number) and the summary will open. Single quick click each blue bar to open detailed information. The Bidder must read and accept the Original Solicitation Documents and complete all identified requirements. The Bidder should download and save all of the Original Solicitation Documents on its computer so that the Bidder can prepare its response to these documents. The Bidder should upload its completed response to the downloaded documents as an attachment to the electronic solicitation response.
- D. Step-by-step instructions for how a registered vendor responds to a solicitation electronically are provided in Section 001116 – Invitation For Bid.
- E. The Bidder shall submit its bid on the forms provided by the Owner on MissouriBUYS with each space fully and properly completed, including all amounts required for alternate bids, unit prices, cost accounting data, etc. The Owner may reject bids that are not on the Owner's forms or that do not contain all requested information.
- F. No Contractor shall stipulate in his bid any conditions not contained in the specifications or standard bid form contained in the contract documents. To do so may subject the Contractor's bid to rejection.
- G. The completed forms shall be without interlineations, alterations or erasures.

8.0 - MODIFICATION AND WITHDRAWAL OF BIDS

- A. Bidder may withdraw his bid at any time prior to scheduled closing time for receipt of bids, but no bidder may withdraw his bid for a period of twenty (20) working days after the scheduled closing time for receipt of bids.
- B. The Bidder shall modify his or her original bid by submitting a revised bid on MissouriBUYS.

9.0 - AWARD OF CONTRACT

- A. The Owner reserves the right to reject any and/or all bids and further to waive all informalities in bidding when deemed in the best interest of the State of Missouri.
- B. The Owner reserves the right to let other contracts in connection with the work, including but not by way of limitation, contracts for the furnishing and installation of furniture, equipment, machines, appliances and other apparatus.

- C. The Owner shall award a contract to the lowest, responsive, responsible Bidder in accordance with Section 8.250, RSMo. No contract will be awarded to any Bidder who has had a contract with the Owner terminated within the preceding twelve months for material breach of contract or who has been suspended or debarred by the Owner.
- D. Award of alternates, if any, will be made in numerical order unless all bids received are such that the order of acceptance of alternates does not affect the determination of the lowest, responsive, responsible bidder.
- E. No bid shall be considered binding upon the Owner until the written contract has been properly executed, a satisfactory bond has been furnished, evidence of required insurance coverage, submittal of executed Section 004541, Affidavit of Work Authorization form, documentation evidencing enrollment and participation in a federal work authorization program has been received and an affirmative action plan submitted. Failure to execute and return the contract and associated documents within the prescribed period of time shall be treated, at the option of the Owner, as a breach of bidder's obligation and the Owner shall be under no further obligation to bidder.
- F. If the successful bidder is doing business in the State of Missouri under a fictitious name, he shall furnish to Owner, attached to the Bid Form, a properly certified copy of the certificate of Registration of Fictitious Name from the State of Missouri, and such certificate shall remain on file with the Owner.
- G. Any successful bidder which is a corporation organized in a state other than Missouri shall furnish to the Owner, attached to the Bid Form, a properly certified copy of its current Certificate of Authority to do business in the State of Missouri, such certificate to remain on file with the Owner. No contract will be awarded by the Owner unless such certificate is furnished by the bidder.
- H. Any successful bidder which is a corporation organized in the State of Missouri shall furnish at its own cost to the Owner, if requested, a Certificate of Good Standing issued by the Secretary of State, such certificate to remain on file with the Owner.
- I. Transient employers subject to Sections 285.230 and 285.234, RSMo, (out-of-state employers who temporarily transact any business in the State of Missouri) may be required to file a bond with the Missouri Department of Revenue. No contract will be awarded by the Owner unless the successful bidder certifies that he has complied with all applicable provisions of Section 285.230-234.
- J. Sections 285.525 and 285.530, RSMo, require business entities to enroll and participate in a federal work authorization program in order to be eligible to receive award of any state contract in excess of \$5,000. Bidders should submit with their bid an Affidavit of Work Authorization (Section 004541) along with appropriate documentation evidencing such enrollment and participation. Section-004541, Affidavit of Work Authorization is located on the MissouriBUYS solicitation for this project. Bidders must also submit an E-Verify Memorandum before the Owner may award a contract to the Bidder. Information regarding a E-Verify is located at <https://www.uscis.gov/e-verify/>. The contractor shall be responsible for ensuring that all subcontractors and suppliers associated with this contract enroll in E-Verify.

10.0 - CONTRACT SECURITY

- A. The successful bidder shall furnish a performance/payment bond as set forth in General Conditions Article 6.1 on a condition prior to the State executing the contract and issuing a notice to proceed.

11.0 - LIST OF SUBCONTRACTORS

- A. If required by “Section 004113 – Bid Form,” each bidder must submit as part of their bid a list of subcontractors to be used in performing the work (Section 004336). The list must specify the name of the single designated subcontractor, for each category of work listed in “Section 004336 - Proposed Subcontractors Form.” If work within a category will be performed by more than one subcontractor, the bidder must provide the name of each subcontractor and specify the exact portion of the work to be done by each. Failure to list the Bidder’s firm, or a subcontractor for each category of work identified on the Bid Form or the listing of more than one subcontractor for any category without designating the portion of work to be performed by each shall be cause for rejection of the bid. If the bidder intends to perform any of the designated subcontract work with the use of his own employees, the bidder shall make that fact clear, by listing his own firm for the subject category. **If any category of work is left vacant, the bid shall be rejected.**

12.0 - WORKING DAYS

- A. Contract duration time is stated in working days and will use the following definition in determining the actual calendar date for contract completion:
 - 1. Working days are defined as all calendar days except Saturdays, Sundays and the following State of Missouri observed holidays: New Year’s Day, Martin Luther King, Jr. Day, Lincoln Day, Washington’s Birthday, Truman Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day.

13.0 - AMERICAN AND MISSOURI - MADE PRODUCTS AND FIRMS

- A. By signing the bid form and submitting a bid on this project, the Bidder certifies that it will use American and Missouri products as set forth in Article 1.7 of the General Conditions. Bidders are advised to review those requirements carefully prior to bidding.
- B. A preference shall be given to Missouri firms, corporations or individuals, or firms, corporations or individuals that maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less.
- C. Pursuant to Section 34.076, RSMo, a contractor or Bidder domiciled outside the boundaries of the State of Missouri shall be required, in order to be successful, to submit a bid the same percent less than the lowest bid submitted by a responsible contractor or Bidder domiciled in Missouri as would be required for such a Missouri domiciled contractor or Bidder to succeed over the bidding contractor or Bidder domiciled outside Missouri on a like contract or bid being let in the person's domiciliary state and, further, the contractor or Bidder domiciled outside the boundaries of Missouri shall be required to submit an audited financial statement as would be required of a Missouri domiciled contractor or Bidder on a like contract or bid being let in the domiciliary state of that contractor or Bidder.

14.0 – ANTI-DISCRIMINATION AGAINST ISRAEL ACT CERTIFICATION:

- A. Pursuant to section 34.600, RSMo, if the Bidder meets the section 34.600, RSMo, definition of a “company” and the Bidder has ten or more employees, the Bidder must certify in writing that the Bidder is not currently engaged in a boycott of goods or services from the State of Israel as defined in section 34.600, RSMo, and shall not engage in a boycott of goods or services from the State of Israel, if awarded a contract, for the duration of the contract. The Bidder is requested to complete and submit the applicable portion of Section 004545 - Anti-Discrimination Against Israel Act Certification with their Bid Form. The applicable portion of the exhibit must be submitted prior to execution of a contract by the Owner and issuance of Notice to Proceed. If the exhibit is not submitted, the Owner shall rescind its Intent to Award and move to the next lowest, responsive, responsible bidder.

15.0 - MBE/WBE/SDVE INSTRUCTIONS

- A. Definitions:
 - 1. “**MBE**” means a Minority Business Enterprise.
 - 2. “**MINORITY**” has the same meaning as set forth in 1 C.S.R. 10-17.010.
 - 3. “**MINORITY BUSINESS ENTERPRISE**” has the same meaning as set forth in section 37.020, RSMo.
 - 4. “**WBE**” means a Women’s Business Enterprise.
 - 5. “**WOMEN’S BUSINESS ENTERPRISE**” has the same meaning as set forth in section 37.020, RSMo.
 - 6. “**SDVE**” means a Service-Disabled Veterans Enterprise.
 - 7. “**SERVICE-DISABLED VETERAN**” has the same meaning as set forth in section 34.074, RSMo.
 - 8. “**SERVICE-DISABLED VETERAN ENTERPRISE**” has the same meaning as “Service-Disabled Veteran Business” set forth in section 34.074, RSMo.

B. MBE/WBE/SDVE General Requirements:

1. For all bids greater than \$100,000, the Bidder shall obtain MBE, WBE and SDVE participation in an amount equal to or greater than the percentage goals set forth in the Invitation for Bid and the Bid Form, unless the Bidder is granted a Good Faith Effort waiver by the Director of the Division, as set forth below. If the Bidder does not meet the MBE, WBE and SDVE goals, or make a good faith effort to do so, the Bidder shall be non-responsive, and its bid shall be rejected.
2. The Bidder should submit with its bid all of the information requested in the MBE/WBE/SDVE Compliance Evaluation Form for every MBE, WBE, or SDVE subcontractor or material supplier the Bidder intends to use for the contract work. The Bidder is required to submit all appropriate MBE/WBE/SDVE documentation before the stated time and date set forth in the Invitation for Bid. If the Bidder fails to provide such information by the specified date and time, the Owner shall reject the bid.
3. The Director reserves the right to request additional information from a Bidder to clarify the Bidder's proposed MBE, WBE, and/or SDVE participation. The Bidder shall submit the clarifying information requested by the Owner within two (2) Working Days of receiving the request for clarification.
4. Pursuant to section 34.074, RSMo, a Bidder that is a SDVE doing business as Missouri firm, corporation, or individual, or that maintains a Missouri office or place of business, shall receive a three-point bonus preference in the contract award evaluation process. The bonus preference will be calculated and applied by reducing the bid amount of the eligible SDVE by three percent of the apparent low responsive bidder's bid. Based on this calculation, if the eligible SDVE's evaluation is less than the apparent low responsive bidder's bid, the eligible SDVE's bid becomes the apparent low responsive bid. This reduction is for evaluation purposes only, and will have no impact on the actual amount(s) of the bid or the amount(s) of any contract awarded. In order to be eligible for the SDVE preference, the Bidder must complete and submit with its bid the Missouri Service Disabled Veteran Business Form, and any information required by the form. The form is available on the MissouriBUYS solicitation for this project.

C. Computation of MBE/WBE/SDVE Goal Participation:

1. A Bidder who is a MBE, WBE, or SDVE may count 100% of the contract towards the MBE, WBE or SDVE goal, less any amounts awarded to another MBE, WBE or SDVE. (NOTE: A MBE firm that bids as general contractor must obtain WBE and SDVE participation; a WBE firm that bids as a general contractor must obtain MBE and SDVE participation; and a SDVE firm that bids as general contractor must obtain MBE and WBE participation.) In order for the remaining contract amount to be counted towards the MBE, WBE or SDVE goal, the Bidder must complete the MBE/WBE/SDVE Compliance Evaluation Form (Section 004337) identifying itself as an MBE, WBE or SDVE.
2. The total dollar value of the work granted to a certified MBE, WBE or SDVE by the Bidder shall be counted towards the applicable goal.
3. Expenditures for materials and supplies obtained from a certified MBE, WBE, or SDVE supplier or manufacturer may be counted towards the MBE, WBE and SDVE goals, if the MBE, WBE, or SDVE assumes the actual and contractual responsibility for the provision of the materials and supplies.
4. The total dollar value of the work granted to a second or subsequent tier subcontractor or a supplier may be counted towards a Bidder's MBE, WBE and SDVE goals, if the MBE, WBE, or SDVE properly assumes the actual and contractual responsibility for the work.
5. The total dollar value of work granted to a certified joint venture equal to the percentage of the ownership and control of the MBE, WBE, or SDVE partner in the joint venture may be counted towards the MBE/WBE/SDVE goals.
6. Only expenditures to a MBE, WBE, or SDVE that performs a commercially useful function in the work may be counted towards the MBE, WBE and SDVE goals. A MBE, WBE, or SDVE performs a commercially useful function when it is responsible for executing a distinct element of the work and carrying out its responsibilities by actually performing, managing and supervising the work or providing supplies or manufactured materials.

D. Certification of MBE/WBE/SDVE Subcontractors:

1. In order to be counted towards the goals, an MBE or WBE must be certified by the State of Missouri Office of Equal Opportunity and an SDVE must be certified by the State of Missouri, Office of Administration, Division of Purchasing and Material Management or by the Department of Veterans Affairs.
2. The Bidder may determine the certification status of a proposed MBE or WBE subcontractor or supplier by referring to the Office of Equal Opportunity (OEO)'s online MBE/WBE directory (<https://apps1.mo.gov/MWBCertifiedFirms/>). The Bidder may determine the eligibility of a SDVE subcontractor or supplier by referring to the Division of Purchasing and Materials Management's online SDVE directory (<https://oao.mo.gov/sdve-certification-program/>) or the Department of Veterans Affairs' directory (<https://veterans.certify.sba.gov/#search>).
3. Additional information, clarifications, etc., regarding the listings in the directories may be obtained by calling the Division at (573)751-3339 and asking to speak to the Contract Specialist of record as shown in the Supplementary Conditions (Section 007300).

E. Waiver of MBE/WBE/SDVE Participation:

1. If a Bidder has made a good faith effort to secure the required MBE, WBE and/or SDVE participation and has failed, the Bidder shall submit with its bid the information requested in MBE/WBE/SDVE Good Faith Effort (GFE) Determination form. The GFE forms are located on the MissouriBUYS solicitation for this project. The Director will determine if the Bidder made a good faith effort to meet the applicable goals. If the Director determines that the Bidder did not make a good faith effort, the bid shall be rejected as being nonresponsive to the bid requirements. Bidders who demonstrate that they have made a good faith effort to include MBE, WBE, and/or SDVE participation will be determined to be responsive to the applicable participation goals, regardless of the percent of actual participation obtained, if the bid is otherwise acceptable.
2. In determining whether a Bidder has made a good faith effort to obtain MBE, WBE and/or SDVE participation, the Director may evaluate the factors set forth in 1 CSR 30-5.010(6)(C) and the following:
 - a. The amount of actual participation obtained;
 - b. How and when the Bidder contacted potential MBE, WBE, and SDVE subcontractors and suppliers;
 - c. The documentation provided by the Bidder to support its contacts, including whether the Bidder provided the names, addresses, phone numbers, and dates of contact for MBE/WBE/SDVE firms contacted for specific categories of work;
 - d. If project information, including plans and specifications, were provided to MBE/WBE/SDVE subcontractors;
 - e. Whether the Bidder made any attempts to follow-up with MBE, WBE or SDVE firms prior to bid;
 - f. Amount of bids received from any of the subcontractors and/or suppliers that the Bidder contacted;
 - g. The Bidder's stated reasons for rejecting any bids;
3. If no bidder has obtained any participation in a particular category (MBE/WBE/SDVE) or made a good faith effort to do so, the Director may waive that goal rather than rebid.

F. Contractor MBE/WBE/SDVE Obligations

1. If awarded a contract, the Bidder will be contractually required to subcontract with or obtain materials from the MBE, WBE, and SDVE firms listed in its bid, in amounts equal to or greater than the dollar amount bid, unless the amount is modified in writing by the Owner.

2. If the Contractor fails to meet or maintain the participation requirements contained in the Contractor's bid, the Contractor must satisfactorily explain to the Director why it cannot comply with the requirement and why failing meeting the requirement was beyond the Contractor's control. If the Director finds the Contractor's explanation unsatisfactory, the Director may take any appropriate action including, but not limited to:
 - a. Declaring the Contractor ineligible to participate in any contracts with the Division for up to twelve (12) months (suspension); and/or
 - b. Declaring the Contractor be non-responsive to the Invitation for Bid, or in breach of contract and rejecting the bid or terminating the contract.
3. If the Contractor replaces an MBE, WBE, or SDVE during the course of this contract, the Contractor shall replace it with another MBE, WBE, or SDVE or make a good faith effort to do so. All MBE, WBE and SDVE substitutions must be approved by the Director.
4. The Contractor shall provide the Owner with regular reports on its progress in meeting its MBE/WBE/SDVE obligations. At a minimum, the Contractor shall report the dollar-value of work completed by each MBE, WBE, or SDVE during the preceding month and the cumulative total of work completed by each MBE, WBE or SDVE to date with each monthly application for payment. The Contractor shall also make a final report, which shall include the total dollar-value of work completed by each MBE, WBE, and SDVE during the entire contract.

**STATE OF MISSOURI
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION
*MBE/WBE/SDVE DIRECTORIES***

The MBE/WBE Directory for goods and services is maintained by the Office of Equal Opportunity (OEO) and is located at the following web address:

<https://apps1.mo.gov/MWBCertifiedFirms/>

The SERVICE DISABLED VETERAN ENTERPRISE (SDVE) Directories may be accessed at the following web addresses:

<https://o eo.mo.gov/sdve-certification-program/>

<https://veterans.certify.sba.gov/#search>



State of Missouri Construction Contract

THIS AGREEMENT is made (DATE) by and between:

Contractor Name and Address

hereinafter called the "Contractor,"

and the **State of Missouri**, hereinafter called the "**Owner**", represented by the Office of Administration, Division of Facilities Management, Design and Construction, on behalf of the Department of Agriculture/State Fair.

WITNESSETH, that the Contractor and the Owner, for the consideration stated herein agree as follows:

ARTICLE 1. STATEMENT OF WORK

The Contractor shall furnish all labor and materials and perform all work required for furnishing and installing all labor, materials, equipment and transportation and everything necessarily inferred from the general nature and tendency of the plans and specifications for the proper execution of the work for:

Project Name: **Improvements to Storm Water and Wastewater Collection Systems
Missouri State Fairgrounds
Sedalia, Missouri**

Project Number: **F2302-01**

in strict accordance with the Contract Documents as enumerated in Article 7, all of which are made a part hereof.

ARTICLE 2. TIME OF COMPLETION

The contract completion date is **June 30, 2025**. This time includes ten (10) working days for the Contractor to receive, sign and return the contract form along with required bonding and insurance certificates. Failure of the Contractor to provide correct bonding and insurance within the ten (10) working days shall not be grounds for a time extension. Receipt of proper bonding and insurance is a condition precedent to the formation of the contract and if not timely received, may result in forfeiture of the Contractor's bid security. Work may not commence until the Owner issues a written Notice to Proceed and must commence within seven (7) working days thereafter.

ARTICLE 3. LIQUIDATED DAMAGES

Whenever time is mentioned in this contract, time shall be and is of the essence of this contract. The Owner would suffer a loss should the Contractor fail to have the work embraced in this contract fully completed on or before the time above specified. THEREFORE, the parties hereto realize in order to adjust satisfactorily the damages on account of such failure that it might be impossible to compute accurately or estimate the amount of such loss or damages which the Owner would sustain by reason of failure to complete fully said work within the time required by this contract. The Contractor hereby covenants and agrees to pay the Owner, as and for **liquidated damages, the sum of \$1,500** per day for each and every day, Sunday and legal holidays excepted, during which the work remains incomplete and unfinished. Any sum which may be due the Owner for such damages shall be deducted and retained by the Owner from any balance which may be due the Contractor when said work shall have been finished and accepted. But such provisions shall not release the Bond of the Contractor from liability according to its terms. In case of failure to complete, the Owner will be under no obligation to show or prove any actual or specific loss or damage.

ARTICLE 4. CONTRACT SUM

The Owner shall pay the Contractor for the prompt, faithful and efficient performance of the conditions and undertakings of this contract, subject to additions, and deductions as provided herein, in current funds the sum of:

Base Bid: \$
Alternate No. 1: \$
Alternate No. 2: \$

TOTAL CONTRACT AMOUNT: (\$CONTRACT AMOUNT)

ARTICLE 5. PREVAILING WAGE RATE

MISSOURI PREVAILING WAGE LAW (Sections 290.210 to 290.340, RSMo): The Contractor shall pay not less than the specified hourly rate of wages, as set out in the wage order attached to and made part of the specifications for work under this contract, to all workers performing work under the contract, in accordance with sections 290.210 to 290.340, RSMo. The Contractor shall forfeit a penalty to the Owner of one hundred dollars per day (or portion of a day) for each worker that is paid less than the specified rates for any work done under the contract by the Contractor or by any subcontractor, in accordance with section 290.250, RSMo.

DAVIS-BACON ACT: The requirements of the Davis-Bacon Act are not applicable to this project funded, which is funded solely by Coronavirus State and Local Fiscal Recover Funds (SLFRF) under the American Rescue Plan Act (ARPA).

ARTICLE 6. MINORITY/WOMEN/SERVICE DISABLED VETERAN BUSINESS ENTERPRISE PARTICIPATION

The Contractor has been granted a waiver of the 10% MBE and 10% WBE and 3% SDVE participation goals. The Contractor agrees to secure the MBE/WBE/SDVE participation amounts for this project as follows: (OR)

The Contractor has met the MBE/WBE/SDVE participation goals and agrees to secure the MBE/WBE/SDVE participation amounts for this project as follows:

MBE/WBE/SDVE Firm: Subcontract Amt:\$
MBE/WBE/SDVE Firm: Subcontract Amt:\$
MBE/WBE/SDVE Firm: Subcontract Amt:\$

Total \$

MBE/WBE/SDVE assignments identified above shall not be changed without a contract change signed by the Owner.

The Director of the Division of Facilities Management, Design and Construction or his Designee shall be the final authority to resolve disputes and disagreements between the Contractor and the MBE/WBE/SDVE firms listed above when such disputes impact the subcontract amounts shown above.

ARTICLE 7. CONTRACT DOCUMENTS

The following documents are hereby incorporated into this contract by reference (all division/section numbers and titles are as utilized in the Project Manual published by the Owner for this Project):

- 1. Division 0 – Procurement and Contracting Information, including, but not limited to:
 - a. Invitation for Bid (Section 001116)
 - b. Instructions to Bidders (Section 002113)
 - c. Supplementary Instructions to Bidders (if applicable) (Section 002213)
 - d. The following documents as completed and executed by the Contractor and accepted by the Owner, if applicable:
 - i. Bid Form (Section 004113)
 - ii. Proposed Contractors Form (Section 004336)
 - iii. MBE, WBE, SDVE Compliance Evaluation Form(s) (Section 004337)
 - iv. MBE, WBE, SDVE Eligibility Determination Form for Joint Ventures (Section 004338)
 - v. MBE, WBE, SDVE Good Faith Effort (GFE) Determination Form (Section 004339)
 - vi. Missouri Service Disabled Veteran Business Form (Section 004340)

- vii. Affidavit of Work Authorization (Section 004541)
- viii. Affidavit for Affirmative Action (Section 005414)
- e. Performance and Payment Bond, completed and executed by the Contractor and surety (Section 006113)
- f. General Conditions (Section 007213)
- g. Supplementary Conditions (Section 007300)
- h. Supplementary General Conditions for Federally Funded/Assisted Construction Projects (Section 007333)
- i. Wage Rate(s) (Section 007346)
- 2. Division 1 – General Requirements
- 3. All Drawings identified in the Project Manual
- 4. All Technical Specifications included in the Project Manual
- 5. Addenda, if applicable

ARTICLE 8 – CERTIFICATION

By signing this contract, the Contractor hereby re-certifies compliance with all legal requirements set forth in Section 6.0, Bidder’s Certifications of the Bid Form.

Further, if the Contractor provides any “personal information” as defined in §105.1500, RSMo concerning an entity exempt from federal income tax under Section 501(c) of the Internal Revenue Code of 1986, as amended, the Contractor understands and agrees that it is voluntarily choosing to enter into a state contract and providing such information for that purpose. The state will treat such personal information in accord with §105.1500, RSMo.

By signature below, the parties hereby execute this contract document.

APPROVED:

 Brian Yansen, Director
 Division of Facilities Management,
 Design and Construction

 Contractor’s Authorized Signature

I, Corporate Secretary, certify that I am Secretary of the corporation named above and that (CONTRACTOR NAME), who signed said contract on behalf of the corporation, was then (TITLE) of said corporation and that said contract was duly signed for and in behalf of the corporation by authority of its governing body, and is within the scope of its corporate powers.

Corporate Secretary



STATE OF MISSOURI
 OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION
AFFIDAVIT FOR AFFIRMATIVE ACTION

PROJECT NUMBER

NAME

First being duly sworn on oath states: that

he/she is the sole proprietor partner officer or manager or managing member of

NAME

a sole proprietorship partnership
 limited liability company (LLC)

or corporation, and as such, said proprietor, partner, or officer is duly authorized to make this

affidavit on behalf of said sole proprietorship, partnership, or corporation; that under the contract known as

PROJECT TITLE

Less than 50 persons in the aggregate will be employed and therefore, the applicable Affirmative Action requirements as set forth in Article 1.4 of the General Conditions of the State of Missouri have been met.

PRINT NAME & SIGNATURE

DATE

--

NOTARY INFORMATION

NOTARY PUBLIC EMBOSSER SEAL	STATE OF	COUNTY (OR CITY OF ST. LOUIS)	USE RUBBER STAMP IN CLEAR AREA BELOW
	SUBSCRIBED AND SWORN BEFORE ME, THIS		
	DAY OF	YEAR	
	NOTARY PUBLIC SIGNATURE	MY COMMISSION EXPIRES	
NOTARY PUBLIC NAME (TYPED OR PRINTED)			

SECTION 006113 - PERFORMANCE AND PAYMENT BOND FORM

KNOW ALL MEN BY THESE PRESENTS, THAT we _____

as principal, and _____

_____ as Surety, are held and firmly bound unto the

STATE OF MISSOURI. in the sum of _____ Dollars (\$ _____)

for payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal has, by means of a written agreement dated the _____

day of _____, 20_____, enter into a contract with the State of Missouri for

(Insert Project Title and Number)

NOW, THEREFORE, if the Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the State of Missouri, with or without notice to the Surety and during the life of any guaranty required under the contract; and shall also faithfully perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made with or without notice to the Surety; and shall also promptly make payment for materials incorporated, consumed or used in connection with the work set forth in the contract referred to above, and all insurance premiums, both compensation and all other kinds of insurance, on said work, and for all labor performed on such work, whether by subcontractor or otherwise, at not less than the prevailing hourly rate of wages for work of a similar character (exclusive of maintenance work) in the locality in which the work is performed and not less than the prevailing hourly rate of wages for legal holiday and overtime work (exclusive of maintenance work) in the locality in which the work is performed both as determined by the Department of Labor and Industrial Relations or determined by the Court of Appeal, as provided for in said contract and in any and all duly authorized modifications of said contract that may be hereafter made, with or without notice to the Surety, then, this obligation shall be void and of no effect, but it is expressly understood that if the Principal should make default in or should fail to strictly, faithfully and efficiently do, perform and comply with any or more of the covenants, agreements, stipulations, conditions, requirements or undertakings, as specified in or by the terms of said contract, and with the time therein named, then this obligation shall be valid and binding upon each of the parties hereto and this bond shall remain in full force and effect; and the same may be sued on at the instance of any material man, laborer, mechanic, subcontractor, individual, or otherwise to whom such payment is due, in the name of the State of Missouri, to the use of any such person.

AND, IT IS FURTHER specifically provided that any modifications which may hereinafter be made in the terms of the contract or in the work to be done under it or the giving by the Owner of any extension of the time for the performance of the contract or any other forbearance on the part of either the Owner or the Principal to the other, shall not in any way release the Principal and the Surety, or either or any of them, their heirs, executors, administrators and successors, from their liability hereunder, notice to the Surety of any such extension, modifications or forbearance being hereby waived.

IN WITNESS WHEREOF, the above bounden parties have executed the within instrument this _____ day of _____, 20 ____.

AS APPLICABLE:

AN INDIVIDUAL

Name: _____

Signature: _____

A PARTNERSHIP

Name of Partner: _____

Signature of Partner: _____

Name of Partner: _____

Signature of Partner: _____

CORPORATION

Firm Name: _____

Signature of President: _____

SURETY

Surety Name: _____

Attorney-in-Fact: _____

Address of Attorney-in-Fact: _____

Telephone Number of Attorney-in-Fact: _____

Signature Attorney-in-Fact: _____

NOTE: Surety shall attach Power of Attorney



STATE OF MISSOURI
 OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION
PRODUCT SUBSTITUTION REQUEST

PROJECT NUMBER

PROJECT TITLE AND LOCATION

CHECK APPROPRIATE BOX

- SUBSTITUTION PRIOR TO BID OPENING**
 (Minimum of (5) working days prior to receipt of Bids as per Article 4 – Instructions to Bidders)
- SUBSTITUTION FOLLOWING AWARD**
 (Maximum of (20) working days from Notice to Proceed as per Article 3 – General Conditions)

FROM: BIDDER/CONTRACTOR (PRINT COMPANY NAME)

TO: ARCHITECT/ENGINEER (PRINT COMPANY NAME)

Bidder/Contractor hereby requests acceptance of the following product or systems as a substitution in accordance with provisions of Division One of the Bidding Documents:

SPECIFIED PRODUCT OR SYSTEM

SPECIFICATION SECTION NO.

SUPPORTING DATA

- Product data for proposed substitution is attached (include description of product, standards, performance, and test data)
- Sample Sample will be sent, if requested

QUALITY COMPARISON

	SPECIFIED PRODUCT	SUBSTITUTION REQUEST
NAME, BRAND		
CATALOG NO.		
MANUFACTURER		
VENDOR		

PREVIOUS INSTALLATIONS

PROJECT	ARCHITECT/ENGINEER	DATE INSTALLED
LOCATION		

SIGNIFICANT VARIATIONS FROM SPECIFIED PRODUCT

REASON FOR SUBSTITUTION

DOES PROPOSED SUBSTITUTION AFFECT OTHER PARTS OF WORK?

YES NO

IF YES, EXPLAIN

SUBSTITUTION REQUIRES DIMENSIONAL REVISION OR REDESIGN OF STRUCTURE OR A/E WORK

YES NO

BIDDER'S/CONTRACTOR'S STATEMENT OF CONFORMANCE OF PROPOSED SUBSTITUTION TO CONTRACT REQUIREMENT:

We have investigated the proposed substitution. We believe that it is equal or superior in all respects to specified product, except as stated above; that it will provide the same Warranty as specified product; that we have included complete implications of the substitution; that we will pay redesign and other costs caused by the substitution which subsequently become apparent; and that we will pay costs to modify other parts of the Work as may be needed, to make all parts of the Work complete and functioning as a result of the substitution.

BIDDER/CONTRACTOR

DATE

REVIEW AND ACTION

Resubmit Substitution Request with the following additional information:

Substitution is accepted.

Substitution is accepted with the following comments:

Substitution is not accepted.

ARCHITECT/ENGINEER

DATE



PROJECT NUMBER

KNOW ALL MEN BY THESE PRESENT THAT: hereinafter called "Subcontractor" who heretofore entered into an agreement with hereinafter called "Contractor", for the performance of work and/or furnishing of material for the construction of the project entitled

(PROJECT TITLE, PROJECT LOCATION, AND PROJECT NUMBER)

at

(ADDRESS OF PROJECT)

for the State of Missouri (Owner) which said subcontract is by this reference incorporated herein, in consideration of such final payment by Contractor.

DOES HEREBY:

1. ACKNOWLEDGE that they have been **PAID IN FULL** all sums due for work and materials contracted or done by their Subcontractors, Material Vendors, Equipment and Fixture Suppliers, Agents and Employees, or otherwise in the performance of the Work called for by the aforesaid Contract and all modifications or extras or additions thereto, for the construction of said project or otherwise.
2. RELEASE and fully, finally, and forever discharge the Owner from any and all suits, actions, claims, and demands for payment for work performed or materials supplied by Subcontractor in accordance with the requirements of the above referenced Contract.
1. REPRESENT that all of their Employees, Subcontractors, Material Vendors, Equipment and Fixture Suppliers, and everyone else has been **paid in full** all sums due them, or any of them, in connection with performance of said Work, or anything done or omitted by them, or any of them in connection with the construction of said improvements, or otherwise.

DATED this day of , 20 .

NAME OF SUBCONTRACTOR

BY (TYPED OR PRINTED NAME)

SIGNATURE

TITLE

ORIGINAL: FILE/Closeout Documents



STATE OF MISSOURI
 OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES MANAGEMENT,
 DESIGN AND CONSTRUCTION

MBE/WBE/SDVE PROGRESS REPORT

Remit with ALL Progress and Final Payments

(Please check appropriate box) CONSULTANT CONSTRUCTION

PAY APP NO.	PROJECT NUMBER
CHECK IF FINAL <input checked="" type="checkbox"/> FINAL	DATE

PROJECT TITLE

PROJECT LOCATION

FIRM

ORIGINAL CONTRACT SUM (Same as Line Item 1. on Form A of Application for Payment) \$	TOTAL CONTRACT SUM TO DATE (Same as Line Item 3. on Form A of Application for Payment) \$
---	--

THE TOTAL MBE/WBE/SDVE PARTICIPATION DOLLAR AMOUNT OF THIS PROJECT AS INDICATED IN THE ORIGINAL CONTRACT: \$

SELECT MBE, WBE, SDVE	TOTAL AMOUNT OF SUBCONTRACT	\$ AMOUNT PAID-TO-DATE	CONSULTANT/SUBCONSULTANT OR CONTRACTOR/SUBCONTRACTOR/SUPPLIER COMPANY NAME
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDVE	\$	\$	

Revised 05/21



STATE OF MISSOURI
 OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION
AFFIDAVIT – COMPLIANCE WITH PREVAILING WAGE LAW

PROJECT NUMBER

Before me, the undersigned Notary Public, in and for the County of _____
 State of _____ personally came and appeared _____
 (NAME)
 _____ of the _____
 (POSITION) (NAME OF THE COMPANY)
 (a corporation) (a partnership) (a proprietorship) and after being duly sworn did depose and say that all provisions and requirements set out in Chapter 290, Sections 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works project have been fully satisfied and there has been no exception to the full and completed compliance with said provisions and requirements and with Wage Determination No: _____ issued by the Department of Labor and Industrial Relations, State of Missouri on the _____ day of _____ 20 ____ in carrying out the contract and working in connection with _____
 (NAME OF PROJECT)
 Located at _____ in _____ County
 (NAME OF THE INSTITUTION)
 Missouri, and completed on the _____ day of _____ 20 ____

SIGNATURE

NOTARY INFORMATION

NOTARY PUBLIC EMBOSSEER OR BLACK INK RUBBER STAMP SEAL	STATE	COUNTY (OR CITY OF ST. LOUIS)
	SUBSCRIBED AND SWORN BEFORE ME, THIS	
	DAY OF	YEAR
	NOTARY PUBLIC SIGNATURE	MY COMMISSION EXPIRES
NOTARY PUBLIC NAME (TYPED OR PRINTED)		USE RUBBER STAMP IN CLEAR AREA BELOW

FILE: Closeout Documents

GENERAL CONDITIONS

INDEX

ARTICLE:

1. General Provisions

- 1.1. Definitions
- 1.2. Drawings and Specifications
- 1.3. Compliance with Laws, Permits, Regulations and Inspections
- 1.4. Nondiscrimination in Employment
- 1.5. Anti-Kickback
- 1.6. Patents and Royalties
- 1.7. Preference for American and Missouri Products and Services
- 1.8. Communications
- 1.9. Separate Contracts and Cooperation
- 1.10. Assignment of Contract
- 1.11. Indemnification
- 1.12. Disputes and Disagreements

2. Owner/Designer Responsibilities

3. Contractor Responsibilities

- 3.1. Acceptable Substitutions
- 3.2. Submittals
- 3.3. As-Built Drawings
- 3.4. Guaranty and Warranties
- 3.5. Operation and Maintenance Manuals
- 3.6. Other Contractor Responsibilities
- 3.7. Subcontracts

4. Changes in the Work

- 4.1. Changes in the Work
- 4.2. Changes in Completion Time

5. Construction and Completion

- 5.1. Construction Commencement
- 5.2. Project Construction
- 5.3. Project Completion
- 5.4. Payments

6. Bond and Insurance

- 6.1. Bond
- 6.2. Insurance

7. Termination or Suspension of Contract

- 7.1. For Site Conditions
- 7.2. For Cause
- 7.3. For Convenience

SECTION 007213 - GENERAL CONDITIONS

- A. These General Conditions apply to each section of these specifications. The Contractor is subject to the provisions contained herein.
- B. The General Conditions are intended to define the relationship of the Owner, the Designer and the Contractor thereby establishing certain rules and provisions governing the operation and performance of the work so that the work may be performed in a safe, orderly, expeditious and workmanlike manner.

ARTICLE 1 – GENERAL PROVISIONS

ARTICLE 1.1 - DEFINITIONS

As used in these contract documents, the following terms shall have the meanings and refer to the parties designated in these definitions.

1. **"COMMISSIONER"**: The Commissioner of the Office of Administration.
2. **"CONSTRUCTION DOCUMENTS"**: The "Construction Documents" shall consist of the Project Manual, Drawings and Addenda.
3. **"CONSTRUCTION REPRESENTATIVE"**: Whenever the term "Construction Representative" is used, it shall mean the Owner's Representative at the work site.
4. **"CONTRACTOR"**: Party or parties who have entered into a contract with the Owner to furnish work under these specifications and drawings.
5. **"DESIGNER"**: When the term "Designer" is used herein, it shall refer to the Architect, Engineer, or Consultant of Record specified and defined in Paragraph 2.0 of the Supplemental Conditions, or his duly authorized representative. The Designer may be either a consultant or state employee.
6. **"DIRECTOR"**: Whenever the term "Director" is used, it shall mean the Director of the Division of Facilities Management, Design and Construction or his Designee, representing the Office of Administration, State of Missouri. The Director is the agent of the Owner.
7. **"DIVISION"**: Shall mean the Division of Facilities Management, Design and Construction, State of Missouri.

8. **"INCIDENTAL JOB BURDENS"**: Shall mean those expenses relating to the cost of work, incurred either in the home office or on the job-site, which are necessary in the course of doing business but are incidental to the job. Such costs include office supplies and equipment, postage, courier services, telephone expenses including long distance, water and ice and other similar expenses.
9. **"JOINT VENTURE"**: An association of two (2) or more businesses to carry out a single business enterprise for profit for which purpose they combine their property, capital, efforts, skills and knowledge.
10. **"OWNER"**: Whenever the term "Owner" is used, it shall mean the State of Missouri, acting by and through the Office of Administration, Division of Facilities Management, Design and Construction.
11. **"PROJECT"**: Wherever the term "Project" is used, it shall mean the work required to be completed by the construction contract.
12. **"PROJECT MANUAL"**: The "Project Manual" shall consist of Introductory Information, Invitation for Bid, Instructions to Bidders, Bid Documents, Additional Information, Standard Forms, General Conditions, Supplemental General Conditions, General Requirements and Technical Specifications.
13. **"SUBCONTRACTOR"**: Party or parties who contract under, or for the performance of part or this entire Contract between the Owner and Contractor. The subcontract may or may not be direct with the Contractor.
14. **"WORK"**: All supervision, labor, materials, tool, supplies, equipment, and any incidental operations and/or activities required by or reasonably inferable from the Contract Documents necessary to construct the Project and to produce the results intended by the Contract Documents in a safe, expeditious, orderly, and workmanlike manner, and in the best manner known to each respective trade.
15. **"WORKING DAYS"**: are all calendar days except Saturdays, Sundays and the following holidays: New Year's Day, Martin Luther King, Jr. Day, Lincoln Day, Washington's Birthday (observed), Truman Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Columbus Day, Veterans Day (observed), Thanksgiving Day, Christmas Day.

ARTICLE 1.2 DRAWINGS AND SPECIFICATIONS

- A. In case of discrepancy between drawings and specifications, specifications shall govern. Should discrepancies in architectural drawings, structural drawings and mechanical drawings occur, architectural drawings shall govern and, in case of conflict between structural and mechanical drawings, structural drawings shall govern.
- B. Specifications are separated into titled divisions for convenience of reference only and to facilitate letting of contracts and subcontracts. The Contractor is responsible for establishing the scope of work for subcontractors, which may cross titled divisions. Neither the Owner nor Designer will establish limits and jurisdiction of subcontracts.
- C. Figured dimensions take precedence over scaled measurements and details over smaller scale general drawings. In the event of conflict between any of the documents contained within the contract, the documents shall take precedence and be controlling in the following sequence: addenda, supplementary general conditions, general conditions, division 1 specifications, technical division specifications, drawings, bid form and instructions to bidders.
- D. Anything shown on drawings and not mentioned in these specifications or vice versa, as well as any incidental work which is obviously necessary to complete the project within the limits established by the drawings and specifications, although not shown on or described therein, shall be performed by the Contractor at no additional cost as a part of his contract.
- E. Upon encountering conditions differing materially from those indicated in the contract documents, the Contractor shall promptly notify the Designer and Construction Representative in writing before such conditions are disturbed. The Designer shall promptly investigate said conditions and report to the Owner, with a recommended course of action. If conditions do materially differ and cause an increase or decrease in contract cost or time required for completion of any portion of the work, a contract change will be initiated as outlined in Article 4 of these General Conditions.
- E. Only work included in the contract documents is authorized, and the Contractor shall do no work other than that described therein or in accordance with appropriately authorized and approved contract changes.

ARTICLE 1.3 - COMPLIANCE WITH LAWS, PERMITS, REGULATIONS AND INSPECTIONS

- A. Since the Owner is the State of Missouri, municipal or political subdivisions, zoning ordinances, construction codes (other than licensing of trades), and other like ordinances are not applicable to construction on Owner's property, and Contractor will not be required to submit drawings and specifications to any municipal or political subdivision, authority, obtain construction permits or any other licenses (other than licensing of trades) or permits from or submit to inspections by any municipality or political subdivision relating to the construction for this project. All permits or licenses required by municipality or political subdivision for operation on property not belonging to Owner shall be obtained by and paid for by Contractor. Each Contractor shall comply with all applicable laws, ordinances, rules and regulations that pertain to the work of this contract.
- B. Contractors, subcontractors and their employees engaged in the businesses of electrical, mechanical, plumbing, carpentry, sprinkler system work, and other construction related trades shall be licensed to perform such work by the municipal or political subdivision where the project is located, if such licensure is required by local code. Local codes shall dictate the level (master, journeyman, and apprentice) and the number, type and ratio of licensed tradesmen required for this project within the jurisdiction of such municipal or political subdivision.
- C. Equipment and controls manufacturers and their authorized service and installation technicians that do not maintain an office within the jurisdiction of the municipal or political subdivision but are a listed or specified contractor or subcontractor on this project are exempt from Paragraph 1.3 B above.
- D. The Contractor shall post a copy of the wage determination issued for the project and included as a part of the contract documents, in a prominent and easily accessible location at the site of construction for the duration of the project.
- E. Any contractor or subcontractor to such contractor at any tier signing a contract to work on this project shall provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Department of Labor and Industrial Relations which is at least as stringent as an approved OSHA program. The contractor shall

forfeit as a penalty to the public body on whose behalf the contract is made or awarded, two thousand five hundred dollars plus one hundred dollars for each employee employed by the contractor or subcontractor, for each calendar day, or portion thereof, such employee is employed without the required training.

ARTICLE 1.4 - NONDISCRIMINATION IN EMPLOYMENT

A. The Contractor and his subcontractors will not discriminate against individuals based on race, color, religion, national origin, sex, disability, or age, but may use restrictions which relate to bona fide occupational qualifications. Specifically, the Contractor and his subcontractors shall not discriminate:

1. Against recipients of service on the basis of race, color, religion, national origin, sex, disability or age.
2. Against any employee or applicant, for employment on the basis of race, color, religion, national origin, sex or otherwise qualified disability status.
3. Against any applicant for employment or employee on the basis of age, where such applicant or employee is between ages 40 and 70 and where such Contractor employs at least 20 persons.
4. Against any applicant for employment or employee on the basis of that person's status as a disabled or Vietnam-era veteran.

The Contractor and his Subcontractors will take affirmative action to insure applicants for employment and employees are treated equally without regard to race, color, religion, national origin, sex, disability, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion and transfer; recruitment or recruitment advertising; and selection for training, including apprenticeship. The Contractor and his Subcontractors will give written notice of their commitments under this clause to any labor union with which they have bargaining or other agreements.

B. The Contractor and his subcontractors shall develop, implement, maintain and submit in writing to the Owner an affirmative action program if at least fifty (50) persons in the aggregate are employed under this contract. If less than fifty (50) persons in the aggregate are to be employed under this contract, the Contractor shall submit, in lieu of the written affirmative action program, a properly executed Affidavit for Affirmative Action

in the form included in the contract specifications. For the purpose of this section, an "affirmative action program" means positive action to influence all employment practices (including, but not limited to, recruiting, hiring, promoting and training) in providing equal employment opportunity regardless of race, color, sex, national origin, religion, age (where the person affected is between age 40 and 70), disabled and Vietnam-era veteran status, and disability. Such "affirmative action program" shall include:

1. A written policy statement committing the total organization to affirmative action and assigning management responsibilities and procedures for evaluation and dissemination;
2. The identification of a person designated to handle affirmative action;
3. The establishment of non-discriminatory selection standards, objective measures to analyze recruitment, an upward mobility system, a wage and salary structure, and standards applicable to lay-off, recall, discharge, demotion and discipline;
4. The exclusion of discrimination from all collective bargaining agreements; and
5. Performance of an internal audit of the reporting system to monitor execution and to provide for future planning.

In the enforcement of this non-discrimination clause, the Owner may use any reasonable procedures available, including, but not limited to: requests, reports, site visits and inspection of relevant documents of contractors and subcontractors.

C. In the event of the Contractor's or his subcontractor's noncompliance with any provisions of this Article of the Contract, the Owner may cancel this contract in whole or in part or require the Contractor to terminate his contract with the subcontractor.

ARTICLE 1.5 - ANTI-KICKBACK

No employee of the division, shall have or acquire any pecuniary interest, whether direct or indirect, in this contract or in any part hereof. No officer, employee, designer, attorney, or administrator of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall have or acquire any pecuniary interest, whether direct or indirect, in this contract, any material supply contract, subcontract,

insurance contract, or any other contract pertaining to the project.

ARTICLE 1.6 - PATENTS AND ROYALTIES

- A. The Contractor shall hold and save the Owner and its officers, agents, servants and employees harmless from liabilities of any nature or kind, including cost and expenses, for, or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of this contract, including its use by the Owner, unless otherwise specifically stipulated in the contract documents.
- B. If the Contractor uses any design, device or materials covered by letters, patent or copyright, the Contractor shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, without exception, that the contract prices shall include all royalties or costs arising from the use of such design, device or materials, in any way involved in the work. The Contractor and/or his sureties shall indemnify and save harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this contract and shall indemnify the Owner for any cost, expense or damage it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

ARTICLE 1.7 - PREFERENCE FOR AMERICAN AND MISSOURI PRODUCTS AND SERVICES

- A. By virtue of statutory authority a preference will be given to Missouri labor and to products of mines, forests and quarries of the state of Missouri when they are found in marketable quantities in the state, and all such materials shall be of the best quality and suitable character that can be obtained at reasonable market prices, all as provided for in Section 8.280, Missouri Revised Statutes and Cumulative Supplements.
- B. Furthermore, pursuant to Section 34.076 Missouri Revised Statutes and Cumulative Supplements, a preference shall be given to those persons doing business as Missouri firms, corporations, or individuals, or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less. In addition, in order for a non-domiciliary bidder to be successful, his bid must be that same percentage lower than a domiciliary Missouri bidder's bid, as would be

required for a Missouri bidder to successfully bid in the non-domiciliary state.

- C. In accordance with the Missouri Domestic Products Procurement Act Section 34.350 RSMo and Cumulative Supplements any manufactured goods or commodities used or supplied in the performance of this contract or any subcontract thereto shall be manufactured, assembled or produced in the United States, unless the specified products are not manufactured, assembled or produced in the United States in sufficient quantities to meet the agency's requirements or cannot be manufactured, assembled or produced in the United States within the necessary time in sufficient quantities to meet the contract requirements, or if obtaining the specified products manufactured, assembled or produced in the United States would increase the cost of this contract for purchase of the product by more than ten percent.

ARTICLE 1.8 - COMMUNICATIONS

- A. All notices, requests, instructions, approvals and claims must be in writing and shall be delivered to the Designer and copied to the Construction Representative for the project except as required by Article 1.12 Disputes and Disagreements, or as otherwise specified by the Owner in writing as stated in Section 012600. Any such notice shall be deemed to have been given as of the time of actual receipt.
- B. The Contractor shall attend on-site progress and coordination meetings, as scheduled by the Construction Representative, no less than once a month.
- C. The Contractor shall ensure that major subcontractors and suppliers shall attend monthly progress meetings as necessary to coordinate the work, and as specifically requested by the Construction Representative.

ARTICLE 1.9 - SEPARATE CONTRACTS AND COOPERATION

- A. The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.
- B. The Contractor shall consult the drawings for all other contractors in connection with this work. Any work conflicting with the above shall be brought to the attention of the Owner's Representative before the work is performed. If the Contractor fails to do this, and constructs any

work which interferes with the work of another contractor, the Contractor shall remove any part so conflicting and rebuild same, as directed by the Owner's Representative at no additional cost to the Owner.

- C. Each contractor shall be required to coordinate his work with other contractors so as to afford others reasonable opportunity for execution of their work. No contractor shall delay any other contractor by neglecting to perform contract work at the proper time. If any contractor causes delay to another, they shall be liable directly to that contractor for such delay in addition to any liquidated damages which might be due the Owner.
- D. Should the Contractor or project associated subcontractors refuse to cooperate with the instructions and reasonable requests of other Contractors or other subcontractors in the overall coordinating of the work, the Owner may take such appropriate action and issue directions, as required, to avoid unnecessary and unwarranted delays.
- E. Each Contractor shall be responsible for damage done to Owner's or other Contractor's property by him/her or workers in his employ through their fault or negligence.
- F. Should a Contractor sustain any damage through any act or omission of any other Contractor having a contract with the Owner, the Contractor so damaged shall have no claim or cause of action against the Owner for such damage, but shall have a claim or cause of action against the other Contractor to recover any and all damages sustained by reason of the acts or omissions of such Contractor. The phrase "acts or omissions" as used in this section shall be defined to include, but not be limited to, any unreasonable delay on the part of any such contractors.

ARTICLE 1.10 - ASSIGNMENT OF CONTRACT

- A. No assignment by Contractor of any amount or any part of this contract or of the funds to be received there under will be recognized unless such assignment has had the written approval of the Director and the surety has been given due notice of such assignment and has furnished written consent thereto. In addition to the usual recitals in assignment contracts, the following language must be set forth: "It is agreed that the funds to be paid to the assignee under this assignment are subject to performance by the Contractor of this contract and to claims or liens for services rendered or materials supplied for the performance of the work called for in said contract in favor of all persons, firms or corporations rendering such services or supplying such materials."

ARTICLE 1.11 - INDEMNIFICATION

- A. Contractor agrees to indemnify and save harmless Owner and its respective commissioners, officers, officials, agents, consultants and employees and Designer, their agents, servants and employees, from and against any and all liability for damage arising from injuries to persons or damage to property occasioned by any acts or omissions of Contractor, any subcontractors, agents, servants or employees, including any and all expense, legal or otherwise, which may be incurred by Owner or Designer, its agents, servants or employees, in defense of any claim, action or suit.
- B. The obligations of the Contractor under this paragraph shall not extend to the liability of the Designer, his agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, contract changes, design or specifications, or (2) giving of or the failure to give directions or instructions by the Designer, his agents or employees as required by this contract documents provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 1.12 - DISPUTES AND DISAGREEMENTS

It is hereby expressly agreed and understood that in case any controversy or difference of opinion arises during construction, best efforts will be given to resolution at the field level. Should those efforts be unsuccessful, the Contractor has the right to appeal in writing, the decision of the Director's Designee to the Director at Room 730 Truman Building, P.O. Box 809, Jefferson City, Missouri 65102. The decision of the Director shall be final and binding on all parties.

ARTICLE 2 -- OWNER/DESIGNER RESPONSIBILITIES

- A. The Owner shall give all orders and directions contemplated under this contract relative to the execution of the work. During progress of work the Owner will be represented at the project site by the Construction Representative and/or Designer, whose responsibilities are to see that this contract is properly fulfilled.
- B. The Owner shall at all times have access to the work whenever it is in preparation or progress. The Contractors shall provide proper facilities for such access and for inspection and supervision.
- C. All materials and workmanship used in the work shall be subject to the inspection of the Designer and Construction Representative, and any work which is deemed defective shall be removed, rebuilt or made good immediately upon notice.

The cost of such correction shall be borne by the Contractor. Contractor shall not be entitled to an extension of the contract completion date in order to remedy defective work. All rejected materials shall be immediately removed from the site of the work.

- D. If the Contractor fails to proceed at once with the correction of rejected defective materials or workmanship, the Owner may, by separate contract or otherwise, have the defects remedied or rejected. Materials removed from the site and charge the cost of the same against any monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.
- E. Failure or neglect on the part of Owner to observe faulty work, or work done which is not in accordance with the drawings and specifications shall not relieve the Contractor from responsibility for correcting such work without additional compensation.
- F. The Owner shall have the right to direct the Contractor to uncover any completed work.
 - 1. If the Contractor fails to adequately notify the Construction Representative and/or Designer of an inspection as required by the Contract Documents, the Contractor shall, upon written request, uncover the work. The Contractor shall bear all costs associated with uncovering and again covering the work exposed.
 - 2. If the Contractor is directed to uncover work, which was not otherwise required by the Contract Documents to be inspected, and the work is found to be defective in any respect, no compensation shall be allowed for this work. If, however, such work is found to meet the requirements of this contract, the actual cost of labor and material necessarily involved in the examination and replacement plus 10% shall be allowed the Contractor.
- G. The Designer shall give all orders and directions contemplated under this contract relative to the scope of the work and shall give the initial interpretation of the contract documents.
- H. The Owner may file a written notice to the Contractor to dismiss immediately any subcontractors, project managers, superintendents, foremen, workers, watchmen or other employees whom the Owner may deem incompetent, careless or a hindrance to proper or timely execution of the work. The Contractor shall comply with such notice as promptly as practicable without detriment to the work or its progress.

- I. If in the Owner's judgment it becomes necessary at any time to accelerate work, when ordered by the Owner in writing, the Contractor shall redirect resources to such work items and execute such portions of the work as may be required to complete the work within the current approved contract schedule.

ARTICLE 3 -- CONTRACTOR RESPONSIBILITIES

The Contractor shall register and utilize the Owner's eBuilder digital project management system for submission of documents described in the following sections. This includes but is not limited to submittals as required by designer, payment applications, Request for Information (RFI), construction change orders, Request for Proposals (RFP), Designer Supplemental Instructions (DSI), etc.

ARTICLE 3.1 -- ACCEPTABLE SUBSTITUTIONS

- A. The Contractor may request use of any article, device, product, material, fixture, form or type of construction which in the judgment of the Owner and Designer is equal in all respects to that named. Standard products of manufacturers other than those specified will be accepted when, prior to the ordering or use thereof, it is proven to the satisfaction of the Owner and Designer that they are equal in design, strength, durability, usefulness and convenience for the purpose intended.
- B. Any changes required in the details and dimensions indicated on the drawings for the substitution of products other than those specified shall be properly made at the expense of the Contractor requesting the substitution or change.
- C. The Contractor shall submit a request for such substitutions in writing to the Owner and Designer within twenty (20) working days after the date of the "Notice to Proceed." Thereafter no consideration will be given to alternate forms of accomplishing the work. This Article does not preclude the Owner from exercising the provisions of Article 4 hereof.
- D. Any request for substitution by the Contractor shall be submitted in accordance with SECTION 002113 - INSTRUCTIONS TO BIDDERS.
- E. When a material has been approved, no change in brand or make will be permitted unless:
 - 1. Written verification is received from the manufacturer stating they cannot make delivery on the date previously agreed, or
 - 2. Material delivered fails to comply with contract requirements.

ARTICLE 3.2 -- SUBMITTALS

- A. The Contractor's submittals must be submitted with such promptness as to allow for review and approval so as not to cause delay in the work. The Contractor shall coordinate preparation and processing of submittals with performance of construction activities.

Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

Submit four (4) copies to the Designer and additional copies as required for the subcontractors and material suppliers. Also provide copies to meet the requirements for maintenance manuals.

- B. All subcontractors' shop drawings and schedules shall be submitted by the Contractor and shall bear evidence that Contractor has received, reviewed, and approved them. Any shop drawings and schedules submitted without this evidence will be returned to the Contractor for resubmission.
- C. The Contractor shall include with the shop drawing, a letter indicating any and all deviations from the drawings and/or specifications. Failure to notify the Designer of such deviations will be grounds for subsequent rejection of the related work or materials. If, in the opinion of the Designer, the deviations are not acceptable, the Contractor will be required to furnish the item as specified and indicated on the drawings.
- D. The Designer shall check shop drawings and schedules with reasonable promptness and approve them only if they conform to the design concept of the project and comply with the information given in the contract documents. The approval shall not relieve the Contractor from the responsibility to comply with the drawings and specifications, unless the Contractor has called the Designer's attention to the deviation, in writing, at the time of submission and the Designer has knowingly approved thereof. An approval of any such modification will be given only under the following conditions:
1. It is in the best interest of the Owner
 2. It does not increase the contract sum and/or completion time
 3. It does not deviate from the design intent
 4. It is without prejudice to any and all rights under the surety bond.
- E. No extension of time will be granted because of the Contractor's failure to submit shop drawings and schedules in ample time to allow for review,

possible resubmission, and approval. Fabrication of work shall not commence until the Contractor has received approval. The Contractor shall furnish prints of approved shop drawings and schedules to all subcontractors whose work is in any way related to the work under this contract. Only prints bearing this approval will be allowed on the site of construction

- F. The Contractor shall maintain a complete file on-site of approved shop drawings available for use by the Construction Representative.

ARTICLE 3.3 – AS-BUILT DRAWINGS

- A. The Contractor shall update a complete set of the construction drawings, shop drawings and schedules of all work monthly by marking changes, and at the completion of their work (prior to submission of request for final payment) note all changes and turn the set over to the Construction Representative. The updates shall show all addenda, all field changes that were made to adapt to field conditions, changes resulting from contract changes or supplemental instructions, and all locations of structures, buried installations of piping, conduit, and utility services. All buried and concealed items both inside and outside shall be accurately located as to depth and referenced to permanent features such as interior or exterior wall faces and dimensions shall be given in a neat and legible manner in a contrasting colored pencil or ink. If approved by the Designer, an electronic file format may be provided.

ARTICLE 3.4 – GUARANTY AND WARRANTIES

- A. General Guaranty
1. Neither the final certificate of payment nor any provision in the contract documents nor partial use or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with contract requirements.
 2. The Contractor or surety shall remedy any defects in the work and pay for any damage to property resulting there from which shall appear within a period of one (1) year from the date of substantial completion unless a longer period is otherwise specified or a differing guaranty period has been established in the substantial completion certificate. The Owner will give notice of observed defects with reasonable promptness.
 3. In case of default on the part of the Contractor in fulfilling this part of this contract, the Owner may correct the work or repair the

damage and the cost and expense incurred in such event shall be paid by or recoverable from the Contractor or surety.

4. The work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's guaranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment

B. Extended Warranty

Manufacturer's certificates of warranty shall be obtained for all major equipment. Warranty shall be obtained for at least one year. Where a longer period is offered at no additional cost or called for in the specific equipment specifications, the longer period shall govern.

ARTICLE 3.5 -- OPERATION AND MAINTENANCE MANUALS

- A. Immediately after equipment submittals are approved and no later than ten (10) working days prior to the substantial completion inspection, the Contractor shall provide to the Designer three (3) copies of operating instructions and service manuals, containing the following:

1. Start-up and Shut-down Procedures: Provide a step-by-step write up of all major equipment. When manufacturer's printed start-up, trouble shooting and shut-down procedures are available; they may be incorporated into the operating manual for reference.
2. Operating Instructions: Written operating instructions shall be included for the efficient and safe operation of all equipment.
3. Equipment List: List of all major equipment as installed shall be prepared to include model number, capacities, flow rate, name place data, shop drawings and air and water balance reports.
4. Service Instructions: Provide the following information for all pieces of equipment.

- a. Recommended spare parts including catalog number and name of local supplier or factory representative.
- b. Belt sizes, types, and lengths.
- c. Wiring diagrams.

5. Manufacturer's Certificate of Warranty as described in Article 3.4.

6. Prior to the final payment, furnish to the Designer three (4) copies of parts catalogs for each piece of equipment furnished by him/her on the project with the components identified by number for replacement ordering.

- B. Submission of operating instructions shall be done in the following manner.

1. Manuals shall be in quadruplicate, and all materials shall be bound into volumes of standard 8½" x 11" hard binders. Large drawings too bulky to be folded into 8½" x 11" shall be separately bound or folded and in envelopes, cross referenced and indexed with the manuals.
2. The manuals shall identify project name, project number, and include the name and address of the Contractor, subcontractors and manufacturers who were involved with the activity described in that particular manual.
3. Internally subdivide the binder contents with permanent page dividers, logically organized with tab titles clearly printed under reinforced laminated plastic tabs.
4. Contents: Prepare a Table of Contents for each volume, with each product or system description identified.

ARTICLE 3.6 – OTHER CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall keep on site, during progress of the work, a competent superintendent satisfactory to the Construction Representative. The superintendent shall represent the Contractor and all agreements made by the superintendent shall be binding. The superintendent shall carefully study and compare all drawings, specifications and other instructions and shall promptly notify the Construction Representative and Designer, in writing, any error, inconsistency or omission which may be discovered. The superintendent shall coordinate all work on the project. Any change of the superintendent shall be approved by the Construction Representative.
- B. 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 work assigned to him/her.

- C. The Contractor shall supply sufficient labor, material, plant and equipment and pay when due any laborer, subcontractor or supplier for supplies furnished and otherwise prosecute the work with diligence to prevent work stoppage and insure completion thereof within the time specified.
- D. The Contractor and each of his subcontractors shall submit to the Construction Representative, through the Designer such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this contract.
- E. The Contractor, subcontractors, and material suppliers shall upon written request, give the Owner access to all time cards, material invoices, payrolls, estimates, profit and loss statements, and all other direct or indirect costs related to this work.
- F. The Contractor shall be responsible for laying out all contract work such as layout of architectural, structural, mechanical and electrical work, which shall be coordinated with layouts of subcontractors for general construction work. The Contractor is also responsible for unloading, uncrating and handling of all materials and equipment to be erected or placed by him/her, whether furnished by Contractor or others. No extra charges or compensation will be allowed as a result of failure to verify dimensions before ordering materials or fabricating items.
- G. The Contractor must notify the Construction Representative at least one working day before placing concrete or burying underground utilities, pipelines, etc.
- H. Contractors shall prearrange time with the Construction Representative for the interruption of any facility operation. Unless otherwise specified in these documents, all connections, alterations or relocations as well as all other portions of the work will be performed during normal working hours.
- I. The Contractor shall coordinate all work so there will not be prolonged interruptions of existing equipment operation. Any existing plumbing, heating, ventilating, air conditioning or electrical disconnections necessary for the project, which affect portions of this construction or building or any other building must be scheduled with the Construction Representative to minimize or avoid any disruption of facility operations. In no case,

unless previously approved in writing by the Construction Representative, shall utilities be left disconnected at the end of a work day or over a weekend. Any interruption of utilities either intentionally or accidentally shall not relieve the Contractor responsible for the interruption from the responsibility to repair and restore the utility to normal service. Repairs and restoration shall be made before the workers responsible for the repair and restoration leave the job.

- J. Contractors shall limit operations and storage of materials to the area within the project, except as necessary to connect to existing utilities, and shall not encroach on neighboring property. The Contractor shall be responsible for repair of their damage to property on or off the project site occurring during construction of project. All such repairs shall be made to the satisfaction of the property owner.
- K. Unless otherwise permitted, all materials shall be new and both workmanship and materials shall be of the best quality.
- L. Unless otherwise provided and stipulated within these specifications, the Contractor shall furnish, construct, and/or install and pay for materials, devices, mechanisms, equipment, all necessary personnel, utilities including, but not limited to water, heat, light and electric power, transportation services, applicable taxes of every nature, and all other facilities necessary for the proper execution and completion of the work.
- M. Contractor shall carefully examine the plans and drawings and shall be responsible for the proper fitting of his material, equipment and apparatus into the building.
- N. The Contractor or subcontractors shall not overload, or permit others to overload, any part of any structure during the performance of this contract.
- O. All temporary shoring, bracing, etc., required for the removal of existing work and/or for the installation of new work shall be included in this contract. The Contractor shall make good, at no cost to the Owner, any damage caused by improper support or failure of shoring in any respect. Each Contractor shall be responsible for shoring required to protect his work or adjacent property and improvements of Owner and shall be responsible for shoring or for giving written notice to adjacent property owners. Shoring shall be removed only after completion of permanent supports.

- P. The Contractor shall provide at the proper time such material as is required for support of the work. If openings are required, whether shown on drawings or not, the Contractor shall see that they are properly constructed.
- Q. During the performance of work the Contractor shall be responsible for providing and maintaining warning signs, lights, signal devices, barricades, guard rails, fences and other devices appropriately located on site which will give proper and understandable warning to all persons of danger of entry onto land, structure or equipment.
- R. The Contractor shall be responsible for protection, including weather protection, and proper maintenance of all equipment and materials.
- S. The Contractor shall be responsible for care of the finished work and shall protect same from damage or defacement until substantial completion by the Owner. If the work is damaged by any cause, the Contractor shall immediately begin to make repairs in accordance with the drawings and specifications. Contractor shall be liable for all damage or loss unless attributable to the acts or omissions of the Owner or Designer. Any claim for reimbursement shall be submitted in accordance with Article 4. After substantial completion the Contractor will only be responsible for damage resulting from acts or omissions of the Contractor or subcontractors through final warranty.
- T. In the event the Contractor encounters an unforeseen hazardous material, the Contractor shall immediately stop work in the area affected and report the condition to the Owner and Designer in writing. The Contractor shall not be required, pursuant to Article 4, to perform, any work relating to hazardous materials.
- U. In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 4.
- V. Before commencing work, Contractors shall confer with the Construction Representative and facility representative and review any facility rules and regulations which may affect the conduct of the work.
- W. Project signs will only be erected on major projects and only as described in the specifications. If no sign is specified, none shall be erected.

ARTICLE 3.7 -- SUBCONTRACTS

- A. Subcontractor assignments as identified in the bid form shall not be changed without written approval of the Owner. The Owner will not approve changes of a listed subcontractor unless the Contractor documents, to the satisfaction of the Owner that the subcontractor cannot or will not perform the work as specified.
- B. The Contractor is fully responsible to the Owner for the acts and omissions of all subcontractors and of persons either directly or indirectly employed by them.
- C. Every subcontractor shall be bound by the applicable terms and provisions of these contract documents, but no contractual relationship shall exist between any subcontractor and the Owner unless the right of the Contractor to proceed with the work is suspended or this contract is terminated as herein provided, and the Owner in writing elects to assume the subcontract.
- D. The Contractor shall upon receipt of "Notice to Proceed" and prior to submission of the first payment request, notify the Designer and Construction Representative in writing of the names of any subcontractors to be used in addition to those identified in the bid form and all major material suppliers proposed for all parts of the work.

ARTICLE 4 -- CHANGES IN THE WORK

4.1 CHANGES IN THE WORK

- A. The Construction Representative, without giving notice to the surety and without invalidating this contract, may order extra work or make changes by altering, adding to or deducting from the work, this contract sum being adjusted accordingly. All such work shall be executed under the conditions of the original contract. A claim for extension of time caused by any change must be adjusted at the time of ordering such change. No future request for time will be considered.
- B. Each Contract Change shall include all costs required to perform the work including all labor, material, equipment, overheads and profit, delay, disruptions, or other miscellaneous expenses. No subsequent requests for additional compensation including claims for delay, disruption, or reduced efficiency as a result of each change will be considered. Values from the Schedule of Values will not be binding as a basis for additions to or deductions from the contract price.
- C. The amount of any adjustment in this contract price for authorized changes shall be agreed upon

before such changes become effective and shall be determined, through submission of a request for proposal, as follows:

1. By an acceptable fixed price proposal from the Contractor. Breakdowns shall include all takeoff sheets of each Contractor and subcontractor. Breakdown shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor costs per hour shall be included with labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown separately for each subcontractor and the Contractor.
2. By a cost-plus-fixed-fee (time and material) basis with maximum price, total cost not to exceed said maximum. Breakdown shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor costs per hour shall be included with labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown separately for each subcontractor and the Contractor.
3. By unit prices contained in Contractor's original bid form and incorporated in the construction contract.

D. Overhead and Profit on Contract Changes shall be applied as follows:

1. The overhead and profit charge by the Contractor and all subcontractors shall be considered to include, but is not limited to: incidental job burdens, small truck (under 1 ton) expense, mileage, small hand tools, warranty costs, company benefits and general office overhead. Project supervision including field supervision and job site office expense shall be considered a part of overhead and profit unless a compensable time extension is granted.
2. The percentages for overhead and profit charged on Contract Changes shall be subject to the following limits: (a) the percentage mark-up for the Contractor shall be limited to the Contractor's fee; (b) fifteen percent (15%) maximum for Work directly performed by employees of a subcontractor, or sub-subcontractor; (c) five percent (5%) maximum for the Work performed or passed through to the Owner by the Contractor; (d) five percent (5%) maximum subcontractor's mark-up for Work performed by a sub-subcontractor and

passed through to the Owner by the subcontractor and Contractor; and (e) in no case shall the total overhead and profit paid by the Owner on any Contract Changes exceed twenty-five percent (25%) of the cost of materials, labor and equipment (exclusive of Contractor or any Subcontractor overhead and profit) necessary to put the contract change work in place.

3. The Contractor will be allowed to add the cost of Contractor's payment and performance bonding, builder's risk insurance, and general liability insurance to their cost of work. The above listed bonding and insurance cost shall not exceed 2% and shall be allowed on the total cost of the added work, including overhead and profit.
 4. On proposals covering both increases and decreases in the amount of this contract, the application of overhead and profit shall be on the net change in the cost of the work.
 5. The percentage(s) for overhead and profit to be credited to the Owner on Contract Changes that are solely decreases in the quantity of work or materials shall be the same as those for additive Contract Changes provided above.
- E. No claim for an addition to this contract sum shall be valid unless authorized as aforesaid in writing by the Owner. In the event that none of the foregoing methods are agreed upon, the Owner may order the Contractor to perform work on a time and material basis. The cost of such work shall be determined by the Contractor's actual labor and material cost to perform the work plus overhead and profit as outlined herein. The Designer and Construction Representative shall approve the Contractor's daily time and material invoices for the work involved.
- F. If the Contractor claims that any instructions involve extra cost under this contract, the Contractor shall give the Owner's Representative written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work. No such claim shall be valid unless so made and authorized by the Owner, in writing.
- G. In an emergency affecting the safety of life or of the structure or of adjoining property, the Contractor, without special instruction or authorization from the Construction Representative, is hereby permitted to act at their discretion to prevent such threatened loss or injury. The Contractor shall submit a claim for

compensation for such emergency work in writing to the Owner's Representative.

ARTICLE 4.2 – CHANGES IN COMPLETION TIME

- A. Extension of the number of work days stipulated in the Contract for completion of the work with compensation may be made when:
 - 1. The contractor documents that proposed Changes in the work, as provided in Article 4.1, extends construction activities critical to contract completion date, OR
 - 2. The Owner suspends all work for convenience of the Owner as provided in Article 7.3, OR
 - 3. An Owner caused delay extends construction activities critical to contract completion (except as provided elsewhere in these General Conditions). The Contractor is to review the work activities yet to begin and evaluate the possibility of rescheduling the work to minimize the overall project delay.
- B. Extension of the number of work days stipulated in the Contract for completion of the work without compensation may be made when:
 - 1. Weather-related delays occur, subject to provisions for the inclusion of a specified number of "bad weather" days when provided for in Section 012100-Allowances, OR
 - 2. Labor strikes or acts of God occur, OR
 - 3. The work of the Contractor is delayed on account of conditions which were beyond the control of the Contractor, subcontractors or suppliers, and were not the result of their fault or negligence.
- C. No time extension or compensation will be provided for delays caused by or within the control of the Contractor, subcontractors or suppliers and for concurrent delays caused by the Owner.
- D. The Contractor shall notify the Owner promptly of any occurrence or conditions which in the Contractor's opinion results in a need for an extension of time. The notice shall be in writing and shall include all necessary supporting materials with details of any resultant costs and be submitted in time to permit full investigation and evaluation of the Contractor's claim. The Owner shall promptly acknowledge the Contractor's notice and, after recommendation from the Owner's Representative and/or Designer, shall provide a decision to the Contractor. Failure on the part of the Contractor to provide such notice and to detail the costs shall constitute a waiver by

the Contractor of any claim. Requests for extensions of time shall be for working days only.

ARTICLE 5 - CONSTRUCTION AND COMPLETION

ARTICLE 5.1 – CONSTRUCTION COMMENCEMENT

- A. Upon receipt of the "Intent to Award" letter, the Contractor must submit the following properly executed instruments to the Owner:
 - 1. Contract;
 - 2. Performance/payment bond as described in Article 6.1;
 - 3. Certificates of Insurance, or the actual policies themselves, showing that the Contractor has obtained the insurance coverage required by Article 6.2.
 - 4. Written Affirmative Action Plans as required in Article 1.4.
- Above referenced items must be received by the Owner within ten (10) working days after the effective date of the contract. If not received, the Owner may treat the failure to timely submit them as a refusal by the Contractor to accept a contract for this work and may retain as liquidated damages the Contractor's bid bond, cashier's check or certified check as provided in the Instructions to Bidders. Upon receipt the Owner will issue a "Notice to Proceed" with the work to the Contractor.
- B. Within the time frame noted in Section 013200 - Schedules, following receipt of the "Notice to Proceed", the Contractor shall submit to the Owner a progress schedule and schedule of values, showing activities through the end of the contract period. Should the Contractor not receive written notification from the Owner of the disapproval of the schedule of values within fifteen (15) working days, the Contractor may consider it approved for purpose of determining when the first monthly Application and Certification for Payment may be submitted.
 - C. The Contractor may commence work upon receipt of the Division of Facilities Management, Design and Construction's "Notice to Proceed" letter. Contractor shall prosecute the work with faithfulness and energy, and shall complete the entire work on or before the completion time stated in the contract documents or pay to the Owner the damages resulting from the failure to timely complete the work as set out within Article 5.4.

ARTICLE 5.2 -- PROJECT CONSTRUCTION

- A. Each Contractor shall submit for the Owner's approval, in reproducible form, a progress schedule showing the rate of progress and the order of the work proposed to carry on various phases of the project. The schedule shall be in conformance with the requirements outlined in Section 013200 – Schedules.
- B. Contractor shall employ and supply a sufficient force of workers, material, and equipment and shall pay when due, any worker, subcontractor or supplier and otherwise prosecute the work with such diligence so as to maintain the rate of progress indicated on the progress schedule, prevent work stoppage, and insure completion of the project within the time specified.

ARTICLE 5.3 -- PROJECT COMPLETION

- A. Substantial Completion. A Project is substantially complete when construction is essentially complete and work items remaining to be completed can be done without interfering with the Owner's ability to use the Project for its intended purpose.
 1. Once the Contractor has reached what they believe is Substantial Completion, the Contractor shall notify the Designer and the Construction Representative of the following:
 - a. That work is essentially complete with the exception of certain listed work items. The list shall be referred to as the "Contractor's Punch."
 - b. That all Operation and Maintenance Manuals have been assembled and submitted in accordance with Article 3.5A.
 - c. That the Work is ready for inspection by the Designer and Construction Representative. The Owner shall be entitled to a minimum of ten working days notice before the inspection shall be performed.
 2. If the work is acceptable, the Owner shall issue a Certificate of Substantial Completion, which shall set forth the responsibilities of the Owner and the Contractor for utilities, security, maintenance, damage to the work and risk of loss. The Certificate shall also identify those remaining items of work to be performed by the Contractor. All such work items shall be complete within 30 working days of the date of the Certificate, unless the Certificate specifies a different time. If the

Contractor shall be required to perform tests that must be delayed due to climatic conditions, it is understood that such tests and affected equipment will be identified on the Certificate and shall be accomplished by the Contractor at the earliest possible date. Performance of the tests may not be required before Substantial Completion can be issued. The date of the issuance of the Certificate of Substantial Completion shall determine whether or not the work was completed within the contract time and whether or not Liquidated Damages are due.

3. If the work is not acceptable, and the Owner does not issue a Certificate of Substantial Completion, the Owner shall be entitled to charge the Contractor with the Designer's and Owner's costs of re-inspection, including time and travel.
- B. Partial Occupancy. Contractor agrees that the Owner shall be permitted to occupy and use any completed or partially completed portions of the Project, when such occupancy and use is in the Owner's best interest. Owner shall notify Contractor of its desire and intention to take Partial Occupancy as soon as possible but at least ten (10) working days before the Owner intends to occupy. If the Contractor believes that the portion of the work the Owner intends to occupy is not ready for occupancy, the Contractor shall notify the Owner immediately. The Designer shall inspect the work in accordance with the procedures above. If the Contractor claims increased cost of the project or delay in completion as a result of the occupancy, he shall notify the Owner immediately but in all cases before occupancy occurs.
- C. Final Completion. The Project is finally complete when the Certificate of Substantial Completion has been issued and all work items identified therein as incomplete have been completed, and when all administrative items required by the contract have been completed. Final Completion entitles the Contractor to payment of the outstanding balance of the contract amount including all change orders and retainage. Within five (5) working days of the date of the Certificate of Substantial Completion, the Contractor shall identify the cost to complete any outstanding items of work. The Designer shall review the Contractor's estimate and either approve it or provide an independent estimate for all such items. If the Contractor fails to complete the remaining items within the time specified in the Certificate, the Owner may terminate the contract and go to the surety for project completion in accordance with Article 7.2 or release the contract balance to the Contractor less 150% of the

approved estimate to complete the outstanding items. Upon completion of the outstanding items, when a final cost has been established, any monies remaining shall be paid to the Contractor. Failure to complete items of work does not relieve the Contractor from the obligation to complete the administrative requirements of the contract, such as the provisions of Article 5.3 FAILURE TO COMPLETE ALL ITEMS OF WORK UNDER THE CONTRACT SHALL BE CONSIDERED A DEFAULT AND BE GROUNDS FOR CONTRACT TERMINATION AND DEBARMENT.

- D. Liquidated Damages. Contractor agrees that the Owner may deduct from the contract price and retain as liquidated damages, and not as penalty or forfeiture, the sum stipulated in this contract for each work day after the Contract Completion Day on which work is not Substantially Complete. Assessment of Liquidated Damages shall not relieve the Contractor or the surety of any responsibility or obligation under the Contract. In addition, the Owner may, without prejudice to any other rights, claims, or remedies the Owner may have including the right to Liquidated Damages, charge the Contractor for all additional expenses incurred by the Owner and/or Designer as the result of the extended contract period through Final Completion. Additional Expenses shall include but not be limited to the costs of additional inspections.
- E. Early Completion. The Contractor has the right to finish the work before the contract completion date; however, the Owner assumes no liability for any hindrances to the Contractor unless Owner caused delays result in a time extension to the contract completion date. The Contractor shall not be entitled to any claims for lost efficiencies or for delay if a Certificate of Substantial Completion is given on or before the Contract Completion Date.

ARTICLE 5.4 -- PAYMENT TO CONTRACTOR

- A. Payments on account of this contract will be made monthly in proportion to the work which has been completed. Request for payment must be submitted on the Owner's forms. No other pay request will be processed. Supporting breakdowns must be in the same format as Owner's forms and must provide the same level of detail. The Designer will, within 5 working days from receipt of the contractor's request for payment either issue a Certificate for Payment to the Owner, for such amount as the Designer determines is properly due, or notify the Contractor in writing of reasons for withholding a Certificate. The Owner shall make payment within 30 calendar days after the

"Application and Certification for Payment" has been received and certified by the Designer. The following items are to be attached to the contractor's pay request:

1. Updated construction schedule
 2. Certified payrolls consisting of name, occupation and craft, number of hours worked and actual wages paid for each individual employee, of the Contractor and all subcontractors working on the project
- B. The Owner shall retain 5 percent of the amount of each such payment application, except as allowed by Article 5.4, until final completion and acceptance of all work covered by this contract.
- C. Each payment made to Contractor shall be on account of the total amount payable to Contractor and all material and work covered by paid partial payment shall thereupon become the sole property of Owner. This provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made or restoration of any damaged work or as a waiver of the right of Owner to require fulfillment of all terms of this contract.
- D. Materials delivered to the work site and not incorporated in the work will be allowed in the Application and Certification for Payment on the basis of one hundred (100%) percent of value, subject to the 5% retainage providing that they are suitably stored on the site or in an approved warehouse in accordance with the following requirements:
1. Material has previously been approved through submittal and acceptance of shop drawings conforming to requirements of Article 3.2 of General Conditions.
 2. Delivery is made in accordance with the time frame on the approved schedule.
 3. Materials, equipment, etc., are properly stored and protected from damage and deterioration and remain so - if not, previously approved amounts will be deleted from subsequent pay applications.
 4. The payment request is accompanied by a breakdown identifying the material equipment, etc. in sufficient detail to establish quantity and value.
- E. The Contractor shall be allowed to include in the Application and Certification for Payment, one hundred (100%) of the value, subject to retainage,

of major equipment and material stored off the site if all of the following conditions are met:

1. The request for consideration of payment for materials stored off site is made at least 15 working days prior to submittal of the Application for Payment including such material. Only materials inspected will be considered for inclusion on Application for Payment requests.
 2. Materials stored in one location off site are valued in excess of \$25,000.
 3. That a Certificate of Insurance is provided indicating adequate protection from loss, theft conversion or damage for materials stored off site. This Certificate shall show the State of Missouri as an additional insured for this loss.
 4. The materials are stored in a facility approved and inspected, by the Construction Representative.
 5. Contractor shall be responsible for, Owner costs to inspect out of state facilities, and any delays in the completion of the work caused by damage to the material or for any other failure of the Contractor to have access to this material for the execution of the work.
- F. The Owner shall determine the amount, quality and acceptability of the work and materials which are to be paid for under this contract. In the event any questions shall arise between the parties, relative to this contract or specifications, determination or decision of the Owner or the Construction Representative and the Designer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected in any manner or to any extent by such question.
- G. Payments Withheld: The Owner may withhold or nullify in whole or part any certificate to such extent as may be necessary to protect the Owner from loss on account of:
1. Defective work not remedied. When a notice of noncompliance is issued on an item or items, corrective action shall be undertaken immediately. Until corrective action is completed, no monies will be paid and no additional time will be allowed for the item or items. The cost of corrective action(s) shall be borne by the Contractor.
 2. A reasonable doubt that this contract can be completed for the unpaid balance.
3. Failure of the Contractor to update as-built drawings monthly for review by the Construction Representative.
 4. Failure of the Contractor to update the construction schedule.
- When the Construction Representative is satisfied the Contractor has remedied above deficiencies, payment shall be released.
- H. Final Payment: Upon receipt of written notice from the Contractor to the Designer and Project Representative that the work is ready for final inspection and acceptance, the Designer and Project Representative, with the Contractor, shall promptly make such inspection. If the work is acceptable and the contract fully performed, the Construction Representative shall complete a final acceptance report and the Contractor will be directed to submit a final Application and Certification for Payment. If the Owner approves the same, the entire balance shall be due and payable, with the exception of deductions as provided for under Article 5.4.
1. Where the specifications provide for the performance by the Contractor of (certain tests for the purpose of balancing and checking the air conditioning and heating equipment and the Contractor shall have furnished and installed all such equipment in accordance with the specifications, but said test cannot then be made because of climatic conditions, such test shall may be considered as required under the provisions of the specifications, Section 013300 and this contract may be substantial Full payment will not be made until the tests have been made and the equipment and system is finally accepted. If the tests are not completed when scheduled, the Owner may deduct 150% of the value of the tests from the final payment.
 2. The final payment shall not become due until the Contractor delivers to the Construction Representative:
 - a) A complete file of releases, on the standard form included in the contract documents as "Final Receipt of Payment and Release Form", from subcontractors and material suppliers evidencing payment in full for services, equipment and materials, as the case may require, if the Owner approves, or a consent from the Surety to final payment accepting liability for any unpaid amounts.

- b) An Affidavit of Compliance with Prevailing Wage Law, in the form as included in this contract specifications, properly executed by each subcontractor, and the Contractor
 - c) Certified copies of all payrolls
 - d) As-built drawings
3. If any claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a claim including all costs and a reasonable attorney's fee.
 4. Missouri statute requires prompt payment from the Owner to the Contractor within thirty calendar days and from the Contractor to his subcontractors within fifteen calendar days. Failure to make payments within the required time frame entitles the receiving party to charge interest at the rate of one and one half percent per month calculated from the expiration of the statutory time period until paid.
 5. The value of all unused unit price allowances and/or 150% of the value of the outstanding work items, and/or liquidated damages may be deducted from the final pay request without executing a Contract Change. Any unit price items which exceed the number of units in the contract may be added by Contract Change.

ARTICLE 6 -- INSURANCE AND BONDS

ARTICLE 6.1 -- BOND

- A. Contractor shall furnish a performance/payment bond in an amount equal to 100% of the contract price to guarantee faithful performance of the contract and 100% of the contract price to guarantee the payment of all persons performing labor on the project and furnishing materials in connection therewith under this contract as set forth in the standard form of performance and payment bond included in the contract documents. The surety on such bond shall be issued by a surety company authorized by the Missouri Department of Insurance to do business in the state of Missouri.
- B. All Performance/Payment Bonds furnished in response to this provision shall be provided by a bonding company with a rating of B+ or higher as established by A.M. Best Company, Inc. in their most recent publication.

ARTICLE 6.2 – INSURANCE

- A. The successful Contractor shall procure and maintain for the duration of the contract issued a policy or policies of insurance for the protection of both the Contractor and the Owner and their respective officers, officials, agents, consultants and employees. The Owner requires certification of insurance coverage from the Contractor prior to commencing work.
- B. Minimum Scope and Extent of Coverage
 1. General Liability

Commercial General Liability, ISO coverage form number or equivalent CG 00 01 ("occurrence" basis), or I-SO coverage form number CG 00 02, or ISO equivalent.

If ISO equivalent or manuscript general liability coverage forms are used, minimum coverage will be as follows: Premises/Operations; Independent Contractors; Products/Completed Operations; personal Injury; Broad Form Property Damage including Completed Operations; Broad Form Contractual Liability Coverage to include Contractor's obligations under Article 1.11 Indemnification and any other Special Hazards required by the work of the contract.
 2. Automobile Liability

Business Automobile Liability Insurance, ISO Coverage form number or equivalent CA 00 01 covering automobile liability, code 1 "ANY AUTO".
 3. Workers' Compensation and Employer's Liability

Statutory Workers' Compensation Insurance for Missouri and standard Employer's Liability Insurance, or the authorization to self-insure for such liability from the Missouri Division of Workers' Compensation.
 4. Builder's Risk or Installation Floater Insurance

Insurance upon the work and all materials, equipment, supplies, temporary structures and similar items which may be incident to the performance of the work and located at or adjacent to the site, against loss or damage from fire and such other casualties as are included in extended coverage in broad "All Risk" form, including coverage for Flood and Earthquake, in an amount not less than the replacement cost of the work or this contract price, whichever is greater, with loss payable

to Contractor and Owner as their respective interests may appear.

Contractor shall maintain sufficient insurance to cover the full value of the work and materials as the work progresses, and shall furnish Owner copies of all endorsements. If Builder's Risk Reporting- Form of Endorsement is used, Contractor shall make all reports as required therein so as to keep in force an amount of insurance which will equal the replacement cost of the work, materials, equipment, supplies, temporary structures, and other property covered thereby; and if, as a result of Contractor's failure to make any such report, the amount of insurance so recoverable shall be less than such replacement cost, Contractor's interest in the proceeds of such insurance, if any, shall be subordinated to Owner's interest to the end that Owner may receive full reimbursement for its loss.

C. Minimum Limits of Insurance

1. General Liability

Contractor

\$2,000,000 combined single limit per occurrence for bodily injury, personal injury, and property damage

\$2,000,000 annual aggregate

2. Automobile Liability

\$2,000,000 combined single limit per occurrence for bodily injury and property damage

3. Workers' Compensation and Employers Liability

Workers' Compensation limits as required by applicable State Statutes (generally unlimited) and minimum of \$1,000,000 limit per accident for Employer's Liability.

General Liability and Automobile Liability insurance may be arranged under individual policies for the full limits required or by a combination of underlying policies with the balance provided by a form-following Excess or Umbrella Liability policy.

D. Deductibles and Self-Insured Retentions

All deductibles, co-payment clauses, and self-insured retentions must be declared to and approved by the Owner. The Owner reserves the right to request the reduction or elimination of unacceptable deductibles or self-insured retentions,

as they would apply to the Owner, and their respective officers, officials, agents, consultants and employees. Alternatively, the Owner may request Contractor to procure a bond guaranteeing payment of losses and related investigations, claims administration, and defense expenses.

E. Other Insurance Provisions and Requirements

The respective insurance policies and coverage, as specified below, must contain, or be endorsed to contain the following conditions or provisions:

1. General Liability

The Owner, and its respective commissioners, officers, officials, agents, consultants and employees shall be endorsed as additional insured's by ISO form CG 20 26 Additional Insured - Designated Person or Organization. As additional insured's, they shall be covered as to work performed by or on behalf of the Contractor or as to liability which arises out of Contractor's activities or resulting from the performance of services or the delivery of goods called for by the Contract.

Contractor's insurance coverage shall be primary with respect to all additional insured's. Insurance of self-insurance programs maintained by the designated additional -insured's shall be excess of the Contractor's insurance and shall not contribute with it.

Additionally, the Contractor and Contractor's general liability insurer shall agree to waive all rights of subrogation against the Owner and any of their respective officers, officials, agents, consultants or employees for claims, losses, or expenses which arise out of Contractor's activities or result from the performance of services or the delivery of goods called for by the Contract.

Contractor's failure to comply with the terms and conditions of these insurance policies shall not affect or abridge coverage for the Owner, or for any of their officers, officials, agents, consultants or employees.

2. Automobile Insurance

The Owner, and their respective officers, officials, agents, consultants and employees shall be endorsed as additional insured's by ISO form CG 20 26 - Additional Insured Designated Person or Organization. As additional insured's, they shall be covered as to work performed by or on behalf of the Contractor or as to liability which arises out of Contractor's activities or resulting from the

performance of services or the delivery of goods called for by the Contract.

Contractor's insurance coverage shall be primary with respect to all additional insured's. Insurance or self-insurance programs maintained by the designated additional insured's shall be in excess of the Contractor's insurance and shall not contribute with it.

Additionally, the Contractor and Contractor's automobile insurer shall agree to waive all rights of subrogation against the Owner and any of their respective officers, officials, agents, consultants or employees for claims, losses, or expenses which arise out of Contractor's activities or result from the performance of services or the delivery of goods called for by the Contract.

Contractor's failure to comply with the terms and conditions of these insurance policies shall not affect or abridge coverage for the Owner or for any of its officers, officials, agents, consultants or employees.

3. Workers' Compensation/Employer's Liability

Contractor's workers' compensation insurance shall be endorsed with NCCI form WC 00 03 01 A - Alternative Employer Endorsement. The Alternative Employer Endorsement shall designate the Owner as "alternate employers."

4. All Coverages

Each insurance policy required by this section of the Contract shall contain a stipulation, endorsed if necessary, that the Owner will receive a minimum of a thirty (30) calendar day advance notice of any policy cancellation. Ten (10) calendar days advance notice is required for policy cancellation due to non-payment of premium.

F. Insurer Qualifications and Acceptability

Insurance required hereunder shall be issued by an A.M. Best, "B+" rated, Class IX insurance company approved to conduct insurance business in the state of Missouri.

G. Verification of Insurance Coverage

Prior to Owner issuing a Notice to Proceed, the Contractor shall furnish the Owner with Certificate(s) of Insurance and with any applicable original endorsements evidencing the required insurance coverage. The insurance certificates and endorsements are to be signed by a person authorized by that insurer to bind coverage on its

behalf. All certificates and endorsements received by the Owner are subject to review and approval by the Owner. The Owner reserves the right to require certified copies of all required policies at any time. If the scope of this contract will exceed one (1) year - or, if any of Contractor's applicable insurance coverage expires prior to completion of the work or services required under this contract - the Contractor will provide a renewal or replacement certificate before continuing work or services hereunder. If the Contractor fails to provide documentation of required insurance coverage, the Owner may issue a stop work order and no additional contract completion time and/or compensation shall be granted as a result thereof.

ARTICLE 7 – SUSPENSION OR TERMINATION OF CONTRACT

ARTICLE 7.1 - FOR SITE CONDITIONS

When conditions at the site of the proposed work are considered by the Owner to be unsatisfactory for prosecution of the work, the Contractor may be ordered in writing to suspend the work or any part thereof until reasonable conditions exist. When such suspension is not due to fault or negligence of the Contractor, time allowed for completion of such suspended work will be extended by a period of time equal to that lost due to delay occasioned by ordered suspension. This will be a no cost time extension.

ARTICLE 7.2 - FOR CAUSE

A. Termination or Suspension for Cause:

1. If the Contractor shall file for bankruptcy, or should make a general assignment for the benefit of the creditors, or if a receiver should be appointed on account of insolvency, or if the contractor should persistently or repeatedly refuse or fail to supply enough properly skilled workers or proper materials, or if the contractor should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of this contract, then the Owner may serve notice on the Contractor and the surety setting forth the violations and demanding compliance with this contract. Unless within ten (10) consecutive calendar days after serving such notice, such violations shall cease and satisfactory arrangements for correction be made, the Owner may suspend the Contractor's right to proceed with the work or terminate this contract.

2. In the event the Owner suspends Contractor's right to proceed with the work or terminates the contract, the Owner may demand that the Contractor's surety take over and complete the work on this contract, after the surety submits a written proposal to the Owner and receives written approval and upon the surety's failure or refusal to do so within ten (10) consecutive calendar days after demand therefore, the Owner may take over the work and prosecute the same to completion by bid or negotiated contract, or the Owner may elect to take possession of and utilize in completing the work such materials, supplies, appliances and plant as may be on the site of the work, and all subcontractors, if the Owner elects, shall be bound to perform their contracts.
- B. The Contractor and its surety shall be and remain liable to the Owner for any excess cost or damages occasioned to the Owner as a result of the actions above set forth.
- C. The Contractor in the event of such suspension or termination shall not be entitled to receive any further payments under this contract until the work is wholly finished. Then if the unpaid balance under this contract shall exceed all expenses of the Owner as certified by the Director, such excess shall be paid to the Contractor; but, if such expenses shall exceed the unpaid balance as certified by the Director, the Contractor and their surety shall be liable for and shall pay the difference and any damages to the Owner.
- D. In exercising Owner's right to secure completion of the work under any of the provisions hereof, the Director shall have the right to exercise Owner's sole discretion as to the manner, methods and reasonableness of costs of completing the work.
- E. The rights of the Owner to suspend or terminate as herein provided shall be cumulative and not exclusive and shall be in addition to any other remedy provided by law.
- F. The Contractor in the event of such suspension or termination may be declared ineligible for Owner contracts for a minimal period of twelve (12) months. Further, no contract will be awarded to any Contractor who lists in their bid form any subcontractor whose prior performance has contributed, as determined by the Owner, to a breach of a contract. In order to be considered for state-awarded contracts after this period, the Contractor/subcontractor will be required to forward acceptance reports to the Owner regarding successful completion of non-state projects during the intervening twelve (12) months from the date

of default. No contracts will be awarded to a subcontractor/Contractor until the ability to perform responsibly in the private sector has been proven to the Owner.

ARTICLE 7.3 -- FOR CONVENIENCE

- A. The Owner may terminate or suspend the Contract or any portion of the Work without cause at any time, and at the Owner's convenience. Notification of a termination or suspension shall be in writing and shall be given to the Contractor and their surety. If the Contract is suspended, the notice will contain the anticipated duration of the suspension or the conditions under which work will be permitted to resume. If appropriate, the Contractor will be requested to demobilize and re-mobilize and will be reimbursed time and costs associated with the suspension.
- B. Upon receipt of notification, the Contractor shall:
 1. Cease operations when directed.
 2. Take actions to protect the work and any stored materials.
 3. Place no further subcontracts or orders for material, supplies, services or facilities except as may be necessary to complete the portion of the Contract that has not been terminated. No claim for payment of materials or supplies ordered after the termination date shall be considered.
 4. Terminate all existing subcontracts, rentals, material, and equipment orders.
 5. Settle all outstanding liabilities arising from termination with subcontractors and suppliers.
 6. Transfer title and deliver to the Owner, work in progress, completed work, supplies and other material produced or acquire for the work terminated, and completed or partially completed plans, drawings information and other property that, if the Contract had been completed, would be required to be furnished to the Owner.
- C. For termination without cause and at the Owner's convenience, in addition to payment for work completed prior to date of termination, the Contractor may be entitled to payment of other documented costs directly associated with the early termination of the contract. Payment for anticipated profit and unapplied overhead will not be allowed.

SECTION 007300 - SUPPLEMENTARY CONDITIONS

1.0 GENERAL:

A. These Supplementary General Conditions clarify, add, delete, or otherwise modify standard terms and conditions of DIVISION 0, BIDDING AND CONTRACTING REQUIREMENTS.

2.0 CONTACTS:

Designer: Brian Harrington
Allstate Consultants LLC
3312 LeMone Industrial Boulevard
Columbia, MO 65201
Telephone: (573) 875-8799
Email: bharrington@allstate75.com

Construction Representative: Dustin Cooper
Division of Facilities Management, Design and Construction
301 W Highs St, ste 730
Jefferson City, MO 65109
Telephone: (573) 526-0711
Email: dustin.cooper@oa.mo.gov

Project Manager: Jared Cook
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: (573) 690-6733
Email: jared.cook2@oa.mo.gov

Contract Specialist: April Howser
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: 573-751-0053
Email: April.Howser@oa.mo.gov

3.0 NOTICE: ALL BID MATERIALS ARE DUE AT THE TIME OF BID SUBMITTAL. THERE IS NO SECOND SUBMITTAL FOR THIS PROJECT.

4.0 FURNISHING CONSTRUCTION DOCUMENTS:

- A. The Owner will furnish the Contractor with approximately 5 complete sets of drawings and specifications at no charge.
- B. The Owner will furnish the Contractor with approximately 5 sets of explanatory or change drawings at no charge.
- C. The Contractor may make copies of the documents as needed with no additional cost to the Owner.

5.0 SAFETY REQUIREMENTS

Contractor and subcontractors at any tier shall comply with RSMo 292.675 and Article 1.3, E, of Section 007213, General Conditions.

6.0 OFF-SITE BORROW & SPOIL DEPOSIT SITES FOR FEDERALLY FUNDED PROJECTS:

All Federally funded projects which involve off-site borrow and/or off-site spoil deposit sites will require written certification that the site(s) are in compliance with the National Environmental Protection Act and all related applicable Federal and State laws and regulations. If the need for off-site borrow and/or spoil sites is stipulated in the Contract Documents, the following applies:

- A. The Contractor is required to use only the designated site described in the Contract Documents. If another off-site area is proposed by the Contractor, the Contractor must provide written certification to the Division of Facilities Management, Design and Construction Project Representative that the proposed borrow or spoil site has been cleared of environmental concerns in accordance with all applicable Federal and State laws and regulations. These include but are not limited to the following:

Clean Water Act; the Endangered Species Act; the National Historic Preservation Act (NHPA) (The site must have Section 106 Clearance); the Farmland Protection Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response; Compensation and Liability Act; and RSMo Chapter 194, Section 194.400, Unmarked Human Burial Sites. Certifications shall include clearance letters and other evidence of coordination with the appropriate regulatory agencies. The Missouri Historic Preservation Office, PO Box 176 Jefferson City, MO 65102, may be contacted to provide assistance with the NHPA and cultural resource issues pertaining to the borrow and spoil site regulations. The Missouri State Historic Preservation Office can provide a list of qualified and certified archaeologists to assist in borrow and spoil site investigations.

- B. If project conditions require off-site borrow or off-site deposit of spoils, the Contractor will be required to provide written certification to the Division of Facilities Management, Design and Construction Project Representative that the proposed borrow or spoil site has been cleared of environmental concerns in accordance with all applicable Federal and State laws and regulations. These include but are not limited to the following: Clean Water Act; the Endangered Species Act; the National Historic Preservation Act (NHPA) (The site must have Section 106 Clearance); the Farmland Protection Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response; Compensation and Liability Act; and RSMo Chapter 194, Section 194.400, Unmarked Human Burial Sites. Certifications shall include clearance letters and other evidence of coordination with the appropriate regulatory agencies. The Missouri Historic Preservation Office, PO Box 176 Jefferson City, MO 65102, may be contacted to provide assistance with the NHPA and cultural resource issues pertaining to the borrow and spoil site regulations. The Missouri State Historic Preservation Office can provide a list of qualified and certified archaeologists to assist in borrow and spoil site investigations.
- C. The Owner recognizes that additional time (beyond what is allowed in the Construction Contract) may be required in order to secure the aforementioned certifications and approvals. Should more time be required, the Owner will consider approval of a no-cost time extension contract change. The Contractor will be required to provide documentation that substantiates the need for the time extension.

SUPPLEMENTARY GENERAL CONDITIONS
FOR FEDERALLY FUNDED/ASSISTED CONSTRUCTION PROJECTS

(American Rescue Plan Act (ARPA) Projects)

1.0 Notice of Federal Funding

This project is being performed in whole or in part using federal funds. Therefore, all work or services performed by the Contractor and its subcontractors shall be subject to the terms and conditions set forth below in addition to all terms and conditions in the Construction Contract, General Conditions, and other contract documents. The concepts, rules, and guidelines set forth in 2 C.F.R. 200 describing allowable costs and administrative requirements apply.

2.0 Definitions

As used herein, “Federal Government” means the government of the United States of America. “Federal Agency” means an agency, entity, department or division of the Federal Government that is providing funding for this project. All other terms shall have the meanings established in the Construction Contract, General Conditions, and/or Project Manual, unless such definitions conflict with a definition provided in an applicable statute or regulation.

3.0 Conflicting Terms or Conditions

To the extent that any terms or conditions set forth herein conflict with the Construction Contract or its General Conditions, the more stringent of the two terms and conditions shall govern.

4.0 No Obligation by Federal Government

The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, Contractor, or any other party pertaining to any matter resulting from the contract.

5.0 Compliance with Federal Laws, Regulations and Executive Orders

The Contractor and its subcontractors and suppliers are required to comply with all applicable Federal laws, regulations, and executive orders, regardless of whether set forth herein. The Contractor shall assist and enable the State of Missouri in complying with any requirements imposed by the Federal Agency as a condition of funding.

6.0 Compliance with Civil Rights Provisions

The Contractor shall comply with all Federal statutes, executive orders, and regulations relating to nondiscrimination. These include, but are not limited to the following:

Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin;

Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex;

Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps;

The Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age;

Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing;

Title VII of the Civil Rights Act of 1964 (42 U.S.C. part 2000(e)), which prohibits discrimination against employees on the basis of religion;

Any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and

The requirements of any other nondiscrimination statute(s) that may apply to the application.

7.0 Equal Employment Opportunity (41 C.F.R. 60-1.4(b)).

During the performance of this contract, the Contractor agrees as follows:

- (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicants or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
- (4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

- (5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and sub contractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and sub contractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any

further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

8.0 Notice of Requirement for Affirmative Action To Ensure Equal Employment Opportunity
(Executive Order 11246, 41 C.F.R. 60-4.2)

(1) The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

(2) The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Time-tables	Goals for minority participation for each trade	Goals for female participation in each trade
105	10.0	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 C.F.R. pt. 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 C.F.R. 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 C.F.R. pt. 60-4. Compliance with the goals will be measured against the total work hours performed.

(3) The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

(4) As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

9.0 Standard Federal Equal Employment Opportunity Construction Contract Specifications
(Executive Order 11246 - 41 C.F.R. 60-4.3)

(1) As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

(3) If the Contractor is participating (pursuant to 41 C.F.R. 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

(4) The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the FEDERAL REGISTER in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement

contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

(5) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

(6) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(7) The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 C.F.R. pt. 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

(8) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

(9) A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

(10) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

(11) The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

(12) The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

(13) The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 C.F.R. 60-4.8.

(14) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily

understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

(15) Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

10.0 Prohibition of Segregated Facilities

- (1) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.
- (2) “Segregated facilities,” as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.
- (3) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

11.0 Davis-Bacon Act (40 U.S.C. §§ 3141-3144, and §§ 3146-3148, and 29 C.F.R. pt. 5)

**The requirements of the Davis-Bacon Act and this section are not applicable to this project, which is funded solely by Coronavirus State and Local Fiscal Recover Funds (SLFRF) under the American Rescue Plan Act (ARPA).*

- (1) Minimum wages.
 - (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 C.F.R. pt. 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis–Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill,

except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis–Bacon poster (WH–1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- (ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (2) The classification is utilized in the area by the construction industry; and
 - (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.
- (C) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.
- (D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- (iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has

found, upon the written request of the Contractor, that the applicable standards of the Davis–Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The (write in name of Federal Agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis–Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency) may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis–Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 C.F.R. 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis–Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 C.F.R. 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered

worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime Contractor to require a subcontractor to provide addresses and social security numbers to the prime Contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 C.F.R. pt. 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 C.F.R. pt. 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 C.F.R. pt. 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the (write the name of the agency) or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal Agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 C.F.R. 5.12.

(4) Apprentices and trainees—

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary

employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (ii) Trainees. Except as provided in 29 C.F.R. 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 C.F.R. pt. 30.

- (5) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 C.F.R. pt. 3, which are incorporated by reference in this contract.
- (6) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 C.F.R. 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal Agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 C.F.R. 5.5.
- (7) Contract termination: debarment. A breach of the contract clauses in 29 C.F.R. 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 C.F.R. 5.12.
- (8) Compliance with Davis–Bacon and Related Act requirements. All rulings and interpretations of the Davis–Bacon and Related Acts contained in 29 C.F.R. pts. 1, 3, and 5 are herein incorporated by reference in this contract.
- (9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 C.F.R. pt.s 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
- (10) Certification of eligibility.
 - (i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis–Bacon Act or 29 C.F.R. 5.12(a)(1).
 - (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis–Bacon Act or 29 C.F.R. 5.12(a)(1).
 - (iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. § 1001.

12.0 Copeland “Anti-Kickback” Act

- (1) The Contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract. The Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled.
- (2) The Contractor or subcontractor shall insert in any subcontracts the clause above, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
- (3) A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 C.F.R. 5.12.

13.0 Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 to 3708, 29 C.F.R. 5.5)

- (1) Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. The Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.
- (4) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

14.0 Suspension and Debarment (Executive Orders 12549 and 12689, 2 C.F.R. pt. 180)

- (1) A contract award (see 2 C.F.R. 180.220) must not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. 180 that implement Executive Orders 12549 (3 C.F.R. pt. 1986 Comp., p. 189) and 12689 (3 C.F.R. pt. 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.
- (2) The contractor is required to verify that none of the contractor’s principals (defined at 2 C.F.R. 180.995) or its affiliates (defined at 2 C.F.R. 180.905) are excluded (defined at 2 C.F.R. 180.940) or disqualified (defined at 2 C.F.R. 180.935).
- (3) The contractor must comply with 2 C.F.R. pt. 180, subpart C and the regulations of the granting Federal Agency regarding suspension and debarment, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

- (4) This certification is a material representation of fact relied upon by the Owner. If it is later determined that the Contractor did not comply with 2 C.F.R. pt. 180, subpart C in addition to remedies available to the Owner, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- (5) By submitting a bid, the bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

15.0 Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352)

- (1) Contractors that apply or bid for an award exceeding \$100,000 agree to file the required certification (set forth below), in compliance with 31 U.S.C. § 1352 (as amended).
- (2) Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352.
- (3) Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form–LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required

certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

16.0 Procurement of Recovered Materials

The Contractor shall comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. § 6962). The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

Information about this requirement, along with the list of EPA designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.

17.0 Fair Labor Standards Act

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 C.F.R. pt. 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers. The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

18.0 Access to Records and Reports

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Agency and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

19.0 Occupational Health and Safety Act

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 C.F.R. pt. 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 C.F.R. pt. 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

20.0 Rights to Inventions

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 C.F.R. pt. 401, Rights to Inventions Made by Non-profit Organizations and Small

Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 C.F.R. 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

21.0 Energy Conservation

The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201 et seq.).

22.0 Clean Air Act and Federal Water Pollution Control Act

- (1) If the amount of the Contract exceeds \$150,000, the Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq. and the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq.
- (2) The Contractor agrees to report each violation to the Owner, and understands and agrees that the Owner will, in turn, report each violation as required to assure notification to the Federal Agency and the appropriate Environmental Protection Agency Regional Office.
- (3) The Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance.

23.0 Contractor Employee Whistleblower Rights and Requirement to Inform Employees of Whistleblower Rights

- (1) This contract and employees working on this contract will be subject to the whistleblower rights and remedies in the pilot program on contractor employee whistleblower protections established at 41 U.S.C. § 4712 by section 828 of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L. 112-239) and FAR 3.908.
- (2) The Contractor shall inform its employees in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. § 4712, as described in section 3.908 of the Federal Acquisition Regulation.
- (3) The Contractor shall insert the substance of this clause, including this paragraph (c), in all subcontracts over the simplified acquisition threshold.

24.0 Veteran's Preference

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

25.0 Drug Free Workplace Act

The Contractor shall provide a drug free workplace in accordance with the Drug Free Workplace Act of 1988, 41 U.S.C. Chapter 81, and all applicable regulations. The Contractor shall report any conviction of the Contractor's personnel under a criminal drug statute for violations occurring on the Contractor's premises or off the Contractor's premises while conducting official business. A report of a conviction shall be made to the state agency within five (5) working days after the conviction.

26.0 Access Requirements for Persons with Disabilities

Contractor shall comply with 49 U.S.C. § 5301(d), stating Federal policy that the elderly and persons with disabilities have the same rights as other persons to use mass transportation services and facilities and that special efforts shall be made in planning and designing those services and facilities to implement that policy. Contractor shall also comply with all applicable requirements of Sec. 504 of the Rehabilitation Act (1973), as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, and the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. § 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments thereto.

27.0 Seismic Safety

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Guidelines for Contract Provisions for Obligated Sponsors and Airport Improvement Program Projects Issued on June 19, 2018 Page 61 Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

28.0 Required Use of American Iron, Steel, Manufactured Products, and Construction Materials – Build America, Buy America (Pub. L. No. 117-58, §§ 70901-52)

**The requirements of the Build America, Buy America Act and this section are not applicable to projects funded solely by Coronavirus State and Local Fiscal Recover Funds (SLFRF) under the American Rescue Plan Act (ARPA). The Contractor will be subject to the requirements of the Build America, Buy America Act only if SLFRF funds are used in conjunction with funds from another federal program that requires enforcement of the Build America, Buy America Act. Information about federal funding sources is provided in the Invitation for Bid.*

The Owner is the recipient of an award of Federal financial assistance from a program for infrastructure for this project. Pursuant to the Build America, Buy America Act of the Infrastructure Investment and Jobs Act ("IIJA"), Pub. L. No. 117-58, none of the funds provided under the Federal award may be used unless the requirements of the domestic content procurement preference outlined below are met. Therefore, the Contractor shall ensure the following:

- (1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- (2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another

standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and

(3) all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.

Waivers

When necessary, recipients of Federal financial assistance may apply for, and the awarding agency may grant, a waiver from the domestic content procurement preference.

When the Federal agency has made a determination that one of the following exceptions applies, the awarding official may waive the application of the domestic content procurement preference in any case in which the agency determines that:

(1) applying the domestic content procurement preference would be inconsistent with the public interest;

(2) the types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality; or

(3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent. A request to waive the application of the domestic content procurement preference must be in writing. The agency will provide instructions on the format, contents, and supporting materials required for any waiver request. Waiver requests are subject to public comment periods of no less than 15 days and must be reviewed by the Made in America Office.

There may be instances where an award qualifies, in whole or in part, for an existing waiver described on the awarding agency web site.

If the Contractor determines that an application for a waiver is necessary or an existing waiver is applicable to this project, the Contractor shall timely notify the Owner. The Owner will make a determination if a waiver is applicable or if a waiver application is necessary. The Contractor shall not submit any waiver application or information directly to the Federal agency without prior approval by the Owner.

Definitions

“Construction materials” includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is or consists primarily of: • non-ferrous metals; • plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); • glass (including optic glass); • lumber; or • drywall.

“Domestic content procurement preference” means all iron and steel used in the project are produced in the United States; the manufactured products used in the project are produced in the United States; or the construction materials used in the project are produced in the United States.

“Infrastructure” includes, at a minimum, the structures, facilities, and equipment for, in the United States, roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property. Infrastructure includes facilities that generate, transport, and distribute energy.

“Project” means the construction, alteration, maintenance, or repair of infrastructure in the United States.

29.0 Prohibition on Certain Telecommunication and Video Surveillances Services or Equipment (Pub. L. 115-232, Section 889)

Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of a Federal executive agency and recipients or subrecipients of funds from such agencies from obligating or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons. Pursuant to such provisions, the Contractor understands and agrees that the Contractor and its subcontractors shall not obligate or expend loan or grant funds from the Federal Agency under this Contract to:

(1) Procure or obtain;

(2) Extend or renew a contract to procure or obtain; or

(3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in [Public Law 115–232](#), section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

TERMS AND CONDITIONS FOR CONTRACTOR
RECEIPT OF FEDERAL ARPA SFRF FUNDS

I. Use of Funds: _____ (“Contractor”) understands and agrees that the State of Missouri has received funds for this project under section 602(c) of the Social Security Act (“Act”), as added by Section 9901 of the American Rescue Plan Act (“ARPA”), Pub. L. No. 117-2 (March 11, 2021), 135 Stat. 4, 223–26, and the funds disbursed under such grant may only be used in compliance with the ARPA and the U.S. Department of the Treasury (“Treasury”)’s regulations implementing that section and guidance, and in compliance with all other restrictions and specifications on use set forth in or applicable through this agreement.

Period of Performance: The period of performance for the award begins on the date hereof and ends no later than December 31, 2026. Contractor may use funds granted under this agreement to cover eligible costs incurred during the period of performance, but no later than December 31, 2024.

Reporting: Contractor agrees to comply with any reporting obligations established by Treasury or the State of Missouri (“State”), as it relates to this agreement.

Maintenance of and Access to Records: Contractor shall maintain records and financial documents sufficient to evidence compliance with section 602(c) of the Act and Treasury’s regulations implementing that section and guidance regarding the eligible uses of funds. Contractor shall also maintain records and financial documents: 1. sufficient for the State, with respect to Contractor’s participation in this grant agreement, to evidence compliance with section 602(c) of the Act and Treasury’s regulations implementing that section and guidance regarding the eligible uses of funds; and 2. necessary for the State, with respect to Contractor’s participation in this agreement, to comply with obligations under 2 C.F.R. Part 200 and any other applicable law. The Treasury Office of Inspector General, the Government Accountability Office, their authorized representatives, the State, or its authorized representatives, shall have the right of access to records and documents (electronic and otherwise) of Contractor in order to conduct audits or other investigations or reviews. Records shall be maintained by Contractor for a period of five (5) years after the end of the period of performance. Wherever practicable, records should be collected, transmitted, and stored in open and machine-readable formats. Contractor’s obligations under this section shall include, without limitation, maintenance of the following specified types of records and financial documents: contracts, invoices, receipts, payrolls, and financial statements.

Pre-award Costs: Pre-award costs, as defined at 2 C.F.R. § 200.458, may not be paid with funding from this agreement.

Compliance with Applicable Law and Regulations: Contractor agrees to comply with the requirements of section 602 of the Act, regulations adopted by Treasury pursuant to section 602(f) of the Act, guidance issued by Treasury regarding the foregoing, and all other restrictions and specifications set forth in or applicable through this agreement. Contractor also agrees to comply with all other applicable state and federal statutes, regulations, and executive orders, and

Contractor shall provide for such compliance by other parties in any agreements it enters into with other parties relating to this grant.

Federal regulations applicable to this agreement include, without limitation, the following:

i. If the amount of this agreement is expected to equal or exceed \$25,000, or if this agreement is for federally-required audit services, OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement), 2 C.F.R. Part 180, and Treasury's implementing regulation at 31 C.F.R. Part 19, including both the requirement to comply with that part's Subpart C as a condition of participation in this transaction, and the requirement to pass the requirement to comply with that subpart to each person with whom the participant enters into a covered transaction at the next lower tier;

ii. Recipient Integrity and Performance Matters, pursuant to which the award term set forth at 2 C.F.R. Part 200, Appendix XII, is hereby incorporated by reference;

iii. Uniform Relocation Assistance and Real Property Acquisitions Act of 1970 (42 U.S.C. §§ 4601–4655) and implementing regulations; and

iv. Generally applicable federal environmental laws and regulations.

Federal statutes and regulations prohibiting discrimination applicable to this agreement include, without limitation, the following:

i. Title VI of the Civil Rights Act of 1964 (42 U.S.C. §§ 2000d *et seq.*) and Treasury's implementing regulations at 31 C.F.R. Part 22, which prohibit discrimination on the basis of race, color, or national origin under programs or activities receiving federal financial assistance;

ii. the Fair Housing Act, Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§ 3601 *et seq.*) which prohibits discrimination in housing on the basis of race, color, religion, national origin, sex, familial status, or disability;

iii. Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794), which prohibits discrimination on the basis of disability under any program or activity receiving federal financial assistance;

iv. the Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101 *et seq.*) and Treasury's implementing regulations at 31 C.F.R. Part 23, which prohibit discrimination on the basis of age in programs or activities receiving federal financial assistance; and

v. For local governments only, Title II of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. §§ 12101 *et seq.*), which prohibits discrimination on the basis of disability under programs, activities, and services provided or made available by state and local governments or instrumentalities or agencies thereto.

Remedial Actions: The State reserves the right to impose additional conditions or requirements on Contractor's receipt of this funds under this agreement, as the State deems necessary or advisable, in order to facilitate compliance with any existing or additional conditions or requirements imposed upon the State by Treasury for the State's receipt of ARPA funds. The State also reserves the right to seek recoupment or repayment of funds under this agreement in whole or in part, in the event that Treasury seeks recoupment or repayment of payments made to the State, for reasons relating to Contractor's acts or omissions respecting this agreement. These reservations are expressed without limitation to any other rights the State may hold, either to impose additional conditions or requirements on Contractor's receipt of funds under this agreement or to recoup such funds in whole or in part, under this agreement or other applicable law.

Hatch Act: Contractor agrees to comply, as applicable, with requirements of the Hatch Act (5 U.S.C. §§ 1501–1508 and 7324–7328), which limit certain political activities of State or local government employees whose principal employment is in connection with an activity financed in whole or in part by this federal assistance.

False Statements: Contractor understands that making false statements or claims in connection with this award is a violation of federal law and may result in criminal, civil, or administrative sanctions, including fines, imprisonment, civil damages and penalties, debarment from participating in federal awards or contracts, and/or any other remedy available by law.

Publications: Any publications produced with funds from this agreement must display the following language: "This product [is being] [was] supported, in whole or in part, by federal award number [enter project FAIN] awarded to State of Missouri by the U.S. Department of the Treasury."

Debts Owed State and Federal Government: Any funds paid to Contractor (1) in excess of the amount to which Contractor is finally determined to be authorized to retain under the terms of this agreement; (2) that are determined by the Treasury Office of Inspector General to have been misused; or (3) that are determined by Treasury to be subject to a repayment obligation pursuant to sections 602(e) and 603(b)(2)(D) of the Act and have not been repaid by Contractor shall constitute a debt owed by the State to the federal government. In such instance, the funds constituting the State's debt to the federal government shall also constitute Contractor's debt to the State. Debts owed by Contractor to the State must be paid promptly by Contractor. A debt owed the State by Contractor under this agreement is delinquent if it has not been paid by the date specified in the State's initial demand for payment, unless other satisfactory arrangements have been made or if Contractor knowingly or improperly retains funds that are a debt as defined in this paragraph. The State will take any actions available to it to collect such a debt, including but not limited to actions available to it under the "Remedial Actions" paragraph found in this same section (I) above. The rights of the State as expressed in this paragraph are in addition to, and do not imply the exclusion of, any other rights the State may have under applicable law to collect a debt or seek damages from Contractor.

Disclaimer: In its award of federal financial assistance to the State, Treasury provides that the United States expressly disclaims any and all responsibility or liability to the State or third

persons for the actions of the State or third persons resulting in death, bodily injury, property damages, or any other losses resulting in any way from the performance of this award or any other losses resulting in any way from the performance of this award or any contract or subcontract under this award. Furthermore, in its award of federal financial assistance to the State, Treasury also states that the acceptance of this award by the State does not in any way establish an agency relationship between the United States and the State. This disclaimer applies with equal force to this agreement.

Increasing Seat Belt Use in the United States: Pursuant to Executive Order 13043, 62 FR 19217 (Apr. 18, 1997), Contractor is hereby encouraged to adopt and enforce on-the-job seat belt policies and programs for its employees when operating company-owned, rented or personally owned vehicles, and to encourage any subcontractors to do the same.

Reducing Text Messaging While Driving: Pursuant to federal Executive Order 13513, 74 FR 51225 (Oct. 6, 2009), the State hereby encourages Contractor to adopt and enforce policies that ban text messaging while driving, and to encourage any subcontractors to do the same.¹

II. By entering into this agreement, Contractor ensures its current and future compliance with Title VI of the Civil Rights Act of 1964, as amended, which prohibits exclusion from participation, denial of the benefits of, or subjection to discrimination under programs and activities receiving federal funds, of any person in the United States on the ground of race, color, or national origin (42 U.S.C. § 2000d et seq.), as implemented by Treasury Title VI regulations at 31 C.F.R. Part 22 and other pertinent executive orders such as federal Executive Order 13166; directives; circulars; policies; memoranda and/or guidance documents.

Contractor acknowledges that federal Executive Order 13166, “Improving Access to Services for Persons with Limited English Proficiency,” seeks to improve access to federally assisted programs and activities for individuals who, because of national origin, have Limited English Proficiency (“LEP”). Contractor understands that denying a person access to its programs, services, and activities because of LEP is a form of national origin discrimination prohibited under Title VI of the Civil Rights Act of 1964 and Treasury’s implementing regulations. Accordingly, Contractor shall initiate reasonable steps, or comply with Treasury’s directives, to ensure that LEP persons have meaningful access to its programs, services, and activities. Contractor understands and agrees that meaningful access may entail providing language assistance services, including oral interpretation and written translation where necessary, to ensure effective communication in Contractor’s programs, services, and activities.

Contractor agrees to consider the need for language services for LEP persons during development of applicable budgets and when conducting programs, services, and activities. As a resource, Treasury has published its LEP guidance at 70 FR 6067. For more information on LEP, please visit <http://www.lep.gov>.

¹ Section I is based on requirements set forth in Treasury’s Coronavirus State Fiscal Recovery Fund Award Terms and Conditions document, executed by the State on July 26, 2021.

Contractor acknowledges and agrees that compliance with this assurance constitutes a condition of continued receipt of federal financial assistance and is binding upon Contractor and Contractor's successors, transferees, and assignees for the period in which such assistance is provided.

Contractor shall comply with Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal financial assistance from excluding from a program or activity, denying benefits of, or otherwise discriminating against a person on the basis of race, color, or national origin (42 U.S.C. § 2000d et seq.), as implemented by the Department of the Treasury's Title VI regulations, 31 C.F.R. Part 22, which are herein incorporated by reference and made a part of this agreement. Title VI also includes protection to persons with "Limited English Proficiency" in any program or activity receiving federal financial assistance, 42 U.S.C. § 2000d et seq., as implemented by the Department of the Treasury's Title VI regulations 31 C.F.R. Part 22, and herein incorporated by reference and made a part of this agreement.

Contractor shall cooperate in any enforcement or compliance review activities by Treasury or the State of the aforementioned obligations. Enforcement may include investigation, arbitration, mediation, litigation, and monitoring of any settlement agreements that may result from these actions. That is, Contractor shall comply with information requests, on-site compliance review, and reporting requirements.

Contractor shall maintain and provide to applicants, beneficiaries, their representatives, or any other party requesting the same, information on how to file a Title VI complaint of discrimination with the State of Missouri.

Contractor shall provide to the State documentation of an administrative agency's or court's findings of non-compliance of Title VI and efforts to address the non-compliance, including any voluntary compliance or other agreements between Contractor and the administrative agency that makes any such finding. If Contractor settles a case or matter alleging such discrimination, Contractor must provide to the State documentation of the settlement. If Contractor has not been the subject of any court or administrative agency finding of discrimination, Contractor shall so state.

The United States of America has the right to seek judicial enforcement of the terms of this assurance section and nothing in this section alters or limits the federal enforcement measures that the United States may take in order to address violations of this section or applicable federal law.

Under penalty of perjury, the undersigned certifies that he/she has read and understood this section's obligations as herein described, that any information submitted in conjunction with this assurance document is accurate and complete, and that Contractor is in compliance with the aforementioned nondiscrimination requirements.

By signing this certification, the undersigned represents his or her intention, and legal authorization, to do so on behalf of Contractor.²

Signature of Contractor's Authorized Representative

Date: _____

Printed Name of Contractor's Authorized Representative

Contractor's Unique Entity Identifier: _____
(*Name associated with the Unique Entity Identifier must match the Contractor's name on contract documents)

III. This agreement shall be conducted in accordance with the standards set forth at 2 C.F.R. §§ 200.317 through 200.327, as applicable. Pursuant to 2 C.F.R. § 200.327 and Appendix II to Part 200 of Title 2 of the C.F.R.:

i. Contracts for more than \$250,000 must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

ii. All contracts in excess of \$10,000 must address termination for cause and for convenience by the State, including the manner by which it will be effected and the basis for settlement.

iii. Except as otherwise provided under 41 C.F.R. Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 C.F.R. Part 60-1.3 must include the equal opportunity clause provided under 41 C.F.R. 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p.339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 C.F.R. Part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

iv. When required by federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 C.F.R. Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute,

² Section II is based on requirements set forth in Treasury's Assurance of Compliance with Civil Rights Requirements document, executed by the State on July 26, 2021.

contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract must be conditioned upon the acceptance of the wage determination. The non-federal entity must report all suspected or reported violations to the federal awarding agency. The contracts must also include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 C.F.R. Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each contractor must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-federal entity must report all suspected or reported violations to the federal awarding agency.

v. Where applicable, all contracts awarded by the non-federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Contract Work Hours and Safety Standards Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.³

vi. If the State or Contractor wishes to enter into a contract or subcontract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under the State’s award of ARPA funds or this agreement, the State and/or Contractor must comply with the requirements of 37 C.F.R. Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.

vii. Contracts and subgrants of amounts in excess of \$150,000 must contain a provision that requires the non-federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the

³ Additionally, “in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in [29 C.F.R.] § 5.1,” 29 C.F.R. § 5.5(c) requires that another clause be included “in any such contract,” *id.* For language appropriate to construction of this additional clause, see 29 C.F.R. § 5.5(c).

Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA). [

viii. A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. 180 that implement Executive Orders 12549 (3 C.F.R. Part 1986 Comp., p. 189) and 12689 (3 C.F.R. Part 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. This requirement applies when the amount of the agreement is expected to equal or exceed \$25,000, or if the agreement is for federally-required audit services. 2 C.F.R. § 180.220.]

ix. Contractors that apply or bid for an award exceeding \$100,000 must file the certification required by 31 U.S.C. § 1352, the Byrd Anti-Lobbying Amendment. Under that law, each tier certifies to the tier above that it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier up to the non-federal award.

x. A non-federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines. In the performance of this agreement, Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired: 1. competitively within a timeframe providing for compliance with this agreement’s performance schedule; 2. meeting this agreement’s performance requirements; or 3. at a reasonable price. Information about this requirement, along with the list of EPA-designated items, is available at EPA’s Comprehensive Procurement Guidelines webpage: <http://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>. Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

xi. Pursuant to Pub. L. No. 115-232, H.R. 5515 (115th Congress, 2018), and 2 C.F.R. § 200.216, funds provided by this agreement shall not be obligated or expended to: 1. Procure or obtain; 2. Extend or renew a contract to procure or obtain; or 3. Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered

telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. For purposes of this prohibition, “covered telecommunications equipment or services” has the meaning as set forth at Sec. 889(f)(3) of Pub. L. No. 115-232. *See also* 2 C.F.R. § 200.216.

xii. Pursuant to 2 C.F.R. § 200.322, as appropriate and to the extent consistent with law, Contractor should, to the greatest extent practicable under this agreement, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). For purposes of this provision: 1. “produced in the United States” means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. 2. “manufactured products” means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

Annual Wage Order No. 31

Section 080
PETTIS 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 8, 2024**

Last Date Objections May Be Filed: **April 8, 2024**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$26.51*
Boilermaker	\$26.51*
Bricklayer-Stone Mason	\$55.70
Carpenter	\$54.95
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	\$26.51*
Plasterer	
Communication Technician	\$26.51*
Electrician (Inside Wireman)	\$71.03
Electrician Outside Lineman	\$26.51*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	\$26.51*
Glazier	\$26.51*
Ironworker	\$68.67
Laborer	\$26.51*
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$26.51*
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$26.51*
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	\$41.49
Plumber	\$76.75
Pipe Fitter	
Rofer	\$60.63
Sheet Metal Worker	\$75.15
Sprinkler Fitter	\$66.78
Truck Driver	\$26.51*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in RSMo Section 290.210.

Heavy Construction Rates for
PETTIS County

Section 080

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$52.84
Millwright	
Pile Driver	
Electrician (Outside Lineman)	\$26.51*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	\$26.51*
General Laborer	
Skilled Laborer	
Operating Engineer	\$26.51*
Group I	
Group II	
Group III	
Group IV	
Truck Driver	\$26.51*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title.

OVERTIME and HOLIDAYS

OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, "**overtime work**" shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January first;
The last Monday in May;
July fourth;
The first Monday in September;
November eleventh;
The fourth Thursday in November; and
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.

SECTION 011000 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists of Improvements to the Sanitary Sewer System and the Stormwater Conveyance System.
 - 1. Project Location: Missouri State Fairgrounds, 2503 West 16th Street, Sedalia, Missouri 65301.
 - 2. Owner: State of Missouri, Office of Administration, Division of Facilities Management, Design and Construction, Harry S Truman State Office Building, Post Office Box 809, 301 West High Street, Jefferson City, Missouri 65102.
- B. Contract Documents, dated 08/30/2024 were prepared for the Project by Allstate Consultants LLC, 3312 LeMone Industrial Boulevard, Columbia, Missouri 65201
- C. The Work consists of focusing on the existing aging sewer laterals within the building facilities and the stormwater portion is focused on the conveyance systems and their capacities.
 - 1. The Work for the sanitary sewer improvements includes replacing existing lateral pipes to many of the older buildings on the fairgrounds with 4”, 6” and 8” PVC pipe, rehabbing existing manholes, adding new manholes, replacing 1 pump stations, rehabbing 1 pump station, and adding lateral cleanouts. The work for the stormwater system installing various sizes of HP piping, concrete junction boxes, concrete area inlets, curb inlet, concrete box culvert, existing pipe removal, rip rap, holding pond construction, and guttering for wash rack structures.
- D. The Work will be constructed under a single prime contract.

1.3 WORK UNDER OTHER CONTRACTS (not applicable)

1.4 FUTURE WORK (not applicable)

1.5 WORK SEQUENCE

- A. The Work may be required to be conducted in phases based on the events scheduled for the fairgrounds during the construction of this project. The contractor must coordinate the construction operations with the Facility Manager of the fairgrounds.

1.7 CONTRACTOR USE OF PREMISES

- A. General: During the construction period the Contractor shall have full use of the premises for construction operations, including use of the site. The Contractor's use of the premises is limited only by the Owner's right to perform work or to retain other contractors on portions of the Project.
- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
 - 1. Owner Occupancy: Allow for Owner occupancy and use by the public.
 - 2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.8 OCCUPANCY REQUIREMENTS (not applicable)

1.9 OWNER-FURNISHED PRODUCTS (not applicable)

1.10 MISCELLANEOUS PROVISIONS

PART 2 - PRODUCTS (not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF PRODUCTS ORDERED IN ADVANCE

END OF SECTION 011000

SECTION 012100 – ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Weather allowances.
- C. Related Sections include the following:
 - 1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for allowances.
 - 2. Division 1 Section "Unit Prices" for procedures for using unit prices.

1.3 WEATHER ALLOWANCE

- A. Included within the completion period for this project are a specified number of “bad weather” days (see Schedule of Allowances).
- B. The Contractor’s progress schedule shall clearly indicate the bad weather day allowance as an “activity” or “activities”. In the event weather conditions preclude performance of critical work activities for 50% or more of the Contractor’s scheduled workday, that day shall be declared unavailable for work due to weather (a “bad weather” day) and charged against the above allowance. Critical work activities will be determined by review of the Contractor’s current progress schedule.
- C. The Contractor’s Representative and the Construction Representative shall agree monthly on the number of “bad weather” days to be charged against the allowance. This determination will be documented in writing and be signed by the Contractor and the Construction Representatives. If there is a failure to agree on all or part of the “bad weather” days for a particular month, that disagreement shall be noted on this written document and signed by each party’s representative. Failure of the Contractor’s representative to sign the “bad weather” day documentation after it is presented, with or without the notes of disagreement, shall constitute agreement with the “bad weather” day determination contained in that document.

- D. There will be no modification to the time of contract performance due solely to the failure to deplete the “bad weather” day allowance.
- E. Once this allowance is depleted, a no cost Change Order time extension will be executed for “bad weather” days, as defined above, encountered during the remainder of the Project.

1.4 SELECTION AND PURCHASE (not applicable)

1.5 SUBMITTALS (not applicable)

1.6 COORDINATION (not applicable)

1.7 [LUMP-SUM] ALLOWANCES (not applicable)

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION (not applicable)

A. PREPARATION (not applicable)

3.2 SCHEDULE OF ALLOWANCES

- A. Weather Allowance: Included within the completion period for this Project “bad weather” days. The Contract will allow for 10 “bad weather” days.

END OF SECTION 012100

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Bid Form and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing Alternates.

1.3 DEFINITIONS

- A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents..
 - 1. The cost for each alternate is the net addition to the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.
- B. No additional time will be allowed for alternate work unless the number of work days is so stated on the bid form.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate the Alternate Work into the Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.
- B. Notification: The award of the Contract will indicate whether alternates have been accepted or rejected.
- C. Execute accepted alternates under the same conditions as other Work of this Contract.
- D. Schedule: A “Schedule of Alternates” is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: *Work associated with Stormwater lines G, H, I and J as noted on plans.*
- B. Alternate No. 2: *Work associated with Stormwater lines K and L as noted on plans.*

END SECTION 012300

SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract Modifications.
- B. Related Sections include the following:
 - 1. Division 1, Section 012100 "Allowances" for procedural requirements for handling and processing Allowances.
 - 2. Division 1, Section 013115 "Project Management Communications" for administrative requirements for communications.
 - 3. Division 0, Section 007213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.

1.3 REQUESTS FOR INFORMATION

- A. In the event that the Contractor or Subcontractor, at any tier, determines that some portion of the Drawings, Specifications, or other Contract Documents requires clarification or interpretation, the Contractor shall submit a "Request for Information" (RFI) in writing to the Designer. A RFI may only be submitted by the Contractor and shall only be submitted on the RFI forms provided by the Owner. The Contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed. In the RFI, the Contractor shall set forth an interpretation or understanding of the requirement along with reasons why such an understanding was reached.
- B. Responses to RFI shall be issued within ten (10) working days of receipt of the Request from the Contractor unless the Designer determines that a longer time is necessary to provide an adequate response. If a longer time is determined necessary by the Designer, the Designer will, within five (5) working days of receipt of the request, notify the Contractor of the anticipated response time. If the Contractor submits a RFI on a time sensitive activity on the current project schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Designer to respond to the request provided that the Designer responds within the ten (10) working days set forth above.

1.4 MINOR CHANGES IN THE WORK

- A. Designer will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Amount or the Contract Time, on "Designer's Supplemental Instructions" (DSI).

1.5 PROPOSAL REQUESTS

- A. The Designer or Owner Representative will issue a detailed description of proposed Changes in the Work that may require adjustment to the Contract Amount or the Contract Time. The proposed Change Description will be issued using the “Request for Proposal” (RFP) form. If necessary, the description will include supplemental or revised Drawings and Specifications.
1. Proposal Requests issued by the Designer or Owner Representative are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 2. Within ten (10) working days after receipt of Proposal Request, submit a proposal for the cost adjustments to the Contract Amount and the Contract Time necessary to execute the Change. The Contractor shall submit his proposal on the appropriate Change Order Detailed Breakdown form. Subcontractors may use the appropriate Change Order Detailed Breakdown form or submit their proposal on their letterhead provided the same level of detail is included. All proposals shall include:
 - a. A detailed breakdown of costs per Article 4.1 of the General Conditions.
 - b. If requesting additional time per Article 4.2 of the General Conditions, include an updated Contractor's Construction Schedule that indicates the effect of the Change including, but not limited to, changes in activity duration, start and finish times, and activity relationship.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, the Designer or Owner Representative will issue a Change Order for signatures of Owner and Contractor on the “Change Order” form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 013100 – COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Projects including, but not limited to, the following:
 - 1. Administrative and supervisory personnel.
 - 2. Project meetings.
- B. Related Sections include the following:
 - 1. Division 1, Section 013200 "Schedules" for preparing and submitting Contractor's Construction Schedule.
 - 2. Articles 1.8.B and 1.8.C of Section 007213 "General Conditions" for coordinating meetings onsite.
 - 3. Article 5.4.H of Section 007213 "General Conditions" for coordinating Closeout of the Contract.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections, which depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results
 - 2. where installation of one part of the Work depends on installation of other components, before or after its own installation.
- B. Prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Startup and adjustment of systems.

8. Project Closeout activities.
- C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

- A. Key Personnel Names: Within fifteen (15) work days of starting construction operations, submit a list of key personnel assignments including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 PROJECT MEETINGS

- A. The Owner's Construction Representative will schedule a Pre-Construction Meeting prior to beginning of construction. The date, time, and exact place of this meeting will be determined after Contract Award and notification of all interested parties. The Contractor shall arrange to have the Job Superintendent and all prime Subcontractors present at the meeting. During the Pre-Construction Meeting, the construction procedures and information necessary for submitting payment requests will be discussed and materials distributed along with any other pertinent information.
1. Minutes: Designer will record and distribute meeting minutes.
- B. Progress Meetings: The Owner's Construction Representative will conduct Monthly Progress Meetings as stated in Articles 1.8.B and 1.8.C of Section 007213 "General Conditions".
1. Minutes: Designer will record and distribute to Contractor the meeting minutes.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration including requirements for the following:
 - a. Contract Documents
 - b. Related RFIs
 - c. Purchases
 - d. Deliveries
 - e. Submittals
 - f. Possible conflicts
 - g. Compatibility problems

- h. Time schedules
 - i. Weather limitations
 - j. Manufacturer's written recommendations
 - k. Warranty requirements
 - l. Temporary facilities and controls
 - m. Space and access limitations
 - n. Regulations of authorities having jurisdiction
 - o. Testing and inspecting requirements
 - p. Installation procedures
 - q. Required performance results
 - r. Protection of construction and personnel
3. Contractor shall record significant conference discussions, agreements, and disagreements including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
 6. Project name
 7. Name and address of Contractor
 8. Name and address of Designer
 9. RFI number including RFIs that were dropped and not submitted
 10. RFI description
 11. Date the RFI was submitted
 12. Date Designer's response was received
 13. Identification of related DSI or Proposal Request, as appropriate

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013115 - PROJECT MANAGEMENT COMMUNICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.
- B. Division 1, Section 013300 - Submittals
- C. Division 1, Section 012600 – Contract Modification Procedures

1.2 SUMMARY

- A. Project Management Communications: The Contractor shall use the Internet web based project management communications tool, E-Builder® ASP software, and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.
 - 1. Project management communications is available through E-Builder® as provided by "e-Builder®" in the form and manner required by the Owner.
 - 2. The project communications database is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of each project participant. The sharing of user accounts is prohibited
- B. Support: E-Builder® will provide on-going support through on-line help files.
- C. Copyrights and Ownership: Nothing in this specification or the subsequent communications supersedes the parties' obligations and rights for copyright or document ownership as established by the Contract Documents. The use of CAD files, processes or design information distributed in this system is intended only for the project specified herein.
- D. Purpose: The intent of using E-Builder® is to improve project work efforts by promoting timely initial communications and responses. Secondly, to reduce the number of paper documents while providing improved record keeping by creation of electronic document files
- E. Authorized Users: Access to the web site will be by individuals who are authorized users.
 - 1. Individuals shall complete the E-Builder New Company/User Request Form located at the following web site: <https://oa.mo.gov/facilities/vendor-links/contractor-forms>.

Completed forms shall be emailed to the following email address: OA.FMDCE-BuilderSupport@oa.mo.gov.

2. Authorized users will be contacted directly and assigned a temporary user password.
 3. Individuals shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.
- F. Administrative Users: Administrative users have access and control of user licenses and all posted items. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!** Improper or abusive language toward any party or repeated posting of items intended to deceive or disrupt the work of the project will not be tolerated and will result in deletion of the offensive items and revocation of user license at the sole discretion of the Administrative User(s).
- G. Communications: The use of fax, email and courier communication for this project is discouraged in favor of using E-Builder® to send messages. Communication functions are as follows:
1. Document Integrity and Revisions:
 - a. Documents, comments, drawings and other records posted to the system shall remain for the project record. The authorship time and date shall be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp shall be the method used to make modifications or corrections.
 - b. The system shall make it easy to identify revised or superseded documents and their predecessors.
 - c. Server or Client side software enhancements during the life of the project shall not alter or restrict the content of data published by the system. System upgrades shall not affect access to older documents or software.
 2. Document Security:
 - a. The system shall provide a method for communication of documents. Documents shall allow security group assignment to respect the contractual parties communication except for Administrative Users. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE DATABASE!**
 3. Document Integration:
 - a. Documents of various types shall be logically related to one another and discoverable. For example, requests for information, daily field reports, supplemental sketches and photographs shall be capable of reference as related records.
 4. Reporting:
 - a. The system shall be capable of generating reports for work in progress, and logs for each document type. Summary reports generated by the system shall be available for team members.
 5. Notifications and Distribution:
 - a. Document distribution to project members shall be accomplished both within the extranet system and via email as appropriate. Project document distribution to parties outside of the project communication system shall be

- accomplished by secure email of outgoing documents and attachments, readable by a standard email client.
6. Required Document Types:
 - a. RFI, Request for Information.
 - b. Submittals, including record numbering by drawing and specification section.
 - c. Transmittals, including record of documents and materials delivered in hard copy.
 - d. Meeting Minutes.
 - e. Application for Payments (Draft or Pencil).
 - f. Review Comments.
 - g. Field Reports.
 - h. Construction Photographs.
 - i. Drawings.
 - j. Supplemental Sketches.
 - k. Schedules.
 - l. Specifications.
 - m. Request for Proposals
 - n. Designer's Supplemental Instructions
 - o. Punch Lists
- H. Record Keeping: Except for paper documents, which require original signatures and large format documents (greater than 8½ x 11 inches), all other 8½ x 11 inches documents shall be submitted by transmission in electronic form to the E-Builder® web site by licensed users.
- a. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier shall respond to documents received in electronic form on the web site, and consider them as if received in paper document form.
 - b. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier reserves the right to and shall reply or respond by transmissions in electronic form on the web site to documents actually received in paper document form.
 - c. The Owner and his representatives, the Designer and his consultants, and the Contractor and his Sub Contractors and suppliers at every tier reserves the right to and shall copy any paper document into electronic form and make same available on the web site.
- I. Minimum Equipment and Internet Connection: In addition to other requirements specified in this Section, the Owner and his representatives, the Construction Manager and his representatives, the Architect and his consultants, and the Contractor and his sub-contractors and suppliers at every tier required to have a user license(s) shall be responsible for the following:

1. Providing suitable computer systems for each licensed user at the users normal work location¹ with high-speed Internet access, i.e. DSL, local cable company's Internet connection, or T1 connection.
2. Each of the above referenced computer systems shall have the following minimum system² and software requirements:
 - a. Desktop configuration (Laptop configurations are similar and should be equal to or exceed desktop system.)
 - 1) Operating System: Windows XP or newer
 - 2) Internet Browser: Internet Explorer 6.01SP2+ (Recommend IE7.0+)
 - 3) Minimum Recommend Connection Speed: 256K or above
 - 4) Processor Speed: 1 Gigahertz and above
 - 5) RAM: 512 mb
 - 6) Operating system and software shall be properly licensed.
 - 7) Internet Explorer version 7 (current version is a free distribution for download). This specification is not intended to restrict the host server or client computers provided that industry standard HTTP clients may access the published content.
 - 8) Adobe Acrobat Reader (current version is a free distribution for download).
 - 9) Users should have the standard Microsoft Office Suite (current version must be purchased) or the equivalent.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable.)

END OF SECTION 013115

¹ The normal work location is the place where the user is assigned for more than one-half of his time working on this project.

² The minimum system herein will not be sufficient for many tasks and may not be able to process all documents and files stored in the E-Builder® Documents area.

SECTION 013200 – SCHEDULE – BAR CHART

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for a Bar Chart Schedule for the project construction activities, schedule of submittals, and schedule for testing.

PART 2 - PRODUCTS – (Not Applicable)

PART 3 - EXECUTION

3.1 SUBMITTAL PROCEDURES

- A. The Contractor shall submit to the Designer, within ten (10) working days following the Notice to Proceed, a Progress Schedule including Schedule of Values showing the rate of progress the Contractor agrees to maintain and the order in which he proposed to carry out the various phases of Work. No payments shall be made to the Contractor until the Progress Schedule has been approved by the Owner.
 - 1. The Schedule of Values must have the following line items included with the value of the item as indicated below:
 - a. O&M's (Owner's Manual)
 - 1) \$1,000,000.00 (One million) and under – 2% of the total contract amount
 - 2) Over \$1,000,000.00 (One million) – 1% of the total contract amount
 - b. Close Out Documents
 - 1) \$1,000,000.00 (One million) and under – 2% of the total contract amount
 - 2) Over \$1,000,000.00 (One million) – 1% of the total contract amount
 - c. General Conditions
 - 1) No more than 10%
- B. The Contractor shall submit an updated Schedule for presentation at each Monthly Progress Meeting. The Schedule shall be updated by the Contractor as necessary to reflect the current Schedule and its relationship to the original Schedule. The updated Schedule shall reflect any changes in the logic, sequence, durations, or completion date.

Payments to the Contractor shall be suspended if the Progress Schedule is not adequately updated to reflect actual conditions.

- C. The Contractor shall submit Progress Schedules to Subcontractors to permit coordinating their Progress Schedules to the general construction Work. The Contractor shall coordinate preparation and processing of Schedules and reports with performance of other construction activities.

3.2 CONSTRUCTION PROGRESS SCHEDULE – BAR CHART SCHEDULE

- A. Bar-Chart Schedule: The Contractor shall prepare a comprehensive, fully developed, horizontal bar chart-type Contractor’s Construction Schedule. The Contractor for general construction shall prepare the Construction Schedule for the entire Project. The Schedule shall show the percentage of work to be completed at any time, anticipated monthly payments by Owner, as well as significant dates (such as completion of excavation, concrete foundation work, underground lines, superstructure, rough-ins, enclosure, hanging of fixtures, etc.) which shall serve as check points to determine compliance with the approved Schedule. The Schedule shall also include an activity for the number of “bad” weather days specified in Section 012100 – Allowances.
 - 1. The Contractor shall provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week.
 - a. If practical, use the same Schedule of Values breakdown for schedule time bars.
 - 2. The Contractor shall provide a base activity time bar showing duration for each construction activity. Each bar is to indicate start and completion dates for the activity. The Contractor is to place a contrasting bar below each original schedule activity time for indicating actual progress and planned remaining duration for the activity.
 - 3. The Contractor shall prepare the Schedule on a minimal number of separate sheets to readily show the data for the entire construction period.
 - 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on schedule with other construction activities. Include minor elements involved in the overall sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
 - 5. Coordinate the Contractor’s Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other required schedules and reports.
 - 6. Indicate the Intent to Award and the Contract Substantial Completion dates on the schedule.
- B. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:
 - 1. Requirement for Phased completion
 - 2. Work by separate Contractors

3. Work by the Owner
 4. Pre-purchased materials
 5. Coordination with existing construction
 6. Limitations of continued occupancies
 7. Un-interruptible services
 8. Partial Occupancy prior to Substantial Completion
 9. Site restrictions
 10. Provisions for future construction
 11. Seasonal variations
 12. Environmental control
- C. Work Stages: Use crosshatched bars to indicate important stages of construction for each major portion of the Work. Such stages include, but are not necessarily limited to, the following:
1. Subcontract awards
 2. Submittals
 3. Purchases
 4. Mockups
 5. Fabrication
 6. Sample testing
 7. Deliveries
 8. Installation
 9. Testing
 10. Adjusting
 11. Curing
 12. Startup and placement into final use and operation
- D. Area Separations: Provide a separate time bar to identify each major area of construction for each major portion of the Work. For the purposes of this Article, a “major area” is a story of construction, a separate building, or a similar significant construction element.
1. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure
 - c. Completion of mechanical installation
 - d. Completion of the electrical portion of the Work
 - e. Substantial Completion

3.3 SCHEDULE OF SUBMITTALS

- A. Upon acceptance of the Construction Progress Schedule, prepare and submit a complete schedule of submittals. Coordinate the submittal schedule with Section 013300 SUBMITTALS, the approved Construction Progress Schedule, list of subcontracts, Schedule of Values and the list of products.
- B. Prepare the schedule in chronological order. Provide the following information
 - 1. Scheduled date for the first submittal
 - 2. Related Section number
 - 3. Submittal category
 - 4. Name of the Subcontractor
 - 5. Description of the part of the Work covered
 - 6. Scheduled date for resubmittal
 - 7. Scheduled date for the Designer's final release or approval
- C. Distribution: Following the Designer's response to the initial submittal schedule, print and distribute copies to the Designer, Owner, subcontractors, and other parties required to comply with submittal dates indicated.
 - 1. Post copies in the Project meeting room and temporary field office.
 - 2. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned part of the Work and are no longer involved in construction activities.
- D. Schedule Updating: Revise the schedule after each meeting or other activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

3.4 SCHEDULE OF INSPECTIONS AND TESTS

- A. Prepare a schedule of inspections, tests, and similar services required by the Contract Documents. Submit the schedule with (15) days of the date established for commencement of the Contract Work. The Contractor is to notify the testing agency at least (5) working days in advance of the required tests unless otherwise specified.
- B. Form: This schedule shall be in tabular form and shall include, but not be limited to, the following:
 - 1. Specification Section number
 - 2. Description of the test
 - 3. Identification of applicable standards
 - 4. Identification of test methods
 - 5. Number of tests required
 - 6. Time schedule or time span for tests

7. Entity responsible for performing tests
 8. Requirements for taking samples
 9. Unique characteristics of each service
- C. Distribution: Distribute the schedule to the Owner, Architect, and each party involved in performance of portions of the Work where inspections and tests are required.

END OF SECTION 013200

SECTION 013300 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.
- B. Division 1, Section 013115 “Project Management Communications” for administrative requirements for communications.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work including the following:
 - 1. Shop Drawings
 - 2. Product Data
 - 3. Quality Assurance Submittals
 - 4. Construction Photographs
 - 5. Operating and Maintenance Manuals
 - 6. Warranties
- B. Administrative Submittals: Refer to General and Supplementary Conditions other applicable Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Construction Progress Schedule including Schedule of Values
 - 2. Performance and Payment Bonds
 - 3. Insurance Certificates
 - 4. Applications for Payment
 - 5. Certified Payroll Reports
 - 6. Partial and Final Receipt of Payment and Release Forms
 - 7. Affidavit – Compliance with Prevailing Wage Law
 - 8. Record Drawings
 - 9. Notifications, Permits, etc.
- C. The Contractor is obliged and responsible to check all shop drawings and schedules to assure compliance with contract plans and specifications. The Contractor is responsible for the content of the shop drawings and coordination with other contract work. Shop drawings and schedules shall indicate, in detail, all parts of an Item or Work including erection and setting instructions and integration with the Work of other trades.

- D. The Contractor shall at all times make a copy, of all approved submittals, available on site to the Construction Representative.

1.3 SUBMITTAL PROCEDURES

- A. The Contractor shall comply with the General and Supplementary Conditions and other applicable sections of the Contract Documents. The Contractor shall submit, with such promptness as to cause no delay in his work or in that of any other contractors, all required submittals indicated in Part 3.1 of this section and elsewhere in the Contract Documents. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Designer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
- B. Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and numbers of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:
 - 1. Date of Submission
 - 2. Name of Project
 - 3. Location
 - 4. Section Number of Specification
 - 5. State Project Number
 - 6. Name of Submitting Contractor
 - 7. Name of Subcontractor
 - 8. Indicate if Item is submitted as specified or as a substitution

1.4 SHOP DRAWINGS

- A. Comply with the General Conditions, Article 3.2.
- B. The Contractor shall submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- C. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings including the following information:
 - 1. Dimensions

2. Identification of products and materials included by sheet and detail number
3. Compliance with specified standards
4. Notation of coordination requirements
5. Notation of dimensions established by field measurement
6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8½"x11" but no larger than 11" x 17".

1.5 PRODUCT DATA

- A. The Contractor shall comply with the General Conditions, Article 3.2.
- B. The Contractor shall collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information including the following information:
 - a. Manufacturer's printed recommendations
 - b. Compliance with Trade Association standards
 - c. Compliance with recognized Testing Agency standards
 - d. Application of Testing Agency labels and seals
 - e. Notation of dimensions verified by field measurement
 - f. Notation of coordination requirements
 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

1.6 SAMPLES

1.7 QUALITY ASSURANCE DOCUMENTS

- A. **Certifications:** Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the Manufacturer certifying compliance with specified requirements.
 1. **Signature:** Certification shall be signed by an officer of the Manufacturer or other individual authorized to contractually bind the Company.
- B. **Inspection and Test Reports:** The Contractor shall submit the required inspection and test reports from independent testing agencies as specified in this Section and in other Sections of the Contract Documents.
- C. **Construction Photographs:** The Contractor shall submit record construction photographs as specified in this Section and in other Sections of the Contract Documents.

1. The Contractor shall submit digital photographs. The Construction Administrator shall determine the quantity and naming convention at the preconstruction meeting.
2. The Contractor shall identify each photograph with project name, location, number, date, time, and orientation.
3. The Contractor shall submit progress photographs monthly unless specified otherwise. Photographs shall be taken one (1) week prior to submitting.
4. The Contractor shall take four (4) site photographs from differing directions and a minimum of five (5) interior photographs indicating the relative progress of the Work.

1.8 OPERATING AND MAINTENANCE MANUALS AND WARRANTIES

- A. The Contractor shall submit all required manufacturer’s operating instructions, maintenance/service manuals, and warranties in accordance with the General Conditions, Article 3.5, and Supplementary Conditions along with this and other Sections of the Contract Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REQUIRED SUBMITTALS

- A. Contractor shall submit the following information for materials and equipment to be provided under this contract.

SPEC SECTION	TITLE	CATEGORY
013200	Schedules	Construction Schedule
013200	Schedules	Schedule of Values
013200	Schedules	List of Subcontractors
013200	Schedules	Major Material Suppliers
320516	Rip-Rap and Supporting Material	Product Data Certification
321123	Aggregate Base	Product Data Certification
321216	Asphaltic Concrete Pavement	Product Data Certification
321310	Concrete for Paving, Walks, & Misc.	Product Data Certification
329219	Seeding	Product Data
331421	Plug Valve	Product Data
331422	Check Valve	Product Data

SPEC SECTION	TITLE	CATEGORY
333100	Sanitary Sewers	Product Data Shop Drawings
333212 333216	Solids Handling Wastewater Pump & CP Ginder Pump Station	Product Data Shop Drawings Warranty Test Report Operation / Maintenance Manual
334200	Storm Sewers	Product Data Shop Drawings

END OF SECTION 013300

SECTION 013513.28 - SITE SECURITY AND HEALTH REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUBMITTALS

- A. List of required submittals:
 - 1. Materials Safety Data Sheets for all hazardous materials to be brought onsite.
 - 2. Schedule of proposed shutdowns, if applicable.
 - 3. A list of the names of all employees who will submit fingerprints for a background check, and the signed privacy documents identified below for each employee.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ACCESS TO THE SITE

- A. The Contractor shall arrange with Facility Representatives to establish procedures for the controlled entry of workers and materials into the work areas at the Facility.
- B. The Contractor shall establish regular working hours with Facility Representatives. The Contractor must report changes in working hours or overtime to Facility Representatives and obtain approval twenty-four (24) hours ahead of time. The Contractor shall report emergency overtime to Facility Representatives as soon as it is evident that overtime is needed. The Contractor must obtain approval from Facility Representatives for all work performed after dark.
- C. The Contractor shall provide the name and phone number of the Contractor's employee or agent who is in charge onsite; this individual must be able to be contacted in case of emergency. The Contractor must be able to furnish names and address of all employees upon request.
- D. All construction personnel shall visibly display issued identification cards.

3.2 FIRE PROTECTION, SAFETY, AND HEALTH CONTROLS

- A. The Contractor shall take all necessary precautions to guard against and eliminate possible fire hazards.
 - 1. Onsite burning is prohibited.

2. The Contractor shall store all flammable or hazardous materials in proper containers located outside the buildings or offsite, if possible.
 3. The Contractor shall provide and maintain, in good order, during construction fire extinguishers as required by the National Fire Protection Association. In areas of flammable liquids, asphalt, or electrical hazards, 15-pound carbon dioxide or 20-pound dry chemical extinguishers shall be provided.
- B. The Contractor shall not obstruct streets or walks without permission from the Owner's Construction Representative and Facility Representatives.
- C. The Contractor's personnel shall not exceed the speed limit of 15 mph while at the Facility unless otherwise posted.
- D. The Contractor shall take all necessary, reasonable measures to reduce air and water pollution by any material or equipment used during construction. The Contractor shall keep volatile wastes in covered containers, and shall not dispose of volatile wastes or oils in storm or sanitary drains.
- E. The Contractor shall keep the project site neat, orderly, and in a safe condition at all times. The Contractor shall immediately remove all hazardous waste, and shall not allow rubbish to accumulate. The Contractor shall provide onsite containers for collection of rubbish and shall dispose of it at frequent intervals during the progress of the Work.
- F. Fire exits, alarm systems, and sprinkler systems shall remain fully operational at all times, unless written approval is received from the Owner's Construction Representative and the appropriate Facility Representative at least twenty-four (24) hours in advance. The Contractor shall submit a written time schedule for any proposed shutdowns.
- G. For all hazardous materials brought onsite, Material Safety Data Sheets shall be on site and readily available upon request at least a day before delivery.
- H. Alcoholic beverages or illegal substances shall not be brought upon the Facility premises. The Contractor's workers shall not be under the influence of any intoxicating substances while on the Facility premises.

3.3 SECURITY CLEARANCES AND RESTRICTIONS

- A. **FMDC REQUIRED FINGERPRINTING FOR CRIMINAL BACKGROUND AND WARRANTS CHECK**
1. All employees of the Contractor are required to submit fingerprints to the Missouri State Highway Patrol to enable the Office of Administration, Division of Facilities Management, Design and Construction (FMDC) to receive state and national criminal background checks on such employees. FMDC reserves the right to prohibit any employee of the Contractor from performing work in or on the premises of any facility owned, operated, or utilized by the State of Missouri for any reason.
 2. The Contractor shall ensure all of its employees submit fingerprints to the Missouri State Highway Patrol and pay for the cost of such background checks. The Contractor shall submit to FMDC via email to FMDCSecurity@oa.mo.gov a list of the names of the Contractor's employees who will be fingerprinted and a signed Missouri Applicant

Fingerprint Privacy Notice, Applicant Privacy Rights and Privacy Act Statement for each employee. All employees of the Contractor approved by FMDC to work at a State facility must obtain a contractor ID badge from FMDC prior to beginning work on-site, unless the Director of FMDC, at the Director's discretion, waives the requirement for a contractor ID badge. The Contractor and its employees must comply with the process for background checks and contractor ID badges found on FMDC's website at: <https://oa.mo.gov/fmdc-contractor-id-badges>.

3. Pursuant to section 43.540, RSMo, FMDC participates in the Missouri Rap Back and National Rap Back programs as of August 28, 2018. This means that the Missouri State Highway Patrol, Central Records Repository, and the Federal Bureau of Investigation will retain the fingerprints submitted by each of the Contractor's employees, and those fingerprints will be searched against other fingerprints on file, including latent fingerprints. While retained, an employee's fingerprints may continue to be compared against other fingerprints submitted or retained by the Federal Bureau of Investigation, including latent fingerprints.
4. As part of the Missouri and National Rap Back programs, FMDC will receive notification if a new arrest is reported for an employee whose fingerprints have been submitted for FMDC after August 28, 2018. If the employee is performing work on a State contract at the time of the arrest notification, FMDC will request and receive the employee's updated criminal history records. If the employee is no longer performing work on a State contract, FMDC will not obtain updated criminal records.
5. Pursuant to section 43.540, RSMo, the Missouri State Highway Patrol will provide the results of the employee's background check directly to FMDC. FMDC may NOT release the results of a background check to the Contractor or provide the Contractor any information obtained from a background check, either verbally or in writing. FMDC will notify the Contractor only whether an employee is approved to work on State property.
6. Each employee who submits fingerprints to the Missouri State Highway Patrol has a right to obtain a copy of the results of his or her background check. The employee may challenge the accuracy and completeness of the information contained in a background check report and obtain a determination from the Missouri State Highway Patrol and/or the FBI regarding the validity of such challenge prior to FMDC making a final decision about his or her eligibility to perform work under a State contract.
7. The Contractor shall notify FMDC via email to FMDCSecurity@oa.mo.gov if an employee is terminated or resigns from employment with the Contractor. If the Contractor does not anticipate performing work on a State contract in the future, the Contractor may request that FMDC remove its employees from the Rap Back programs. However, if removed from the Rap Back programs, employees will be required to submit new fingerprints should the contractor be awarded another State contract.
8. Upon award of a Contract, the Contractor should contact FMDC at FMDCSecurity@oa.mo.gov to determine if its employees need to provide a new background check. If a Contractor's employee has previously submitted a fingerprint background check to FMDC as part of the Missouri and National Rap Back programs, the employee may not need to submit another fingerprint search for a period of three to six years, depending upon the circumstances. The Contractor understands and agrees that FMDC may require more frequent background checks without providing any explanation to the Contractor. The fact that an additional background check is requested by FMDC does not indicate that the employee has a criminal record.

3.4 DISRUPTION OF UTILITIES

- A. The Contractor shall give a minimum of seventy-two (72) hours written notice to the Construction Representative and the Facility Representative before disconnecting electric, gas, water, fire protection, or sewer service to any building.
- B. The Contractor shall give a minimum of seventy-two (72) hours written notice to the Construction Representative and Facility Representative before closing any access drives, and shall make temporary access available, if possible. The Contractor shall not obstruct streets, walks, or parking.

3.5 PROTECTION OF PERSONS AND PROPERTY

A. SAFETY PRECAUTIONS AND PROGRAMS

- 1. The Contractor shall at all times conduct operations under this Contract in a manner to avoid the risk of bodily harm to persons or risk of damage to any property. The Contractor shall promptly take precautions which are necessary and adequate against conditions created during the progress of the Contractor's activities hereunder which involve a risk of bodily harm to persons or a risk of damage to property. The Contractor shall continuously inspect Work, materials, and equipment to discover and determine any such conditions and shall be solely responsible for discovery, determination, and correction of any such conditions. The Contractor shall comply with applicable safety laws, standards, codes, and regulations in the jurisdiction where the Work is being performed, specifically, but without limiting the generality of the foregoing, with rules regulations, and standards adopted pursuant to the Williams-Steiger Occupational Safety and Health Act of 1970 and applicable amendments.
- 2. All contractors, subcontractors and workers on this project are subject to the Construction Safety Training provisions 292.675 RSMo.
- 3. In the event the Contractor encounters on the site, material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), lead, mercury, or other material known to be hazardous, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner's Representative and the Architect in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner's Representative and Contractor if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or polychlorinated biphenyl (PCB), or when it has been rendered harmless by written agreement of the Owner's Representative and the Contractor. "Rendered Harmless" shall mean that levels of such materials are less than any applicable exposure standards, including but limited to OSHA regulations.

B. SAFETY OF PERSONS AND PROPERTY

- 1. The Contractor shall take reasonable precautions for safety of, and shall provide protection to prevent damage, injury, or loss to:
 - a. clients, staff, the public, construction personnel, and other persons who may be affected thereby;
 - b. the Work and materials and equipment to be incorporated therein, whether in

- storage on or off the site, under care, custody, or control of the Contractor or the Contractor's Subcontractors of any tier; and
- c. other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
2. The Contractor shall give notices and comply with applicable laws, standards, codes, ordinances, rules, regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury, or loss.
 3. The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, safeguards for safety and protection, including, but not limited to, posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.
 4. When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise the highest degree of care and carry on such activities under supervision of properly qualified personnel.
 5. The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in this Section caused in whole or in part by the Contractor, a Subcontractor of any tier, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable, and for which the Contractor is responsible under this Section, except damage or loss attributable solely to acts or omissions of Owner or the Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's other obligations stated elsewhere in the Contract.
 6. The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents, and the maintaining, enforcing and supervising of safety precautions and programs. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner's Representative and Architect. The Contractor shall hold regularly scheduled safety meetings to instruct Contractor personnel on safety practices, accident avoidance and prevention, and the Project Safety Program. The Contractor shall furnish safety equipment and enforce the use of such equipment by its employees and its subcontractors of any tier.
 7. The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.
 8. The Contractor shall promptly report in writing to the Owner all accidents arising out of or in connection with the Work which cause death, lost time injury, personal injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported immediately.
 9. The Contractor shall promptly notify in writing to the Owner of any claims for injury or damage to personal property related to the work, either by or against the Contractor.
 10. The Owner assumes no responsibility or liability for the physical condition or safety of the Work site or any improvements located on the Work site. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time concerning any failure by the Contractor or any Subcontractor to comply

with the requirements of this Paragraph.

11. In no event shall the Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences or procedures or for safety precautions and programs in connection with the Work, notwithstanding any of the rights and authority granted the Owner in the Contract Documents.
12. The Contractor shall maintain at his own cost and expense, adequate, safe and sufficient walkways, platforms, scaffolds, ladders, hoists and all necessary, proper, and adequate equipment, apparatus, and appliances useful in carrying on the Work and which are necessary to make the place of Work safe and free from avoidable danger for clients, staff, the public and construction personnel, and as may be required by safety provisions of applicable laws, ordinances, rules regulations and building and construction codes.

END OF SECTION 013513.28

SECTION 015000 – CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for construction facilities and temporary controls including temporary utilities, support facilities, security, and protection.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Temporary electric power and light
 - 2. Temporary heat
 - 3. Ventilation
 - 4. Telephone service
 - 5. Sanitary facilities, including drinking water
- C. Support facilities include, but are not limited to, the following:
 - 1. Field offices and storage sheds
 - 2. signs and bulletin boards
 - 3. Waste disposal services
 - 4. Rodent and pest control
- D. Security and protection facilities include, but are not limited to, to following:
 - 1. Temporary fire protection
 - 2. Barricades, warning signs, and lights
 - 3. Environmental protection

1.3 SUBMITTALS

1.4 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations including, but not limited to, the following:
 - 1. Health and safety regulations
 - 2. Utility company regulations
 - 3. Police, fire department, and rescue squad rules
 - 4. Environmental protection regulations

- B. Standards: Comply with NFPA 241 “Standard for Safeguarding Construction, Alterations, and Demolition Operations”. ANSI A10 Series standards for “Safety Requirements for Construction and Demolition”, and NECA Electrical Design Library “Temporary Electrical Facilities”.
 - 1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 “National Electric Code”.
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist onsite.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. If acceptable to the Designer, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
- B. Lumber and Plywood: Comply with requirements in Division 6 Section “Rough Carpentry”.
 - 1. For job-built temporary office, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
 - 2. For signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sized and thicknesses indicated.
 - 3. For fences and vision barriers, provide minimum 3/9” (9.5mm) thick exterior plywood.
 - 4. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8” (16mm) thick exterior plywood.
- C. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of (15) or less. For temporary enclosures, provide translucent, nylon-reinforced laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.

- D. Water: Provide potable water approved by local health authorities.
- E. Open-Mesh Fencing: Provide 0.120" (3mm) thick, galvanized 2" (50mm) chainlink fabric fencing 6' (2m) high with galvanized steel pipe posts, 1½" (38mm) ID for line posts and 2½" (64mm) ID for corner posts.

2.2 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Designer, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
- B. Water Hoses: Provide ¾" (19mm), heavy-duty, abrasion-resistant, flexible rubber hoses 100' (30m) long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage rating.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixture where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- H. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated re-circulation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- I. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers, or a combination of extinguishers of NFPA-recommended classes for the exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each Facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
 - 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 - 3. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Designer. Neither the Owner nor Designer will accept cost or use charges as a basis of claims for Change Order.
- B. Temporary Water Service: The Owner will provide water for construction purposes from the existing building system. All required temporary extensions shall be provided and removed by the Contractor. Connection points and methods of connection shall be designated and approved by the Construction Representative.
- C. Temporary Electric Power Service: The Owner will provide electric power for construction lighting and power tools. Contractors using such services shall pay all costs of temporary services, circuits, outlet, extensions, etc.
- D. Temporary Lighting: When overhead floor or roof deck has been installed, provide temporary lighting with local switching.
 - 1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.
 - 2. Heating Facilities: Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP gas or fuel-oil heaters with individual space thermostatic control.
 - 3. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.

- E. Temporary Toilets: Install self-contained toilet units. Use of pit-type privies will not be permitted. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 - 1. Shield toilets to ensure privacy.
 - 2. Provide separate facilities for male and female personnel.
 - 3. Provide toilet tissue materials for each facility.

- F. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a health and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
 - 1. Provide paper towels or similar disposable materials for each facility.
 - 2. Provide covered waste containers for used material.
 - 3. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.

- G. Drinking-Water Facilities: Provide containerized, tap-dispenser, bottled-water drinking-water units, including paper supply.
 - 1. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45°F to 55°F (7°C to 13°C).

- H. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.
 - 1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

- B. Field Offices: Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings. Furnish and equip office as follows:
 - 1. Furnish with a desk and chairs, a 4-drawer file cabinet, plan table, plan rack, and a 6-shelf bookcase.
 - 2. Equip with a water cooler and private toilet complete with water closet, lavatory, and medicine cabinet unit with a mirror.

- C. Storage Facilities: The Owner will provide storage onsite as designated by the Facility Representative or the Construction Representative. Areas for use by the Contractor for storage will be identified at the Pre-Bid Meeting.
- D. Construction Parking: Parking at the site will be provided in the areas designated at the Pre-Construction Meeting.
- E. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven (7) days during normal weather or three (3) days when the temperature is expected to rise above 80°F (27°C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Designer.
- B. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonable predictable and controllable fire losses. Comply with NFPA 10 “Standard for Portable Fire Extinguishers” and NFPA 241 “Standard for Safeguarding Construction, Alterations, and Demolition Operations”.
 - 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one (1) extinguisher on each floor at or near each usable stairwell.
 - 2. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
 - 4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting including flashing red or amber lights.
 - 1. Storage: Where materials and equipment must be stored and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- D. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and minimize the possibility that air, waterways, and subsoil might be contaminated or

- E. polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.5 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
- C. Termination and Removal: Unless the Designer requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.

END OF SECTION 015000

SECTION 017400 – CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for cleaning during the Project.
- B. Environmental Requirements: Conduct cleaning and waste-disposal operations in compliance with local laws and ordinances. Comply fully with federal and local environmental and anti-pollution regulations.
 - 1. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 2. Burning or burying of debris, rubbish, or other waste material on the premises is not permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator for the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

- A. General
 - 1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
 - 2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
 - 3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the jobsite.
 - 4. Provide adequate storage for all items awaiting removal from the jobsite, observing all requirements for fire protection and protection of the ecology.

B. Site

1. Daily, inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
2. Weekly, inspect all arrangements of materials stored onsite. Re-stack, tidy, or otherwise service all material arrangements.
3. Maintain the site in a neat and orderly condition at all times.

C. Structures

1. Daily, inspect the structures and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
2. Weekly, sweep all interior spaces clean. "Clean" for the purposes of this paragraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.
3. In preparation for installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.
4. Following the installation of finish floor materials, clean the finish floor daily while work is being performed in the space in which finish materials have been installed. "Clean" for the purposes of this subparagraph, shall be interpreted as meaning free from all foreign material which, in the opinion of the Construction Representative, may be injurious to the finish of the finish floor material.

3.2 FINAL CLEANING

- A. General: Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to the condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
- B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the Project.
 1. Clean the Project Site, yard and grounds, in areas disturbed by construction activities including landscape development areas, of rubbish, waste material, litter, and foreign substances.
 2. Sweep paved areas broom clean. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 3. Remove petrochemical spills, stains, and other foreign deposits.
 4. Remove tools, construction equipment, machinery, and surplus material from the site.
 5. Remove snow and ice to provide safe access to the building.
 6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing

- natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 8. Broom clean concrete floors in unoccupied spaces.
 9. Vacuum clean carpet and similar soft surfaces removing debris and excess nap. Shampoo, if required.
 10. Clean transparent material, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 11. Remove labels that are not permanent labels.
 12. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - a. Do not paint over “UL” and similar labels, including mechanical and electrical nameplates.
 13. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 14. Clean plumbing fixtures to a sanitary condition free of stains, including stains resulting from water exposure.
 15. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 16. Clean ducts, blowers, and coils if units were operated without filters during construction
 17. Clean food-service equipment to a sanitary condition, ready and acceptable for its intended use.
 18. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs and defective and noisy starters in fluorescent and mercury vapor fixtures.
 19. Leave the Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests. Comply with regulations of local authorities.
- D. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.

- E. Compliances: Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of lawfully.
 - 1. Where extra materials of value remain after Final Acceptance by the Owner, they become the Owner's property.

END OF SECTION 017400

SECTION 310000 – SITE CONSTRUCTION

PART 1 - GENERAL

This Section includes all site preparation activities and items of earthwork necessary to complete the project.

PART 2 - STANDARDS ASSURANCE:

1. American Association of State Highway and Transportation Officials Standard Method of Test (AASHTO):

T-96 - Abrasion of Coarse aggregate, Los Angeles Machine.

T-99 - The Moisture-Density Relations of Soils Using a 5.5-Pound (2.5 kG) Rammer and a 12-Inch (305 mm) Drop.

T104 - Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Test.

2. American Society of Testing and Materials (A.S.T.M.):

D2049 - Relative Density of Cohesionless Soils.

A.S.T.M., 1970, 5th Edition, Special Procedures for Testing Soil and Rock for Engineering Purposes, (STP 479), "Burmister Method."

D751-68 - Modified 5/16" Steel Cylinder with Hemispherical Tip.

3. Method: U.S. Department of Interior, Bureau of Reclamation, Earth Manual, 1st Edition, Designation E-12, Relative Density of Cohesionless Soils, Part A, Method Using Foundry-Type Vibrators.
4. Construction Standards: Missouri Highway and Transportation Department of Construction Standards

PART 3 - CONTRACTOR RESPONSIBILITIES, MATERIALS, BIDDING, CONSTRUCTION AND DEMOLITION

1. Lines and grades shall be as indicated. Engineer will furnish a benchmark and a base line to permit the Contractor to layout and construct the work. Refer to Job Special Condition
2. Carefully maintain all benchmarks, monuments and other reference points and replace as directed if disturbed or destroyed.
3. Disposition of Existing Facilities, Structures and Property:
 - A. Adequately protect from damage all existing utilities, structures and property and remove or relocate only as indicated, specified or as directed by the Engineer.
 - B. Report inactive and abandoned utilities encountered in excavating and grading operations. Remove, plug, or cap as directed.
4. All materials encountered, regardless of type, character, composition, or condition thereof, shall be unclassified.

END OF SECTION 310000

SECTION 310500 – DEMOLITION

PART 1 - GENERAL

1. Remove existing equipment as indicated, or as required to perform new construction.
2. Materials not indicated or specified to be relocated or returned to Owner shall be disposed of as specified in "Debris" this section.
3. Carefully dismantle, in manner to avoid damage, all materials and equipment indicated to be relocated or returned to Owner.
4. Store materials and equipment to be reused in a manner to avoid corrosion, staining, breakage, or damage.
5. Material or equipment specified or indicated to be relocated or returned to the Owner and damaged due to Contractor's negligence shall be repaired or replaced as directed by Engineer.
6. Debris
 - A. Dispose of debris off the job site at a location provided by the Contractor.
 - B. Combustible waste material and debris may be burned subject to the Contractor obtaining required permits and conducting burning operations in accordance with Federal, State and local regulations.

END OF SECTION 310500

SECTION 311000 – SITE CLEARING

PART 1 - STRIPPING OF TOPSOIL LAYER:

1. Remove topsoil from areas within limits of excavation, trenching, borrow and areas designed to receive embankment or compacted fill.
2. Scrape areas clean of all brush, grass, weeds, roots and other unsuitable material.
3. Strip to a minimum depth of 4 inches, and to a sufficient depth to remove excessive roots in heavy vegetation or brush areas and as required to segregate topsoil.
4. Stockpile topsoil reasonably free of subsoil, debris, and stones larger than 2-inch diameter, in sufficient quantity to complete the work. Stockpile shall not interfere with construction operations and existing facilities.

END OF SECTION 311000

SECTION 312000 – SUBGRADE

PART 1 - SUBGRADE PREPARATION:

1. Excavate or fill as required to construct subgrades to elevations and grades indicated.
2. Remove all unsuitable material and replace with approved fill material. Perform all wetting, drying, shaping, and compacting required to prepare a suitable subgrade.
3. Roughen subgrade for embankment by discing or scarifying and wet or dry the top 6 inches as required to insure bond with embankment.
4. Extend subgrade the full width of surfaced areas plus one foot.
5. Compact subgrade to 95 percent as determined by AASHTO T-99 or as recommended by the Geotechnical Report.
6. Compact the top twelve inches of subgrades for traffic areas and slabs on grade to 95 percent as determined by AASHTO T-99 above scarified and recompacted subgrades or as recommended by the Geotechnical Report.
7. Where soil stabilization mat or fabric is required, installation shall meet manufacturer's recommendation.
8. Test Compactor as required.

END OF SECTION 312000

SECTION 312213 – ROUGH GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating topsoil.
2. Grading, filling, and compacting for Storm Water Holding Basins.

PART 2 - EXECUTION

2.1 APPLICATION

A. Topsoil Excavation:

1. Excavate topsoil from areas to be further excavated or regraded without mixing with foreign materials for use in finish grading.
2. Stockpile in area designated on-Site and protect from erosion.
3. Do not remove excess topsoil from Site.

B. Subsoil Excavation:

1. Excavate subsoil from and transport to areas requiring fill.
2. Stockpile subsoil in area designated on-Site and protect from erosion.

C. Filling:

1. Place fill material in continuous 6” to 8” layers and compact to 95% of maximum density.

2.2 FIELD QUALITY CONTROL

A. Perform laboratory material tests according to **ASTM D698**.

B. Perform In-place Compaction Tests:

1. Density Tests: **ASTM D2922**.
2. Moisture Tests: **ASTM D3017**.

C. Frequency of Tests: One for each 100 feet per lift.

D. Test results shall be furnished on forms acceptable to the Engineer.

END OF SECTION 312213

SECTION 312316 – EXCAVATION

PART 1 - GENERAL

Excavation shall include all materials found within the designated limits for excavation.

1. Prior to bidding, determine quantity of various materials to be excavated prior to submitting Bid Form. If encountered, remove rock at no extra cost to Owner.
2. Arrangements for entry to site for the purpose of conducting subsurface investigations, including test borings, shall be made with Owner.
3. Cohesionless materials include gravels, gravel-sand mixtures, sands and gravelly sands exclusive of clayey and silty material - materials which are free-draining and for which impact compaction will not produce a well-defined moisture-density relationship curve and for which the maximum density by impact methods will generally be less than by vibratory methods.
4. Cohesive materials include silts and clays generally exclusive of sands and gravel - materials for which impact compaction will produce a well-defined moisture-density relationship curve.
5. Contractor shall satisfy all his/her concerns by performing their own geotechnical evaluation during construction by a qualified geotechnical engineer.

PART 2 - SHEETING AND BRACING

Use as necessary to:

1. Protect life and property.
2. Conform to Federal, State and local regulations.
3. Avoid excessively wide cuts in unstable material.

PART 3 - DEWATERING (NO EXTRA PAYMENT FOR THIS ITEM)

1. Control grading around excavations to prevent surface water from flowing into excavation.
2. Drain or pump as required to continually maintain all excavations and trenches free of water or mud and discharge to approved drains or channels. Commence when water first appears and continue until work is complete to the extent that no damage will result from the presence of water.
3. Use pumps of adequate capacity to ensure rapid drainage.
4. Construct and use drainage channels and subdrains as required.
5. Remove unsuitable excessively wet materials and replace with approved material.

END OF SECTION 312316

SECTION 312323 – FILL AND BACKFILL

PART 1 - BACKFILL MATERIALS:

1. Includes suitable approved material from excavations and borrow area(s).
2. Shall be friable sandy or silty clay containing fine material sufficient to provide a dense mass free of voids and capable of satisfactory compaction.
3. Shall be free of roots or other organic matter, refuse, cinders, ice, snow, frozen earth, or other unsuitable matter.
4. Do not use material containing gravel, stones, or shale particles greater in dimension than one-half the depth of the layer to be compacted.

PART 2 - DEMOLITION:

1. Remove existing equipment as indicated, or as required to perform new construction.
2. Materials not indicated or specified to be relocated or returned to Owner shall be disposed of as specified in “Debris” this section.
3. Carefully dismantle, in manner to avoid damage, all materials and equipment indicated to be relocated or returned to Owner.
4. Store materials and equipment to be reused in a manner to avoid corrosion, staining, breakage or damage.
5. Material or equipment specified or indicated to be relocated or returned to the Owner and damaged due to Contractor’s negligence shall be repaired or replaced as directed by Engineer.

PART 3 - FILL REPLACEMENT

1. Placement:
 - A. Place to the contours and elevations indicated.
 - B. Place embankment material in 8-inch maximum layers (uncompacted depth).
 - C. Perform wetting or drying of embankment material as required to obtain specified density. Moisture content at time of placement shall not be less than optimum nor more than 4 percent above optimum as determined by AASHTO T-99. Geotechnical Report and field review shall control.
 - D. Do not place snow, ice or frozen earth in fill and do not place fill on a frozen surface.
2. Compaction:
 - A. Cohesive material in embankment shall be compacted to 95% of maximum density @ optimum moisture as determined by AASHTO T-99 or compaction ratio as required by the Geotechnical Report. Geotechnical Report and field review shall control.
 - B. Cohesion less material in embankment shall be compacted to 75% of relative density as determined

by A.S.T.M. D2049, A.S.T.M., 1970, 5th Edition (STP479) "Burmister Method" or by designation E-12 of 1st Edition USDI Bu-Rec Earth Manual.

PART 4 - BACKFILLING:

1. General: Perform wetting or drying of backfill material as required to obtain specified density. Moisture content at time of placement to be not less than optimum nor more than 4 percent above optimum as determined by ASSHTO T-99 or as recommended by the Geotechnical Report.
2. Structures:
 - A. Place backfill to the elevations indicated.
 - B. Obtain compaction specified by normal methods and equipment accomplish without inundation or flooding.
 - C. Backfill only after concrete has attained 70 percent of its design strength.
 - D. Backfill adjacent to structure(s) only after, in the opinion of the engineer, a sufficient portion of the structure has been completed to resist the imposed load.
 - E. Backfill within one foot of structure to be free of gravel, rock or shale particles larger than 2 inches.
 - F. Perform backfilling simultaneously on all sides of the structure.
 - G. Exercise caution in the use of heavy equipment in areas adjacent to structure to avoid high lateral stress on the structure walls. Only light equipment shall be utilized in backfilling within 20 feet of the structure. Equipment shall be approved by Engineer.

END OF SECTION 312323

SECTION 312500 - EROSION CONTROL/STORM WATER POLLUTION PREVENTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Installation of temporary water pollution control measures to prevent discharge of pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage, or other harmful material from the project.
- B. Other related documents.

1.2 GENERAL

- A. The Contractor shall manage his operations to control water pollution in accordance with this specification and applicable State regulations. Construction of permanent drainage facilities and other contract work, contributing to control of erosion, shall be scheduled at the earliest practicable time.
- B. The Contractor shall furnish, install, maintain, and remove temporary erosion control measures. The Contractor shall prevent silt or polluted storm water discharge from the site.
- C. The Owner's Representative may require installation of additional erosion control facilities, by the Contractor, if in the sole opinion of the Owner's Representative, the Contractor's efforts are inadequate.

1.3 DEFINITIONS

- A. General Permit: The General Permit for storm water discharges associated with construction activity (Land Disturbance General Permit No. MO-R100038) issued to FMDC as a blanket permit by the Missouri Department of Natural Resources, Water Pollution Program.
- B. Storm Water Pollution Prevention Plan (SWPPP): A plan required by the General Permit that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants.
- C. Best Management Practice (BMP): Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.
- D. Temporary Berm: A temporary ridge of compacted soil, with or without a shallow ditch, constructed at the top of slopes or transverse to the centerline of a slope. The berm diverts storm runoff to temporary outlets to discharge water with minimal erosion.
- E. Temporary Slope Drain: A temporary facility used to carry water down a slope.
- F. Ditch Check: An obstruction placed at frequent intervals across ditches, creating small ponds to cause sediment to settle and be contained.

- G. Sediment Basin: An excavated or dammed storage area to trap and store sediment and prevent the discharge of silt.
- H. Temporary Seeding and Mulching: Placement of a quick ground cover to reduce erosion in areas expected to be re-disturbed.
- I. Straw Bales: Standard agricultural bales used to filter the flow of water, trap, deposit sediment, and/or divert water.
- J. Silt Fence: A geotextile barrier fence to contain sediment by removing suspended particles from water passing through the fence.
- K. Temporary Pipe: Conduit utilized to carry water under haul roads, silt fences, etc., and prevent equipment from direct contact with water when crossing an active or intermittent stream.
- L. Sediment Removal: Removal of accumulated sediment to restore the efficiency of sediment control features.

1.4 SUBMITTALS

- A. The Contractor shall submit his proposed “Erosion Control Plan” for review and approval by the Owner’s Representative. Approval of the plan does not relieve the Contractor of his contractual responsibility to prevent the discharge of pollutants into the receiving drainage ways.
- B. The Contractor shall review the Storm Water Pollution Prevention Plan (SWPPP) provided by the Designer, make appropriate field corrections to the document, and submit final corrected copies of the SWPPP to the Owner and facility.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Temporary slope drains: Stone, concrete or asphalt gutters, half-round pipe, metal pipe, plastic pipe or flexible rubber pipe.
- B. Ditch Checks:
 - 1. Rock ditch checks: 2" to 3" clean gravel or limestone.
 - 2. Straw bale ditch checks: Rectangular wheat straw bales in good condition. Other foliage may be substituted for straw in accordance with MoDOT 802.2.1.
 - 3. Silt fence ditch checks: Geotextile meeting the requirements of this specification.
- C. Riprap for Temporary Erosion Control: Type 1 Rock Blanket conforming to MoDOT 611.32.
- D. Pipe: Corrugated metal (16 Ga.) or ADS N12 Corrugated Plastic.
- E. Temporary Seeding:
 - 1. December 1 to March 1: 50 lbs oats/acre.
 - 2. March 1 to December 1: 50 lbs cereal rye or wheat.

3. Mulch shall be wheat straw.

F. Wire Supported and Self Supporting Silt Fence:

1. Geotextile Fabric

- a. Fibers used in geotextiles shall consist of longchain synthetic polymers, composed of at least 85 percent by weight polyolefins, polyesters, or polyamides. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including selvages.
- b. The geotextile shall be free of any treatment or coating which might adversely alter its physical properties after installation.
- c. Geotextile shall be furnished in 36" width rolls.
- d. Geotextile rolls shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure.
- e. Each roll shall be labeled or tagged to provide product identification sufficient for inventory.
- f. Rolls shall be stored in a manner, which protects them from the elements.
- g. Geotextile shall conform to the following:

TABLE 1
PHYSICAL REQUIREMENTS¹ FOR
TEMPORARY SILT FENCE GEOTEXTILES

<u>Property</u>	<u>Test Method</u>	<u>Wire Fence Supported Requirements</u>	<u>Self Supported Requirements</u>
Tensile Strength, Lbs.	ASTM D4632	90 Minimum ²	90 Minimum ²
Elongation at 50% Minimum			
Tensile Strength (45 Lbs.)	ASTM D4632	N/A	50 Maximum
Filtering Efficiency, %	VTM-51 ³	75	75
Flow Rate gal/ft/min	VTM-51 ³	0.3	0.3
Ultraviolet Degradation at 500 hrs.	ASTM D4355	Minimum 70% Strength Retained	Minimum 70% Strength Retained

Notes: 1. All numerical values represent minimum average roll value.

A. When tested in any principal direction.

B. Virginia DOT test method.

- 2. Posts: Wood, steel or synthetic posts may be used. Posts shall have a minimum length of 36" plus embedment depth (24" min.). Posts shall have sufficient strength to resist damage during installation and to support applied loads.
- 3. Support Fence: Wire or other support fence shall be at least 24" high and strong enough to support applied loads.

4. Prefabricated Fence: Prefabricated fence systems may be used provided they meet all of the above material requirements.

2.2 CERTIFICATION AND SAMPLING:

- A. The Contractor shall furnish a manufacturer's certification, stating the material conforms to the requirements of these specifications.
- B. The certification shall include, or have attached, typical results of tests for the specified properties, representative of the materials supplied.
- C. The Owner's Representative reserves the right to sample and test any material offered for use.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

- A. The Owner's Representative may limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, or fill operations.
- B. The Owner's Representative may direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams, other watercourses, lakes, ponds, or other areas of water impoundment. Work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, use of temporary mulches, seeding or other control devices or methods to control erosion.
- C. The Contractor shall incorporate permanent erosion control features at the earliest practicable time.
- D. The Contractor at no additional cost shall provide temporary pollution control measures needed to control erosion during normal construction practices to the Owner.
- E. Contractor shall designate trained and knowledgeable personnel to coordinate all SWPPP activities, and identify these personnel to the Owner's Representative during construction. Missouri Department of Natural Resources offers training classes in Erosion Control free of charge in Jefferson City. Contact for training: David Goggins at (573) 751-2556.
- F. The SWPPP is a living document. As the conditions of the site changes, the SWPPP should be updated by the Contractor.
- G. The SWPPP is subject to random inspection by the Owner. The SWPPP should be kept up to date by the Contractor and available for inspection at any time.
- H. If Contractor determines that any BMP should need modification, the changes shall be dated and documented, and all necessary field changes performed.

3.2 LIMITATION OF AREA DISTURBED:

- A. The Contractor's operations shall be scheduled to install permanent erosion control features immediately after clearing and grubbing, and grading.

- B. The surface area of erodible earth material exposed at one time by clearing and grubbing, excavating, fill, or borrow shall not exceed 200,000 square feet without written approval of the Owner's Representative.
- C. The Owner's Representative may limit the area of clearing and grubbing, excavation, borrow, and embankment operations commensurate with the Contractor's capability and progress in completing the finish grading, mulching, seeding, and other such permanent pollution control measures current.
- D. The Contractor shall respond to seasonal variations. If required by weather, temporary erosion control measures shall be taken immediately.

3.3 BORROW AND WASTE AREAS

- A. Material pits other than commercially operated sources and material spoil areas shall be subject to pollution control measures of this specification. An offsite location does not relieve the Contractor of his contractual obligation to prevent the introduction of silt or other pollutants into receiving waterways.

3.4 CONFLICT WITH FEDERAL, STATE OR LOCAL LAWS, RULES OR REGULATIONS

- A. In case of conflict between these requirements and pollution control laws, rules, or regulations or other Federal, State or local agencies, the more restrictive laws, rules, or regulations shall apply.

3.5 TEMPORARY BERMS

- A. Temporary berms shall be constructed at the top of newly constructed slopes and / or transverse to grade to divert runoff and prevent erosion until permanent controls are installed and / or slopes are stabilized. Two types of temporary berms will be utilized under conditions listed below:
 - 1. Type "A" Berm: At the end of each day's operations on embankments.
 - 2. Type "B" Berm: At shut down of embankment operations for the winter season or discontinuation of work at the direction of, or with concurrence of the Owner's Representative.
- B. Interceptor berms transverse to centerline may be used when temporary berms are installed on grades in excess of 1 percent and at locations where water is to be carried down the fill slope by temporary or permanent slope drains.
- C. Construction Requirements:
 - 1. Type A Berms shall be constructed to the approximate dimensions indicated on the drawings. Berms shall be machine compacted with a minimum of one pass over the entire width with a bulldozer tread, grader wheel, or other approved method.
 - 2. Type "B" Berms shall be constructed to the approximate dimensions indicated on the drawings. These berms shall be machine compacted with a minimum of three passes over the entire width with a bulldozer tread, grader wheel, or other approved method.

3. Type "A" and Type "B" Berms must drain to a compacted outlet at a slope drain. The top width of these berms may be wider and the side slopes flatter on transverse berms to allow equipment to pass over these berms with a minimal disruption.

3.6 TEMPORARY SLOPE DRAINS

A. General:

1. Temporary slope drains are required to concentrate water flowing down a slope prior to installation of permanent facilities. Slope drains shall be placed at approximately 500-foot intervals or as directed by the Owner's Representative.

B. General Requirements

1. The Contractor shall install a temporary silt fence in locations shown on the drawings, around inlets that accept flow carrying silt, and other locations necessary to prevent the discharge of silt from the site.
2. Installation shall conform to the drawing detail.
3. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading.

C. Construction Requirements:

1. Temporary slope drains shall be anchored to prevent disruption by the force of the water flowing in the drain.
2. The inlet end shall be constructed to channel water into the drain.
3. The outlet ends of these temporary slope drains shall have some means of dissipating the energy of this water to reduce erosion downstream.
4. Unless otherwise directed by the Owner's Representative, temporary slope drains shall be removed when no longer necessary and the site restored to match the surroundings.

3.7 DITCH CHECKS

A. General:

1. Rock ditch checks may be used on ditches with grades of 4 percent or less.
2. Straw bale ditch checks may be used on all ditches.
 - a. The silt fence fabric may be eliminated for grades of 2 percent or less.
3. Silt fence ditch check may be used on all ditches.
4. A straw bale ditch check or a silt fence ditch check may be used in lieu of a sediment basin for drainage areas less than two acres. The basin shall have a volume of 1,815 CF per acre of contributing drainage area.

B. Construction Requirements:

1. Construct rock ditch checks in accordance with the drawing detail.
 - a. Achieve complete coverage of the ditch or swale and insure the center of the check is lower than the edges.

2. Construct straw bale ditch checks in accordance with the drawing detail.
3. Construct silt fence ditch checks in accordance with the drawing detail.

C. Maintenance:

1. Inspect ditch checks for sediment accumulation after each rainfall.
2. Sediment shall be removed when it reaches one-half of the original height.
 - a. Regular inspections shall insure that the center of a rock check is lower than the edges. Correct erosion caused by high flows around the edges of the check immediately.

3.8 SEDIMENT BASIN

A. General

1. Sediment basins are used for drainage areas of two (2) to five (5) acres or for a roadway ditch exceeding 1,000 consecutive feet in length. Break larger drainage areas or longer ditches into smaller areas.

B. Construction Requirements:

1. The area where a sediment basin is to be constructed shall be cleared of vegetation.
2. Construct the inlets of sediment basins with a wide cross-section and a minimum grade to prevent turbulence and allow deposition of soil particles.
 - a. The minimum depth is 2'; the maximum depth is 6'.
 - b. The minimum width is 5'; the maximum width is 20'.
 - c. The minimum length is 25'; the maximum length is 200'.
 - d. The minimum volume shall be 1,815 CF per acre of drainage area.
3. Sediment basins shall remain in service until all disturbed areas draining into the structure have been stabilized.
4. When use of sediment basin is discontinued, backfill all excavations and compact fill. Fill material shall be removed and the existing ground restored to the original or plan grade.
5. Maintenance
6. When the depth of sediment reaches 1/3 of the depth of structure in any part of the pool, all accumulation shall be removed.
7. Removed sediment shall be disposed of in locations that the sediment will not erode into the construction areas or into natural waterways. The same holds true for excavated material removed during construction of the sediment basin.

3.9 TEMPORARY SEEDING AND MULCHING

A. General

1. This item is applicable to all projects.
2. Seeding and/or mulching shall be a continuous operation on all cut slopes, fill slopes, and borrow pits during the construction process. All disturbed areas shall be seeded and

mulched within five (5) working days after the last construction activity in all locations where necessary to eliminate erosion.

B. Construction Requirements:

1. Permanent seeding and mulching following temporary seeding will be performed during the favorable seeding seasons only.
2. Temporary seeding mixtures and planting season:
 - a. December 1 to March 1: 50 lbs. oat grain per acre
 - b. March 1 to December 1: 50 lbs. (cereal rye or wheat) per acre
3. Temporary mulch, fertilizer, and lime for seeding:
 - a. Fertilizer and mulch for temporary seed mixtures shall be applied in accordance with Section 02921.
 - b. Fertilizer shall be applied at the rate specified for permanent seeding.
 - c. Lime will not be required for temporary seeding.

3.10 STRAW BALES

A. General

1. Install at the bottom of embankment slopes less than 10' high to divert runoff from sheet flow and intercept some of the sediment in the sheet flow.
2. Install as ditch checks in small ditches and drainage areas.
3. Install on the lower side of cleared areas to catch sediment from sheet flow.

B. Construction Requirements:

1. Bales of straw shall be utilized to control erosion, trap sediment, and divert runoff.
2. Bales must be adequately braced from behind.

3.11 SILT FENCE

A. General

1. Install along the toe of fills over 10' in height, along the right-of-way line, parallel to streams or around an inlet to prevent sediment from entering the pipe system.

B. General Requirements:

1. The Contractor shall install a temporary silt fence in locations shown on the drawings, around inlets that accept flows containing silt, and other locations necessary to prevent the discharge of silt from the site.
2. Installation shall conform to the detail at the end of this section.
3. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading.

C. Installation

1. Geotextile at the bottom of the fence shall be buried as indicated on the detail.
2. The trench shall be backfilled and the soil compacted over the geotextile. The geotextile shall be spliced together as indicated on the detail.
3. Post Installation
 - a. Post spacing shall not exceed 8' for wire support fence installation or 5' for self supported installations.
 - b. Posts shall be driven a minimum of 24" into the ground. Where rock is encountered, posts shall be installed in a manner approved by the Owner's Representative.
 - c. Closer spacing, greater embedment depth and/or wider posts shall be used in low areas, soft, or swampy ground to ensure adequate resistance to applied loads.
4. When support fence is used, the mesh shall be fastened securely to the upstream side of the post.
 - a. The mesh shall extend into the trench a minimum of 2" and extend a maximum of 36" above the original ground surface.
5. When self-supported fence is used, the geotextile shall be securely fastened to fence posts.
6. Maintenance
 - a. The Contractor shall maintain the integrity of silt fences as long as they are necessary to contain sediment runoff.
 - b. The Contractor shall inspect all temporary silt fences immediately after each rainfall and at least daily, during prolonged rainfall.
 - c. The Contractor shall immediately correct deficiencies.
 - d. The Contractor shall make a daily review of the location of silt fences in areas where construction activities have changed the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness.
 - e. Where a single fence is not adequate to handle the volume of silt or flows are not completely intercepted, additional silt fences shall be installed.
7. The Contractor shall remove and dispose of sediment deposits when the deposit approaches one-half the height of the fence.
8. The silt fence shall remain in place until the upstream surface is stabilized. Upon removal, the Contractor shall remove the silt fence, dispose of excess silt, and restore the disturbed area in accordance with Section 02921.

3.12 TEMPORARY PIPE

A. General:

1. The Contractor shall install temporary pipes and fill at locations, to be crossed by the Contractor's equipment, which carry a concentrated flow during rain events.

B. Construction Requirements:

1. All temporary pipes shall be installed in the same manner as permanent pipe is installed on the project to assure that the water does not cause erosion around the pipe.

2. Material to backfill the pipe should be placed in 6" lifts and mechanically compacted. Compaction testing will not be required.

3.13 SEDIMENT REMOVAL

A. General

1. Sediment deposits shall be removed when:
 - a. The deposits reach approximately one-half the height of a ditch check, straw bale barrier or silt fence.
 - b. The sediments have reduced the ponded volume of sediment basins to one-third of the original volume.
 - c. Requested by the Owner's Representative.

- B. Sediment removed from erosion control features shall be deposited in a location where it will not erode into construction areas or watercourses.

END OF SECTION 312500

SECTION 320516 – RIP-RAP AND SUPPORTING MATERIAL

PART 1 - CLASS I RIP-RAP

1. The rip-rap material for the pipe discharge, ditch banks, etc., shall be durable limestone containing a combined total of not more than 10% of earth, sand, shale, and non-durable rock. The total mean blanket thickness shall be 24 inches with a large percentage of the pieces as large as the thickness of the blanket will permit, with enough smaller pieces of various sizes to fill the larger voids. At least 60% of the material shall have a size of 1 cubic foot or more; however, no stone shall be larger than 2.5 cubic feet. Organic material will not be permitted, and acceptance of quality and size of material may be made by visual inspection at the job site.
2. The mean thickness on the face of the embankment shall be 24 inches. The minimum thickness for rip-rap material shall be 12 inches, and the maximum thickness shall be 30 inches.

PART 2 - SUPPORTING BASE FOR CLASS I RIP-RAP

Limestone material shall be furnished and placed for supporting the rip-rap as shown on the plans. The material shall be clean crushed limestone with a screen size of not greater than 2 inches with not more than 20% of the material having a screen size of less than 1/4 inch. The material shall have a mean finished thickness of 8 inches with a minimum depth of 4 inches. The material shall be placed in such a manner to avoid damage to the slope. The material shall be placed to the height as shown on the plans.

END SECTION 320516

SECTION 321123 – AGGREGATE BASE

PART 1 - DESCRIPTION:

1. Aggregate base shall consist of a uniform mixture of properly graded materials placed on a prepared subgrade as shown on the plans. The type of aggregate used shall be as specified in the Contract.

PART 2 - MATERIALS:

1. Aggregate base materials shall conform to the following:

Type 1 Aggregate (Rolled Stone): Aggregate for Type 1 base shall be essentially limestone. The crushed stone shall not contain deleterious material such as shale or disintegrated stone in excess of fifteen percent (15%). Any silt, clay, and any deleterious material shall be uniformly distributed throughout the mass. The aggregates shall conform to the following gradation requirement:

Passing 1 inch sieve	100%
Passing ½ inch sieve	60-90%
Passing No. 4 sieve	40-60%
Passing No. 40 sieve	15-35%

Type 2 Aggregate (Compacted Granular Base): Aggregate for Type 2 base shall consist of crushed stone, limestone screening, sand and gravel, chat, sandstone, or combinations of these materials, with or without soil binder as may be required. The material shall conform to the following gradation requirements and in addition shall be so graded that it will readily compact to the specified density and withstand construction traffic without distortion and displacement.

Passing 1-1/2 inch sieve	100%
Passing No. 40 sieve	15-50%
Passing No. 200 sieve	not more than 35%

If flint chat or tuff chat is used, it shall meet the requirements of this section and in addition shall have at least twenty (20%) passing the No. 40 sieve.

Soil binder shall consist of soil or similar fine material with such cohesive properties as to impart the desired plasticity to the finished product.

Type 3 or MoDOT Type 5 Aggregate: Aggregate for Type 3 (MoDOT Type 5) base shall consist of crushed stone sand and gravel. The aggregate shall not contain more than fifteen percent (15%) deleterious rock and shale. If crushed stone is used, sand may be added only for the purpose of reducing the plasticity index of the fraction passing the No. 40 sieve in the finished product. The gradation passing the No. 40 sieve shall have a plasticity index not to exceed six (6). Any sand, silt and clay, and any deleterious rock and shall be uniformly distributed throughout the material. When sand and gravel aggregate are used, the fraction passing the No. 200 sieve shall be less than one half of that fraction passing the No. 30 sieve.

Passing 1 inch sieve	100%
Passing ½ inch sieve	60-90%
Passing No. 4 sieve	35-60%
Passing No. 30 sieve	10-35%
Passing No. 200 sieve	0-15%

2. Water shall be clean and free from acid, salt, oil and other organic matter. The use of treated municipal water is preferred.

PART 3 - EQUIPMENT:

1. Mixing Equipment. Equipment for producing mixture shall be an approved stabilization pugmill, which will uniformly mix the water with the aggregate in such manner as to avoid undue segregation.
2. Construction Equipment. Equipment for this work shall consist of blade or motor patrol graders, self-powered steel wheeled rollers, self-propelled pneumatic-tired rollers, vibratory compactors, sprinklers, or any other suitable equipment required to properly complete the work.

The Contractor shall furnish all equipment, tools, machinery and other appliances, which in the opinion of the Engineer, are necessary for handling materials and performing any part of the work.

All equipment shall be subject to the approval of the Engineer before the work is started, and wherever found unsatisfactory, shall be changed and/or improved as required by the Engineer. All equipment, tools and machinery must be maintained in satisfactory working condition.

PART 4 – PREPARATION OF MIXTURE:

1. Base material, any additional material required, and water in an amount sufficient to insure the desired compaction shall be thoroughly mixed and delivered to the construction site as a combined product. Excess moisture resulting in run-off shall be avoided. The final product of base material mixed with binder shall meet the specified gradation and plasticity index (P.I.). If necessary for satisfactory work, the mixture or subgrade or both shall be allowed to dry to a moisture content which will permit proper compacting.

PART 5 - CONSTRUCTION PROCEDURE:

1. Subgrade. All work on any section of the subgrade on which the base is to be construction shall be completed proper to the placing of any base material on that section. Immediately before spreading the mixture, the subgrade shall be sprinkled as specified by the Engineer.
2. Spreading, Shaping and Compacting. In no case will the Contractor be permitted to place the mixture or manipulate it on muddy or frozen subgrade. Also, any mixture containing frost or frozen particles shall not be placed on the subgrade or compacted. After the subgrade has been properly prepared, the mixture shall be uniformly spread by blades, or other approved equipment, in successive layers of courses to such depth that, when compacted, the base will have the minimum thickness shown on the typical cross section. The Contractor may construct the base in any number of layers which he may find convenient to facilitate compacting, except that, in no case, shall any individual; layer have a compacted thickness of more than four (4) inches, provided however when vibrating equipment is used, the base may be constructed in one (1) course (not exceeding six (6) inches), provided the equipment used proves capable of compacting the base in accordance with these specifications. Each layer shall be compacted as hereinafter specified before any succeeding layer is placed. Except as otherwise permitted by the Engineer, the first course placed upon the subgrade shall be compacted and allowed to become firm before any subsequent is constructed.

If, in the opinion of the Engineer, the mixture becomes too dry to permit compaction, water shall be added during the compacting operations in such an amount as to insure proper compaction. If, for

any reason, the mixture is too wet for proper compaction it shall be allowed to dry until the proper moisture content is obtained.

The mixture shall be handled in such manner as to avoid undue segregation. If segregation occurs, or, if the mixture becomes contaminated, such segregated or contaminated materials shall be removed and replaced with materials of suitable quality and gradation, except that areas of surface segregation may be corrected by spreading a quantity of limestone screening sufficient to close the voids and bind the loose material firmly in place. The screenings shall be wet and rolled so as to create a dense and uniform surface. Segregated or on contaminated materials which the Engineer orders removed, shall be removed and repaved with suitable material at the sole expense of the Contractor. The Engineer may restrict hauling over the completed or partially completed work after inclement weather, or at any time when the subgrade is soft and there is tendency for the subgrade material to work into the surface material. Any screenings used in correction areas of surface segregation will be measured and paid for as part of the aggregate constituting the base course. All extra work or expense involved due to screenings being required shall be the Contractor's obligation without extra cost to the Owner. Compaction shall be performed by the use of any approved equipment within the limits of these specifications, which will produce satisfactory results.

Shaping and compaction shall be carried on until a true, even, uniform base course of the proper grade, cross section and density is obtained. Proper moisture content shall be maintained by wetting the surface as required during shaping and compacting operations. The use of excess water, resulting in run-off or in the formation of a slurry on the surface shall be avoided.

Final rolling on the top course of multiple-course construction or on single-course construction shall be accomplished by a self-propelled smooth-wheeled roller weighing not less than seven (7) tons, nor more than ten (10) tons.

Type 1 aggregate and Type 2 aggregate shall be compacted to not less than ninety-five percent (95%) of standard maximum density.

3. Standard compaction Test. The standard compaction test will be made in accordance with ASTM D 698-00a, Method C, using the total material. Field density will be determined in accordance with ASTM D 2922-01, Nuclear Method.
4. Maintenance. When the base is to be constructed in more than one (1) layer, the Contractor shall maintain the underlying layers by wetting or drying, blading and rolling in a manner satisfactory to the Engineer until the next layer is completed. This maintenance shall be entirely at the Contractor's expense. If a prime coat is specified in the Contract, the Contractor will be required to apply the prime coat on any completed portion of the base as soon as practicable, but he will not be permitted to prime or to construct a bituminous surface course when the moisture content of the top two (2) inches of the base is more than two-thirds (2/3) of the optimum moisture.

If the Contract includes the construction of Portland cement concrete pavement, the Contract will be required to maintain the completed base until the pavement is placed. The base shall be considered complete when it has the required density with a uniform surface of the proper grade and final template section. Lateral ditches shall be constructed through shoulders where possible to insure adequate surface drainage.

PART 6 - METHOD OF MEASUREMENT:

1. Aggregate base material shall be measured on a tonnage basis of two thousand (2,000) pounds, including water. Accurate and reliable platform scales, approved by the Engineer, shall be used.

Materials, when delivered to construction site, must be accompanied by a signed weight ticket, stating the gross, tare and net weight, and no material shall be accepted by the Owner unless accompanied by such signed weigh ticket.

2. Water. Payment for all necessary water used in sprinkling the subgrade and added in construction and maintaining all portions of the completed base shall be completely covered by the unit process bid for other items in the Contract.

PART 7 – BASIS OF PAYMENT:

1. Payment for aggregate base material complete in place will be included in the lump sum price bid, unless otherwise noted on the Bid Form, which price shall include furnishing all materials, mixing, loading, hauling, unloading, spreading, shaping and compacting, water for sprinkling subgrade and added in construction and maintaining base, and all tools, labor, equipment, and work incidental thereto, or as denoted on the Bid Form.

END OF SECTION 321123

SECTION 321216 – ASPHALTIC CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The Contractor shall refer to the “Missouri Standard Specifications for Highway Construction – Latest Edition” for materials manufacturing, transport, preparation, handling, placement, and finish.
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 0 and 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

- A. This Section includes the following:
 - 1. Construction Specifications See 1.1.A
 - 2. Special Provisions to be used in lieu of MODOT Specifications
 - 3. Hot-mix asphalt paving.
 - 4. Pavement-marking paint.
- B. Related Sections include the following:
 - 1. Division 32 for demolition, subgrade, excavation, aggregate subbase, base courses and for aggregate pavement shoulders.

1.3 DEFINITIONS:

- A. Asphaltic Concrete Pavement Terminology: Refer to ASTM D 8 for definitions of terms and MoDOT Specifications.
- B. MoDOT: Department of Transportation.

1.4 SYSTEM DESCRIPTION:

- A. Provide hot-mix asphalt paving according to materials, workmanship, and other applicable requirements of standard specifications of state or local MoDOT.
 - 1. Standard Specification: MODOT Standard Specifications
 - 2. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.
 - 3. Roadway and entry paving shall have compacted subgrade, compacted base rock, BP-1 and BP-2 to meet MoDOT specifications and depths per plan.

1.5 SUBMITTALS:

- A. Job-Mix Designs: For each job mix proposed for the Work.

1.6 QUALITY ASSURANCE:

- A. Manufacturer Qualifications: Manufacturer shall be a paving-mix manufacturer registered with and approved by The Missouri Department of Transportation.

- B. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated, as documented according to ASTM E 548.
- C. Regulatory Requirements: Comply with MODOT Standard Specifications for asphalt paving work.

1.7 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.8 PROJECT CONDITIONS:

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
 - 1. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
 - 2. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.
- B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 50 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.1 AGGREGATES:

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- B. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or properly cured, crushed blast-furnace slag.
- C. Fine Aggregate: ASTM D 1073, sharp-edged natural sand or sand prepared from stone, gravel, properly cured blast-furnace slag, or combinations thereof.
 - 1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.
- D. Mineral Filler: ASTM D 242, rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS:

- A. Asphalt Cement: ASTM D 3381 for viscosity-graded material.
- B. Prime Coat: ASTM D 2027, medium-curing cutback asphalt, MC-30, MC-70, or MC-250.
- C. Tact Coat: ASTM D 977, diluted emulsified asphalt, SS-1, SS-1H, CSS-1, CSS-1H

D. Water: Potable.

2.3 AUXILIARY MATERIALS:

- A. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.
- B. Joint Sealant: ASTM D 3405, hot-applied, single-component, polymer-modified bituminous sealant.
- C. Pavement-Marking Paint: Alkyd-resin type, lead and chromate free, ready mixed, complying with FS TT-P-115, Type I.
 - 1. Color: Blue for handicapped requirements, yellow for fire lanes, white elsewhere.

2.4 MIXES:

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction; designed according to procedures in AI MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
- B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION:

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
 - 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
 - 1. Mix herbicide with prime coat if formulated by manufacturer for that purpose.
- C. Prime and Tack Coats: Apply to the properly prepared substrate as required.
 - 1. Application rate of prime coat – 0.10-0.3 Gal/SY
 - 2. Application rate of tack coat – 0.05-0.15 Gal/SY

3.3 ASPHALTIC CONCRETE PLACING:

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
 - 2. Place hot-mix asphalt surface course in single lift.
 - 3. Revise first subparagraph below to higher temperature if thin lifts in cool weather are likely. See National Asphalt Pavement Association recommendations.
 - 4. Spread mix at minimum temperature of 250 deg F.
 - 5. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes, unless otherwise indicated.
 - 6. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.4 JOINTS:

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.

3.5 COMPACTION:

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density: 96 percent of reference laboratory density according to AASHTO T 245, but not less than 94 percent nor greater than 100 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 INSTALLATION TOLERANCES:

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 1. Base Course: Plus or minus 1/4 inch.
 2. Surface Course: Plus 1/4 inch, no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 1. Base Course: 1/4 inch
 2. Surface Course: 1/8 inch

3.7 PAVEMENT MARKINGS:

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow paving to age for 30 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.8 FIELD QUALITY CONTROL:

- A. Testing Agency: The Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.

1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.
- B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- C. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- D. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- E. In-Place Density: Testing agency will take samples of un-compacted paving mixtures and compacted pavement according to ASTM D 979.
 1. Reference maximum theoretical density will be determined from mix design submittals.
 2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
 - a. One core sample will be taken for every 2,000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
 - b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.9 DISPOSAL:

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
 1. Do not allow excavated materials to accumulate on-site.

END OF SECTION 321216

SECTION 321310 – CONCRETE FOR PAVING, WALKS, & MISC. STRUCTURES

PART 1 - GENERAL

1. Concrete will consist of cement, coarse aggregate, fine aggregate, water, and approved admixtures, proportioned and mixed to produce a plastic, workable mixture suitable to specific conditions of placement, and in accordance with the following specifications, All reinforcement and embedded items shown or detailed will be installed and secured in place prior to the placement of concrete.
2. Concrete will not be mixed or placed at ambient temperatures of forty (40) degrees F and less, without adequate frost protection. Forms, reinforcing, and subgrade will be free from latent ice or frost. The aggregate, or water, or both, will be heated as required to permit the placement of the mixture at concrete temperature ranging from fifty (50) to one hundred (100) degrees F. After placement, the concrete will be protected by suitable covering or heated enclosures, to maintain the concrete temperature within the range stated above, for the entire curing period. If frost protection methods fulfill all requirements for curing, actual curing procedures may be obtained.

PART 2 - PRODUCTS

1. CLASSIFICATION

Except where specifically required to meet special conditions, all concrete will be Class "A", "B", or "C", as designated for the various parts of the work, in accordance with the conditions of application or strength requirements. In general, and unless otherwise noted on the Plans or specifically in these Specifications, only Class "A" concrete will be used.

2. STRENGTH REQUIREMENTS

- A. Mixes will be designed to secure concrete having the following compressive strength at the age of twenty-eight (28) days, as determined by compression test results:

Class	Minimum Average for any Four consecutive cylinders	Minimum for any one cylinder
"A"	4,000	3,250
"B"	3,250	2,750
"C"	2,500	2,000
"D"	8,000	7,500

- B. All material is subject to testing and inspection prior to incorporation into the Work. All samples and specimens must be truly representative of the material proposed to be furnished. The Contractor will furnish and provide all samples and test specimens required, will bear all expenses in connection with laboratory testing, and will furnish certified copies of all test results performed by and Engineer approved laboratory.
- C. All test cylinders will be taken, stored, and transported to the laboratory by the Contractor. A minimum of three (3) cylinders will be taken for each individual pour, or for each fifty (50) cubic yards of concrete poured, whichever is the lesser. After test cylinders are made, the cylinders shall be

transported to a controlled environment within 36 hours and kept close to seventy-three (73) degrees F as possible. Of the cylinders taken, one (1) will be broken at the age of seven (7) days, one (1) broken at the age of twenty-eight (28) days, and the remaining cylinder kept until test results indicate the concrete suitability. The seven (7) day strength should be approximately two-thirds (2/3) of the required twenty-eight (28) day strength, and failure to develop same will be cause for a recheck of the mix, and such changes made as deemed necessary to secure the required twenty-eight (28) day strength. If any of the twenty-eight (28) day tests fall below that specified above, the Contractor will make such loading and/or core tests as may be required by the Engineer, on the portions of the structure affected. Core tests will be made in accordance with ASTM C-42 methods. Should test results indicate that, in the Engineers opinion, the strength of the structure is inadequate, such strengthening or replacement as may be ordered by the Engineer, will be performed by the Contractor, prior to acceptance and payment for the work. All additional testing, and any such replacement work, will be paid for by the Contractor, with no additional payment from the Owner.

3. HIGH-EARLY STRENGTH CONCRETE

High-early strength concrete may be used as specified herein, or shown on the Plans, and may be used in other portions of the work when desired by the Contractor. The seven (7) day compressive strength of high-early strength concrete, of any class, will be equal to eighty (80) percent of the specified minimum twenty-eight (28) day strength for that class of concrete. The stipulated time for form removal may be correspondingly reduced where high-early strength concrete is used. The minimum curing period for high-early strength concrete will be three (3) days. All provisions of the Specifications, except for cement and removal of forms, will be applicable to high-early strength concrete.

4. MATERIALS

- A. Portland Cement: Portland cement will be an approved brand, conforming to ASTM C-150, Type I; or, if so allowed by the Engineer, high-early strength Portland cement conforming to ASTM C-150, Type III. Use of special cement, or those using interground admixtures, will not be allowed. Cement content of concrete will be determined per ASTM C-138.
- B. Aggregates: Pit run or naturally mixed aggregates are not approved, nor will a mixing of aggregate from different sources, or alternating batches of different aggregates in a stockpile be allowed. Sufficiently in advance of construction to allow standard gradations and proportioning to be determined, the Contractor will submit representative samples, or material certification for each type of aggregate to be used; fineness modulus of the aggregate proposed for use will not vary from such standards by more than +/-0.2. Fineness modulus will be computed for each sieve analysis made, determined by adding respective cumulative percentages of material coarser than the sieve in a U.S. Standard Series, and dividing by one hundred (100). The Series for fine aggregate will consist of Nos. 4, 8, 16, 30, 50, and 100; for coarse aggregates and total aggregates, 1-1/2 inch, 3/4 inch, and 3/8 inch sieves will be added to the Series.
- C. Fine Aggregate: Fine aggregate will be comprised of clean, durable, siliceous or calcerous particles, free from adherent coatings, having a mortar strength not less than ninety (90) percent of standard Ottawa sand, per ASTM C-87. Aggregates subjected to colorimetric testing for organic impurities per AASHTO Method T-21, producing a color darker than standard will be rejected, unless they are capable of passing the mortar strength test.
- D. Gradation: gradation will be within the following limits when tested under AASHTO Method T-27. Blending will be permitted if necessary to meet the following gradation limits:

U.S. Standard Sieve	Percent Retained
3/8-inch	0
No. 4(1/4)	0 - 5
No. 16(1/8)	20 - 55
No. 30(21/16)	45-75
No. 50(21/32)	70 - 90
No. 100(21/64)	90 - 98

E. Coarse Aggregate: Coarse aggregate will be comprised of washed, graded gravel, or crushed rock, screened to the required size. The particles will be hard, durable, tough, free from adherent coatings, and must be free from deleterious amounts of vegetable matter of soft, friable, thin, or elongated particles. The substances designated below will not be present in excess of the following amounts:

Soft Fragments	5 percent	Removable by decantation, one (1) percent
Clay Lumps	1/4 percent	

1. When the material removed by decantation consists essentially of crusher dust, the maximum allowable percentage may be increased to one and five tenths (1.5). Maximum chert content shall be 2% (" 0.5%).
2. Coarse aggregate will be well-graded from fine to coarse so that concrete of the required workability, density, and strength can be made without the use of excessive amounts of sand or cement paste. For Class "A" and "B" concrete, the maximum screen size will be one and one-half (1-1/2) inch, and for Class "C", the maximum size screen will be two and one-half (2-1/2) inch. Coarse aggregate grading will fall within the following limits:

	Percent by Weight Passing
Maximum size mesh screen (square mesh)	95 - 100
2 maximum size mesh screen (square mesh)	40 - 70
No. 4 sieve	0 - 6

3. Coarse aggregate will be subjected to a ten (10)-cycle sodium sulfate accelerated soundness test in accordance with ASTM C-88. Material failing to meet this test with a loss of less than five (5) percent weight, will be used only where it can be demonstrated to the satisfaction of the Engineer, that concrete with the same aggregate has given satisfactory service for a period of not less than five (5) years under conditions similar to those which it will be subjected in the work.

- F. Deleterious Substances: Deleterious substances in all aggregates will not exceed the following percentages by weight when tested under the designated ASTM methods.

	<u>Coarse</u>	<u>Fine</u>	<u>Test</u>
Material Passing No. 200 Sieve (wash)	1.0*	2.0	C-117
Shale	0.5	1.0	C-123
Soft, Friable Fragments		0.1	
Coal	0.5	1.0	C-123
Clay Lumps (on_inch sieve)	0.3	0.5	C-142
Combined Shale, Coal, Clay Lumps, and Soft, Friable Fragments	3.0	3.0	

- G. Proportioning: Water used for mixing will be clean, clear, odorless, and potable. If of questionable quality, water will be tested under AASHTO Method T-26. The exact proportioning of all materials, required by the water-cement ratio, will be as required to produce workability and slump requirements for the class of concrete being poured. The Contractor will provide all equipment necessary to positively determine and control the actual amounts of all materials entering into the mix. Proportions will be changed whenever necessary to obtain the specified strength and the desired durability, density, uniformity, and workability.

1. All materials will be measured by weight, except water, which will be measured by volume or weight. Cement will be considered as weighing ninety-four (94) pounds per cubic foot, and one (1) cubic foot per sack. One (1) gallon of water will be considered as weighing 8.33 pounds. Each cubic yard of concrete will contain not less than the quantity of cement stated below:
 - a. Class "A" - 6 sacks or 564 pounds
 - b. Class "B" - 5 sacks or 470 pounds
 - c. Class "C" - 4-1/2 sacks or 423 pounds
 - d. Class "D" - 6 sacks or 564 pounds with Silico Fume (when low reactivity is rigid.)
2. The Contractor will recognize that the above is the minimum quantity of cement required. Consistency and strength may be obtained with well-graded aggregate using the minimum cement; however, other aggregate, particularly the combined sand-gravel aggregate generally available, may require additional cement per cubic yard.
3. In calculating the total water content for any mix, the amount of moisture carried on the surface of the aggregate particles will be included. The total water content per sack of cement, for each batch of concrete, will not exceed the following water to cementitious ratios:
 - a. Class "A" - 0.42
 - b. Class "B" - 0.45
 - c. Class "C" - 0.48
 - d. Class "D" - 0.42

4. In all cases, the amount of water used will be the minimum amount needed to produce a plastic mixture of the strength specified, and a desired durability, density, uniformity, and workability. Generally the mix consistency will be that required for specified placement methods and conditions. Ordinarily, slump will be between two and one-half (2-1/2) and three and one-half (3-1/2) inches. In no case will slump be less than one and one-half (1-1/2) inches, or more than four (4) inches, when tested with a standard slump cone. In order to stay within the wil parameters low or high range water deduced may be added at the plant or on site. No water shall be added on the job site.
 5. Batching and weighing devices will provide means of regulation and control, and will be accurate within five-tenths (0.5) percent for aggregates and bulk cement. All such devices and operating methods must be subject to inspection by the Engineer. When batch trucks are used, each batch compartment will be charged with all dry materials for one (1) batch.
 6. The exact proportioning of the mix may be varied within the limits specified in order to obtain concrete having the specified strength and other desired characteristics. The batch weighs of coarse and fine aggregates may be adjusted to ensure use of the least amount of fine aggregate to produce workable concrete with the proper slump. If it is impossible to produce concrete of the proper consistency without exceeding the specified limitations for percentages of coarse aggregate and total water ratio, the gradation of aggregates must be corrected, or the total batch weight of aggregates must be reduced. The amount of water added at the mixing chamber will be adjusted for the moisture contained on the surface of the aggregates, and for absorptive qualities of aggregates. Absorption of aggregates will be determined by AASHO Methods T-84 and T-85. Batch weighs of coarse and fine aggregate will be adjusted to compensate for moisture contained at time of use. Air entraining agents may be added only at the mixer.
- H. Admixtures: An air-entraining agent conforming to Designation C-260 will be added to each batch of concrete. Entrained air quantities must be maintained at approximately four and one-half (4-1/2) percent of the total batch weight, and at all times will be within the range of the four (4) to seven (7) percent, when tested in accordance with ASTM C-231.
1. Air-Entraining: Conforming to ASTM C260.
 2. Calcium Chloride: Calcium chloride or admixtures containing more than 0.05% chloride ions by weight of admixture are not permitted.
 3. Water-Reducing Admixture: ANSI/ASTM C494, Type A, and contain not more than 0.1% chloride ions by weight of admixture. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Eucon WR-75"; Euclid Chemical Co.
 - b. "Pozzolith 322N"; Master Builders.
 - c. "Plastocrete 161" or "Plastiment NS"; Sika Chemical Corp.
 - d. "Chemtard"; Chem-Masters Corp.
 - e. "WRDA Series", "Daracem 55", "Daracem 65", or "MIRA70"; W.R. Grace.
 4. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C494, Type F or Type G and contain not more than 0.1% chloride ions by weight or admixture. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Daracom Series" or "ADVA"; W.R. Grace.

- b. "Sikament 86" or ASikament 86R"; Sika Chemical Corp.
 - c. "Eucon 37"; Euclid Chemical Co.
 - d. "Rheobuild" or "Pozzolith 440N"; Master Builders.
5. Water-Reducing, Retarding Admixtures: ASTM C494, Type D, and contain not more than 0.1% chloride ions by weight of admixture. Products: Subject to compliance with requirements, provide one of the following:
- a. "Pozzolith 300R"; Master Builders.
 - b. "Eucon Retarder 75"; Euclid Chemical Co.
 - c. "Daratar-17"; W.R. Grace.
 - d. "Plastiment"; Sika Chemical Co.
6. Noncorrosive Nonchloride Accelerator: ASTM C494, Type C or E, and contain not more than 0.1% chloride ions by weight of admixture.
- a. Certification and Tests: The admixture manufacturer must have long-term noncorrosive test data from an independent testing laboratory (of at least 1-year duration) using an acceptable accelerated corrosive test method such as that using electrical potential measures.
 - b. Requirement: Written conformance to above mentioned requirements and the chloride ion content will be required from the admixture manufacturer prior to mix design review by the CHOICE 1.
 - c. Products: Subject to compliance with requirements, provide one of the following:
 1. "Pozzutec 20"; Master Builders.
 2. "Polarset Accelerator" or "DCI"; W.R. Grace.
 3. "Accelguard 80"; Euclid Chemical Co.
 4. "Plastocrete 161 FL"; Sika Chemical Co.
7. Fibrous Reinforcement: 100% pure or virgin polypropylene monofilament fibers, polypropylene fibrillated fibers or nylon fibers and specifically manufactured for use as concrete secondary reinforcement. Polypropylene fibers shall contain no reprocessed olefin materials. Fiber reinforced concrete finish shall be smooth with no visible evidence or surface fibers under wet or dry conditions. A "hairy" finish is not acceptable. Minimum length of fiber shall be 3/4". Volume per cu. yd. shall equal a minimum of 0.1% (1.5 pounds) or as recommended by manufacturer. Fiber manufacturer must document evidence of 5 years satisfactory performance history, compliance with ASTM C1116 Type III 4.1.3 and ASTM C1116 Performance Level I outlined in Section 21 Note 17. Delivery tickets shall state that fibers have been added at the concrete ready-mix plant. Products: Subject to compliance with requirements, provide one of the following:
- a. "Forta CR"; Forta Corp.
 - b. "Fibermesh"; Fibermesh, Inc.
 - c. "Grace Fibers"; W.R. Grace.
 - d. "Nycon"; Nycon, Inc.
 - e. "Micro Fiber"; W.R. Grace.
 - f. Fibermix "Stealth Fiber"; Fibermesh, Inc.
 - g. Columbia "Rope"; Columbia, Inc.

- I. Normal Weight Aggregates: Fine and coarse type conforming to ASTM C33, maximum size being as follows:
 - 1. 2": Wearing course or topping and structural slab up to 3".
 - 2. 3/4": 3-1/2" to 4-1/2" structural slabs.
 - 3. 1": 5" to 6-1/2" structural slabs, beams and walls.
 - 4. 1-1/2": Beams, walls, and structural slab more than 6-1/2" in thickness, pedestals and slabs on grade.
 - 5. 2": Footings, piers, pile caps and mass concrete.
- J. Lightweight Aggregates: Shall meet the requirements of ASTM C330.
- K. Water: Clean, potable, free from acids, alkalis or organic materials. Shall meet requirements of ASTM C94.
- L. Fly Ash: Not permitted as a substitute for Portland cement unless approved by the Engineer.
- M. Fly Ash: Conform to ASTM C618, Type C or F. Fly Ash may be used to replace cement in the concrete mix not to exceed 15 percent of the cement content of the mix. Only one class of fly ash from a single source may be used.

PART 3 - PLACING AND FINISHING

1. PLACING

All concrete work must be so scheduled that any section begun on a day will be finished during daylight of the same day. Concrete will be placed before the initial setting occur. Generally, concrete will be placed against clean, dampened surfaces. Earthen subgrades, either undisturbed earth or properly consolidated material, will be free from mud and running water. Sand or rock subgrades will be completely confined and covered with waterproof sheathing material. Concrete will be worked into all corners and angles of forms, around reinforcement, and around all embedded items in such a manner to prevent segregation. The Contractor will provide all means necessary to convey the concrete from the mixer to its final position as rapidly as possible. Chutes sloped such that the concrete slides, but does not flow, may be used only when absolutely necessary. The Contractor will use tremies or elephant trunks where concrete is to be placed under water, or when vertical drops cause segregation. Concrete pumps are an allowable alternative. The maximum depth of horizontal layers will not be more than that which prevents segregation or formation of visible seams. All concrete will be placed with the aid of approved internal vibrating equipment, supplemented by hand forking or spading. Vibration will be applied directly to the concrete, never through forms or reinforcement. Failure to use vibrating equipment will be cause for additional testing, and if so determined by such testing, removal of such portions of the work as may be directed by the Engineer. Costs for such additional testing and/or removals will be solely by the Contractor. Unless otherwise noted, minimum curing time will be five (5) days. No superimposed work will be placed until time period has elapsed, without the approval of the Engineer.

2. REINFORCING STEEL

Install all reinforcing steel shown, including rods, fabric, or structural steel as indicated on the Plans. Unless otherwise noted, reinforcing will be placed to provide two (2) inches of concrete cover in walls or superimposed slabs, and three (3) inches of concrete cover if parchment is directly against excavated surfaces.

All reinforcing will be supported, and splice lengths will be as recommended by the American Concrete Institute Manual of Standard Practice. Remove all scale, grease, rust, or any coating that may impair bonding with the concrete. All structural steel will be ASTM A-36. Unless otherwise noted, all reinforcing steel will be Grade sixty (60) and will conform to the following ASTM designations:

Welded Wire Fabric	A-185
Bar Mats	A-184
Bars	A-615

3. EMBEDDED ITEMS

Before placing concrete, remove any coatings of oil, scale, rust or other foreign matter. Kerf and thoroughly soak wood strips sued to form grooves, keys, joints, or bevels. Where waterstops are required, provision must be made in the material used to form the keyways to place the waterstop material approximately an equal distance into both the primary pour and the succeeding pour. This procedure will be followed for wall and footing connections, and for all wall and intermediate joints above the footings. Construction joint locations will be as noted on the Plans. Construction joints not requiring waterstops will use a standard key configuration, with reinforcing extended past the joint location. Should steel waterstop be used, all joints will be fully welded prior to placement of the key forming material. Other waterstop material, such as PVC must be fused or vulcanized per the manufacturer=s instructions. All metal fittings, spools, sleeves, etc. will be provided with an integral waterstop when placed in water impounding or storage structures where watertightness is required. PVC fittings and pipe will utilize rubber gaskets or manufactured stops (A-Lok, Pres-Wedg, etc.) as approved by the Engineer. The Contractor may elect to use block-outs at fitting locations. These annular spaces around pipes will be filled with non-shrink grout finished flush with the faces of walls and bottoms of slabs. Should watertight joints be required, the grout material will be built up to form a cone terminating not less than three (3) inches above the top of floor or base slabs.

4. CONSTRUCTION JOINTS

At locations noted on the Plans, at the end of each pour, or where concrete placement is suspended for more than two (2) hours, provisions must be made for joining future work. Keyways with extended reinforcing as noted above are acceptable. Before depositing new concrete, the hardened concrete surfaces will be broomed, roughened slightly, wetted, and coated with neat cement paste or grout. The new concrete will be carefully rodded into grooves, keyways, recesses, and around bars and all other embedded items. Minimum bar lap lengths for ties to succeeding pours in eighteen (18) inches.

5. EXPANSION JOINTS

- A. Expansion joints, conforming to the dimensions and details noted on the Plans will extend entirely through walls or slabs. Exposed edges will be finished with an edging tool All expansion joints in basins to contain liquid will be watertight joints as previously specified; all other joints will be plain unless noted otherwise.
- B. Plain Expansion Joints will be constructed of non-extruding, preformed joint filler, sealed with hot poured or cold applied sealing compound. Preformed joint filler must be cut to allow for the depth of sealing recess specified. Non-extruding material will conform to ASTM D-544, Type I, II, III, or IV.

Concrete faces will be formed true to line, and perpendicular to walls or slabs. If sealed with hot poured compound, joint filler will terminate three-quarter (3/4) inch back from the exposed face. If cold applied compound is used, the filler will terminate one and one-half (1-1/2) inches from the exposed face. Recesses will be formed by using wood strips placed in the full width of the joint, and removed after the concrete has set. After the concrete has hardened, grooves will be thoroughly cleaned by approved methods.

- C. Hot Poured Joint Sealing Material will conform to ASTM D-241. Joints will be primed with cutback asphalt. Joint sealing material will be heated to a temperature recommended by the manufacturer, but not more than four hundred and fifty (450) degrees F. Material, which is overheated, will not be used. Pour continuously from end to end of the joint, in level lifts, until the joint is full. Joints, when cool, must present a smooth, uniform appearance, filled to within one-eighth (1/8) inch from the top. Material spilled or dripped on concrete surfaces must be removed immediately.
- D. Cold Applied Joint Sealing Material will conform to Federal Specifications SS-S-159b, and will be pulverized, hard asphalt, mixed with a suitable flux oil immediately prior to use.

6. FINISHING

- A. Formed concrete surfaces not exposed to sight or weather need not be finished other than the removal of lips, fins, and ridges. All other surfaces will be finished as follows:
 - 1. Exposed tops of walls will be brought to the proper elevation with excess water removed, and finished with a true and regular surface with a float and brush to match the finish of existing or adjacent surfaces. Added sand or cement drier will not be used.
 - 2. Exposed wall surfaces will be beveled at all corners and edges with three-quarter (3/4) inch molding placed in the forms. After the removal of the forms, remove all lips, ridges, and evidences of form joints. Ream chip, and fill with non-shrink grout all honeycombs, voids, and holes; including those resulting from the removal of form ties and rods. Remedy local bulging by tooling and rubbing.
 - 3. Floors of all structures, and other surfaces so noted, will be floated and troweled smooth. Edges, including those at expansion and contraction joints, will be finished with an edge or jointer having a suitable radius. Added sand or cement drier will not be used without the approval of the Engineer.
 - 4. Roof slabs and unformed surfaces will be finished with a wood float. Walks and entrance pads will be floated to a uniform surface and broomed.
- B. Manipulation of concrete adjacent to the surface of any lift will be the minimum necessary to produce not only the degree of consolidation desired in the surface layer of the concrete, but also a surface with the desired degree of roughness for bond with the next lift. Surface vibration or excessive working, including screening of any kind, will not be permitted.

7. PATCHING CONCRETE

- A. Concrete out of level or alignment, or defective areas which cannot be patched satisfactorily, will be removed or replaced. Patching will be done in a workmanlike manner to restore original quality and appearance, using non-shrink grout as described for specified locations. Patched areas, which are unsatisfactory in workmanship or appearance, will be repatched or removed and replaced as directed.

Tie holes will be filled, and defective areas patched immediately following removal of the forms. Defective areas will be chipped to solid concrete, or to a minimum depth of one (1) inch, the patching area and surrounding areas wetted liberally, and mortar forced into place and compacted. The mortar will be finished flush, and will match the adjacent areas. Curing will be as specified for concrete.

- B. Non-shrink grout will be used for patching locations as directed by the Engineer. Where discoloration from rust stains is not objectionable, use grout proportioned with one (1) part Portland cement, three (3) parts clean well graded sand (screened through a No. 4 Sieve), one-quarter (1/4) part non-shrink grout, and water to obtain the required consistency. For surfaces exposed to sight or weather, basic proportions stated above will be used except that non-shrink grout will be omitted, and white Portland cement will be substituted for such portion of Portland cement required until the color of the mortar matches that of the existing surface. Prior to use, each batch of mortar will be allowed to stand until the surface indicates an initial set, then remixed to a uniform consistency and applied while still in plastic condition. Mortar having lost its plasticity or ability to adhere, will not be used.

PART 4 - CURING

Concrete surfaces will be maintained in a moist condition, and a temperature between fifty (50) and one hundred (100) degrees F, to promote curing for a least five (5) days following initial set. Curing periods may be extended as directed to compensate for time in which surface temperatures of the concrete fall below fifty (50) degrees F. Concrete damaged by improper curing will be subject to removal and replacement as directed. Use of the following methods for curing does not relieve the Contractor of responsibility for obtaining acceptable concrete having the required strength and surface finish.

- 1. Water Curing: Comply with ACI 302 "Guide for Concrete Floor and Slab Construction", ACI 308 "Standard Practice for Curing Concrete", ACI 306 "Standard Practice for Cold Weather Concreting", and ACI 305 "Hot Weather Concreting", in addition to the following provisions:
 - A. Concrete shall be wet cured for (7) days
 - 1. Cover all non-formed surfaces with wet burlap or burlene mats and keep them wet for the duration of the curing period.
 - 2. For the period prior to application of the wet cure the surface shall be kept from drying out either through the use of fog misting equipment (equipment which atomize water, producing a very fine spray or mist) and/or and evaporation retardant. When using fog-misting equipment direct the spray above the surface of the concrete. Do not use fog misting or evaporation retardant as finishing aids.
 - 3. For walls with wooden formwork, wet the form immediately after the concrete has been placed and keep wet until removed.
 - 4. If forms are removed before the curing period is completed, curing compound shall be applied to all surfaces within 2 hours of form removal in accordance with the manufacturers printed instructions in such a manner as to cover the surface with a uniform film which will seal thoroughly.
 - B. All exposed concrete shall be sprayed in a liquid curing compound.
 - 1. Apply curing compound in accordance with the manufacturers printed instructions in such a manner as to cover the surface with a uniform film, which will seal thoroughly.

2. For the period prior to application of the curing compound the surface shall be kept from drying out either through the use of fog misting equipment (equipment which atomize water, producing a very fine spray or mist) and/or evaporation retardant. When using fog-misting equipment direct the spray above the surface of the concrete. Do not use fog misting or evaporation retardant as finishing aids.
 3. Immediately repair any damage to the seal provided by the curing compound which occurs in the first 7 days by application of additional curing compound over the damaged portion.
 4. Apply curing compound as soon as the application will not mar the unformed surface and within 2 hours of removal of formwork for formed surfaces.
- C. Earth or Sand Covering: The surface of the concrete will be maintained moist as above, covered with a two (2) inch layer of earth or sand.
- D. Polyethylene Sheeting: Concrete surfaces will be completely covered with white or translucent polyethylene sheeting not less than four (4) mils in thickness. In the event that a continuous sheet is not used to cover the entire surface, edges and ends will be lapped a minimum of four (4) inches, and sealed by an approved method. Black sheeting will not be used.
- E. Forms Left in Place: Forms left in place during any portion of the specified curing period will be sprinkled and maintained moist only as required to prevent concrete from rapid drying.

PART 5 - FORMS

1. Forms will be of wood, steel, or other approved material. Wood forms, unless lined with absorptive form lining plywood or similar material, will be tongue and groove lumber, shiplap, or lumber dressed on one (1) side and two (2) edges, and will be of uniform width. Forms must be built true to line and grade, and will be mortar-tight with sufficient rigidity to prevent displacement or sagging under the concrete load. Surfaces will be smooth and free from irregularities, dents, or holes when used for exposed surfaces. Internal ties and spacers will be of a type, that upon removal, no metal remains closer than one-half (2) inch from concrete faces. Wire ties will not be permitted where concrete surfaces will be permanently exposed. Unless otherwise indicated, suitable moldings will be placed in the form to round or level exposed edges. Forms, except when absorptive form lining is used, will be coated with a non-staining mineral oil shortly before the concrete is placed. Forms for unexposed surfaces may be thoroughly wetted, in lieu of oiling, immediately before placement of concrete, except in freezing weather.
2. Forms will not be removed before the expiration of the number of days indicated below, except with express approval of the Engineer:

Columns and Beams	5 days
Walls and Vertical Faces	3 days
Slabs	2 days
3. Cured strength of concrete shall be 75% of the design strength prior to form removal. When removed, forms will be handled in such a manner as required to prevent injury to the concrete.

END OF SECTION 321310

SECTION 329113 – PLACEMENT OF TOPSOIL

PART 1 - GENERAL

1. Place topsoil on all areas indicated, removing all rocks & debris larger than 3".
2. Loosen subgrade by discing or scarifying to a depth of 2 inches wherever compacted by traffic or other causes to permit bonding of the topsoil to the subgrade,
3. Place material within following limits:
 - A. Not less than 4 inches in depth.
 - B. Do not exceed 6 inches in depth.
4. Settling or erosion shall be filled, repaired and grades reestablished to elevations and slopes indicated.
5. Correction of Settlement:
 - A. Under provisions of the guarantee, Contractor is responsible for correcting any settlement in excess of the amount of the specified grading tolerance for the specific areas of embankments or backfill and damages created thereby within one year after final acceptance of the Work.
 - B. Make repairs within 10 days from and after due notification by Owner of embankment or backfill settlement and resulting damage.
 - C. Make own arrangements for access to the site for purposes of repair.

END OF SECTION 329113

SECTION N329219 – SEEDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division Specification sections, and the Approved DNR Land Disturbance Permit, apply to the Work specified in this Section.

1.2 DESCRIPTION OF WORK

- A. Furnish all materials, labor, equipment and services necessary to perform all Work.
- B. Work included in this Section includes clearing of weeds, seed bed preparation, installation of erosion control fabric and seeding operations required for seeding of the areas shown on Drawings.

1.3 SPECIFICATIONS AND STANDARDS

- A. U.S. Department of Agriculture: SRA 156 U.S. Department of Agriculture, Rules and Regulations under the Federal Seed Act.
- B. American Joint Committee on Horticultural Nomenclature Standard: 1942 Edition Standardized Plant Names.

PART 2 - PRODUCTS

2.1 SEED

- A. All seed shall be furnished in sealed, standard containers, unless otherwise approved. Seed which has become wet, moldy, or otherwise damaged will not be acceptable.
- B. Each container of seed shall be fully labeled in accordance with the Federal Seed Act and seed certifications shall be signed and made part of seed invoices.
- C. Seed shall be Fescue, 97 percent pure live seed.
- D. Invoices and tags for seed shall show type furnished. Upon acceptance of the seeded areas, a final check of total quantities of seed used will be made against total area seeded and if minimum rates of application or specified quantities have not been met, the Architect will require distribution of additional quantities of these materials to make up minimum application specified.

2.2 FERTILIZER

- A. Fertilizer shall be uniform in composition, free-flowing, suitable for application with approved equipment and delivered to the site unopened in original containers each bearing the manufacturer's guaranteed analysis and in conformity with state fertilizer laws. Fertilizer shall contain the following minimum percentage of plant food by weight.

1. 12 percent available nitrogen
2. 12 percent available phosphoric acid
3. 12 percent available potash

B. Fertilizer application rates shall be 600 pounds per acre.

C. Invoices for fertilizer shall show grade furnished. Upon acceptance of the seeded areas, a final check of total quantities of fertilizer used will be made against total area seeded and if minimum rates of application or specified quantities have not been met, the Architect will require distribution of additional quantities of these materials to make up minimum application specified.

2.3 EROSION CONTROL FABRIC

A. Fabric shall be “Soil Saver” as is distributed by Jim Walls Company in Dallas, Texas (214) 239-8577; or “Curlex Blankets” as is distributed by American Excelsior Company in North Kansas City, Missouri (816) 842-3034; or “RollMax BioNet” as is distributed by North American Green in Poseyville, Indiana (800) 772-2040; or approved equal.

2.4 STAPLES

A. Staples shall be a No. 11 gauge steel wire formed into a “U” shape, 6 inches long.

PART 3 - EXECUTION

3.1 GROUND PREPARATION

A. General: the ground areas are to be seeded and fertilized as indicated on the Drawings and/or as specified herein. Equipment necessary for the proper preparation of the ground surface and for handling and placing all required materials shall be on hand, in good condition and shall be approved before the Work is started.

B. Clearing: Prior to tillage, seeding or other specified operations, all vegetation which might interfere with the indicated treatment of the areas shall be mowed, grubbed, raked and the debris removed from the site. Prior to or during grading and tillage operations, the ground surface shall be cleared of materials which might hinder final operations. Areas which have been disturbed shall be finish graded and/or developed as indicated on the Drawings or as specified.

C. Tillage: After the areas required to be seeded have been brought to the finish grades as specified, they shall be thoroughly tilled to a depth of at least 6 inches by plowing, disking, harrowing or other approved methods until the condition of the soil is acceptable to the Architect. Work shall be performed only during period when beneficial results are likely to be obtained. When conditions are such by reason of drought, excessive moisture, or other factors that satisfactory results are not likely to be obtained, Work shall be stopped. Work shall be resumed only when desired results are likely to be obtained.

D. Leveling: Any undulations or irregularities in the surface resulting from tillage, fertilizing or other operations shall be leveled with a float drag before seeding operations are begun.

E. Fertilizing: Fertilizer shall be distributed uniformly at the rate previously specified per 1,000 square feet over the areas to be seeded and shall be incorporated into the soil to a depth of at least

3 to 4 inches by disking, harrowing or other approved methods. The incorporation of fertilizer may be a part of the tillage operation hereinbefore specified. Distribution by means of an

- F. approved seed drill equipped to sow seed and distribute fertilizer at the same time will not be accepted. Fertilizer shall be incorporated into the soil a minimum of 10 days before seed is planted.
- G. Inspection: A minimum of 48 hours prior notice must be given to the Construction Administrator before fertilizing may commence.
- H. Planting Time: All seeding Work shall be done between the dates of April 1 to May 15 for spring planting and from August 15 to October 15 for fall planting except as otherwise directed in writing by the Construction Administrator.
- I. Planting Condition: No planting shall be done until a permanent source of water is available at the site for use by the Owner.

3.2 SEEDING

- A. General: Prior to seeding, any previously prepared seedbed areas compacted or damaged by interim rains, traffic, or other cause shall be reworked to restore the ground condition previously specified. Seed shall be planted by drill seeding.
- B. Drill Seeding: Seed shall be uniformly drilled to an average depth of ½ inch and at the rate of 8 pounds per 1,000 square feet using equipment having drills not more than 6 ½ inches apart. Row markers shall be used with the drill seeder.
- C. Rolling: Immediately after seeding, except for slopes 3 horizontal to 1 vertical and greater, the entire area shall be firmed with a roller not exceeding 90 pounds for each foot of roller width. Do not roll areas seeded with seed drills equipped with rollers.
- D. Inspection: A minimum of 48 hours prior notice must be given to the Construction Administrator before seeding may commence.

3.3 INSTALLATION OF EROSION CONTROL FABRIC

- A. Fabric shall be rolled out in place. Fabric shall be applied without stretching and shall lie smoothly but loosely on the soil surface. The Contractor shall refer to the Drawings for details of fabric fastening.
- B. Application of the erosion control fabric shall occur the same day that the seeding of an area has taken place.
- C. Fabric shall completely cover all areas which are shown on the Drawings to be protected from erosion. After fabric installation, the entire area shall be rolled with a smooth roller weighing between 200 to 250 pounds. After rolling, the fabric shall be in intimate contact with the soil surface at all points. Any clods, etc., which hold the fabric off the ground should be removed. The fabric shall be forced down into any depressions and held there with a staple.

3.4 MAINTENANCE

- A. General: The project areas shall be kept clean at all times and care shall be taken that use of the premises shall not be unduly hampered by Work herein specified. The intent of this Section is to ensure a healthy, well-established turf, and prevent soil erosion in compliance with the Land Disturbance Permit issued by the Missouri Department of Natural Resources.
- B. Responsibility: The Owner shall be responsible for maintenance of all seeded areas upon completion of seeding and general acceptance by the Construction Administrator.
- C. Damage: Damage to seeded areas during the project shall be repaired by the persons responsible for causing such damage.

3.5 GENERAL ACCEPTANCE

- A. The Construction Administrator shall make an inspection of the seeded areas upon completion of seeding. Seeded areas shall be considered acceptable if the specified quantities of fertilizer & seed have been properly applied.

3.6 GUARANTEE

- A. The Contractor is responsible for the proper application of the fertilizer & seeding. Watering, weeding, re-seeding, and mowing will be the responsibility of the Owner after proper application of the seed.

END OF SECTION 329219

SECTION 331421 – PLUG VALVE

PART 1 – GENERAL

All non-lubricated plug valves furnished under this contract shall be the product of one manufacturer. All plug valves shall be of the non-lubricated eccentric type with resilient faced plugs. Plug valves shall be Clow, M & H, or equal.

The plug valves shall be furnished with end connections as shown on the plans. Flanged ends shall be faced and drilled to the ANSI 125/150 pound standard. Mechanical joint ends shall be to the AWWA standard C111-64. Bell ends shall be to the AWWA standards C100-55 Class B. Screwed ends shall be to the NPT standard. Exposed valves shall be flanged and buried valves shall be mechanical joint unless otherwise specified.

PART 2 – CONSTRUCTION

1. **Body Port.** Port areas for 4-inch through 20-inch plug valves shall be a minimum of eighty percent (80%) of full pipe area. Port areas for larger than 20-inch plug valves shall be minimum of seventy percent (70%) of full pipe area.
2. **Valve Bodies.** Valve bodies shall be of ASTM A126 Class B cast iron in compliance with AWWA C504-87, Section 2.2. Bodies in 4-inch and larger plug valves shall be furnished with a raised welded-in overlay, cylindrical shaped seat of not less than ninety percent (90%) pure nickel in accordance with AWWA C507, Section 7.2. Seat area shall be raised, with raised surface completely covered with weld to insure that the plug face contacts only nickel. The raised area shall be a minimum of 0.125-inch thick and 0.500-inch wide. Valves utilizing resilient seat attached to the body shall not be acceptable. As per AWWA C504-87, Section 3.5.3 and AWWA C507-73, Section 7.2, sprayed or plated seats are not acceptable nor shall screwed-in or bolted-on seats be acceptable.
3. **Plugs.** The plugs shall be of ASTM A126 Class B cast iron in compliance with AWWA C504-87, Section 2.2. The plug shall be of one-piece construction and shall be capable of withstanding the full pressure rating of the valve without the use of additional structural reinforcing ribs that extend beyond the profile of the plug itself. Plugs shall be resilient faced with neoprene or hycar, suitable for use with sewage. Plugs with cast inlays shall not be acceptable.
4. **Bearings.** Upper and lower journal bearings shall be sleeve type metal bearings conforming to AWWA C504-87, Section 3.6 and AWWA C507-73, Section 8. Journal bearings shall be of sintered, oil impregnated and permanently lubricated Type 316 ASTM A743 Grade CF-8M stainless steel in 1/2-inch through 36-inch plug valve sizes. In plug valves larger than 36 inches, the upper and lower plug journals shall be fitted with ASTM A240 Type 316 stainless steel sleeves with bearings of ASTM B30, Alloy C95400 aluminum bronze. Thrust bearings shall be of virgin Teflon. Non-metallic journal bearings shall not be acceptable.
5. **Shaft Seals.** Plug valve shaft seals shall be of the multiple V-ring type and shall be externally adjustable, repackable without removing the bonnet or actuator from the valve, and repackable under pressure. Shaft seals shall be Buna Vee. Shaft seals shall conform with AWWA C504-87, Section 3.7 and AWWA C507-73, Section 10.2. Valves utilizing O-ring seals or non-adjustable packing shall not be acceptable. All exposed nuts, bolts, springs, washers, etc., shall be stainless steel.
6. **Pressure Ratings.** Valve pressure ratings shall be 175 psi for 1/2-inch through 12-inch and 150 psi for 14-inch through 72-inch. Each valve shall be given a body hydrostatic test and seat test with test results

being certified. Certified copies of individual seat and body hydrostatic tests shall be submitted to the Engineer prior to shipment. Certified copies of proof-of-design test reports shall be furnished, as outlined in AWWA C504-87, Section 5.2.4, with submittal drawings to the Engineer.

PART 3 – ACTUATORS

1. Manual Actuators. Manual valves shall have lever or worm gear actuators with extension stems as shown on the plans or as called for in the valve schedule. Worm gear actuators on 12-inch and smaller valves shall be sized for 100 psi. Worm gear actuators for 14-inch and larger valves shall be sized for 50 psi. Worm gear actuators shall be furnished for all valves 4 inches or larger where the maximum unseating shutoff pressure is greater than 25 psi as indicated on the plans or in the valve schedule. Worm gear actuators shall be sized for 175 psi, bi-directional shutoff as indicated on the plans or in the valve schedule. All gearing shall be enclosed in a semi-steel housing and be suitable for running in a lubricant with seals provided on all shafts to prevent entry of dirt and water into the actuator. The actuator shaft and the gear quadrant shall be supported on permanently lubricated bronze bearings. Actuators shall clearly indicate valve position and an adjustable stop shall be provided to set closing torque. This adjustable stop shall be the only adjustment necessary to set the clearance between the valve plug and the seat while the valve is in-line and under pressure. Hand wheel and chain wheel sizes for worm gear actuators shall be no smaller than 6 inches in diameter and no larger than twice the diameter of the actuator's gear sector. All exposed nuts, bolts, and washers shall be stainless steel.
2. Valves and Gear Actuators. Valves and gear actuators for buried or submerged service shall have seals on all shafts and gaskets on the valve and actuator covers to prevent the entry of water. Actuator mounting brackets for buried or submerged service shall be totally enclosed and shall have gasket seals. All exposed nuts, bolts, springs, and washers shall be stainless steel. Position indicators are not required for buried service valves.

END OF SECTION 331421

SECTION 331422 – CHECK VALVE

PART 1 – GENERAL

All check valves furnished under this contract shall be the product of one manufacturer. Check valves shall be Clow, M & H, or equal, swing type weight and lever operated

PART 2 – CONSTRUCTION

1. AWWA C-508 Standards shall govern the design, construction, and manufacture of all check valves used.
2. Check valves shall be iron bodied, fully bronze mounted, with the rubber faced clapper disc seated by a bronze clapper arm. Body ends will be flanged, with standard template drilling.
3. Clappers will be secured to a stainless steel shaft, turning in bronze bushings.
4. Plugs and bushings must be securely mounted, using cap screws, and sealed with o-rings and dirt seals.
5. Valves shall operate by lever and weight, unless otherwise noted.
6. Valves will be designed for a minimum working pressure of one hundred and seventy-five (175) psi, with a three hundred and fifty (350) psi test pressure.
7. The valve shall permit "full flow" through the valve equal to the diameter of the pipe.
8. Check valves shall be constructed to permit top entry for complete removal of internal components without removing the valve from the line.

END OF SECTION 331422

SECTION 333100 – SANITARY SEWERS

PART 1 - SCOPE OF WORK

The work will consist of furnishing all materials, equipment, and labor necessary for the construction of sanitary sewers and appurtenances as shown on the Plans and specified herein. Items not specifically mentioned, but necessary for the completion of the Work, shall be provided.

PART 2 - MATERIALS

1. GENERAL

Unless otherwise noted on the Plans, all gravity sewer piping shall be PVC, except at locations (such as special utility crossings or railroad crossings) where Ductile Iron Pipe is required. All yard piping shall be ductile iron pipe unless noted on the plans. All fittings required shall be of the same material as the piping material to which they are joined, unless specifically noted otherwise on the Plans. Service connection (to main) fittings may be of either the 'sanitary tee' or 'sanitary wye' configuration, at the Contractor's option. Suitable water-tight connection fittings, placed within concrete collars, will be required at all locations where dissimilar types and/or sizes of piping are jointed.

2. GRAVITY SEWER PIPING

- A. General: Pipe shall be the kind, size and class shown on the Plans and shall meet the following specifications.
- B. Polyvinyl Chloride (PVC) Pipe: PVC pipe shall comply in all respects with ASTM D-2241, D-3034, and D-1784, Class 12454B (or C), and F-679 (large diameter sewer pipe); all fittings shall comply with ASTM D-1784, Class 12454B (or C), or 13343C specifications. All joints shall be an elastomeric gasket type, conforming to ASTM F-477 specifications. All pipe and fittings shall be subject to all other installation, test conditioning, and test procedures as listed and denoted in ASTM designation D-1784, D-2241, D-3034, F-477, and F-679. The maximum allowable deflection for assembled joints and piping shall be five (5) degrees. As shown on the Plans, other PVC pipe shall conform to AWWA C-900, pressure Class 100 (DR25), cast iron pipe size with gasket bell ends. Couplings shall have elastomeric gaskets. All PVC pipe larger than four (4) inch diameter shall have ductile iron fittings. All yard piping shall have a joint gasket restraining system consisting of stainless steel locking segments molded into the gasket as manufactured by Griffin Pipe Company, American Cast Iron Pipe Company, or Engineer Approved Equivalent. Shop Drawings Required.
- C. Ductile Iron Pipe: Ductile Iron Pipe shall comply with the requirements of AWWA C-151, Class 52. All pipe, fittings, and specials shall be bituminous coated on the outside, and cement lined per AWWA C-104 specifications. Pipe joints shall be slip or mechanical joints conforming to AWWA C-111 standards. Fittings shall be short bodied, bituminous coated, cement lined, mechanical joint, complying with AWWA C-111 standards. Mechanical joints shall be standardized, and shall be provided with transition gaskets as may be required for connection to other piping material. All ductile iron pipe and fittings installed underground shall have an eight (8) mil polyethylene encasement.
- D. Vitrified Clay Pipe (VCP): All Vitrified Clay Pipe and fittings shall conform to ASTM C-700 specifications. All joints shall conform to ASTM C-425 requirements. All VCP twelve (12) inches in diameter and smaller shall be "Standard Strength" pipe; and all pipe fifteen (15) inches and larger in

diameter shall be "Extra Strength" pipe. All VCP buried eighteen (18) feet or deeper shall be "Extra Strength" pipe. All specials shall be of the same make and quality.

- E. Concrete Pipe: All concrete sewer pipe and fittings shall conform to ASTM C-14 requirements, and shall be supplied with flexible, water-tight, neoprene gaskets conforming to ASTM C-443 specifications. All specials shall be manufactured fittings, and shall be provided with suitable o-ring or other compressed gasket type seals.

3. BEDDING MATERIALS

- A. Material for bedding shall be clean crushed stone or crushed gravel conforming to the requirements of ASTM D2321-74 Class I bedding material.
- B. Any miscellaneous materials found necessary to use during construction, but not described above, shall be subject to the approval of the Engineer. The Contractor shall provide any samples required for compliance with the above requirements, and if so directed, shall provide the Owner and the Engineer with certifications stating the conformance of the bedding material with the above criteria.
- C. All buried Ductile Iron Piping, valves, and fittings shall be wrapped in a polyethylene sleeve prior to backfill. All Ductile Iron Piping and fittings, placed below concrete structures shall be poly-wrapped and encased in lean concrete.

4. MANHOLES

- A. Manhole Construction: Unless specific, written permission allowing alternate construction types is given by the Engineer, all gravity sewer manholes shall be precast concrete conforming to ASTM C-478 specifications. The manholes shall be constructed of precast sections, all of which shall be coated, on the outside, with two (2) coats of bituminous material. All manhole sections shall be joined and sealed using a preformed, plastic gasket material meeting Federal Specification SS-S00210. Gasket material shall be "Rub'R-Nek", or equal. All pipe openings shall be provided with a resilient, flexible type pipe gasket, factory installed, and sized for the sewer pipe material used. Gaskets shall conform to ASTM C-923 requirements, and shall be "A-Lok", or equal. The Contractor has the option, with the written approval of the Engineer, to use precast base sections (with or without preformed inverts), at locations where construction is not required over existing lines, structures, etc. All precast bases shall be provided with a base not less than six (6) inches in depth, extended at least six (6) inches beyond the outside diameter of a normal barrel section. Manhole diameter (inside) shall be four (4) feet unless otherwise noted. All transition pieces for five (5) foot diameter manholes shall meet the ASTM requirements stated above. Locations of internal and/or external drop manholes will be noted on the Plans. Reinforcing shall be double caged for depths in excess of 16'-0".
- B. Castings: All castings for manhole rings, covers, or special castings shall be of tough, grey iron, free from cracks, holes, swells, or other deformities, and shall have a workmanlike finish. All casting material shall conform to ASTM A-48, Class 25 requirements. Before leaving the foundry, all castings shall be thoroughly cleaned and subjected to a hammer test, after which they shall be double coated with a bituminous varnish. Unless otherwise specified, all manhole rings shall be supplied with a mud ring or mud lugs, and the covers shall be of the solid type, provided with concealed pick holes. Standard rings and covers shall be Nennah #R-1736, or equal. Where specifically noted on the Plans, water-tight rings and covers shall be supplied. These covers shall be supplied with a neoprene gasket located between the bearing surface of the ring, and the cover. The cover will be held in place with four (4) countersunk, stainless steel, hexagonal head cap screws and the ring shall

be bolted to the manhole with stainless steel anchors. Watertight rings and covers shall be Deeter #1313, or equal.

- C. Steps: All manholes which are four (4) feet or more in depth, shall be provided with manhole steps, located at sixteen (16) inch centers. The steps shall be constructed of at least three-eighths (3/8) inch steel rod, encapsulated in a Copolymer Polypropylene plastic coating. The steps may be built into the manhole sections during manufacture, or the manhole sections may be drilled and the steps press fit. The steps shall be similar to those manufactured by M. A. Industries.
- D. Inverts: For manholes not using precast inverts, inverts shall be constructed of Class "B" concrete or cement mortar, after all precast sections are placed. Inverts shall be evenly finished to assure smooth flow through the manhole. Special attention shall be paid to invert elevations; the manhole must drain completely, having no high spots which will keep water from entering through the incoming line(s). Mortar, if used for inverts, shall consist of one (1) measure of cement to two (2) parts of sand, to which may be added hydrated lime in an amount of not more than twenty-five (25) percent of the volume of cement. The sand and cement shall be thoroughly mixed dry, with water added as required to form a workable mixture. Inverts for internal drops within the manhole, at locations where a lateral sewer enters the manhole at an invert elevation less than two (2) feet above the lowest invert of the manhole, shall be accommodated by forming the invert in the bottom of the manhole to a smooth, reasonable, and uniform grade between the elevations. The inverts for external drop assemblies shall be formed as first described above.
- E. Internal Drop Assembly - Materials: All internal drop assemblies shall be constructed to the lines and grades noted on the Plans. All necessary mounting hardware to be fabricated from stainless steel. PVC drop piping shall be glue joint schedule 80. The low invert of the drop assembly shall enter the manhole at a point less than two (2) feet above the manhole discharge invert elevation.
- F. Grouting Materials: All areas damaged, as well as all lift holes, joints, etc., shall be replaced or filled with a non-shrink grout, in sufficient quantity as may be required to ensure the water-tightness of the manhole. The grout shall be proportioned using one (1) part Portland cement, three (3) parts clean, well graded sand (screened through a #4 sieve), one-quarter (1/4) part non-shrink grout, and sufficient water to obtain the necessary consistency. Non-shrink grout shall be "Embeco", or equal.
- G. Future Laterals: As noted on the Plans, or at other locations as may be directed by the Engineer, a section of sewer pipe, of the size indicated, shall be built into the manhole at locations where future laterals may be connected. The pipe shall terminate at a bell, located not less than twelve (12) inches outside of the outside diameter of the manhole. A plug, of the same material as the pipe, shall be placed in the bell, and completely sealed with a suitable mastic material which will allow removal of the plug, without disturbance or removal of the pipe. An invert, constructed as noted above, shall be formed for the lateral.

5. FORCE MAINS

- A. General: Unless otherwise noted on the Plans, the minimum depth of cover for all force main piping shall be forty-eight (48) inches over the pipe bell. Force mains shall be installed with an upward grade to the discharge point, unless otherwise directed by the Engineer. Should continual upward grades be impossible, the force main shall be installed to lines and grades between air release and/or vacuum relief valves as indicated on the Plans. PVC piping will be used at all locations except where metal pipe materials; Steel, Ductile Iron, or Copper are required (special utility crossings, highway crossings, and railroad crossings). Force mains will terminate at a point no higher than two (2) feet

above the manhole invert or structure floor, and must be provided with a formed invert as previously noted.

- B. Polyvinyl Chloride (PVC) Pipe: PVC piping shall meet all strength requirements of this specification at a temperature of not less than 73.4 degrees F. Piping shall be SDR21, Class 200. All fittings shall have a minimum working pressure of 200 psi. Pipe and fittings shall conform to at least the following ASTM standards: Prefix D-; 638, 1598, 1599, 1784 (Class 12454-B), 2152, 2241, 2444, 2937, 3139; and F-477. Only pipe with rubber o-ring gaskets shall be used. Pressure testing is required at a minimum of 100 psi.
- C. Ductile Iron Pipe: Ductile Iron Pipe shall conform to the ASTM standards previously listed in Section 2.b.
- D. Copper Pipe: All copper pipe used shall conform to ASTM B-88, Type "K" requirements, and with Federal Specification WW-T-799. Couplings shall be brass bodied, compression type, Mueller No. 110, or equal.
- E. Air Release - Vacuum Relief Valve: Air release and/or vacuum relief valves shall be located as shown on the Plans. Valves shall be Val-Matic, #301BWA (with two-inch inlet) or equal, as specified on the Plans. Adequate fittings and connections, as approved by the Engineer, shall be installed to position the valve within a 24-inch diameter well. This well shall be made from corrugated polyethylene drainage pipe with a smooth interior, Hancor Hi-Q, DW PL1 24, or equal. A cast iron manhole ring and cover to fit the 24-inch well is to be provided, Deeter Foundry #1981, or equal. PVC force mains may be tapped using approved PVC tees and related fittings. The Contractor shall provide all necessary fittings and piping to connect the main to the valve setting. See "Plan" for air release installation details.

6. ENCASEMENT

- A. General: Unless otherwise noted on the Plans, all highway, railroad, and other special crossing locations so designated, must be installed in steel encasement, to the lines and grades indicated. Encasement must meet API 5L, Grade "B" requirements (35,000 psi minimum yield), with all joints continuous weld. The inside diameter of the encasement must exceed the outside diameter of the carrier pipe, joints, or couplings by: two (2) inches for carrier pipes four (4) inches and smaller in diameter; and six (6) inches for carrier pipe six (6) inches and larger in diameter. Minimum wall thickness for encasement pipe is 0.188 inches, with increases in thickness for the following diameters. Anode packs are required (17 lb).

Nominal Diameter of Pipe Inches	Pipe Not Coated or Cathodically Protected Min. Thk.-Inches	Pipe Coated & Cathodically Protected Min. Thk. - Inches
6 - 12	0.188	0.188
14 - 16	0.282	0.219
18	0.312	0.250
20	0.344	0.281
22	0.375	0.312
24	0.406	0.344
26	0.438	0.375
28 - 36	0.469	0.406

- B. The Contractor shall note that the wall thickness listed above is the minimum allowable thickness. It will be the responsibility of the Contractor to verify with the Owner, and the Utility having jurisdiction, the thickness of encasement pipe required for each specific crossing location. Both ends of each encasement shall be sealed with an Engineer approved method, and the Contractor shall provide all necessary material required to position the carrier pipe, to the correct line and grade, within the encasement pipe.

PART 3 - CONSTRUCTION METHODS

1. EXCAVATION

- A. The excavation shall consist of the removal of any and all material below ground level, necessary to carry out the installation and construction required by these Plans and Specifications, and shall include:
1. Additional excavation required for bedding material;
 2. All sheeting, shoring, bracing, protection of adjacent property, underground conduits or structures, and preparation of the subgrade;
 3. The cost of diversion of surface water, pumping, draining, or otherwise dewatering the excavation; and
 4. The subsequent handling and disposal of any material not used in the backfill.
 5. The subsequent handling and disposal of all "Solid Wastes" as defined by Chapter 260.200 RSMo generated from Construction of the project shall be disposed of or managed in accordance with the Missouri Solid Waste Management law and regulations.
- B. Any excavation requiring rock removal shall be considered to be incidental to the excavation process, and no additional payment will be made for such rock removal.

- C. The Contractor shall note that the burning of trade wastes, (10 CSR 6.020) and disposal of waste oil in the environment (10 CSR 25-11.010) is strictly prohibited on this project.
- D. The width of the trench, at the top of the pipe, shall provide at least six (6) inches clear space on each side of the pipe to permit tamping of the bedding material. The excavation shall not be performed any further ahead of the bedding and pipe laying operation than is necessary to permit a continuous operation. The elevation of the trench bottom shall be continually checked for proper subgrade. Excavation made below the proper subgrade elevation will be filled only with the approved bedding material, and compacted, at the Contractor's expense. Sheeting, timbering, or bracing shall be placed by the Contractor, wherever necessary, for the proper preserving of any excavation, embankment, or structure. Where the excavation material is of such a character, or other conditions are such as to render it necessary, sheeting shall be closely driven, and to sufficient depth below the lowest point of the final excavation to protect the excavation, and as may be directed by the Engineer. The Contractor will be held responsible for the sufficiency of all sheeting and bracing used, and for all persons injured, or property damaged, as a result of improper quality, strength, placement, maintenance, or removal of same. No extra compensation will be made for such sheeting or bracing, whether left in place, or not.
- E. The Contractor, at his expense, shall shore, protect, and ensure from injury, all buildings, retaining walls, viaduct piers and footings, storm sewers, all utility lines, fences, curbs, trees, and other property liable to damage during the progress of the Work, and will be responsible for all damage occurring by reason of prosecution of the Work.
- F. The Contractor shall furnish and operate sufficient pumps and appurtenances, and shall provide all materials, labor, and other related articles, to prevent interference with any work by water, ice, or snow. The Contractor, at his expense, shall make good all damage of any kind resulting from insufficient pumping facilities or similar lack of proper conduct of the Work. No water shall be allowed to run into, or over, any concrete work or pipe, or into or through any pipe, without the written permission of the Engineer. The locations of sewers and structures shown on the Plans, have been selected to provide the least possible interference with, or the crossing of, existing utilities and aboveground obstructions. The Owner reserves the right to make minor variations in the location of said sewers and/or structures, during the course of construction, to meet any changed conditions encountered during construction, and no extra compensation will be made to the Contractor for such shifts in alignment.
- G. The Contractor shall make all necessary arrangements with any corporation, person, or firm owning or using any poles, pipes, tracks, conduits, or other appurtenances affected by construction of the Work, to maintain and protect such facilities. All costs of any such protection shall be paid by the Contractor, and shall be included in the Bid Price.
- H. Excavation for manholes (or other structures such as wet wells, valve pits, etc.) will follow the procedure set forth above regarding sheeting, shoring, and bracing. The excavation will be made to established grade, with suitable allowance made for the base thickness. The bottom of the excavation shall be machine and hand worked to provide a flat, level area of sufficient size to permit adequate working area around the manhole base and the sewer lines. Any overexcavation will be filled to grade with rock, (and machine compacted) similar in characteristics to the bedding material, sand, or other material as approved by the Engineer. Manholes and/or structures will not be set on mud, or in excavations having standing water. Excavation requiring rock removal will be considered as incidental to construction, and no extra compensation will be made for such excavation. Excavation for force mains will generally follow procedures set forth above for gravity sewer lines.

- I. Trenches shall be excavated to a uniform grade, and in a straight line. Where changes in grade or alignment are necessary, such changes shall be gradual, unless fitting locations are noted on the Plans, and must provide a uniform bed for the pipe. In no case will changes in vertical or horizontal alignment of the trench exceed the recommendations for pipe deflection specified by the pipe manufacturer. Should the force main be located adjacent to a gravity main, and it is impossible to maintain a ten (10) foot separation between the lines, the force main may be installed on an excavated shelf of previously undisturbed earth, approximately three (3) feet from the gravity main.
- J. When any sewer parallels an existing water line, the sewer shall be located at least 10 feet horizontally from and at a lower elevation than the water line. Wherever a water line crosses a sewer line, the water line should be located at least 1.5 feet vertically above the sewer line and no water joint or fitting should be closer than 6 feet horizontal to a sewer joint. Where these conditions cannot be met the Contractor shall notify the Engineer in order that the Missouri Clean Water Commission be notified in writing as to the precautions to be taken to protect the water supply.

2. BEDDING AND LAYING PIPE

- A. Gravity Sewers: If the subgrade material is earth, the subgrade will be excavated to provide space for at least four (4) inches of bedding material between the subgrade and the pipe, and six (6) inches of material between the subgrade and the pipe if the subgrade material is rock. Bedding material shall be placed in the trench, and carefully graded and tamped to proper elevation so that the pipe, when placed, conforms to the specified line and grade. Contractor shall cover the pipe with 2" minimum bedding material. The Engineer will provide the Contractor initially with line and grade stakes set on natural ground. It shall be the Contractor's responsibility to transfer the line and grade to the bottom of the ditch. Three (3) batter boards, a top line, and grade pole or laser beam shall be used for this purpose, unless the Engineer gives written approval allowing use of some other method for checking the inner, lower grade and line of the pipe. The Contractor must check the ditch, or grade of the top line and sewer, and shall provide and maintain on the Work, at all times, a laser beam or gauge rod of sufficient length to reach from the invert of the pipe being laid, to the top line strung between the batter boards. The gauge rod shall be graduated and numbered each foot of its length, and shall be provided with either a plumb line, or two (2) spirit levels. In the event a laser beam is used to set line and grade for the pipe laying operation, the laser must be checked at the beginning of each day, at least once between manholes, and at any other time the Engineer deems necessary to ensure proper line and grade. The Contractor will be held responsible for the correct flow of sewers so installed. Any apparent inaccuracy in grade stakes shall be called to the Engineer's attention immediately upon discovery.
 1. Each pipe shall be laid on an even, firm bed, so that there is no uneven strain which shall be dug at each point as specified. Each pipe shall be laid in conformity with the line and grade stakes given by the Engineer.
 2. Pipe laying shall commence at the manhole connection at the low point of the Project, and progress up-grade, unless otherwise permitted by the Engineer. Each pipe must be truly centered into the abutting pipe, with the bell end of each pipe laid up-grade.
 3. As the work progresses, the interior of each pipe shall be cleaned of all jointing material, and all superfluous material. On small diameter sewers, where cleaning after laying of the line may be difficult, a swab or drag shall be kept inside the pipe, and pulled forward past each joint immediately after its completion.

4. All joints for the specific pipe material supplied shall be in accordance with the manufacturer's recommendations. Immediately prior to jointing, all surfaces of the joint shall be thoroughly cleaned, and lubricated with a jointing compound supplied by the pipe manufacturer. The spigot end of each pipe shall be centered, on line and grade, into the bell end of the last downstream section of pipe, shoved home, and properly seated with the application of steady pressure using a lever, winch, or other suitable device. All precautions shall be taken to prevent displacement of the gasket during jointing. Mechanical Joint piping shall be similarly joined, with the retainer and gasket brought toward the flange evenly, before tightening the top and bottom bolts. This cycle shall be repeated until all bolts are properly tightened. If effective sealing of any joint, regardless of the pipe material used, is not obtained, the joint shall be disassembled, cleaned, and reassembled.

B. Laterals - Service Connections: One (1) tee or wye branch for each lateral sewer or building connection shall be furnished and installed as directed by the Engineer. Unless otherwise noted, all laterals or service connections shall be six (6) inches in diameter, of the same material as the gravity line, and closed on the upstream end with a plug (of the same material as the pipe). Bend fittings shall be considered to be equal to two (2) feet of service line length.

It is the responsibility of the Contractor to record the exact location of all tee or wye branches, before concealment by backfilling. Measurements shall be made from the center (of the cover) of the manhole next below in the same line of pipe, and shall show the direction of the fitting, length of service line or lateral, and approximate depth and location of the upstream end of each service connection or lateral. No special, tee, or wye shall be covered before its location has been recorded. Failure to record and provide to the Owner and the Engineer, all locations as stated above, may result in the uncovering of any and all lines required for verification of said locations; the cost of any and all such uncovering, backfilling, and surface restoration will be made at the Contractor's expense. The Contractor will place a wooden 2" x 2" stake, or other approved marker(s), at the end of each lateral or service connection. The marker shall extend from the lateral or connection to between two (2) to six (6) inches below the ground surface. If the sewer main is being installed within street right-of-way, all laterals and/or service connections shall extend to the right-of-way line; if the sewer main is being installed within a permanent easement, all laterals and service connections shall extend to the easement line.

C. Sewer Service Connections: Sewer service line installation shall meet all requirements of Section 1 of the specifications regarding materials and construction methods including bedding. It is required that the building sewer service line be replaced to within five feet (5') of the building unless the Engineer determines that some of the existing sewer service line may remain in service. The Contractor must uncover the existing sewer service line for spot inspections when requested by the Engineer.

D. Required Procedure for Connection of Building Sewer Service Lines:

1. Uncover the end of the service line stub or service wye and the building sewer near the building or at upper point of connection as directed by the Engineer.
2. Determine the invert (flow line) elevation of both the service line stub and the building sewer.
3. Measure the distance between the two ends to be joined and calculate the grade to which the new service line must be laid to provide a uniform grade throughout its length.
4. Install the new service line from the service line stub "upgrade" to the building sewer.

- a. DO NOT attempt to trench downhill from the building sewer to the service line stub or wye unless both ends are first uncovered and their relative elevations determined.
 - b. The location of the service tee or wye branch shall be installed in the sewer main with sufficient depth to receive the house or building sewer service at minimum grade or greater.
 - c. The service tee or wye shall be installed, where practical, in the sewer main closest to the existing house or building sewer service where it exits the structure.
 - d. The Contractor shall be responsible for locating and recording the depth of the existing house sewer service at the point of connection to the new sewer service. This location and depth shall be obtained from the Property Owner and/or by excavation of the existing service, a minimum of forty-eight (48) hours prior to the installation of the service tee or wye in the sewer main.
- E. Concrete Encasement: Concrete encasement, or support of sewer pipe (in lieu of, or in addition to granular bedding), shall be constructed by the Contractor at locations as may be designated on the Plans. In general, concrete encasement will be required over exposed sewer pipe, in stream or ditch crossings having minimal cover, and in streets or alleys exposed to traffic when the depth of cover is less than eighteen (18) inches. All concrete encasement shall be installed using Class "B" concrete, placed from the bottom of the ditch (as prepared for pipe laying), up the centerline of the pipe to a width of three (3) inches beyond the outside surface of the bell; and above this height, rounded off such that the surface is semi-circular, with the center at the center of the pipe, and the radius equal to that of the bell, plus three (3) inches. The approximate, theoretical quantities of concrete required for each lineal foot of encasement are as follows:

Pipe Size	Concrete Required
8 inch	0.91 cu. ft. per foot
10 inch	1.12 cu. ft. per foot
12 inch	1.27 cu. ft. per foot
15 inch	1.61 cu. ft. per foot
18 inch	2.08 cu. ft. per foot
21 inch	2.49 cu. ft. per foot
24 inch	2.94 cu. ft. per foot

- F. Force Mains: Joints for the force main shall be made in accordance with the pipe manufacturer's recommendations. Immediately prior to jointing, all surfaces of the joint shall be thoroughly cleaned and lubricated with a joint material supplied by the pipe manufacturer. The pipe shall be jointed using steady, even pressure, and properly seated by means of a lever, winch, or other approved method. All pipe sections shall be jointed in the trench; pipe jointed outside of, and then dropped or lowered into the trench, will not be approved. The pipe must be installed on a firm, even bed, so that no strain develops that might prevent the pipe from bearing on the pipe surface. Holes shall be dug for bell and spigot pipe at the locations specified. PVC pipe shall be 'shaded' with finely divided earth or other approved material, prior to placement of backfill material. Bedding installation for Ductile Iron Pipe shall be as directed by the Engineer. All thrust blocking shall be placed on firm,

undisturbed earth, with bedding material deleted at the block bearing area. The minimum bearing area for any thrust block is two (2) square feet.

3. BACKFILLING

- A. Pipelines: Backfilling shall follow closely behind all pipe laying operations, but not until the installation has been inspected by the Engineer, and all connection locations recorded by the Contractor. In all cases, the pipe shall be backfilled the same day as laying. Except as specified further below, backfill material may be suitable earth material from the trench excavation. Care shall be taken to avoid damage to the pipe, or to producing unequal pressures thereon. No frozen material shall be used for backfill. Unless otherwise directed, backfill in areas other than streets or alleys, shall be compacted to at least eighty-five percent (85%) of maximum density, as determined by standard compaction tests. Backfill in streets or alleys will be compacted as directed by the Engineer, and as may be further described in these Specifications.
1. The backfill material around gravity sewer piping, and up to 2" above the top of PVC pipe (bedding depths for other types of pipe shall be as described in the WPCF Manual of Practice Number 9, Chapter 9), shall be bedding material, carefully placed and lightly tamped, with due care being taken to prevent disturbance to the pipe line and grade. For a depth of at least twelve (12) inches above the top of the granular bedding material, the backfill material shall be fine, hand placed earth, and shall not contain any stones larger than one and one-half (1-1/2) inch in any dimension.
 2. The backfill material for mains (both gravity and force mains) located in open cuts crossing roadways or existing pavements, or other locations as may be designated on the Plans, shall be granular backfill material having a dense gradation similar to the bedding material gradation. Class 160 or Class 200 PVC force mains at these locations shall be 'shaded' with finely divided earth or sand, to a depth of six (6) inches above the top of the pipe, prior to the installation of the granular material. Compaction shall be as required for each backfill location, with minimum compaction being ninety-five percent (95%) Standard Proctor Density.
 3. All earth backfill for sewers and force mains in and generally parallel to streets, shall be compacted to ninety percent (90%) Standard Proctor Density or as directed by the Engineer.
 4. All surplus excavated material not used in the backfilling operation, shall be disposed of by the Contractor, and all material required for settlement repair shall be provided by the Contractor. Upon receipt of written notice from the Engineer, any settlement of the backfill below the original ground surface, shall be remedied by the Contractor, for the full term of the Guarantee period.
- B. Manholes and Structures: Backfill not within two (2) feet of a paved area will be clean earth. Backfill material will be deposited in layers not to exceed six (6) inches, moistened if needed, and thoroughly tamped; alternately, loose backfill may be placed, and settlement secured by thorough water jetting. Manholes or structures lying within a paved area or an area to be paved, or within two (2) feet of the back of curbs, will be back-filled with dense granular material, such as base stone or sand, and compacted to ninety-five percent (95%) Standard Proctor Density, unless otherwise directed by the Engineer.
- C. Topsoil and Final Surface Materials: All ground surfaces disturbed by the construction process shall be restored to the original condition and surface. Surfacing materials for private driveways and entrances, regardless of material type, shall be replaced entirely at the Contractor's expense.

1. Topsoil: After all outside work has been finished, and backfilling completed, all areas of the Work which require grading shall be brought to the grades specified. Slopes shall be trimmed and dressed by hand or other approved method, and so graded that effective drainage is secured. Grading shall be completed to the satisfaction of the Engineer, with at least four (4) inches of topsoil being provided on the disturbed areas. After the areas have been prepared for seeding, fertilizer, seed, and mulch.
2. Limestone Surfacing: Crushed limestone shall meet Missouri Highway and Transportation Department Standard Specifications for Highway Construction, Section 1006.2. Three-quarter (3/4) inch limestone shall comply with Section 1006.2, Grade 'F'; one and one-half (1 1/2) inch stone (maximum size) will be comprised of at least fifty percent (50%) of material specified for Grade 'A'. Prior to placement of the surfacing material, the Engineer shall inspect the specific areas requiring surfacing, and specify the depth (or quantity) of material to be used.
 - a. The accepted quantities of aggregate surfacing of the thickness and type specified will be paid for at the unit bid price per ton in place. The measurement of aggregate surface will be made in accordance with Section 310.4.2 of the Standard Specifications for Highway Construction. When the moisture content exceeds two percent (2%) of the oven dry aggregate weight, deductions for the weight of moisture in excess of two percent (2%) will be made from the weight of the material representative of the test. The accumulative total will be rounded off to the nearest ton.
 - b. After the ditches have been filled and settled, unpaved streets shall be refilled to an elevation slightly above the original level to allow for compaction and additional settlement. Street crossings subject to regular traffic shall be thoroughly sluiced or tamped and kept in a passable condition during the course of construction. Streets which were surfaced with chat or gravel, shall have the ditch brought to the original subgrade and the surfacing material replaced, any loss or deficiency in surfacing material being made up by the Contractor.
3. Paved Street Surfacing: Upon approval of the Engineer, the Contractor may backfill, and temporarily surface areas where concrete (or asphalt) pavement is to be replaced. All temporary surfacing shall comply with the requirements for limestone surfacing, and shall be maintained at all times until final pavements are installed.
 - a. Concrete used for pavement repair shall comply with Class 'A' concrete as specified in the Concrete Section of these Specifications. Reinforcement, where specified by the Engineer, shall conform to ASTM A-185 specifications.
 - b. Asphalt shall meet Missouri Highway and Transportation Department Standard Specifications for Highway Construction, Section 401. A commercial mixture may be used as specified in Section 401.3.8.
 - c. Section 304 of the Standard Specifications for Highway Construction shall apply to this work. The aggregate shall conform to Division 1000, Materials Details, and specifically as follows: Type 3 Aggregate Base Course Section 1007.3. Measurement will be made in accordance with Section 304.4.4 of the Standard Specifications for Highway Construction.

PART 4 - TESTING

1. GENERAL

- A. The Contractor shall conduct all tests under the direct supervision of the Engineer. Tests performed outside of the presence of the Engineer or his representative will not be accepted. The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether or not the work performed is in accordance with the requirements and intent of the Plans and Specifications. Any work done (except excavation), or material used, without supervision or inspection by the Engineer, may be ordered removed and replaced, at the Contractor's expense.
- B. After completion of the Work, or from time to time as the work progresses, the Contractor will, under the Engineer's direction, make such tests of the entire Work, or any part thereof, as may be needed to demonstrate the efficiency of any sewer or appurtenance. If requested, the Contractor shall make such openings as the Engineer may direct for testing purposes, and shall restore that part of the Work so disturbed to the satisfaction of the Engineer. Upon completion of the installation, all lines shall be tested with the service lines plugged at the right-of-way or easement line. Service lines beyond the scope of the project shall be visually inspected prior to backfill. Should any part of the sewer lines or appurtenances be found faulty in any respect, the Contractor shall, at his expense, repair or replace such defects and again make such tests as are required to document system acceptability. All tests performed shall indicate the satisfactory or unsatisfactory construction of that particular section (or manhole) of the system only. The Contractor shall not assert that, if the test results are combined, or unsatisfactory results are averaged with satisfactory results, the tests could prove acceptability of a larger portion of the system. Test results obtained for any portion of the system shall be indicative of that particular section only, and shall not be used in conjunction with any tests performed on any other portions of the system. The Contractor shall furnish all labor, equipment, tools, water, and material necessary to perform any and all tests, as are further specified below.

2. GRAVITY SEWER MAINS

- A. General: Prior to any testing, the Contractor shall examine the construction to determine that gravity system piping and appurtenances are complete to the extent that the required testing, at that time, will be indicative of the total system.
- B. Ball Test: Prior to any other tests, all gravity sewer mains shall be cleaned and tested for major defects, by flushing with an appropriately sized sewer cleaning ball. Pre-cleaning using high velocity jets or other methods, shall be done if necessary.
- C. Visual Test: All sewer lines shall be inspected visually, by both the Contractor and the Engineer, by lamping with mirrors and light to verify the accuracy of piping alignment, and to ensure that the line is free from debris and obstructions. The full diameter of the pipe shall be visible when viewed between consecutive manholes.
- D. Infiltration Test: Infiltration shall be measured using a weir placed in an appropriate manhole. The allowable infiltration, for any portion of the gravity system, shall not exceed two hundred (200) gallons per inch diameter per mile of sewer per day.
- E. Exfiltration Test: At least ten (10) percent of all newly laid, gravity sewer pipe shall be subjected to an exfiltration test after backfilling, in order to correlate air testing results with water testing results. The exfiltration test shall be conducted by isolating each manhole-to-manhole section of the line, and filling the upstream manhole with water to a depth of three (3) feet above the invert of the highest

pipe entering the manhole. A water level measurement shall be made and recorded after the initial filling, and at fifteen (15) minutes, and thirty (30) minutes thereafter. The test shall be considered acceptable when the water loss during the second fifteen (15) minute interval is less than, or equal to, the allowable infiltration rate of two hundred (200) gallons per inch diameter per mile per day, for the section of sewer being tested. Addition of water during the test will not be permitted. Exfiltration tests of sewer lines will be acceptable in lieu of low pressure air tests, if so desired and approved.

F. Low Pressure Air Test: All newly laid, gravity sewer pipe shall be subjected to a low pressure air test after backfilling, unless the Contractor elects to water test all lines as stipulated above for infiltration and exfiltration testing. The low pressure air test shall be conducted by introducing low pressure air into each manhole-to-manhole section of line. Each end of the line shall be sealed with pneumatic plugs, and the isolated section shall be pressurized to four (4.0) psig. At least two (2) minutes shall be allowed to elapse for temperature stabilization, and the pressure allowed to drop from four (4.0) to three and one-half (3-1/2) psig.

1. The elapsed time for this one (1) psi of air pressure drop shall not be less than: $t = 0.472 d$; where 't' = time in minutes and 'd' = pipe diameter in inches.
2. That portion of line being tested shall be accepted when it does not lose air at a rate greater than 0.0030 cubic feet per minute per square foot of internal pipe surface area, when the pressure drops from three and one-half (3-1/2) to two and one-half (2-1/2) psig.
3. The above will be accomplished when the time, in minutes and seconds, required for the pressure to decrease from three and one-half (3-1/2) to two and one-half (2-1/2) psig, is greater than the time shown for the given diameters in the following table:

Pipe Size - Inches	Min. Sec.
4"-6"	2 55
8"	3 57
10"	4 43
12"	5 40
15"	7 05
18"	8 30
21"	9 50
24"	11 20
30"	14 10
36"	17 0

4. Should the installation fail to meet this requirement, the Contractor will not be allowed to use any sewer sealing materials or methods to seal the system. The replacement of any pipe, pipes, or fraction thereof, will be accomplished using end connections of factory manufactured pieces having flexible, gasketed joints. The use of half-bell pipe or concrete collars will not be acceptable.

G. Mandrel Test: PVC gravity sewer piping shall be tested for deflection, at least thirty (30) days after installation and backfill. Measurements shall be made using a "Go-No-Go" device. Allowable deflection shall not exceed five (5) percent. The mandrel used for testing shall be clearly marked by the manufacturer, and shall indicate pipe size and deflection.

3. MANHOLES

A. General: All manholes shall be visually examined prior to any other testing. When water visibly runs down the manhole walls, across the manhole floor from the wall to the invert, through joints or lift holes, or around piping inlets or outlets, infiltration shall be considered excessive. The Contractor shall repair, replace, or otherwise seal all portions of the manhole where infiltration is visible.

B. Vacuum Test: Each manhole shall be subjected to a vacuum test after backfill has been placed around the manhole.

1. The vacuum test shall include testing of the seal between the cast iron frame and the concrete cone, slab, or grade rings.
2. Plug all pipes entering the manhole by installed pneumatic plugs in the sewer lines.
3. A vacuum of at least five and one-quarter (5-1/4) psig shall be drawn on the manhole. Shut valve on vacuum line and disconnect the vacuum line. Open the vacuum line and adjust the vacuum to five (5.0) psig.
4. The pressure gage shall be liquid-filled having a three and one-half (3-1/2) inch diameter face. The gage shall read from zero to ten psig. The test equipment shall be capable of having two gages connected. The gage reading is to be verified on each project.
5. The time for the vacuum reading to drop from five (5.0) psig to four and one-half (4-1/2) psig must be equal to or greater than the following values for the manhole to be considered as passing the vacuum test.

Manhole Depth (Feet)	Time (Minutes)
10 or less	2.0
10 to 15	2.5
15 to 25	3.0

6. If a manhole fails the vacuum test, the manhole shall be repaired and retested.

C. Exfiltration Test: In lieu of a vacuum test for manholes, an exfiltration test may be used when performed in accordance with the following procedures and approved by the engineer. Each manhole shall be isolated by installing pneumatic plugs in the sewer lines, allowing a minimum distance of eighteen (18) inches between the face of the plug and the face of the manhole. The manhole shall then be filled to a minimum depth of three (3) feet above the highest pipe entering the manhole. Water level measurements will be made and recorded after the initial filling, at fifteen (15) minutes, and thirty (30) minutes thereafter. The test will be considered acceptable when no water loss is observed during the second fifteen (15) minute interval. No water may be added during the test.

4. FORCE MAINS

- A. General: All thrust blocking shall have been installed at least seven (7) days prior to any testing of any force main or related appurtenance. Sufficient backfill shall be placed, prior to filling with water and field testing, to prevent lifting of the pipe. When local conditions require that backfilling occurs immediately following pipe installation, the testing may be carried out after backfilling has been completed, but prior to placement of final surfacing material.

The following procedures are based on the assumption that the pressure and leakage tests will be performed at the same time. Each section of the main to be tested, shall be slowly filled with water, and all air expelled by means of taps at high points or venting through an air release system, when specified. The specified test pressure shall be applied using a pump connected to the pipe, in a manner satisfactory to the Engineer, and shall be maintained, by additional pumpage if necessary, for the specified test time.

- B. Test Pressure: The duration of the test shall be two (2) hours, except as it may be decreased by the Engineer. Unless otherwise specified, the test pressure shall be 1.5 times the operating pressure gradient at the lowest elevation of the main, or the operating pressure plus fifty (50) psi, whichever is the lesser.
- C. Allowable Leakage: The duration of the test shall be two (2) hours (except as it may be decreased by the Engineer), during which the main shall be subjected to the pressure specified above. No part, section, or whole of the force main, including appurtenances, will be accepted unless, or until, the leakage determined under test pressure is less than that specified by this formula:

$$\text{Leakage} = \frac{L \times D \times P^{0.5}}{148,000}$$

1. Where: 'L' is the length of pipe section being tested, in feet; 'D' is the nominal pipe diameter, in inches; and 'P' is the average test pressure, in pounds per square inch.
2. Average: Averaging the amount of leakage of parts or sections of each force main to determine the leakage for the entire main, will not be allowed.

PART 5 - FINAL INSPECTION

Final inspection and approval of the completed Work shall be made by the Engineer, in cooperation with the Missouri Clean Water Commission. In order to facilitate final inspection of completed sewers and appurtenances, the following preliminary work shall be done by the Contractor at least two (2) days prior to the inspection date.

1. Locate and remove all earth from manhole covers;
2. Lamp all sewers to be certain they are ready for inspection; and
3. Notify the Clean Water Commission promptly if the system is not ready for inspection on the date agreed upon.

PART 6 - BASIS OF PAYMENT

Unless specifically provided for in the Bid Proposal, all ground surface restoration, regardless of type or material, will be considered as incidental to sanitary sewer construction, and shall be included with Lump Sum bid for each part of the system, complete, in place. No direct payment will be made for ground surface restoration. Payment for line, complete, in place (including all fittings, tees, bends, manholes, specials, etc.) shall be included in the lump sum price bid.

END OF SECTION 333100

SECTION 333212 – SOLIDS HANDLING WASTEWATER PUMP AND CONTROL PANEL

PART 1 – GENERAL

Contractor shall furnish all labor, materials, equipment and incidentals required to provide a two (2) solids handling wastewater pumps, control panel, liquid level control system, and all necessary appurtenances as specified herein.

PART 2 – SOLIDS HANDING PUMP

1. OPERATING CONDITIONS

Each pump shall be rated 2 hp, 230 volts, 1 phase, 60 hertz, and 1,150 rpm. The unit shall produce 125 U.S. GPM at 11.9 feet TDH.

2. CONSTRUCTION

- A. Each pump shall be a sealed submersible type, Myers 4R or Engineer approved equivalent. All openings in the pump shall be large enough to pass a 3” diameter sphere.

3. MOTOR

- A. Pump motor shall be sealed submersible type. Single phase motors shall be of capacitor start, capacitor run, NEMA L type. Three phase motors shall be NEMA B type.
- B. Stator winding shall be of the open type with Class F insulation good for 155°C (311°F) maximum operating temperature. Winding housing shall be filled with a clean high dielectric oil that lubricates bearings and seals and transfers heat from windings and rotor to outer shell. Air-filled motors, which do not have the superior heat dissipating capabilities of oil-filled motors, shall not be considered equal.
- C. Motor shall have two heavy-duty ball bearings to support pump shaft and take radial and thrust loads and a sleeve guide bushing directly above the lower seal to take radial load and act as flame path for seal chamber. Ball bearings shall be designed for 50,000 hours B-10 life. Stator shall be heat shrunk into motor housing.
- D. A heat sensor thermostat shall be attached to and embedded in the winding and be connected in series with the motor starter contactor coil to stop motor if temperature of winding is more than 120°C (248°F). Thermostat to reset automatically when motor cools to safe operating temperature. Three heat sensors to be used on 3 phase motore. The common pump motor shaft shall be 416 stainless steel.

4. SEALS

- A. Motor shall be protected by two mechanical seals mounted in tandem with a seal chamber between the seals. Seal chamber shall be oil filled to lubricate seal face and to transmit heat from shaft to outer shell.
- B. Seal face shall be carbon and cermci and lapped to a flatness of one light band. Lower seal faces shall be carbide.

- C. A double electrode shall be mounted in the seal chamber to detect any water entering the chamber through the lower seal. Water in the chamber shall cause a red light to turn on at the control box. The signal shall not stop the motor but shall act as a warning only, indicating service is required.

5. IMPELLER

- A. The impeller shall be cast iron ductile iron and of the recessed type. Pump-out vanes shall be used on back shroud. Impeller shall be dynamically balanced. Impeller shall be driven by stainless steel key and impeller held in position with lock screw and washer.
- B. Impeller and motor shall have top lift-out of case so that the assembly can be removed without disturbing and piping.

6. PUMP CASE

- A. The volute case shall be of cast iron and have a flanged center line discharge. Discharge flange shall be 4" standard with bolt holes straddling center line.

7. PUMP AND MOTOR CASTINGS

- A. The pump shall be painted with waterborne hybrid acrylic/alkyd paint. The paint shall provide levels of corrosion and chemical protection.

8. BEARING END CAP

- A. Upper motor bearing cap shall be a separate casting for easy mounting and replacement.

9. ELECTRICAL POWER CORD

- A. Power cord and control cord shall be double sealed. The power and control conductor shall be single strand sealed with epoxy potting compound and then clamped in place with rubber seal brushing to seal outer jacket against leakage and to provide for strain pull. Cords shall withstand a pull strain to meet FM requirements.
- B. Electrical power cord shall be SOOW or W. Both control and power cords shall have a green carrier ground conductor that attaches to motor frame

10. TESTING

- A. The pump shall be visually inspected to confirm that it is built in accordance with the specification as to HP, voltage, phase and hertz.
- B. The motor and seal housing chambers shall be hi-potted to test for moisture content and/or insulation defects.
- C. Pump shall be allowed to run dry to check for proper rotation.
- D. Discharge piping shall be attached, the pump submerged in water and amp readings shall be taken in each leg to check for an unbalanced stator winding. If there is a significant difference in readings, the stator windings shall be checked with a bridge to determine if an unbalanced resistance exists. If so,

the stator will be replaced.

PART 3 – CONTROL PANEL

1. The pump station control panel will be tested as an integral unit by the pump station manufacturer and/or supplier. The control panel shall also be tested with the pump station as a complete working system.
2. The control panel shall be stainless steel NEMA 4X with lockable hasp. Fiberglass control panel will be accepted with approval of Owner and Engineer. The enclosure shall be provided with support feet or external mounting brackets.
3. The control panel shall have: a single point power connection and grounding lug; main disconnect breaker, circuit breakers and magnetic contactors with overload protection and reset button; terminal strips for controls, pumps, and alarms; NEMA rated motor starters; and circuit lightning protection.
4. Panel shall have Hand-Off-Auto selector switches, pump elapse time meters, and pump run/fail indicator lights. The control panel shall be duplex configuration with alternator for lead pump selector.
5. Panel heater shall be provided as required.
6. An exterior mounted red alarm light and audible alarm shall be provided for pump fail and HIGH-WATER LEVEL indication.
7. Terminals shall be provided to connect float-type liquid level control system.
8. Schematic diagram shall be provided in the inside of the enclosure.
9. Components and controls shall conform to third party safety certification and bear a UL label and conform to UL descriptions and procedures.

PART 4 – LIQUID LEVEL CONTROLS

1. The level control system shall start and stop the pump motors in response to liquid level changes in the wet well. The level control system shall be capable utilize alternation to select first one pump, then the second pump, to run as lead pump for a pumping cycle. Alternation shall occur at the end of a pump cycle. The control sequence shall provide lag pump start and a HIGH-WATER LEVEL alarm when liquid levels continue to rise in the wet well.
2. Float-type switches sealed in shock-resistant solid polyurethane float to control pump operation and to signal HIGH-WATER LEVEL alarms. Electrical cords shall be heavy neoprene-jacketed cords.

END OF SECTION 333212

SECTION 333216 – GRINDER PUMP STATION

PART 1 – GENERAL

Contractor shall furnish all labor, materials, equipment and incidentals required to provide a two (2) submersible centrifugal sewage grinder pumps, guide rails, piping, valves, wet well, control panel, liquid level control system, and all necessary appurtenances as specified herein.

PART 2 – GRINDER PUMP

1. OPERATING CONDITIONS

Each pump shall be rated 2 hp, 230 volts, 1 phase, 60 hertz, and 3,450 rpm. The unit shall produce 30 U.S. GPM at 38.0 feet TDH.

2. CONSTRUCTION

- A. Each pump shall be a sealed submersible type, Myers WG20 or Engineer approved equivalent. The pump volute, motor and seal housing shall be high quality gray cast iron, ASTM A-48, Class 30. All external mating parts shall be machined and Nitrile O-ring sealed on a beveled edge. Gaskets shall not be acceptable. All fasteners exposed to the pumped liquids shall be 300 series stainless steel.

3. ELECTRICAL POWER CORD

- A. Electrical power cord shall be SOOW or W, water resistant 600V, 90°C, UL and/or CSA approved and applied dependent on amp draw for size.
- B. The power cable entry into the cord cap assembly shall first be made with a compression fitting. Each individual lead shall be stripped down to bare wire, at staggered intervals, and each strand shall be individually separated. This area of the cord cap shall then be fitted with an epoxy compound potting which will prevent water contamination to gain entry even in the event of wicking or capillary attraction.
- C. The power cord leads shall then be connected to the motor leads with extra heavy connectors having brass inserts with a screwed wire-to-wire connection.

4. MOTOR

- A. The stator, rotor and bearings shall be mounted in a sealed submersible type housing. The stator windings shall have Class F insulation (155°C or 311°F) and a dielectric oil-filled motor, NEMA B design (three-phase), NEMA L design (single-phase).
- B. The pump and motor shall be specifically designed so that they may be operated partially dry or completely submerged in the liquid being pumped.
- C. Stators shall be securely held in place with a removable end ring and threaded fasteners. No special tools shall be required for pump and motor disassembly.
- D. Pump shall be equipped with heat sensors. The heat sensor(s) (one on single-phase, two on three-phase) shall be a low resistance, bimetal disc that is temperature sensitive. It (they) shall be mounted directly in the stator and sized to open at 120°C or 130°C and automatically reset at 30–35°C

differential. The sensor shall be connected in series with the motor starter coil so that the starter is tripped if a heat sensor opens. The motor starter shall be equipped with overload heaters so all normal overloads are protected by an external heater block.

5. BEARINGS AND SHAFT

- A. An upper radial bearing and a lower thrust bearing shall be required. These shall be permanently lubricated by the dielectric oil that fills the motor housing.
- B. The shaft shall be machined from a solid 416 stainless steel and be a design that is of large diameter with minimum overhand to reduce shaft deflection and prolong bearing life.

6. SEALS AND SENSORS

- A. The rotor and stator in the motor housing shall be separated and protected from the pumped liquid by an oil-filled seal housing incorporating two type 21 carbon ceramic mechanical seals mounted in tandem. This seal housing shall be equipped with 2 moisture sensing probes installed between the seals, and the sensing of moisture in the seal chamber shall be automatic, continuous, and not require the pump be stopped or removed from the wet well.

7. IMPELLERS

- A. Impeller shall be brass multivane, semi-open, non-overloading design. They can either be factory or field trimmed to meet specific performance conditions. Impellers shall be dynamically balanced at the factory and machined for threading on to the pump shaft.

8. GRINDER CUTTERS

- A. The combination centrifugal pump impeller and grinder unit shall be attached to the common motor and pump shaft made of 416 stainless steel. The grinder unit shall be on the suction side of the pump impeller and discharge directly into the impeller inlet, leaving no exposed shaft to permit packing of ground solids. The grinder shall consist of two stages. The cutting action of the second stage shall be perpendicular to the plane of the first cut for better control of the particle size. The grinder shall be capable of grinding normal domestic sewage. Both stationary and rotating cutters shall be made of 440C stainless steel hardened to Rockwell 60C and ground to close tolerance.
- B. The upper (axial) cutter and stationary cutter ring shall be reversible to provide new cutting edges to double life. The stationary cutter ring shall be a slip fit into the suction opening of the volute and held in place by three (3) 300 series stainless steel screws and a retaining ring. The lower (radial) cutter shall macerate the solids against the I.D. of the cutter ring and extrude them through the slots of the cutter ring. The upper (axial) cutter shall cut off the extrusions, as they emerge from the slots of the cutter ring to eliminate any roping effect that may occur in single stage cutting action. The upper (axial) cutter shall fit over the hub of the impeller and the lower (radial) cutter shall be slip fit and secured by means of peg and hole and rotate simultaneously with the rotation of the shaft and impeller. The grinding mechanism shall be locked to the shaft by a 300 series stainless steel countersunk washer in conjunction with a 300 series stainless steel flat head cap screw threaded into the end of the shaft.

9. TESTING

- A. The pump shall be visually inspected to confirm that it is built in accordance with the specification as

to HP, voltage, phase and hertz.

- B. The motor and seal housing chambers shall be hi-potted to test for moisture content and/or insulation defects.
- C. Pump shall be allowed to run dry to check for proper rotation.
- D. Discharge piping shall be attached, the pump submerged in water and amp readings shall be taken in each leg to check for an unbalanced stator winding. If there is a significant difference in readings, the stator windings shall be checked with a bridge to determine if an unbalanced resistance exists. If so, the stator will be replaced.

10. PAINT

- A. The pump shall be painted with waterborne hybrid acrylic/alkyd paint. This custom engineered, quick dry paint shall provide superior levels of corrosion and chemical protection.

PART 3 – CONTROL PANEL

1. The pump station control panel will be tested as an integral unit by the pump station manufacturer and/or supplier. The control panel shall also be tested with the pump station as a complete working system.
2. The control panel shall be stainless steel NEMA 4X with lockable hasp. Fiberglass control panel will be accepted with approval of Owner and Engineer. The enclosure shall be provided with external mounting brackets.
3. The control panel shall have: a single point power connection and grounding lug; main disconnect breaker, circuit breakers and magnetic contactors with overload protection and reset button; terminal strips for controls, pumps, and alarms; IEC or NEMA rated motor starters, and circuit lightning protection.
4. Panel shall have Hand-Off-Auto selector switches, pump elapse time meters, and pump run/fail indicator lights. The control panel shall be duplex configuration with alternator for lead pump selector.
5. An exterior mounted red alarm light and audible alarm shall be provided for pump fail and HIGH-WATER LEVEL indication.
6. Terminals shall be provided to connect float-type liquid level control system.
7. Schematic diagram shall be provided in the inside of the enclosure.
8. Components and controls shall conform to third party safety certification and bear a UL label and conform to UL descriptions and procedures.

PART 4 – LIQUID LEVEL CONTROLS

1. The level control system shall start and stop the pump motors in response to liquid level changes in the wet well. The level control system shall be capable utilize alternation to select first one pump, then the second pump, to run as lead pump for a pumping cycle. Alternation shall occur at the end of a pump cycle. The control sequence shall provide lag pump start and a HIGH-WATER LEVEL alarm when liquid levels continue to rise in the wet well.

2. Float-type switches sealed in shock-resistant solid polyurethane float to control pump operation and to signal HIGH-WATER LEVEL alarms. Electrical cords shall be heavy neoprene-jacketed cords.

PART 5 – WET WELL, LIFTOUT SYSTEM, PIPING, AND VALVES

1. WET WELL

- A. Wet well shall be 48 inch diameter, fiberglass-reinforced polyester resin with integral anti-floatation ring.
- B. The wet well cover shall have an access hatch for pumps and constructed of epoxy coated ¼” steel.

2. LIFTOUT SYSTEM

- A. The liftout system shall consist of a prefabricated rail system with integral base plate and pump discharge elbow connection and check valve. Liftout system shall be Myers SRA-125-CV or equivalent.

3. PIPING

- A. The discharge pipe for each pump assembly shall be 1-1/4” stainless steel pipe.

4. VALVES

- A. Ball Valves: 1-1/4” PVC True Union
- B. Anti-Siphon: 1-1/4” PVC

END OF SECTION 333216

SECTION 334200 – STORM SEWERS

PART 1 - DESCRIPTION

Storm sewer construction shall consist of furnishing all labor, materials and equipment for the complete installation of storm sewer piping, manholes, junction boxes, and appurtenances in accordance with the standards, drawings, general conditions, and detail specifications.

PART 2 - STANDARDS

1. Construction Standards of the Missouri Department of Transportation (MoDOT)
2. American Association of State Highway & Transportation (AASHTO)
3. American Society of Testing and Materials (ASTM)
4. American Concrete Pipe Association
5. American Water Works Association (AWWA)

Wherever any reference is made to the standards listed above, the specification referred to shall be understood to mean the latest revision of said specification or standards as amended to date.

PART 3 – STORM SEWER PIPE

1. Reinforced Concrete Pipe (RCP)
 - A. All reinforced concrete pipe shall conform to ASTM Designation C 76-62T. RCP shall be Class III with a D-load of 1350. This specification covers reinforced concrete pipe of twelve (12) to one hundred eight (108) inches, depths of fill of up to 13 feet above pipe, and is intended for use in conveyance of storm water and for the construction of culverts. All other installations shall be approved by the Engineer.
 - B. The interior surfaces of the pipe shall be a smooth true cylindrical surface free from undulations or corrugations. Each pipe shall be marked by the manufacturer with a “Q Cast” stamp to certify the pipe was produced by an American Concrete Pipe Association (ACPA) certified plant. The following additional information shall be clearly marked on the inside of each section of pipe by indenting on the pipe section or by painting thereon with waterproof paint:
 1. Pipe class.
 2. Date of manufacture.
 3. Name or trade-mark of the manufacturer.
 - C. Joints. Flexible compression joints may be made with rubber gasket, rubber “O” rings, preformed plastic compound, mastic, or butyl sealants. Rubber gasket and rubber “O” rings which shall conform to ASTM C 443-59T. Preformed plastic compound shall be either rope form or flat tape form conforming to ASTM C990. Primer, as recommended by the manufacturer, shall be used to maintain the material in position while pipe sections are being joined. Mastic and butyl sealants may be used in accordance with ASTM C990-96. Mastic shall be applied to the bottom half of the bell or groove and the top half of the spigot or tongue.

2. Corrugated Metal Pipe (CMP)

- A. Wherever shown on the plans and profiles, or required by the Engineer, corrugated metal storm sewer culvert pipe, complete with connecting bands, elbows, and fittings, may be used.
- B. CMP shall be aluminized type 2 (AASHTO M36 & M274) or polymeric precoated (AASHTO M36, M245 & M246) galvanized (AASHTO M36 & M218) sheet or coils.
- C. Corrugated metal culvert pipe gage requirements shall conform to the specifications of the following table unless otherwise specified by the plans and specifications or by the Engineer.
- D. Where zinc coated sheets and coils (M218) are to be used, the gage requirements of the following tables shall be increased to the next heaviest gauge.

Circular Culvert Pipe

<u>Diameter</u>	<u>Gage</u>	<u>Diameter</u>	<u>Gage</u>
12"	16	42"	14
15"	16	48"	14
18"	16	54"	12
24"	16	60"	12
30"	16	72"	10 up to 16 feet
36"	16		

Arch Culvert Pipe

<u>Equivalent Diameter</u>	<u>Gage</u>	<u>Span</u>	<u>Rise</u>
15"	16	18"	11"
18"	16	22"	13"
21"	16	25"	16"
24"	14	29"	18"
30"	14	36"	22"
36"	14	43"	27"
42"	12	50"	31"
48"	12	58"	36"
54"	12	65"	40"

- E. Wherever corrugated metal culverts are installed on railroad property which is occupied by tracks or which may be occupied by tracks at any time in the future, then it shall conform to the A.R.E.A. "Specifications for Corrugated Metal Culverts."

<u>Diameter of Pipe</u>	<u>Minimum Gage of Metal</u>
12" to 18"	14
20" to 24"	12
26" to 36"	10
38" to 60"	8

- F. Pipes larger than sixty (60) inches require special considerations and special specifications.

- G. Corrugated metal storm sewer pipe shall be handled in such a manner that it is not chipped, dented or bent. If in handling the culvert the base metal is exposed in any way then it shall be rejected or repaired to the satisfaction of the Engineer.
3. High Density Poly Ethylene Pipe (HDPE)
- A. All HDPE pipe shall conform to AASHTO M294. HDPE pipe to be ADS N-12 WT IB (water tight, integral bell) smooth interior, dual wall or approved equal. For 48" diameter pipe and smaller, minimum cover shall be one foot. For 54" and 60" diameter pipe, minimum cover shall be two feet. All HDPE pipe shall contain a minimum content of 2% carbon black as required by ASTM D3350. Pipe shall be furnished with an integral reinforced bell with a bell tolerance device and elastomeric gasket to meet ASTM D477 and ASTM D3212.
 - B. Joints. Pipe shall be joined using a bell & spigot joint meeting AASHTO M252, AASHTO M294 or ASTM F2306. The joint shall be water-tight and gaskets, when applicable, shall meet the requirements of ASTM F477. Gaskets shall be factory installed with a removable wrap to ensure gasket is free from debris. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly. Field joints shall provide circumferential and longitudinal strength to maintain the pipe alignment, prevent separation of pipe and prevent infiltration of fill material.
4. High Performance Polypropylene Pipe (HP)
- A. HP pipe shall have a smooth interior and an annular corrugated exterior. Twelve (12)-inch through thirty (30)-inch HP pipe shall meet or exceed ASTM F2736 and AASHTO M330. Thirty-six (36)-inch through sixty (60)-inch HP pipe shall meet or exceed ASTM F2881 and AASHTO M330. The HP pipe is intended for use in conveyance of storm water and for the construction of culverts.
 - B. The minimum depth of fill above the pipe shall be one foot for twelve (12)-inch through forty-eight (48)-inch HP pipe. The minimum depth of fill above the pipe shall be two feet for sixty (60)-inch HP pipe. The maximum depth of fill above pipe shall be 9 feet. Backfill for minimum and maximum applications shall meet manufacture's specifications. All other installations shall be approved by the Engineer.
 - C. The minimum depth of fill above the pipe shall be one foot for twelve (12)-inch through forty-eight (48)-inch HP pipe. The minimum depth of fill above the pipe shall be two feet for sixty (60)-inch HP pipe. The maximum depth of fill above pipe shall be 9 feet. Backfill for minimum and maximum applications shall meet manufacture's specifications. All other installations shall be approved by the Engineer.
 - D. Polypropylene compound for pipe and fitting production shall be impact modified copolymer meeting the material requirements of ASTM F2736, Section 4.
 - E. All drainage structures used with HP pipe, including inlets, junction boxes, and flared end sections, shall be precast concrete, as specified for RCP pipe.
 - F. Joints. Pipe shall be joined with a gasketed integral bell and spigot joint meeting the requirements of ASTM F2736, for applicable diameters. HP pipe shall be watertight according to the requirements of ASTM D3212. Spigots shall have gaskets meeting the requirements of ASTM F477. Gasket shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly. HP pipe shall have a reinforced bell with a polymer composite band

installed by the manufacturer. Fittings shall conform to ASTM F2736, for applicable diameters. Bell and spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Fitting joints shall meet the watertight joint performance requirements of ASTM F2736 or ASTM D3212. To assure watertightness, field performance verification may be accomplished by testing in accordance with ASTM F2487. Use manufacturer's recommendation for leakage rates.

5. Other Pipe Material

- A. Other material pipe (PVC, Cast Iron, Ductile Iron, Vitrified Clay Pipe, etc.) shall be used with the approval of the engineer or as indicated on the plans. All other pipe material shall conform to all applicable standards and specifications.

PART 4 – MANHOLE AND JUNCTION CHAMBERS

1. Precast concrete structures shall be constructed as shown in the drawings. Round structures shall conform to ASTM C478 and ASTM C497 and rectangular/square structures shall conform to ASTM C913 and ASTM C890. Portland cement concrete shall conform to requirements of the current MoDOT's Standard Specifications for Highway Construction (MSSHHC), Section 501, for Class B-1 air-entrained concrete and all other sections as referenced in the MoDOT MSSHHC unless otherwise specified by the Engineer.
2. PVC structures shall be ADS Nyloplast or engineer approved equivalent.
3. Inverts shall be constructed as shown in the drawings. Form all inverts for smooth flow through structure and shall be formed up to one half (1/2) the pipe diameter and bench between channel and structure wall. All manhole inverts and bases shall conform to the applicable standards.
4. Rings and covers of all manholes and junction chambers shall be provided and set at the elevation shown on the drawings. Concrete rings shall be grouted or sealed with cement mortar or approved sealant.
5. Steps shall be provided for structures greater than 4'-0" in height.
6. Inlets shall be constructed as shown in the drawings in accordance to the applicable standards. Throats to transition to inlets shall have minimum #4 rebar at 12" ctrs., both ways.

PART 5 – CONSTRUCTION

1. Excavation and backfill. All excavation for structures, trench excavations, and backfilling for storm sewer construction and all related work shall be in accordance to the applicable standards of Part 2. Trenches shall be kept water-free and as dry as possible during bedding, laying, and jointing.
2. Pipe bedding. All pipe shall be bedded as shown on the drawings and according to the manufacturer's recommendations or applicable standards.
3. Pipe installation. All pipe shall be set at the elevation shown on the drawings and laid with ends abutting and true to line and grade. The laying of pipe in finished trenches shall be commenced at the lowest point and installed with the bell end forward or upgrade. Pipe shall be protected during handling against shock and free fall.

4. Pipe jointing. All surfaces of the portions of the pipe to be jointed shall be clean and dry. Lubricants, primer, adhesives, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The joints shall be wiped inside, removing all surplus compound and dirt from the interior of the pipe.
5. Replacements. All pavement, surfacing, driveways, curb, walks, building, utility poles, guy wires, and other surface structures affected by construction operations with the installation of the storm sewers, together with all sod and shrubs in yards, parks, and parking lots, shall be maintained and if removed, or otherwise damaged, shall be restored to the original condition, as determined and approved by the Engineer, unless otherwise specified on the plans.

END OF SECTION 334200

APPENDIX 1

JOB SPECIAL PROVISIONS

APPENDIX 1 – JOB SPECIAL PROVISIONS

1. JOB CONDITIONS:

- A. Data concerning present obstructions on or near the site, locations and depths of sewers, conduits, pipes, cables, etc., have been obtained from sources Engineer believes reliable. Accuracy of such data is not guaranteed and is furnished solely for accommodation of the Contractor. Where conflicts occur, temporary piping may be allowed as approved by the Engineer. The Contractor is advised of the general location of existing facilities on the plans, and will not be allowed additional compensation for such conflicts.
- B. Contractor as "First Order of Work" is to take all precautions and verify the exact location of all utilities, and any obstruction that may initiate a design or quantity change to this project. The location of all existing pipelines has been shown to the greatest extent possible. The Contractor shall make his own investigations and there will be no extra payment allowed on the basis of differing locations, depths or materials, except as provided for by unit bid prices. Contractor shall uncover and verify the material and dimensions of lines on which connections are to be made. Contractor shall not plan tie-ins until he has acquired the necessary couplings, etc. to complete such work.
- C. The Contractor shall, at all times, exercise the necessary precautions to protect completed portions of the work, including structures, equipment, site work, and all personnel.
- D. Supervision of Subcontractors: The Contractor shall supervise and be responsible for his subcontractors and material suppliers in performance of work included in the contract, including, but not limited to: (1) Coordination of schedules of different phases of construction included in the Contract; (2) Enforcement of requirements of plans and specifications on work performed by subcontractors including required inspection and direction of work; (3) Coordination of scheduling shipment, and directing handling, storage, and installing materials and equipment included in the Contract; (4) The General Contractor shall have his superintendent on the jobsite at all times when any work is being Performed by him or his subcontractor.
- E. The work shall be performed in a manner that will minimize interference with local traffic and conditions. The Contractor shall provide necessary warning signs, lights, and flagmen as required to expedite local traffic and maintain a high standard of safety.
- F. The work shall be performed in such a manner that all physical structures and natural features are restored to a condition as good as they were before the work was commenced.
- G. The work shall be performed in such a manner that all structures including fences, sheds, trees, shrubs, and other property are properly protected.
- H. Any and all damage done to private or public properties shall be repaired by the Contractor to the satisfaction of the Owner, the Engineer, and applicable property holders. The cost of restoration shall be borne by the Contractor.
- I. All existing valves and service boxes, valve vaults, and other appurtenances on utility lines shall be protected at all times, and shall be kept free of excavated material and shall be left in an accessible and operable condition.

2. **MOBILIZATION**: The Owner reserves the right to pay a percentage of mobilization costs they deem appropriate for the project. The Owner may request an itemized list of mobilization costs from the Contractor for evaluation for a percentage payment.
3. **ACCESS**: Contractor shall coordinate and give Notice to project owner and authorities when access may be limited.
4. **UTILITY LOCATIONS**: Contractor shall locate all utilities prior to construction. Contractor understands and accepts all responsibility to repair and/or replace or coordinate with utility company to repair and/or replace any utility that are unknown and damaged during construction. All costs shall be incidental.
5. **POWER SUPPLY**: The Contractor shall coordinate with the Power Company and/or the Owner with all electrical extensions and connections. Contractor shall supply all necessary disconnect switches, underground conduit, wire, connections, and all coordination with power company. This includes all scheduling.
6. **STAKING**: Owner shall provide control points and two hubs per manhole one time. Owner will provide four (4) staking trips for structures, manholes, pump stations, and pipe alignment. All trips, labor, and materials above the aforementioned trips will be billed to the Contractor. Contractor shall give 72 hours notice for scheduling survey crew.
7. **TESTING**: The Contractor is responsible for all tests associated with storm water and wastewater line construction, soil compaction, and concrete testing. Contractor shall contact representatives from the Owner and Engineer a minimum of 24 hours prior to testing operations to ensure enough lead time for observation and verification of tests.
8. **LAND DISTURBANCE AND STORMWATER POLLUTION PREVENTION**: Contractor shall provide diversion berms to silt fence on all sides of the pump station areas. Straw bale checks shall be installed at 50-foot intervals in swales along the access roads. Owner will obtain permit.
9. **ROCK EXCAVATION AND DISPOSAL**: Rock is not anticipated with this project. Rock excavation and disposal is incidental to the project and the Contractor shall include appropriate costs for applicable bid items. The Owner reserves the right to accept or reject any rock excavation claims by the Contractor.
10. **PERMITS**: Owner will obtain all necessary permits (MDNR) if required.
11. **ROADWAY/PARKING AREA BACKFILL**: Driving surfaces shall be backfilled with 3/4"-1" clean rock capped with 6" of rolled stone. A maximum of 5'-0" average width of repair will be Contractor's responsibility. 1" clean aggregate backfill or 95% tested compacted backfill is required in all trenches within existing roadways, parking lots, and alleys which are in use at this time. If any part of the trench is within 3' of an existing roadway surface, granular backfill is required. Testing will be as per job specials. See Job Specials. Clean rock backfill does not require compaction testing.
12. Contractor shall neatly, at full depth, saw cut all concrete or asphalt streets, driveways, and sidewalks for storm water and sanitary sewer line facilities. All costs shall be incidental to the bid.
13. **REPLACEMENTS**: Contractor shall repair all structures, sidewalks, utilities, etc. damaged at no cost to Owner unless noted on the Bid Form.

14. LUMP SUM BID ITEMS: Contractor, Engineer, and Owner may change Lump Sum amounts based on percentage of change per quantity of material (i.e. cut and fill).
15. Contractor shall adjust lids to ½” below roadway surface elevation to prevent snow plow damage. All costs shall be incidental.
16. Contractor shall maintain 10’-0” horizontal and 18” vertical between water and sewer lines or meet MDNR criteria. Contractor may build short, planned, section of pipe “live” to maximize spacing.
17. Contractor to contact Owner’s representative for required fill sites to dispose of any excess soil and rock from installation of utilities. The Owner’s sites shall be first priority for excess fill. All with fill loading, hauling, and disposal shall be incidental. The City of Ashland and individual property owners shall have next priority for excess fill.
18. SIGNAGE, FENCE, AND MISC. STRUCTURES: The contractor shall remove all signs, fence, structures, mail boxes, posts, etc. prior to construction and re-install items once utility construction is complete. If existing items cannot be reset or restored with existing materials, the Contractor shall provide new matching materials for re-installation. All costs are incidental to the bid.
19. SHEEP BARN PUMP STATION REHABILITATION: The pump station rehabilitation consists of the following:
 - A. Items to Remain and Be Reused
 1. Concrete Wet Well
 2. Concrete Valve Vault
 3. 4” Piping Between Wet Well and Valve Vault
 - B. Wet Well Interior – Remove and Replace
 1. Submersible Pumps and Lifting Chains
 2. Discharge Pump Base
 3. 4” Vertical Discharge Piping and 90 Degree Elbows
 4. Guide Rails
 5. Floats
 6. Electrical Cables
 7. Trash Basket and Guide Rails
 - C. Valve Vault Interior – Remove and Replace
 1. (1) 4”x4”x4” Tee
 2. (2) 90 Degree Elbows
 3. (2) 4” Plug Valves
 4. (2) 4” Check Valves
 - D. Control Panel – Remove and Replace
 1. All Components, Including Cabinet
20. FLORICULTURE AND FINE ARTS PUMP STATION REPLACEMENT: Remove and replace all components. Includes wet well, pumps, piping, valves, control panel, and all accessories.

APPENDIX 2

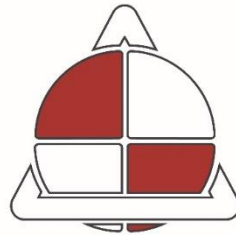
**STORM WATER POLLUTION PREVENTION PLAN
(SWPPP)**

PROJECT NO. F2302-01
IMPROVEMENTS TO STORMWATER AND
WASTEWATER COLLECTION SYSTEMS,
INFRASTRUCTURE

FOR
MISSOURI STATE FAIRGROUNDS
SEDALIA, MISSOURI

BY: STATE OF MISSOURI, OFFICE OF ADMINISTRATION, DIVISION OF FACILITIES
MANAGEMENT, DESIGN AND CONSTRUCTION

STORM WATER POLLUTION PREVENTION PLAN
(SWPPP)



ALLSTATE
CONSULTANTS

Allstate Consultants LLC
3312 LeMone Industrial Blvd.
Columbia, Missouri 65201
P: (573) 875-8799
F: (573) 875-8850
allstateconsultants.net



**Construction Phase
Storm Water Pollution Prevention Plan
(SWPPP)**

for

**PROJECT NO. F2302-01
IMPROVEMENTS TO STORMWATER AND WASTEWATER
SYSTEMS, INFRASTRUCTURE
FOR
MISSOURI STATE FAIRGROUNDS**

in

SEDALIA, MO

for

**STATE OF MISSOURI, OFFICE OF ADMINISTRATION, DIVISION OF
FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION**

Construction Phase
Storm Water Pollution Prevention Plan
(SWPPP)

for

Project No. F2302-01
Improvements to Stormwater and Wastewater Systems, Infrastructure
for
Missouri State Fairgrounds

in

Sedalia, Pettis County, Missouri

Prepared for:

State of Missouri
Office of Administration
Division of Facilities Management, Design and Construction

August 30,2024

by:

Allstate Consultants LLC
3312 LeMone Industrial Blvd.
Columbia, Missouri 65201
Phone: (573) 875-8799
Fax: (573) 875-8850

TABLE OF CONTENTS

Part

- 1.0 INTRODUCTION
 - 1.1 The Construction NPDES Permit and SWPPP
 - 1.2 Project Location and Description
 - 1.3 Project Owner and Operator
 - 1.4 Contractor/Subcontractor Signatory Requirements and Certification
 - 1.5 Retention of Records
 - 1.6 Standard Permit Conditions
 - 1.6.1 Duty to Comply with Permit Conditions
 - 1.6.2 Final Stabilization and Termination of Coverage
 - Contractor Certification

- 2.0 CONSTRUCTION ACTIVITIES AND SITE DESCRIPTION
 - 2.1 Description of Construction Activities
 - 2.2 Potential Pollutants
 - 2.3 Soils
 - 2.4 Estimate of Runoff Coefficient
 - 2.5 Site Maps
 - 2.6 Sequence of Major Construction Activities
 - 2.7 Receiving Waters
 - 2.8 Drainage Areas
 - 2.8.1 Sedimentation Basins

- 3.0 BEST MANAGEMENT PRACTICES
 - 3.1 Erosion and Sediment Control Devices
 - 3.1.1 Temporary Stabilization
 - 3.1.2 Permanent Stabilization
 - 3.1.3 Temporary Erosion Control Practices
 - 3.2 Maintenance
 - 3.3 Final Stabilization and Clean Up
 - 3.3.1 Seeding
 - 3.3.2 Fertilizing

Part

4.0 OTHER POLLUTION PREVENTION CONTROLS

- 4.1 Waste Disposal
- 4.2 Hazardous Waste
- 4.3 Sanitary Waste
- 4.4 Off-Site Vehicle Tracking
- 4.5 Non-Storm Water Discharges

5.0 SPILL PREVENTION AND CONTROL PLAN

- 5.1 Introduction
- 5.2 Material Management Practices
 - 5.2.1 Good Housekeeping
 - 5.2.2 Product-Specific Practices
 - 5.2.2.1 Petroleum Products
 - 5.2.2.2 Fertilizers
- 5.3 Spill Control and Cleanup

APPENDICES

Appendix A..... Construction Plans and Details
Appendix B..... Inspection Forms
Appendix C..... Spill Report Forms and Table of Common Hazardous Materials
Appendix D..... Description of Implemented Best Management Procedures
Appendix E..... Final Stabilization Termination Form H
Appendix F..... Relevant Permits
Appendix G..... SWPPP Amendments
Appendix H..... Grading and Stabilization Log
Appendix I..... SWPPP Training Log
Appendix J..... Owner Certification and Consultant Declaration

LIST OF FIGURES

Figure

- 1-1 Regional Area

LIST OF TABLES

Table

- 3-1 Seeding Mix and Rates

PART 1.0
INTRODUCTION

1.0 INTRODUCTION

1.1 THE CONSTRUCTION NPDES PERMIT AND SWPPP

The NPDES general permit is for storm water discharges from construction activities that are classified as "associated with industrial activity" by EPA regulation. For construction projects that require the disturbance of more than one acre the U. S. Environmental Protection Agency (EPA) requires that the project owner or contractor apply for a storm water permit under the National Pollutant Discharge Elimination System (NPDES) program. For the purposes of the NPDES program, construction activities are defined as clearing, excavating, grading, or other land disturbing activities.

The State of Missouri is delegated by the EPA to administer the NPDES general permit for construction activities within the state that disturb one acre or more. A Missouri State Operating Permit for storm water discharges is required in accordance with Missouri regulations 10 CSR 20-6.200. Under the Missouri Clean Water Law, the Missouri Department of Natural Resources, Division of Environmental Quality, Water Pollution Control Program requires Form E - Application for General Permit and a Form G - Application for Storm Water Permit, or Form O- Permit for Land Disturbance (if the site is less than five acres in size).

This document comprises the Storm Water Pollution Prevention Plan (SWPPP) required by the State of Missouri Department of Natural Resources (MDNR), Division of Environmental Quality. This SWPPP establishes a plan to manage the quality of storm water runoff from construction activities associated with **Project No. F2302-01, Improvements to Stormwater and Wastewater Collection Systems, Infrastructure** for the Missouri State Fairgrounds at 2503 West 16th Street, Sedalia, Missouri.


1.2 PROJECT LOCATION AND DESCRIPTION

This project is located in Sedalia, Pettis County, Missouri in Section 8, T45N, R21W or 38.69482°N, 93.25988°W. (see Figure 1-1 on following page). The total land area to be disturbed during the construction process across the site is approximately 4.0 Acres. Construction should be completed by late Fall of 2024.



Figure 1-1
Regional Area
Missouri State Fairgrounds, Sedalia, Pettis County, MO
Date: March 9, 2024
Location: Sedalia Quadrangle
Sec 8, T45N, R21W
Sedalia, Missouri

PREPARED BY: Allstate Consultants LLC
3312 LeMone Industrial Boulevard.
Columbia, Missouri 65201
573-875-8799

LEGEND	
Project area(s)	



1.3 PROJECT OWNER AND OPERATOR

The project is managed by the State of Missouri, Office of Administration, Division of Facilities Management, Design and Construction. The site is owned by the State of Missouri and the address is:

2503 West 16th Street
Sedalia, MO 65301

The project contractor is TBD.

The primary contact for this project will be Jarrod Cook. Mr. Cook can be reached at (573) 526-1608.

Storm Water Inspector: _____
(name) (phone number)

24 hour Emergency Contact: _____
(name) (phone number)

1.4 CONTRACTOR/SUBCONTRACTOR SIGNATORY REQUIREMENTS AND CERTIFICATION

Before conducting any construction disturbances, all contractors and subcontractors must sign a copy of the following certification statement at the owner’s office.

1.5 RETENTION OF RECORDS

The State of Missouri, as owner, must maintain a copy of this SWPPP on site from the date of project initiation to the date of final stabilization. The SWPPP shall be retained onsite and available on request. The Owner shall retain copies of the SWPPP and all reports required by the General Permit onsite for a period of at least three years from the date that the project is completed.

1.6 STANDARD PERMIT CONDITIONS

This section contains information on state and federal penalties for non-compliance with the permit as well as termination of coverage of the permit. Further explanation of these issues is stated under each individual heading.

1.6.1 Duty to Comply with Permit Conditions

The EPA has substantial penalties for non-compliance with the permit. Any permit non-compliance constitutes a violation of the Clean Water Act and is grounds for enforcement action including: permit termination; revocation, reissuance, or modifications; or denial of permit renewal application. Individuals responsible for such violations are subject to criminal, civil and administrative penalties.

1.6.2 Final Stabilization and Termination of Coverage

Final stabilization is achieved when all soil-disturbing activities at the site have been completed and when a uniform perennial vegetative cover with a density of 70 percent has been established or equivalent measures (such as the use of riprap, gabions, or geotextiles) have been employed. When the site has been fully stabilized and all storm water discharges from construction activities that are authorized by this permit are eliminated, the final stabilization termination checklist must be completed. Upon completion and submission of MDNR termination Form H, the project will be considered complete.

CONTRACTOR'S CERTIFICATION

"I certify under penalty of law that I understand the terms and conditions of this Missouri Storm Water Pollution Prevention Plan and associated NPDES general permit that authorizes the storm water discharges associated with industrial activity from construction site identified as part of this certification".

Signature	For	Responsible For
_____ (Name)	_____ (Company)	_____
_____ (Position)	_____ (Street / P.O. Box)	_____
_____ (Signature)	_____ (City, State, Zip)	_____
_____ (Date)	_____ (Phone)	_____ (Activity)
_____ (Name)	_____ (Company)	_____
_____ (Position)	_____ (Street / P.O. Box)	_____
_____ (Signature)	_____ (City, State, Zip)	_____
_____ (Date)	_____ (Phone)	_____ (Activity)
_____ (Name)	_____ (Company)	_____
_____ (Position)	_____ (Street / P.O. Box)	_____
_____ (Signature)	_____ (City, State, Zip)	_____
_____ (Date)	_____ (Phone)	_____ (Activity)

PART 2.0
CONSTRUCTION ACTIVITIES
AND SITE DESCRIPTION

2.0 CONSTRUCTION ACTIVITIES AND SITE DESCRIPTION

2.1 DESCRIPTION OF CONSTRUCTION ACTIVITIES

The scope of this project involves grading for stormwater holding basins. A tentative sequence of major construction activities follows in Section 2.6. The total area of the site is more than 500 acres. The total area of the site expected to undergo excavation is approximately 6.0 Acres. Soil disturbing activities within the construction area may include clearing and grubbing, and grading. All construction activities will disturb as little of the existing vegetation as possible.

2.2 POTENTIAL POLLUTANTS

The primary pollutant sources will be disturbed soils and subsequent surface water runoff within the construction site. Other potential pollutant sources include petroleum products needed for the construction equipment. If additional pollutant sources are brought on site, such as portable toilets, chemicals, paint, solvents, etc., these items will be noted and monitored on the storm water site inspection form.

2.3 SOILS

The soils on the site consist of silt loam and lean to fat clays.

2.4 ESTIMATE OF RUNOFF COEFFICIENT

The runoff coefficient "C" is the ratio of the volume of storm water runoff from the project area compared to the total volume of precipitation that falls on the project area. The General Permit requires an estimate of this ratio that represents runoff conditions both before construction and after construction activities are complete and the area is finally stabilized.

The estimate of "C" is based on variables from three general terrain categories: 1) soil properties (porosity, density, etc.), 2) ground slope, and 3) the character of the vegetative cover (woodlands, pasture, grassland, etc.). Another major variable affecting "C" is rainfall intensity and duration. For

any given terrain, the ratio of runoff to rainfall is expected to increase as storm intensity or duration increases.

Pre-construction “C” value = 0.30

Post-construction “C” value = 0.30

2.5 SITE MAPS

A location map shows the project area relative to the surrounding area and is shown as Figure 1-1. The construction drawings for the facility are in Appendix A and include placement of erosion and sediment controls. Detailed descriptions of these Best Management Practices, or BMP’s, are included in Appendix D.

2.6 SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES

This section contains a description of the construction sequence for the project.

- Secure necessary Land disturbance permits
- Install erosion and sediment control devices
- Strip and stockpile topsoil
- Demolition and disposal offsite of existing drainage structures
- Rough grade stormwater holding basins and fill areas shown on the plans
- Perform finish grading and apply topsoil
- Seed and mulch to stabilize

2.7 RECEIVING WATERS

The project site drains to an unnamed tributary to Brushy Creek.

2.8 DRAINAGE AREAS

In compliance with EPA and DNR regulations, clearing and grubbing within fifty (50) feet of defined drainage course should be avoided. Additionally, when changes to defined drainage courses occur as part of the project, clearing and grubbing within fifty (50) feet of the defined drainage course will be delayed until all materials and equipment necessary to protect and complete the drainage change are on site. Changes to the defined drainage course will be completed as quickly as possible once the work has been initiated. The area impacted by the land disturbance of the drainage course change will be revegetated or protected from erosion as quickly as possible. Areas within fifty (50) feet of defined drainage ways will be recontoured as needed, as well as revegetated, seeded, or otherwise protected within five (5) working days after grading has ceased.

2.8.1 Sedimentation Basins/Traps

A sedimentation basin/trap will be used when necessary and will be sized to comply with the governing authorities' guidelines. The basin/trap will be cleaned out and otherwise maintained as needed until the drainage area is stabilized. Both temporary and permanent sedimentation basins will have a stabilized spillway to minimize the potential for erosion of the spillway or basin embankment.

PART 3.0
BEST MANAGEMENT PRACTICES

3.0 BEST MANAGEMENT PRACTICES

3.1 EROSION AND SEDIMENT CONTROL DEVICES

Soil erosion and sediment controls are measures that are used to reduce the amount of soil particles that are carried off of a land area and deposited in receiving water. This section, in conjunction with Appendix D, provides a general description of the most appropriate measures planned for this project. Appendix A contains construction drawings that clearly delineate each BMP proposed and its location. All applicable soil erosion and sediment control measures shall be implemented in accordance with the guidelines contained herein prior to commencement of field construction activities. Measures shall be maintained during and after the construction activity until final stabilization is accomplished. Upon successful revegetation of the disturbed area, all temporary soil erosion and sediment control measures will be removed. Appropriate impediments for storm water discharge will be implemented, and bench marks referenced for proper installation, operation, and maintenance of drainage courses.

3.1.1 Temporary Stabilization

Temporary stabilization consists of activities such as terracing, mulching, or reseeding vegetation in all disturbed, unvegetated areas that are exposed during prolonged periods of construction inactivity. Due to the short nature of the many project activities, temporary stabilization will not always be required. However, temporary stabilization measures will be implemented if construction halts for more than 14 days and if construction will not resume within 21 days. If the slope is greater than 3:1, or greater than 3% and greater than 150 feet in length; the area will be protected from erosion by stabilizing the area with mulch, or another similarly effective BMP, if the activity ceases for more than 7 days. Exceptions include: 1) Snow or frozen ground; 2) Activities that will resume after 14 days; or 3) Arid or Semi-arid areas. This requirement does not apply to sedimentary basins or areas that drain thereto.

3.1.2 Permanent Stabilization

Permanent stabilization consists of the final planting of vegetation in all disturbed, unvegetated areas affected by construction. Permanent stabilization (groundcover) practices will be properly implemented within 30 days of final construction. See Section 3.3 for further details.

3.1.3 Temporary Erosion Control Practices

Prior to initiating construction, all temporary erosion and sediment control practices shown on the construction drawings will be in place. The erosion and sediment control details for these practices are located in Appendix D.

3.2 MAINTENANCE

All erosion and sediment control devices shown on the construction drawings shall be installed pursuant to the specifications in the construction details in Appendix D. These erosion and sediment control devices shall be checked: 1) on a weekly basis; and 2) within 72 hours of each 0.5-inch or greater rainfall event. A good faith effort will be made to inspect erosion and sediment control devices within 24 hours of a rainfall event that occurs Monday through Thursday.

Maintenance inspection reports will be completed after each inspection and included in the project file. If inspection results indicate a need for revision to the SWPPP, the plan shall be revised and implemented as appropriate, within seven calendar days following the inspection. The inspection reports shall identify any incidents of non-compliance. Copies of the report forms are to be completed by the designated SWPPP personnel inspector. A copy of the form to be used is attached in Appendix B and will be photocopied and used as needed for individual inspections.

Ineffective temporary erosion control measures shall be reported to the owner/contractor within 24 hours of identification so that they may be repaired in an efficient manner. Sediment will be removed from behind a silt fence when it reaches one-third the height of the barrier. The temporary erosion control devices shall be left in place until the site is permanently stabilized with vegetation (at least 70 percent cover). Following the completion of construction and planting activities, the

construction inspector shall conduct periodic site reviews to ensure that vegetation establishment is satisfactory. If vegetation cover is not adequate, special steps to correct problems shall be implemented such as re-seeding, mulching, sodding, or the use of erosion control blankets.

3.3 FINAL STABILIZATION AND CLEAN UP

After completion of final grading, the disturbed areas will be revegetated. All temporary soil erosion and sediment control measures shall be removed within 30 days after final site stabilization is achieved. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation. All disturbed areas to be revegetated shall be seeded in accordance with soil erosion and sediment control practices. Revegetation of upland areas shall be conducted as specified in Table 3-1.

3.3.1 Seeding

When unfavorable conditions preclude permanent seeding, a temporary ground cover of quick germinating grasses shall be established. Permanent seeding will be done over all areas of soil disturbance using the seed mixture rates as indicated in Table 3-1. Adjustments made to table 3-1 may be made due to specific site characteristics, and/or upon the recommendation of a qualified professional.

**Table 3-1
Seeding Mix and Rates**

Seed Mix	Application Rate (Pounds per 1,000 square feet)
Areas of slope less than 4H:1V	
K-31 Fescue	8
Areas of slope greater than or equal to 4H:1V	
Perennial Ryegrass	8
K-31 Fescue	3

3.3.2 Fertilizing

Limestone shall be applied at a rate of two tons/acre or pulverized agricultural grade limestone at 90 lbs./1000sq. ft. A typical 12-12-12 fertilizer shall be applied at a rate of 100 lbs. per acre. The lime and fertilizer shall be applied evenly and incorporated into the top 4 to 6 inches of soil. Wetland areas will have no lime or fertilizer applied to them.

**PART 4.0
OTHER POLLUTION
PREVENTION CONTROLS**

4.0 OTHER POLLUTION PREVENTION CONTROLS

4.1 WASTE DISPOSAL

All waste material will be collected and stored in a secure container or removed from the project site. The waste container will be inspected regularly with contents disposed of properly by the owner. No waste oil or other petroleum-based products will be disposed of on site (e.g. buried, poured, etc.); but shall be taken off-site for proper disposal.

4.2 HAZARDOUS WASTE

Any hazardous waste material will be disposed of in the manner specified by local and state regulations and by the manufacturer. Site personnel will be instructed to be aware of this requirement (see Part 5).

4.3 SANITARY WASTE

All sanitary waste will be collected from portable units as required and properly disposed of off-site in compliance with local and state regulations.

4.4 OFF-SITE VEHICLE TRACKING

Public roads that provide access to the right-of-way will be monitored for any tracking of sediments (mud, etc.) from the site onto the road as follows:

- 1) Weekly during dry periods, and
- 2) Daily after rainfall events that leave the project area wet and construction activity is proceeding.

The same inspection process will be implemented for the generation of dust during dry periods.

4.5 NON-STORM WATER DISCHARGES

There are no non-storm water discharges expected with this construction activity. However, the following non-storm water discharges are allowed under section 1.3 B of the CGP:

1. Discharges from fire-fighting activities
2. Fire hydrant flushings

3. Waters used to wash vehicles where detergents are not used
4. Water used to control dust in accordance with Subpart 3.4 G of the CGP
5. Portable water including uncontaminated water line flushings
6. Routine external building wash down that does not use detergents
7. Pavement water where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
8. Uncontaminated air conditioning or compressor condensate
9. Uncontaminated ground water or spring water
10. Fountain or footing drains where flows are not contaminated with process materials such as solvents
11. Uncontaminated excavation dewatering
12. Landscape irrigation

PART 5.0
SPILL PREVENTION AND CONTROL PLAN

5.0 SPILL PREVENTION AND CONTROL PLAN

5.1 INTRODUCTION

The Spill Prevention and Control Plan (SPCP) describes measures to prevent, control, and minimize impacts from a spill of a hazardous, toxic, or petroleum substance during construction of the proposed project in the State of Missouri. This plan identifies the potentially hazardous materials to be used during this project; describes transport, storage, and disposal procedures for these substances; and outlines procedures to be followed in the event of a spill of a contaminating or toxic substance.

5.2 MATERIAL MANAGEMENT PRACTICES

Properly managing these materials on the construction site will greatly reduce the potential for storm water pollution of these materials. Good housekeeping along with proper use and storage of these construction materials form the basis for proper management of potentially hazardous material.

5.2.1 Good Housekeeping

The proper use of materials and equipment along with the use of general common sense greatly reduces the potential for contaminating storm water runoff. The following is a list of good housekeeping practices to be used during the construction project:

- Storage of hazardous materials, chemicals, fuels, and oils and fueling of construction equipment, shall not be performed within 100 feet of any stream bank, wetland, water supply well, spring, or other water body.
- Contractor and contractor's employees shall be properly trained in handling materials used and/or kept at the job site.
- Contractors shall have proper access to all necessary safety items.
- Trash containers will be provided for waste disposal, and regular site clean-up will be conducted.
- An effort will be made to store only enough product required to do the job.

- Materials stored on the site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of the product will be used before disposing of the container.
- Manufacturer's recommendations for proper use and disposal of a product will be followed.
- If surplus product must be disposed of, manufacturers or local and state recommended methods for proper disposal will be followed.
- When possible, materials should be stored with secondary containment and in a covered structure such as a building or job trailer.

5.2.2 Product-Specific Practices

Due to the chemical makeup of specific products, certain handling and storage procedures are required to promote the safety of handlers and prevent the possibility of pollution. Care shall be taken to follow all directions and warnings for products used on the site. All pertinent information can be found on the Material Safety Data Sheets (MSDS) for each product. The MSDS sheets should be located with each product container they represent. Several product-specific practices are listed in the following sections.

5.2.2.1 Petroleum Products

On-site vehicles will be monitored for leaks and receive regular maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers, that are clearly labeled. Preferably the containers will be stored in a covered truck or trailer that provides secondary containment for the products.

Bulk storage tanks having a capacity of greater than 55 gallons will be provided with secondary containment. Containment can be provided by a temporary earthen berm or other means. After each

rainfall, the contents of the secondary containment area will be inspected by the contractor. If there is no visible sheen on the collected water, it will be pumped away in a manner that does not cause scouring. If a sheen is present, it must be cleaned up prior to discharging the water.

Bulk fuel or lubricating oil dispensers shall have a valve that must be held open to allow the flow of fuel. During fueling operations, the contractor shall have personnel present to detect and contain spills.

5.2.2.2 Fertilizers

Fertilizers used to stimulate vegetation growth will be used in minimal amounts recommended by the manufacturer. Once applied, the fertilizer will be worked into the soil to limit exposure to storm water.

5.3 SPILL CONTROL AND CLEANUP

In addition to the best management procedures discussed previously, the following spill control and cleanup practices will be followed to prevent storm water pollution in the event of a spill:

- Spills will be contained and cleaned up immediately after discovery.
- Manufacturers' methods for spill cleanup of a material will be followed as described on the material's MSDS.
- Materials and equipment needed for cleanup procedures will be kept readily available on the site, either at an equipment storage area or on contractor's trucks. Equipment to be kept on the site will include but not be limited to brooms, dust pans, shovels, granular absorbents, sand, saw dust, absorbent pads and booms, plastic and metal trash containers, gloves, and goggles.
- Personnel on the site will be made aware of cleanup procedures and the location of spill cleanup equipment.
- Toxic, hazardous, or petroleum product spills required to be reported by regulation will be documented to the appropriate federal, state, and local agencies.
- Spills will be documented and a record of the spills will be kept with this SWPPP.

If a spill occurs that is reportable to the federal, state, or local agencies, the contractor is responsible for making the notifications.

The federal reportable spill quantity for petroleum products is defined in 40 CFR 11.0 as any oil spill that:

- Violates applicable water quality standards,
- Causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or,
- Causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

Currently in the State of Missouri, a reportable spill of petroleum is the discharge into the environment of more than 50 gallons. It is the responsibility of the owner and contractor to comply with current regulations if changes were to occur.

A list of commonly used hazardous materials and reportable quantities is included in Appendix C of this document; however, the federal reportable spill quantities for all hazardous materials are listed in 40 CFR, Part 302.4 in the table entitled "List of Hazardous Substances and Reportable Quantities." A procedure for determining a reportable spill is included in Appendix C along with a copy of the Spill Report Form to be filled out in case of a spill.

The reportable spill quantity for hazardous materials in the State of Missouri follows the Federal reportable quantity listed in 40 CFR, Part 302.4

If a spill is reportable, the contractor's superintendent will, within 2 hours of the spill, notify the Owner, as well as:

Federal:

National Response Center - 1-800-424-8802

EPA Region 7: 24-hour Emergency Response Center - (913) 281-0991

State:
Missouri Emergency Response Commission

Department of Natural Resources

(573) 634-2436 (in-state, 24 hours)

If a reportable release occurs, a modification to the SWPPP must be made within 14 days. The modification shall include: a description of the release, the date of the release; an explanation of why the spill happened; a description of procedures to prevent future spills or releases from happening; and a description of response procedures should a spill or release occur again. A written description of the release must be submitted to the permitting authority that includes: a description of the release, including the type of material and an estimated amount of spill; the date of the release; an explanation of why the spill happened; and a description of the steps taken to prevent and control future releases. These modifications to the SWPPP must be made by the contractor and will be documented on the form in Appendix C.

APPENDICIES

**APPENDIX A
CONSTRUCTION
PLANS AND DETAILS**



ALLSTATE CONSULTANTS
allstateconsultants.net

3312 LEMONE INDUSTRIAL BLVD.
COLUMBIA, MO 65201
(573) 875-8799

P.O. BOX 156, 30601 HIGHWAY 5
MARCELINE, MO 64658
(660) 376-2941

410 SE THIRD ST., SUITE 103C
LEE'S SUMMIT, MO 64063
(816) 895-2310

MISSOURI STATE CERTIFICATE
OF AUTHORITY #200704004
REUSE OF THIS DRAWING IN ANY MANNER IS
STRICTLY PROHIBITED WITHOUT THE WRITTEN
APPROVAL OF
ALLSTATE CONSULTANTS LLC

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI STATE
FAIRGROUNDS

IMPROVEMENTS TO
STORMWATER AND
WASTEWATER COLLECTION
SYSTEMS, INFRASTRUCTURE

MISSOURI
STATE FAIRGROUNDS
2503 W 16TH STREET
SEDALIA, MISSOURI

PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

REVISION:	DATE:

ISSUE DATE: 8/30/2024

CAD DWG FILE: 22230.01-STORM DESIGN.dwg
DRAWN BY: JPS
CHECKED BY: CWS
DESIGNED BY: BPH

SHEET TITLE:
**PART 1: STORMWATER
STORM SEWER
LINE A GRADING**

SHEET NUMBER:

C-108

8/30/2024



P:\2023\22230.01 - No. State Fairgrounds\DESIGN\22230.01-DESIGN-STORM.dwg, GRADING(T) (C108), 8/30/2024, 11:12:59 PM



ALLSTATE CONSULTANTS
allstateconsultants.net

3312 LEMONE INDUSTRIAL BLVD.
COLUMBIA, MO 65201
(573) 875-8799

P.O. BOX 156, 30601 HIGHWAY 5
MARCELINE, MO 64658
(660) 376-2941

410 SE THIRD ST., SUITE 103C
LEE'S SUMMIT, MO 64063
(816) 895-2310

MISSOURI STATE CERTIFICATE
OF AUTHORITY #2007004004
REUSE OF THIS DRAWING IN ANY MANNER IS
STRICTLY PROHIBITED WITHOUT THE WRITTEN
APPROVAL OF THE ORIGINAL
DESIGNER/ENGINEER
ALLSTATE CONSULTANTS LLC

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI STATE
FAIRGROUNDS

IMPROVEMENTS TO
STORMWATER AND
WASTEWATER COLLECTION
SYSTEMS, INFRASTRUCTURE

MISSOURI
STATE FAIRGROUNDS
2503 W 16TH STREET
SEDALIA, MISSOURI

PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

REVISION:	_____
DATE:	_____
REVISION:	_____
DATE:	_____
REVISION:	_____
DATE:	_____
ISSUE DATE:	8/30/2024

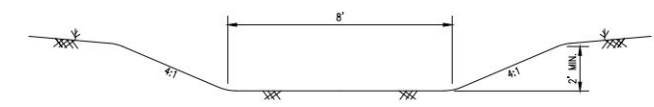
CAD DWG FILE: 22230.01-STORM DESIGN.dwg
DRAWN BY: JPS
CHECKED BY: CWS
DESIGNED BY: BPH

SHEET TITLE:
**PART 1: STORMWATER
STORM SEWER
DETENTION POND**

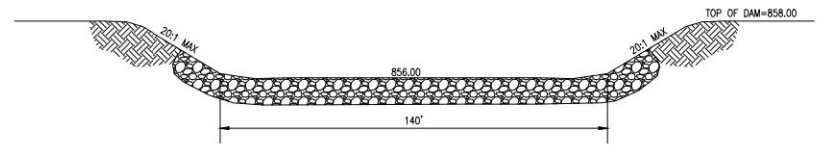
SHEET NUMBER:

C-110

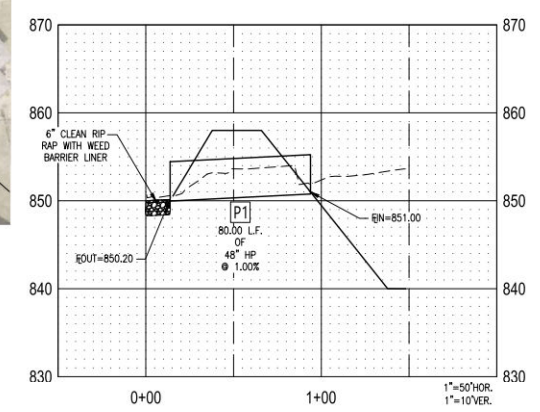
8/30/2024



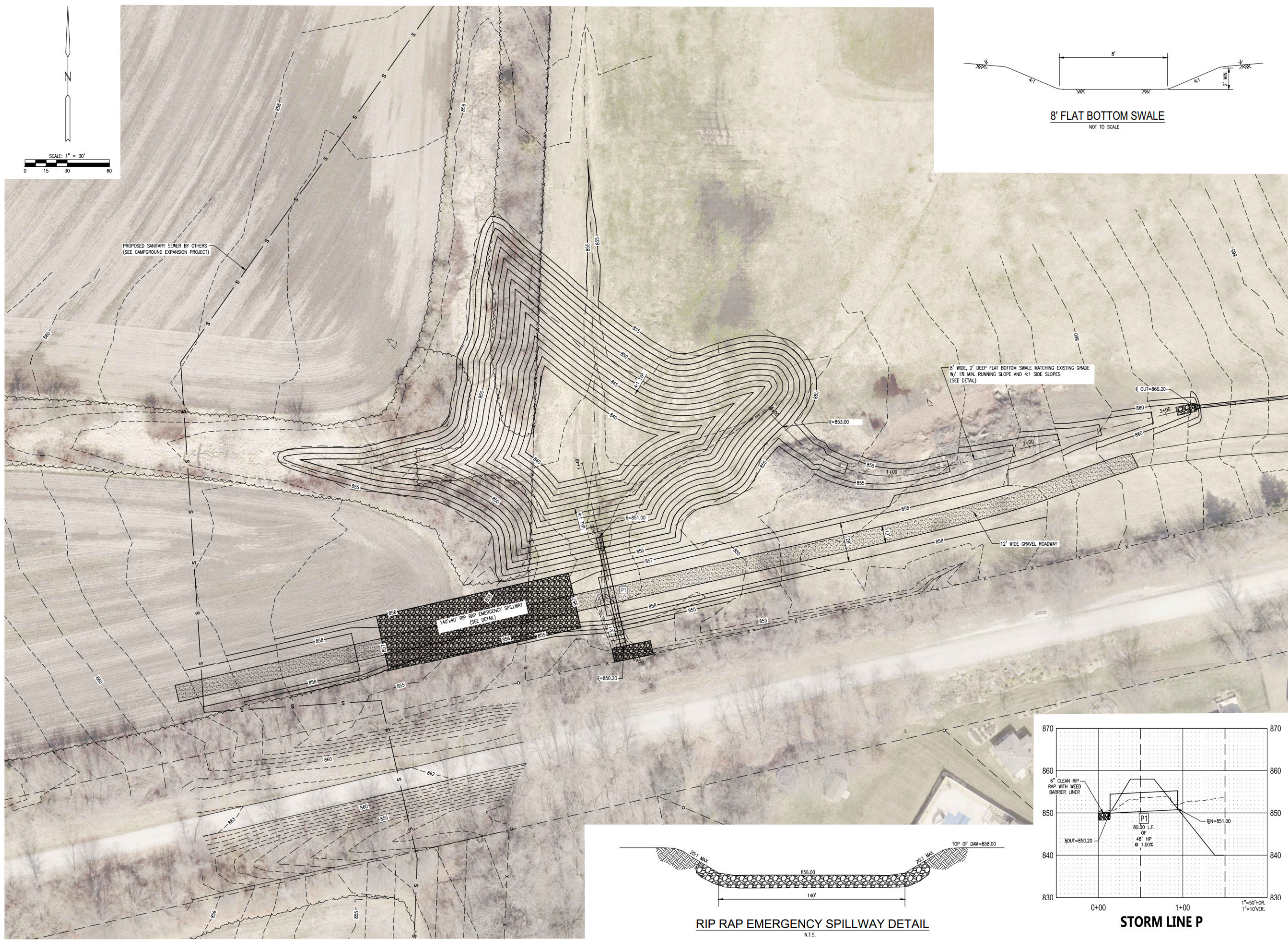
8' WIDE, 2' DEEP FLAT BOTTOM SWALE MATCHING EXISTING GRADE
W/ 1/8" MIN. RUNNING SLOPE AND 4:1 SIDE SLOPES
(SEE DETAIL)



RIP RAP EMERGENCY SPILLWAY DETAIL
N.T.S.



STORM LINE P



SCALE: 1" = 30'

PROPOSED SANITARY SEWER BY OTHERS
(SEE CAMPGROUND EXPANSION PROJECT)

12' WIDE GRAVEL ROADWAY

140' X 40' RIP RAP EMERGENCY SPILLWAY
(SEE DETAIL)

P:\2023\22230.01 - MO STATE FAIRGROUNDS DESIGN\22230.01-DESIGN STORM.dwg DET POND1.CAD 8/30/2024 11:31:11 AM

APPENDIX B
INSPECTION FORMS

**STORMWATER MANAGEMENT
SITE INSPECTION FORM**

Inspector Name/Title: _____ Date _____

Project Name _____

Project Number: _____ Client _____

Contractor _____

Has there been any Precipitation in the past 7 days? _____ Yes _____ No
If so, describe, as well as current weather conditions:

Do any BMP's need maintenance or attention? _____ Yes _____ No

Describe any deficiencies and measures taken to correct them:

Are there any areas where land disturbance operations have temporarily or permanently stopped? _____ Yes _____ No

Are there major grading activities taking place on site? _____ Yes _____ No

Note any changes that will be made to the SWPPP:

Location of pollutant discharge/ additional concerns or comments:

SIGNATURE OF INSPECTOR _____

**STORMWATER MANAGEMENT
SITE INSPECTION FORM
EXPANDED**

The deficiencies present and corrective measures taken to increase the effectiveness of BMP's at _____ are as follows:

SILT FENCE:

EARTH DIKES/DIVERSION BERMS:

SEDIMENT TRAPS/ROCK CHECKS:

PIPE SLOPE DRAINS

DRAINAGE SWALE:

SEDIMENT BASIN:

BUFFER STRIPS/VEGETATIVE BYWAYS:

CRITICAL AREAS THAT NEED TO BE MONITORED:

APPENDIX C
SPILL REPORT FORM

Procedures for Determining if a Hazardous Material Spill is a Reportable Quantity

- 1) First determine the type and quantity of material that has been spilled.
- 2) Obtain a material safety data sheet (MSDS) for the spilled material and determine whether any of the constituents are listed in Table 302.4 in 40 CFR 302.
- 3) If none of the constituents in the spilled material are listed in the table (excluding ethylene glycol), the spill is not reportable.
- 4) If the constituents in the spilled material are listed in the table, use the following equation to determine the pounds of material spilled:

$$\text{Pounds Spilled} = (V) (\text{Wt}\%) (\text{Sg}) (0.0834)$$

Where:

V = Volume of the material spilled, in gallons

Wt% = The weight percent of the constituents in the spilled material (see the MSDS)

Sg = Specific gravity of spilled material (see MSDS)

For Example:

V = 7 Gallons

Wt% = 3.5

Sg = 1.04

Pounds Spilled = (7) (3.5) (1.04) (0.834) = 2.13 pounds

- 5) If, based on the calculation, the pounds spilled are Greater than the Final RQ (reportable quantity) value listed in Table 302.4 of 40 CFR 302 or the State's reportable quantity minimum amount, the spill must be reported to the appropriate federal, state, and local agencies.

Storm Water Pollution Prevention Plan

Spill Report Form

Spill Reported By: _____
Name Phone Number

Date Reported: _____ Time: _____

Date of Spill: _____ Time: _____

Name of Facility: _____

Legal Description: _____ 1/4 _____ 1/4 _____ 1/4 SEC _____, TWP _____, Range _____,
County _____

Describe Spill Location and Events Leading to Spill: _____

Material Spilled: _____

Source of Spill: _____

Amount Spilled (Gallons or Pounds)- _____

Amount Spilled to Waterway (Gallons or Pounds): _____

Nearest Municipality: _____

Containment or Cleanup Action: _____

List Environmental Damage (fish kill, etc.) _____

List Injuries or Personal Contamination: _____

Date and Time Cleanup Completed or Terminated: _____

If Cleanup Delayed, Nature and Duration of Delay: _____

Description of Materials Contaminated: _____

Approximate Depth of Soil Excavation: _____

Action To Be Taken to Prevent Future Spills: _____

Agencies Notified:

Local: _____ Date: _____

State: _____ Date: _____

Federal: _____ Date: _____

Signed: _____

Contractor Superintendent or
Environmental Inspector

Table of Common Hazardous Materials Reportable Quantities

Hazardous Substance	CASRN	Statutory Coded agger	RCRA Waste #	Final RQ Pounds (Kg)
Acetic Acid	64-19-7	1		5000 (2270)
Acetone	67-64-1	4	U002	5000 (2270)
Aluminum Sulfate	10043-01-3	1		5000 (2270)
Ammonia	7664-41-7			100 (45.4)
Arsenic	1327-53-3	1,4	PO11	1 (0.454)
Chlorine	7782-50-5	1,3		10 (4.54)
Chloroform	67-66-3	1,2,3,4	UO44	10 (4.54)
Creosote	N.A.	4	UO51	1 (0.454)
Cupric Sulfate	7758-98-7	1		10 (4.54)
Diazanon	333-41-5	1		1 (0.454)
Ethanal	75-07-0	1,3,4	UO01	1000 (454)
Ethyl Chloride	75-00-3	2,3		1000 (454)
Ethylene Glycol	107-21-1	3		5000 (2270)
Fluorine	7782	4	PO56	10 (4.54)
Hydrochloric Acid	7647-01-0	1,3		5000 (2270)
Lead	7439-92-1	2		10 (4.54)
Lindane	58-89-9	1,2,3,4	U129	1 (0.454)
Mercury	7439-97-6	2,3,4	U151	1 (0.454)
Phosphoric Acid	7664-38-2	1		5000 (2270)
Phosphorus	7723	1,3		1 (0.454)
Potassium Permanganate	7722-64-7	1		1000 (454)
Propane	96-12-8	4	U194	5000 (2270)
Sodium Hydroxide	1310-17-2	1		1000 (454)
Sodium Hypochlorite	7681-52-9	1		100 (45.4)
Vinyl Chloride	75-01-4	2,3,4	U239	100 (45.4)

\

**APPENDIX D
DESCRIPTION OF
IMPLEMENTED BMP'S**

Temporary Seeding

Practice Description Recommended

The establishment of fast-growing annual vegetation to provide economical erosion control for up to 12 months and reduce the amount of sediment moving off the site. Annual plants which sprout rapidly and survive for only one growing season are suitable for establishing temporary vegetative cover.

This practice applies where short-lived vegetation can be established before final grading or in a season not suitable for permanent seeding. It helps prevent costly maintenance operations on other erosion control systems such as sediment basin clean-out. Temporary or permanent seeding is necessary to protect earthen structures such as dikes, diversions, and the banks and dams of sediment basins.

Minimum Requirements

Prior to start of construction, plant materials, seeding rates and times should be specified by a qualified professional. Plans and specifications should be referred to by field personnel throughout the construction process. To ensure emergence, vigorous growth of seedlings and continued plant growth, prepare seedbed, add lime and fertilizer according to soil tests, mulch all but the most ideal sites and follow seeding dates.

- **Seedbed Preparation:** Loosen soil to depth of 3 inches for broadcast seeding or drilling. If compacted, loosen soils for no till drilling. Avoid excessively wet conditions.
- **Amendments:** Fertilizer and lime (if soil pH is less than 5.3) incorporated 3 to 6 inches into the soil. See Table 5.1.
- **Seed Quality:** Certified seed, tested within the past 9 months
- **Plants:** Recommended temporary erosion control plant species. Rate of application and seeding dates are listed in Tables 5.2 and 5.3.
- **Mulch:** 75% of the ground surface should be covered with approved mulching materials (See *Mulching*). Mulching is critical for the less than ideal situations found on development sites.
- **General:** Inspect seeded areas 2 to 4 weeks after seeding for establishment, erosion control and weed control. Repair and reseed as necessary.
- **Reseed:** After 1 year if site is not in permanent vegetation

Installation

Successful vegetative establishment is directly dependent on the nutrients in the soil. For optimum results, take soil samples from the top 6 inches in each area to be seeded. Submit samples to a soil testing laboratory for liming and fertilizer amendment recommendations.

Seedbed Preparation

Seedbed preparation is essential for the seed to germinate and grow. For broadcast seeding and drilling, loosen the soil to a depth of approximately 3 inches. For no-till drilling, the soil surface does not need to be loosened unless the site has surface compaction. Use a disk, ripper, chisel, harrow or other acceptable tillage equipment to loosen compacted, hard or crusted soil surfaces. Avoid preparing the seedbed under excessively wet conditions.

Liming

Acid soils with an extremely low pH can prevent seeding success. Most of the recommended temporary vegetation is tolerant of low pH soils and will establish on all but the lowest pH soils. If soil pH in the region is known to be extremely low, **conduct a soil pH test** to determine if limestone is necessary for temporary seeding. Amend soils with lime according to information in Table 5.1. Soils with a pH above 7.0 should not be limed.

Table 5.1 Liming Requirements for Temporary Sites

pH Test	Plant Response	Recommended Application of Agricultural Limestone
below 6.0	poor growth	lime according to soil test
6.0 - 6.5	adequate growth	no lime recommended
greater than 6.5	greater than 6.5	no lime recommended

Fertilizer

Subsoil will most likely be deficient in nutrients required for growth. A **soil test will provide the best guide** for the amount and types of fertilizer to apply for optimum plant growth. A general recommendation is to broadcast 90 lbs. of **actual** N-P-K per acre for areas receiving more than 30 inches of precipitation and 50 lbs. of N-P-K per acre in areas receiving less than 30 inches of precipitation.* For best results incorporate the fertilizer into the top 3 to 6 inches before seeding.

* For example, to compute the bulk pounds of product to use

$$\frac{\text{Actual \# Needed}}{\% \text{ Available}} \text{ or } \frac{90\#}{28\%} = 321\# \text{ Bulk}$$

Seeding

Apply seed evenly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. Plant small grains no more than 1 1/2 inches deep. Plant grasses and legumes no more than 1/2 inch deep. Prior to mulching, harrow, rake or drag a chain to lightly incorporate broadcast seed and enhance

germination. Cover broadcast or drilled seed with mulch (See *Mulching*). On bare soils, firm lightly with a roller or a cultipacker.

Table 5.2 Temporary Seeding Plant Materials and Minimum Seeding Rate *

Species	Seeding Rates		Plant characteristics
	lbs. per Acre	lbs. per 1,000 sq.ft.	
Oats	80	2	not cold tolerant, height up to 2 feet
Cereals:Rye/Wheat	90 / 120	2.0 / 2.5	cold tolerant, height up to 3 feet, low pH tolerant
Millet, Sudangrass	45 / 60	1.0 / 1.25	warm season annual, aggressive growth, height up to 5 feet
Annual Ryegrass	75	2	may be added to mix, not heat tolerant, height up to 16 inches
Annual Lespedeza** plus Tall Fescue	15 plus 45	0.5 plus 1.0	warm season annual legume, makes own nitrogen, tolerates low pH

* In areas receiving less than 30 inches of precipitation, use 75 percent of these rates.

** If there is any possibility that the seeding will be required to control erosion for more than one year, then consider the addition of fescue or another permanent species as part of a mixture when seeding.

Planting Dates



Plant according to the design plan. In absence of a plan, choose a recommended temporary species or mixture appropriate for the season from Tables 5.2 and 5.3. Plant during optimum seeding dates if at all possible. Use mulch if planting during acceptable seeding dates. Roll and cultipack broadcast seed for good soil-to-seed contact. Use high quality seed. For best results use certified seed. When using uncertified seed, use the highest recommended seeding rate.

Table 5.3 Seeding Dates for Temporary Seedings

Species	Seeding Dates Optimum & Acceptable											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Oats		█	█	█	█			█	█			
Cereals:Rye/Wheat	█	█	█	█	█		█	█	█	█		
Millet, Sudangrass					█	█	█					
Annual Ryegrass	█	█	█	█	█			█	█			
Annual Lespedeza** plus Tall Fescue	█	█	█	█	█							

1- if site may not be developed within one year, consider permanent species

Table Key:

Optimum Seeding Dates	
Acceptable Seeding Dates	

Mulching

Mulching is recommended to conserve moisture and reduce erosion. Evenly cover 75% of the ground surface with mulch material specified in the design plan. Tack or tie down according to plan (See *Mulching*).

Construction Verification Check materials and installation for compliance with specifications.

Troubleshooting: Consult with a qualified design professional if the following occurs:

- Design specifications for seed variety, seeding dates or mulching cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.

Maintenance

Check temporary seedings within 2 to 4 weeks of planting to see if stands are of adequate thickness (more than 30% of the ground surface covered). Stands should be uniform and dense for best results. Fertilize, reseed and mulch bare and sparse areas immediately to prevent erosion. Mowing is not recommended for cereals seeded alone. Cereals seeded with a grass can be mowed when height is greater than 12 inches. However, to prevent damage to grasses, do not mow shorter than 4 inches. Millets and sudangrass should be mowed before height is greater than 6 inches to allow regrowth and continued erosion protection.

Annual lespedeza and tall fescue may be mowed after height exceeds 8 inches. Do not mow shorter than 4 inches. Replant temporary or permanent vegetation within 12 months as annual plants die off and no longer provide erosion control. Consider no-till planting where possible.

Common Problems

Inadequate seedbed preparation; causes poor seedling emergence and growth—repair gullies, prepare seedbed, fertilize, lime (if necessary), mulch and reseed. Unsuitable choice of plant materials; resulting in poor germination or inadequate stand (less than 30% of the ground surface covered)— choose plant materials appropriate for season, prepare seedbed and replant. Inadequate mulching; resulting in poor or spotty stands—cover area evenly and tack or tie down mulch properly, especially on slopes, ridges and in channels.

Lack of nitrogen; causes poor plant vigor, yellow color and short height—add 50 lbs. of nitrogen fertilizer per acre. Do not apply over the top of existing plants from June 1 to August 15 or on frozen ground.

Dying plants; usually caused by soil compaction that limits root growth and water availability to plants—loosen soil if reseeding is necessary or before seeding permanent vegetation.

Detention Ponds and Basins

Practice Description

A dam designed to hold stormwater runoff and release the water slowly to prevent downstream flooding and stream erosion. Detention ponds and basins are an extremely effective water quality control measure and significantly reduce the frequency of erosive floods downstream. Ideally, a detention pond will store at least the first 1/2 inch of runoff from the design storm and release the remainder at the predevelopment rate. Their usage is best suited to larger, more intensively developed sites of over 20 acres.

Regular detention ponds have less storage and different outlet conduits than extended detention ponds. Both can have permanent pools of water or be designed as dry basins. Both can be designed to hold sediment.

Recommended Minimum Requirements

Prior to start of construction, detention ponds should be designed by a registered design professional. Plans and specifications should be referred to by field personnel throughout the construction process.

The detention pond should be built according to the planned grades and dimensions.

- **Drainage Area:** 20 to 50 acres
- **Structure Life:** 10 years or more
- **Detention:** 24 to 48 hour detention of runoff from the design storm
- **Trap efficiency:** The length to width ratio of the basin should be 2:1 or greater; 5:1 is optimal to capture fine sediments. Inlet: Locate as far upstream as possible from the outlet. Collector Channels: Leading to the detention pond should be constructed of riprap, concrete or paved material to route water to the detention pond.
- **Anti-seep Devices:** Either of the following is recommended:
 - At least two watertight anti-seep collars should be used around the outlet conduit; collars should project 1 to 3 feet from the pipe, or
 - a sand diaphragm
- **Embankment Slopes:** 2.5:1 or flatter; 3:1 where maintained by tractor or other equipment.
- **Basin Slopes:** No steeper than 3:1 and no flatter than 20:1
- **Vegetative Buffer:** A minimum width of 25 feet around the pond
- **Settlement:** Allow for at least 10% of extra fill
- **Site Access:** Reserved for bringing in heavy maintenance equipment and to remove and dispose of sediments

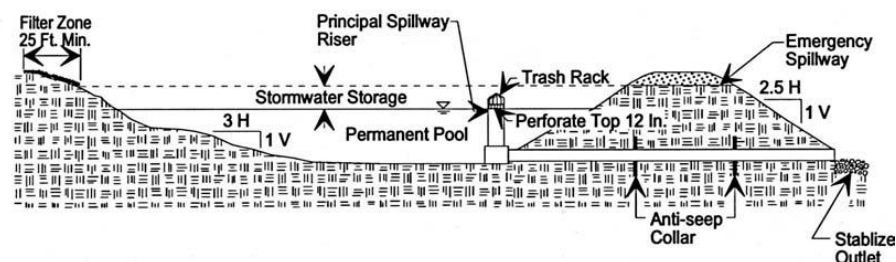


Figure 5.43 Typical Detention Pond

Construction

Site Preparation

Locate the detention pond as close to the stormwater collection system as possible, considering pool area, dam length and spillway conditions. Locate all underground utilities. Clear, strip and grub the dam location, removing all woody vegetation, rocks and other objectionable material.

Follow all federal, state and local requirements on impoundment sites.

Dispose of trees, limbs, logs and other debris in designated disposal areas.

Excavate the embankment foundation (outlet apron first), stockpiling any surface soil having high amounts of organic matter for later use.

Principal Spillway

Clear the sediment pool to facilitate sediment clean out. Situate the spillway pipe and riser on a firm, even foundation. Prepare the pipe bedding.

Place around the barrel a 4-inch layer of moist, clayey, workable soil (not pervious material such as sand, gravel or silt), and compact with hand tampers to at least the density of the foundation soil. (Don't raise the pipe from the foundation when compacting under the pipe haunches.) Perforate the top 12 inches of the riser with 1/2-inch diameter holes spaced 3 inches apart. Set the top elevation of the riser to allow the detention pond to store the first 1/2 inch of basin runoff in this 12-inch perforated zone, or according to the design plan.

Embed the riser at least 12 inches into concrete (which serves as an anti-flotation block). The weight of the concrete should balance the buoyant force acting on the riser.

$$\text{Buoyant Force} = \text{Volume of Riser} \times 62.4 \text{ lbs/ft}^3$$

Surround the base of the riser with 2 feet of clean uniformly graded stone.

Place a trash rack around the riser inlet. The trash rack should have 4- to 6-inch square openings.

At the pipe outlet, install a riprap or concrete apron at least 5 feet wide and 10 feet long to a stable grade.

Optional: A slotted or V-notch weir, constructed within an open channel spillway, can be used in place of a riser and conduit as a principal spillway.

Embankment

Scarify the embankment foundation before placing fill.

Use fill from predetermined borrow areas. It should be clean, stable, mineral soil free of organic material, roots, woody vegetation, rocks and other debris; and must be wet enough to form a ball without crumbling, yet not so wet that water can be squeezed out.

Place the most permeable soil in the downstream toe and the least permeable in the center portion of the dam.

Compact the fill material in 6- to 8-inch continuous layers over the length of the dam. (One way is by routing construction equipment over the dam so that each layer is traversed by at least one wheel of the equipment). Tracked construction equipment does not provide adequate compaction.

Protect the spillway barrel with 2 feet of hand tamped, compacted fill before traversing over the pipe with equipment. Place a stake at the height sediment must be cleaned out of the basin (50% of design elevation).

Emergency Spillway

Construct the spillway in undisturbed soil around one end of the embankment and locate it so that all excess flow will return to the receiving channel without damaging the embankment.

Erosion Control

Stabilize the spillway with vegetation as soon as grading is complete; or install paving material to finished grade if the spillway is not to be vegetated.

Minimize the size of all disturbed areas. At the completion of each phase of construction, vegetate the disturbed areas to minimize erosion.

Use temporary diversions to prevent surface water from running onto disturbed areas.

Divert sediment-laden water to the upper end of the sediment pool to improve trap effectiveness.

Direct all runoff into the pond at low velocity.

Stabilize all disturbed areas (except the lower one-half of the sediment basin) immediately after construction.

Safety

Because detention ponds that impound water are hazardous, the following precautions should be taken:

- Avoid steep slopes; cut and fill slopes should be 2.5:1 or flatter; 3:1 where maintained by tractor or other equipment.
- Fence area and post with warning signs if trespassing is likely.
- Provide a means of dewatering the basin between storm events.

Construction Verification

Check the finished grades and configuration for all earthwork. Check elevations and dimensions of all pipes and structures.

Troubleshooting: Consult with registered design professional if the following occurs:

- Seepage is encountered during construction; it may be necessary to install drains.
- Variations in topography on site indicate detention pond will not function as intended.
- Design specifications for fill, pipe, seed variety or seeding dates cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.

Maintenance

Inspect the detention pond after each storm event.

Remove and properly dispose of sediment when it accumulates to one-half the design volume.

Periodically check the embankment, emergency spillway and outlet for erosion damage, piping, settling, seepage or slumping along the toe or around the barrel; and repair immediately.

Remove trash and other debris from the riser, emergency spillway and pool area. Clean or replace the gravel around the riser if the sediment pool does not drain properly. Remove nuisance vegetation on embankment.

Remove rodents that burrow into the dam.

Common Problems

Piping failure along conduit; caused by improper compaction, omission of anti-seep collar, leaking pipe joints or use of unsuitable soil—repair damage, check pipe joints and seal leak if necessary. Use suitable soil for backfill. Consider installing anti-seep collar.

Erosion of spillway or embankment slopes; caused by inadequate vegetation or improper grading and sloping—repair damage and establish suitable grade and/or vegetation.

Slumping and/or settling of embankment; caused by inadequate compaction and/or use of unsuitable soil—excavate failed material and replace with properly compacted suitable soil.

Slumping failure; caused by steep slopes—excavate failed material and replace with properly compacted suitable soil. Consider flattening slope.

Erosion and caving below principal spillway; caused by inadequate outlet protection—repair damaged area and install proper outlet protection.

Basin not located properly for access; results in difficult and costly maintenance—relocate basin to more accessible area or improve access to site.

Sediment not properly removed; results in inadequate storage capacity—remove sediment at regular frequent intervals and after major storms.

Lack of anti-flotation; results in riser damage from uplift—install antiflotation structure.

Lack of trash guard; results in the riser and barrel being blocked with debris—remove blockage and install properly designed trash guard.

Principal and emergency spillway elevations too high relative to top of dam; results in overtopping—lower principal and emergency spillway elevations to decrease overtopping potential.

Sediment disposal area not designated on design plans; results in improper disposal of accumulated sediment—locate acceptable disposal area and indicate location on plans.

Safety and/or health hazard from pond water; caused by gravel clogging the drainage system—clean out clogged drainage system on regular basis.

Principal spillway too small; results in frequent operation of emergency spillway and increased erosion potential—consider increasing capacity of principal spillway, install supplemental spillway or install suitable erosion protection in emergency spillway.

Stormwater released from pond or basin too rapidly; caused by spillway pipe sized too large—consider resizing spillway pipe.

Riprap-lined Channel

Practice Description

Waterways with an erosion-resistant rock lining designed to carry concentrated runoff to a stable outlet. This practice applies where conditions are expected to be unsuitable for use of grass-lined channels, such as: 1) channels with average grades over 5%, continuous or prolonged flows occur, potential for damage from traffic exists, or soils are erodible and soil properties are not suitable for vegetation; 2) design velocities exceed 5 feet per second; 3) channel location warrants the use of increased protection; or 4) channel will have prolonged periods of wetness which will hinder growth of grass.

Recommended Minimum Requirements

Prior to start of construction, riprap-lined channels should be designed by a registered design professional. Plans and specifications should be referred to by field personnel throughout the construction process. The channel should be built according to planned alignment, grade and cross section.

- **Cross Section:** As shown in the design specifications
- **Side Slopes:** 2:1 or flatter
- **Riprap/Rock:** Size and gradation as shown in design specifications. Riprap should consist of a well-graded mixture of stone. Larger stone should predominate, with sufficient smaller sizes to fill the voids between the stones. The diameter of the largest stone size should be not greater than 1.5 times the d_{50} size.

- **Riprap Thickness:** Minimum thickness of riprap should be 1.5 times the maximum stone diameter.
- **Stone or Rock Quality:** Select stone for riprap from field stone or quarry stone. The stone should be hard, angular, and highly chemical- and weather- resistant. The specific gravity of the individual stones should be at least 2.5.
- **Foundation:** Geotextile filter fabric or rock aggregate filter layer under the riprap
- **Outlet:** Stable, non-erosive

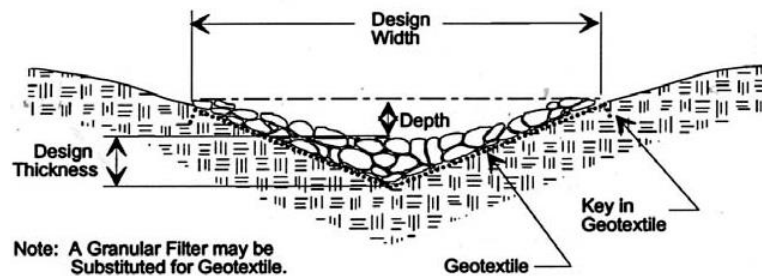


Figure 5.20 Typical V-shaped Riprap-lined Channel

Construction

Site Preparation

Determine exact location of underground utilities.

Remove brush, trees and other debris from the channel and spoil areas, and dispose of properly.

Excavate cross section to the lines and grades shown in design specifications. Over excavate to allow for thickness of riprap and filter material.

Installation

Install geotextile fabric or aggregate in the excavated channel as a foundation for the riprap. Anchor fabric in accordance with design specifications.

As soon as the foundation is prepared, place the riprap to the thickness, depth and elevation shown in the design specifications. It should be a dense, uniform and well-graded mass with few voids.

Blend the finished rock surface with the surrounding land surface so there are no overfalls, channel constrictions or obstructions to flow.

Erosion Control

Stabilize channel inlet points and install needed outlet protection prior to or during channel construction.

Stabilize disturbed areas after construction is completed.

Construction Verification

Check finished grade and cross section of channel throughout the length of the watercourse. Verify channel cross sections at several locations to avoid flow constrictions.

Troubleshooting: Consult with registered design professional if the following occurs:

- Variations in topography on site indicate channel will not function as intended; changes in plan may be needed.
- Design specifications for riprap sizing, filter fabric or aggregate filter cannot be met; substitution may be required. Unapproved substitutions could result in channel erosion.

Maintenance

Inspect channels at regular intervals and after storm events.

When stones have been displaced, remove any debris and replace the stones in such a way as to not restrict the flow of water.

Give special attention to outlets and points where concentrated flow enters the channel, and repair eroded areas promptly.

Check for sediment accumulation, piping, bank instability and scour holes; repair promptly.

Common Problems

Foundation excavation not deep enough or wide enough; may cause riprap to restrict channel flow and result in overflow and erosion— deepen channel and replace riprap.

Side slopes too steep; causes instability, rock material movement and bank failure—flatten side slopes.

Filter omitted or damaged during stone placement; may result in piping and bank instability— install filter and replace stone.

Riprap poorly graded or stones not placed to form a dense, stable channel lining; may result in rock displacement and erosion of the foundation— replace riprap with properly sized, well graded material.

Riprap installed smaller than specified; may result in rock displacement— selectively grouting over rock materials may stabilize the situation.

Riprap not extended far enough downstream; may result in undercutting— the channel should outlet on a stable location; extend riprap as needed.

Riprap not blended to ground surface; may result in gullying along edge of riprap— regrade riprap to blend with ground surface.

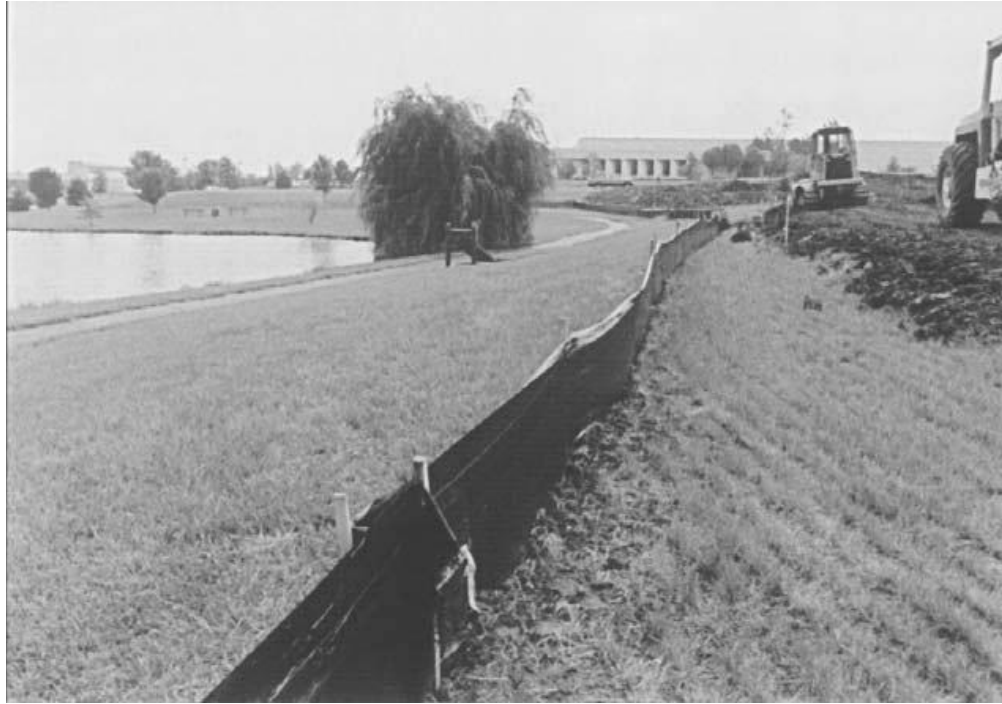
Riprap not installed until after washout of other materials has occurred— replace eroded material and install riprap.

Riprap just dumped and not properly shaped; may result in rock displacement and erosion— repair eroded area and reshape riprap to attain proper channel shape.

Sediment Fence

Practice Description

A temporary sediment barrier consisting of a geotextile fabric which is attached to supporting posts and trenched into the ground. Sediment-laden runoff ponds uphill from the sediment fence and runoff is temporarily stored to allow sediment to settle out of the water. This practice applies where sheet erosion occurs on small disturbed areas. Sediment fences are intended to intercept and detain small amounts of sediment from disturbed areas in order to prevent sediment from leaving the site. Sediment fences can also prevent sheet erosion by decreasing the velocity of the runoff.

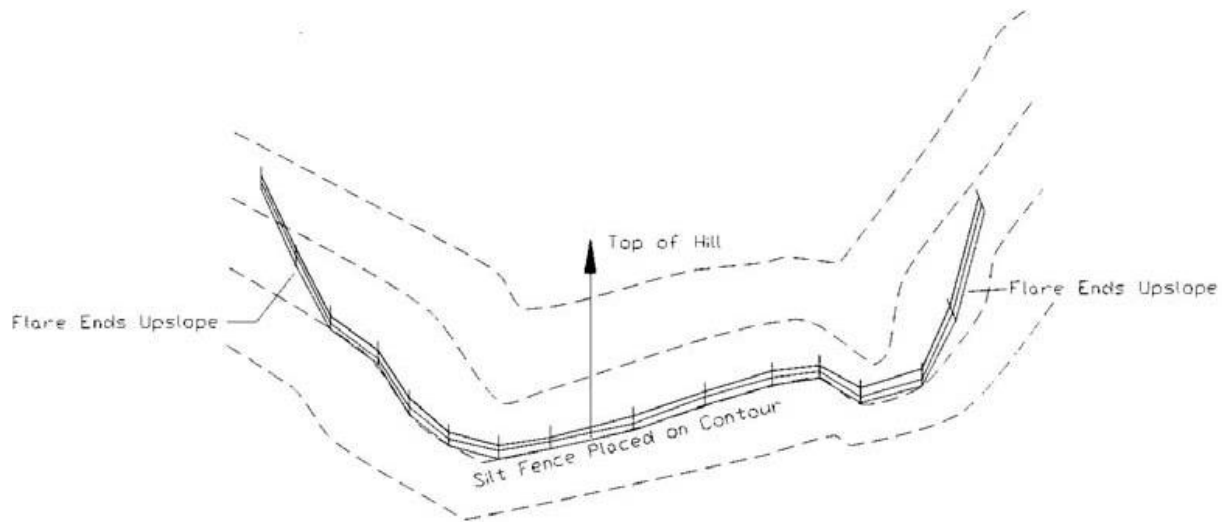


Prior to start of construction, sediment fences should be designed by a qualified professional. Plans and specifications should be referred to by field personnel throughout the construction process.

- **Drainage Area:** Limited to 1/4 acre per 100 feet of fence. Area is further restricted by slope steepness as shown in Table 5.16.
- **Location:** Fence should be built on a nearly level grade and at least 10 feet from the toe of the slope to provide a broad shallow sediment pool. Install on the contour, where fence can intercept runoff as a sheet flow; not located crossing channels, waterways or other concentrated flow paths; not attached to existing trees.
- **Length:** Maximum of 600 feet; flare ends of fence uphill to temporarily impound water as shown in Figure 5.33a.

Table 5.16 Typical Land Slope and Distance for Sediment Fence

Land Slope (%)	Maximum Slope Distance * above Fence (feet)
less than 2	100
2 to 5	75
5 to 10	50
greater than 10	*



* Follow manufacturers' recommendations for proper spacing.

Figure 5.33a Placement of Sediment Fence

- **Spacing of Support Posts:** 10 feet maximum for fence supported by wire; 6 feet maximum for high strength fabric without supportive wire backing
- **Trench:** Bottom 1 foot of fence must be buried minimum of 6 inches deep.
- **Impounded Water Height:** Depth of impounded water should not exceed 1.5 feet at any point along the fence.
- **Support Posts:** 4-inch diameter wood or 1.33 lb/linear foot steel, buried or driven to a depth of 24 inches with support wire; 2-inch square wood or 1.0 lb/linear foot steel without support wire. Steel posts should have projections for fastening fabric.

Table 5.17 Example Specifications for Sediment Fence Fabric

Physical Property	Minimum Requirement
Filtering Efficiency	85%
Tensile strength at 20% (maximum) elongation: Standard strength High strength	30 lb/linear inch 50 lb/linear inch

Source: Adapted from North Carolina Field Manual, 1991

- **Support Wire:** Wire fence (14-gauge with 6-inch mesh), necessary if standard strength fabric is used

- **Reinforced, Stabilized Outlets:** Should be located to limit water depth to 1.5 feet measured at lowest point along crest line.
 - Crest Height: 1 foot maximum
 - Width of splash pad: 5 feet maximum
 - Length of splash pad: 5 feet minimum
 - Supports: 4 foot spacing

- **Synthetic Geotextile Fabric:** Conforming to specifications in Table 5.17 and containing ultraviolet light inhibitors and stabilizers. **Minimum design life of 6 months.**

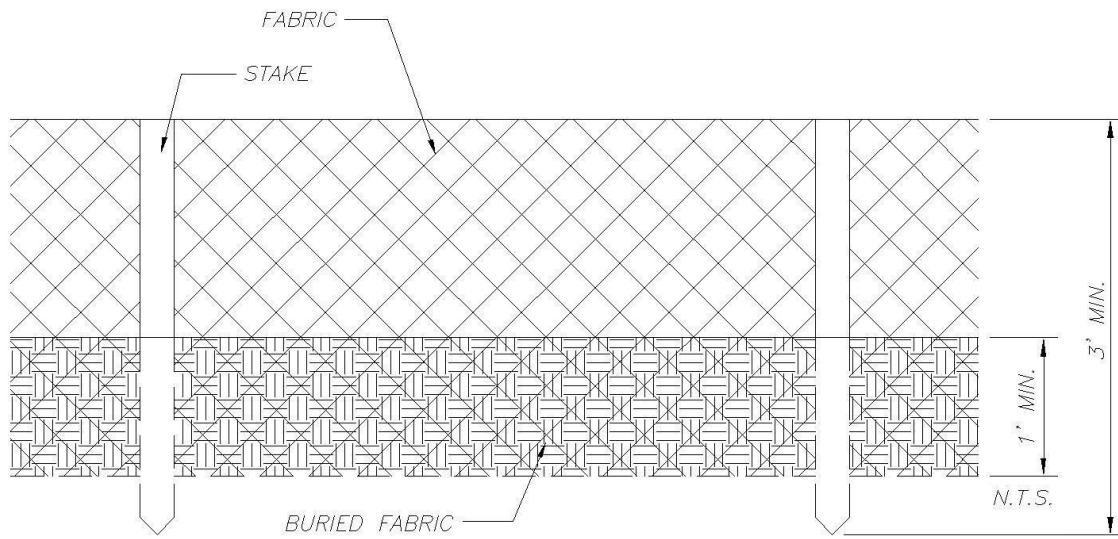


Figure 5.33 Installation of Sediment Fence

Construction

Site Preparation

Determine exact location of underground utilities. Grade alignment of fence as needed to provide broad, nearly level area upstream of fence.

Fence Installation

Dig a trench at least 6 inches deep along the fence alignment as shown in Figure 5.34.

Drive posts at least 24 inches into the ground on the downslope side of the trench. Space posts a maximum of 10 feet if fence is supported by wire, or 6 feet if high strength fabric and no support fence is used.

Fasten support wire fence to upslope side of posts, extending 6 inches into the trench as shown in Fig. 5.33.

Attach continuous length of fabric to upslope side of fence posts. Try to minimize the number of joints. Avoid joints at low points in the fence line. Where joints are necessary, fasten fabric securely to support posts and overlap to the next post.

Place the bottom 1 foot of fabric in the 6-inch deep trench (minimum), lapping toward the upslope side. Backfill with compacted earth or gravel as shown in Figure 5.34.

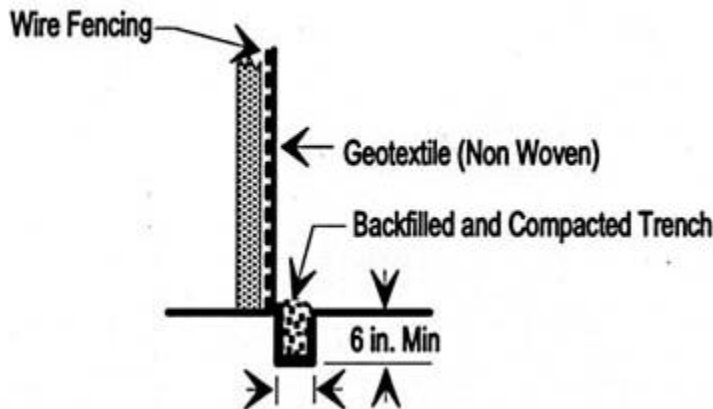


Figure 5.34 Detail of Sediment Fence Installation

To reduce maintenance, excavate a shallow sediment storage area in the upslope side of the fence. Provide good access in areas of heavy sedimentation for clean out and maintenance.

Reinforced Stabilized Outlet Installation

Allow for safe bypass of storm flow to prevent overtopping failure of fence. Set outlet elevation so that water depth cannot exceed 1.5 feet at the lowest point along the fence. Drive posts securely at least 24 inches into the ground, at a spacing of 4 feet. Install a horizontal brace between the support posts to serve as an overflow weir and to support the top of the fabric. Immediately downslope of the fabric, excavate foundation for splashpad a minimum of 5 feet wide, 5 feet long and 1 foot deep. Place 1 foot of riprap in the excavated foundation. The surface of the riprap should be flush with the undisturbed ground (no outfall).

Erosion Control

Stabilize disturbed areas in accordance with vegetation plan.

Construction Verification

Check finished grades and dimensions of the sediment fence. Check materials for compliance with specifications.

Troubleshooting: Consult with registered design professional if any of the following occur:

- Variations in topography on site indicate sediment fence will not function as intended; changes in plan may be needed.

- Design specifications for filter fabric, support posts, support fence, gravel or riprap cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.

Maintenance

Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.

Should the fabric of a sediment-fence collapse, tear, decompose or become ineffective, replace it promptly.

Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Take care to avoid damaging or undermining the fence.

Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

Common Problems

Drainage area too large or too much sediment accumulation allowed before cleanout; results in overtopping, sagging or collapse of fence. Increase sediment storage capacity upslope of fence or remove accumulation more frequently—repair fence.

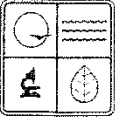
Approach too steep; results in collapse of fence due to high velocity or undercutting of fence—reduce slope of approach area, or consult with registered design professional.

Fence not adequately supported; results in sagging or collapse of fence—add additional supports.

Bottom of fence not buried properly, results in undercutting of fence--reinstall fence using proper method of trenching.

Fence installed across drainageway; results in sagging, collapse or undercutting of fence—relocate fence away from drainageway.

APPENDIX E
FINAL STABILIZATION TERMINATION
FORM H



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
(SEE MAP FOR APPROPRIATE REGIONAL OFFICE)

FORM H - REQUEST FOR TERMINATION OF A GENERAL PERMIT

UNDER MISSOURI CLEAN WATER LAW

1.00 TYPE OF GENERAL PERMIT REQUESTED TO BE TERMINATED

1.10 PERMIT NUMBER
MO —

2.00 FACILITY

NAME		COUNTY	
ADDRESS	CITY	STATE	ZIP CODE

3.00 OWNER

NAME	E-MAIL	PHONE	
		FAX	
ADDRESS	CITY	STATE	ZIP

4.00 CONTINUING AUTHORITY

NAME	PHONE		
	FAX		
ADDRESS	CITY	STATE	ZIP

5.00 REASON FOR TERMINATION REQUEST: (CHECK ONE)

For land disturbance sites, area is stabilized by seeding, mulching, sodding, paving, or other means, no further land disturbance activities are planned, all building construction (commercial or residential) is completed, and construction equipment removed.

For industrial facilities, site activities have ceased and site closed and no significant materials remain exposed to storm water.

For any type of site, a site specific permit was obtained.

Other reason (specify) _____

6.00 I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THE TERMINATION REQUEST, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE, COMPLETE AND ACCURATE.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NO. () (AREA CODE)
SIGNATURE	DATE SIGNED

APPENDIX F
RELEVANT PERMITS

APPENDIX G
SWPPP AMENDMENTS

APPENDIX G
SWPPP AMENDMENTS

Update	Date

1) Any changes made to the SWPPP or onsite erosion control shall be noted here.

APPENDIX H
GRADING AND STABILIZATION LOG

APPENDIX I
SWPPP TRAINING LOG

**APPENDIX I
SWPPP TRAINING LOG**

TRAINING DESCRIPTION	DATE(S)	NAME(S) OF TRAINERS	NAME(S) OF TRAINEES

***SWPPP Training is not required; if training occurs it should be noted here.**

APPENDIX J
OWNER CERTIFICATION AND CONSULTANT DECLARATION

Owner's Certification:

I hereby certify that I am the owner of the property described in this plan, or their legally authorized agent, and that I assume full responsibility for the performance of the operation stated in this plan.

Owner: _____
By: _____
Title: _____ Date: _____

Owner's Signature: _____

Consultant's Declaration:

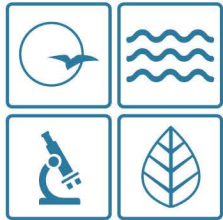
I hereby declare that the site plan, location map, and information contained in Sections 1 and 2 of this SWPPP has been prepared under my direction or supervision in accordance with Boone County's Regulations, and applicable State and Federal Regulations and that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Consultant: _____
By: _____
Title: _____ Date: _____

Consultant's Signature: _____

APPENDIX 3

MDNR LAND DISTURBANCE PERMIT MOR1000038



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

August 1, 2022

Leanne Mattern
Office of Administration, Facilities Management Design & Construction
Harry S. Truman SOB,
301 West High Street, Room 730
Jefferson City, MO 65102

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your Missouri State Operating Permit for Office of Administration, MOR-100038.

Please read and review your permit and attached Standard Conditions. They contain important information on site management and reporting requirements. Quarterly reports required by this report must be submitted through our eDMR system.

This permit may include requirements with which you may not be familiar. If you would like The Department of Natural Resources to meet with you to discuss how to satisfy the permit requirements, an appointment can be set up by contacting the permit writer at 573-526-1139. These visits are called Compliance Assistance Visits and focus on explaining the requirements to the permit holder.

This permit is both your Federal NPDES Permit and your new Missouri State Operating Permit and replaces all previous State Operating Permits issued for this facility under this permit number. In all future correspondence regarding this facility, please refer to your State Operating Permit number and facility name as shown on page one of the permit.

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to 10 CSR 20-1.020 and 10 CSR 20-6.020; RSMo Section 621.250, 640.013, and 644.051.6. To appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Contact information for the AHC is: Administrative Hearing Commission, Truman State Office Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, Missouri 65102, phone: (573) 751-2422, fax: (573) 751-5018; website: <http://ahc.mo.gov/>.

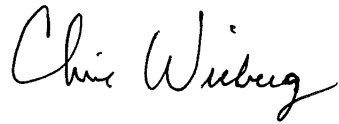


Office of Administration
Page Two

Please be aware that this facility may also be subject to any applicable county or other local ordinances or restrictions. If you have any questions concerning this permit, please do not hesitate to contact the Water Protection Program at P.O. Box 176, Jefferson City, MO 65102, 573-522-4502.

Sincerely,

WATER PROTECTION PROGRAM

A handwritten signature in black ink that reads "Chris Wieberg". The signature is written in a cursive style with a large initial "C" and a long, sweeping underline.

Chris Wieberg
Director

CW/qs

Enclosure

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

General Operating Permit

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No MOR100038

Owner: OA-Facilities Mgmt, Design, and Construc
Address: 301 West High Street, Hst Rm 370
Jefferson City, MO 65101

Continuing Authority: OA Facilities Mgmt Design Construction
301 West High St.
HST SOB Rm 730
Jefferson City, MO 65102

Facility Name: Office of Administration
Facility Address: OA-FMDC, PO Box 809 301 W High street
JEFFERSON CITY, MO 65102

Legal Description: Land Grant 02681, Cole County
UTM Coordinates: 571840.000/4270368.000
Receiving Stream: Tributary to Wears Creek (U)
First Classified Stream - ID#: 100K Extent-Remaining Streams (C) 3960.00
USGS# and Sub Watershed#: 10300102 - 1304

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein.

FACILITY DESCRIPTION All Outfalls SIC #1629

All Outfalls - Construction or land disturbance activity (e.g., clearing, grubbing, excavating, grading, filling and other activity that results in the destruction of the root zone and/or land disturbance activity that is reasonably certain to cause pollution of waters of the state)

Issued to a city, county, state or federal agency, other governmental jurisdiction, or other private area-wide projects as determined by the Department on a case-by-case basis

This permit authorizes only wastewater, including storm water, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System, it does not apply to other regulated areas. This permit may be appealed in accordance with RSMo Section 644.051.6 and 621.250, 10 CSR 20-6.020, and 10 CSR 20-1.020.

August 01, 2022

Issue Date

Chris Wieberg, Director
Water Protection Program

July 04, 2027

Expiration Date

I. APPLICABILITY

A. Permit Coverage and Authorized Discharges

1. This Missouri State Operating Permit (permit) authorizes the discharge of stormwater and certain non-stormwater discharges from land disturbance sites that disturb one or more acres, or disturb less than one acre when part of a larger common plan of development or sale that will disturb a cumulative total of one or more acres over the life of the project.

A Missouri State Operating Permit must be issued before any site vegetation is removed or the site disturbed. Any site owner/operator subject to these requirements for stormwater discharges and who disturbs land prior to permit issuance from the Missouri Department of Natural Resources (Department) is in violation of both State regulations per 10 CSR 20-6.200(1)(A) and Federal regulations per 40 CFR 122.26. The owner/operator of this permit is responsible for compliance with this permit [10 CSR 20-6.200 (3)(B)].

2. This general permit is issued to a city, county, state or federal agency, other governmental jurisdiction, or other private area-wide projects as determined by the Department on a case-by-case basis, for land disturbance projects performed by or under contract to the permittee.
3. This permit authorizes stormwater discharges from land disturbance support activities (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow areas, concrete, or asphalt batch plants) provided appropriate stormwater controls are designed, installed, and maintained and the following conditions are met and addressed in the Stormwater Pollution Prevention Plan (SWPPP). The permittee is responsible for compliance with this permit for any stormwater discharges from construction support activity.
 - (a) The support activity is directly related to the construction site required to have permit coverage for stormwater discharges;
 - (b) The support activity is not a commercial operation or serve multiple unrelated construction sites;
 - (c) The support activity does not continue to operate beyond the completion of the construction activity at the project it supports;
 - (d) Sediment and erosion controls are implemented in accordance with the conditions of this permit; and
 - (e) The support activity is strictly stormwater discharges or non-stormwater discharges listed in PART I, APPLICABILITY, Condition A.4. Support activities which discharge process water shall apply for separate coverage (e.g., a concrete batch plant discharging process water shall be covered under a MOG49).
4. This permit authorizes non-stormwater discharges associated with your construction activity from the following activities provided that these discharges are treated by appropriate Best Management Practices (BMPs) where applicable and addressed in the permittee's site specific SWPPP required by this general permit:
 - (a) Discharges from emergency fire-fighting activities;
 - (b) Hydrant flushing and water line flushing, provided the discharged water is managed to avoid instream water quality impacts;
 - (c) Landscape watering, including to establish vegetation;
 - (d) Water used to control dust;
 - (e) Waters used to rinse vehicles and equipment, provided there is no discharge of soaps, solvents, or detergents used for such purposes;
 - (f) External building washdown, provided soaps, solvents, and detergents are not used, and external surfaces do not contain hazardous substances (e.g., paint or caulk containing polychlorinated biphenyls (PCBs))
 - (g) Pavement wash waters, provided spills or leaks of toxic or hazardous substances have not occurred (unless all spill material has been removed) and where soaps, solvents, and detergents are not used. Directing pavement wash waters directly into any water of the state, storm drain inlet, or stormwater conveyance (constructed or natural site drainage features), unless the conveyance is connected to an effective control, is prohibited;
 - (h) Uncontaminated air conditioning or compressor condensate;
 - (i) Uncontaminated, non-turbid discharges of ground water or spring water;
 - (j) Foundation or footing drains where flows are not contaminated with process materials; and
 - (k) Uncontaminated construction dewatering water discharged in accordance with requirements found in this permit for specific dewatering activities.

B. Permit Restrictions and Limitations

1. This permit does not authorize the discharge of process wastewaters, treated or otherwise.
2. For sites operating within the watershed of any Outstanding National Resource Water (which includes the Ozark National Riverways and the National Wild and Scenic Rivers System), sites that discharge to an Outstanding State Resource Water, or facilities located within the watershed of an impaired water as designated in the Clean Water Act (CWA) Section 303(d) list with an impairment for sedimentation/siltation:
 - (a) This permit authorizes stormwater discharge provided no degradation of water quality occurs due to discharges from the permitted facility per 10 CSR 20-7.031(3)(C).
 - (b) A site with a discharge found to be causing degradation or contributing to an impairment by discharging a pollutant of concern, during an inspection or through complaint investigations, may be required to become a no discharge facility or obtain a site-specific permit with more stringent monitoring and SWPPP requirements.
3. This permit does not allow placement of fill material into any stream or wetland, alteration of a stream channel, or obstruction of stream flow unless the appropriate CWA Section 404 permitting authority provides approval for such actions or determines such actions are exempt from Section 404 jurisdiction. Additionally, this permit does not authorize placement of fill in floodplains unless approved or determined exempt by appropriate federal and/or state floodplain development authorities.
4. This operating permit does not affect, remove, or replace any requirement of the National Environmental Policy Act; the Endangered Species Act; the National Historic Preservation Act; the Comprehensive Environmental Response, Compensation and Liability Act; the Resource Conservation and Recovery Act; or any other relevant acts. Determination of applicability to the above mentioned acts is the responsibility of the permittee. Additionally, this permit does not establish terms and conditions for runoff resulting from silvicultural activities listed in Section 402(1)(3)(a) of the Clean Water Act.
5. Compliance with all requirements in this permit does not supersede any requirement for obtaining project approval from an established local authority nor remove liability for compliance with county and other local ordinances.
6. The Department may require any facility or site authorized by a general permit to apply for a site-specific permit [10 CSR 20-6.010(13)(C)].
7. If a facility or site covered under a current general permit desires to apply for a site-specific permit, the facility or site may do so by contacting the Department for application requirements and procedures.
8. Any discharges not expressly authorized in this permit and not clearly disclosed in the permit application cannot become authorized or shielded from liability under CWA section 402(k) or Section 644.051.16, RSMo, by disclosure to EPA, state, or local authorities after issuance of this permit via any means, including any other permit applications, funding applications, the SWPPP, discharge monitoring reporting, or during an inspection. Discharges at the facility not expressly authorized by this permit must be covered by another permit, be exempt from permitting, or be authorized through some other method.

II. EXEMPTIONS FROM PERMIT REQUIREMENTS

1. Sites that discharge all stormwater runoff directly to a combined sewer system (as defined in 40 CFR 122.26 and 40 CFR 35.2005) connecting to a publicly owned treatment works which has consented to receive such a discharge are exempt from Department stormwater permit requirements.
2. Land disturbance activities that disturb less than one (1) acre of total land area which are not part of a common plan or sale where water quality standards are not exceeded are exempt from Department stormwater permit requirements.

3. Oil and gas related activities as listed in 40 CFR 122.26(a)(2)(ii) where water quality standards are not exceeded are exempt from Department stormwater permit requirements.
4. Linear, strip, or ribbon construction or maintenance operations meeting one (1) of the following criteria are exempt from Department stormwater permit requirements:
 - (a) Grading of existing dirt or gravel roads which does not increase the runoff coefficient and the addition of an impermeable surface over an existing dirt or gravel road;
 - (b) Cleaning or routine maintenance of roadside ditches, sewers, waterlines, pipelines, utility lines, or similar facilities;
 - (c) Trenches two (2) feet in width or less; or
 - (d) Emergency repair or replacement of existing facilities as long as BMPs are employed during the emergency repair.

III. REQUIREMENTS

1. The permittee shall post a public notification sign at the main entrance to the site, or a publically visible location, with the specific MOR100 permit number. The public notification sign must be visible from the public road that provides access to the site's main entrance. An alternate location is acceptable provided the public can see it and it is noted in the SWPPP. The public notification sign must remain posted at the site until the site is finalized.
2. The permittee shall be responsible for notifying the land owner and each contractor or entity (including utility crews and city employees or their agents) who will perform work at the site of the existence of the SWPPP and what actions or precautions shall be taken while on site to minimize the potential for erosion and the potential for damaging any BMP. The permittee is responsible for any damage a subcontractor may do to established BMPs and any subsequent water quality violation resulting from the damage.
3. Ensure the design, installation, and maintenance of effective erosion and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed, and maintained to:
 - (a) Control stormwater volume, velocity, and peak flow rates to minimize soil erosion;
 - (b) Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion and scour;
 - (c) Minimize the amount of exposed soil during construction activity;
 - (d) Minimize the disturbance of steep slopes;
 - (e) Minimize sediment discharges from the site. Address factors such as:
 - 1) The amount, frequency, intensity, and duration of precipitation;
 - 2) The nature of resulting stormwater runoff;
 - 3) Expected flow from impervious surfaces, slopes, and drainage features; and
 - 4) Soil characteristics, including the range of soil particle size expected to be present on the site.
 - (f) Provide and maintain natural buffers around surface waters as detailed in Part V. BMP REQUIREMENTS Condition 7, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration and filtering, unless infeasible; and
 - (g) Minimize soil compaction and preserve topsoil where practicable.

A 2-year, 24-hour storm event can be determined for the project location using the National Oceanic and Atmospheric Administration's National Weather Service Atlas 14 which can be located at https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html, or the permittee can determine local rainfall distribution for a 2-year, 24 hours storm event using multi-decade local high density rain gauge data, as approved by the Department.

4. BMPs for land disturbance [10 CSR 20-6.200(1)(D)2] are a schedule of activities, practices, or procedures that reduces the amount of soil available for transport or a device that reduces the amount of suspended solids in runoff before discharge to waters of the state. The term BMPs are also used to describe the sediment and erosion controls and other activities used to prevent stormwater pollution. BMPs are divided into two main categories: structural or non-structural; and they are also classified as temporary or permanent. Temporary BMPs may be added and removed as necessary with updates to the SWPPP as specified in the requirements below.

5. Installation of BMPs necessary to prevent soil erosion and sedimentation at the downgradient project boundary (e.g. buffers, perimeter controls, exit point controls, storm drain inlet protection) must be complete prior to the start of all phases of construction. By the time construction activity in any given portion of the site begins, downgradient BMPs must be installed and operational to control discharges from the initial site clearing, grading, excavating, and other earth-disturbing activities. Additional BMPs shall be installed as necessary throughout the life of the project.
6. All BMPs shall be maintained and remain in effective operating condition during the entire duration of the project, with repairs made within the timeframes specified elsewhere in this permit, until final stabilization has been achieved.
 - (a) Ensure BMPs are protected from activities that would reduce their effectiveness.
 - (b) Remove any sediment per the BMP manufacturer's instructions or before it has accumulated to one-half of the above-ground height of any BMP that collects sediment (i.e., silt fences, sediment traps, etc.)
 - (c) The project is considered to achieve final stabilization when Part V. BMP REQUIREMENTS, Condition 13 is met.
7. Minimize sediment trackout from the site and sediment transport onto roadways.
 - (a) Restrict vehicle traffic to designated exit points.
 - (b) Use appropriate stabilization techniques or BMPs at all points that exit onto paved roads or areas outside of the site.
 - (c) Use additional controls or BMPs to remove sediment from vehicle and equipment tires prior to exit from facility where necessary.
 - (d) Any sediment or debris that is tracked out past the exit pad or is deposited on a roadway after a precipitation event shall be removed by the shorter of either the same business day (for business days only), or by the end of the next business day if track-out occurs on a non-business day, and before predicted rain events. Remove the track-out sediment by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. Sediment or debris tracked out on pavement or other impervious surfaces shall not be disposed of into any stormwater conveyance, storm drain inlet, or water of the state.
 - (e) Stormwater inlets susceptible to receiving sediment or other pollutants from the permitted land disturbance site shall have curb inlet protection. This may include inlets off the active area where track out from vehicles and equipment could impact the stormwater runoff to those inlets.
8. Concrete washout facilities shall be used to contain concrete waste from the activities onsite, unless the washout of trucks and equipment is managed properly at an off-site location. The washout facility shall be managed to prevent solid and/or liquid waste from entering waters of the state by the following:
 - (a) Direct the wash water into leak-proof containers or pits designed so that no overflows can occur due to inadequate sizing or precipitation;
 - (b) Locate washout activities away from waters of the state, stormwater inlets, and/or stormwater conveyances where practicable. If not practicable, use BMPs to reduce risk of waste leaving the washout facility;
 - (c) Washout facilities shall be cleaned, or new facilities must be constructed and ready for use, once the washout is 75% full;
 - (d) Designate the washout area(s) and conduct such activities only in these areas.
 - (e) Ensure contractors are aware of the location, such as by marking the area(s) on the map or signage visible to the truck and/or equipment operators.
9. Good housekeeping practices shall be maintained at all times to keep waste from entering waters of the state.
 - (a) Provide solid and hazardous waste management practices, including providing trash containers, regular site cleanup for proper disposal of solid waste such as scrap building material, product/material shipping waste, food/beverage containers, spent structural BMPs;
 - (b) Provide containers and methods for proper disposal of waste paints, solvents, and cleaning compounds.
 - (c) Manage sanitary waste. Portable toilets shall be positioned so that they are secure and will not be tipped or knocked over and so that they are located away from waters of the state and stormwater inlets and stormwater conveyances.
 - (d) Ensure the storage of construction materials be kept away from drainage courses, stormwater conveyances, storm drain inlets, and low areas.

10. All fueling facilities present shall at all times adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers.
11. Any hazardous wastes that are generated onsite shall be managed, stored, and transported according to the provisions of the Missouri Hazardous Waste Laws and Regulations.
12. Store all paints, solvents, petroleum products, petroleum waste products, and storage containers (such as drums, cans, or cartons) so they are not exposed to stormwater or provide other prescribed BMPs (such as plastic lids and/or portable spill pans) to prevent the commingling of stormwater with container contents. Commingled water may not be discharged under this permit. Provide spill prevention, control, and countermeasures to contain the spill. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall prevent the contamination of groundwater.
13. Implement measures intended to prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicles and equipment to thereby prevent the contamination of stormwater from these substances. This may include prevention measures such as, but not limited to, utilizing drip pans under vehicles and equipment stored outdoors, covering fueling areas, using dry clean-up methods, use of absorbents, and cleaning pavement surfaces to remove oil and grease.
14. Spills, Overflows, and Other Unauthorized Discharges.
 - (a) Any spill, overflow, or other discharge not specifically authorized in the permit above are unauthorized.
 - (b) Should an unauthorized discharge cause or permit any contaminants, other than sediment, or hazardous substance to discharge or enter waters of the state, the unauthorized discharge must be reported to the regional office as soon as practicable but no more than 24 hours after the discovery of the discharge. If the spill or overflow needs to be reported after normal business hours or on the weekend, the facility must call the Department's Environmental Emergency Response hotline at (573) 634-2436. Leaving a message on a Department staff member voice-mail does not satisfy this reporting requirement.
 - (c) A record of all spills shall be retained with the SWPPP and made available to the Department upon request.
 - (d) Other spills not reaching waters of the state must be cleaned up as soon as possible to prevent entrainment in stormwater but are not required to be reported to the Department.
15. The full implementation of this operating permit shall constitute compliance with all applicable federal and state statutes and regulations in accordance with RSMo 644.051.16 and the CWA §402(k); however, this permit may be reopened and modified or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Clean Water Act §§ 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) if the effluent standard or limitation so issued or approved contains different conditions or is otherwise more stringent than any effluent limitation in the permit or controls any pollutant not limited in the permit. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, termination, notice of planned changes, or anticipated non-compliance does not stay any permit condition.

IV. STORMWATER POLLUTION PREVENTION PLAN (SWPPP) MANAGEMENT REQUIREMENTS

1. The primary requirement of this permit is the development and implementation of a SWPPP which incorporates site specific practices to best minimize the soil exposure, soil erosion, and the discharge of pollutants, including solids for each site covered under this permit.

The purpose of the SWPPP is to ensure the design, implementation, management, and maintenance of BMPs in order to prevent sediment and other pollutants in stormwater discharges associated with the land disturbance activities [40 CFR 122.44 (k)(4)] from entering waters of the state above established general and narrative criteria; compliance with Missouri Water Quality Standards; and compliance with the terms and conditions of this general permit.

- (a) **The SWPPP must be developed and implemented prior to conducting any land disturbance activities and must be specific to the land disturbance activities at the site.**
- (b) The permittee shall fully implement the provisions of the SWPPP required under this permit as a condition of this general permit throughout the term of the land disturbance project. Failure to develop, implement, and maintain a SWPPP may lead to immediate enforcement action.

- (c) The SWPPP shall be updated any time site conditions warrant adjustments to the project or BMPs.
 - (d) Either an electronic copy or a paper copy of the SWPPP, and any required reports, must be accessible to anyone on site at all times when land disturbance operations are in process or other operational activities that may affect the maintenance or integrity of the BMP structures and made available as specified under Part VIII. STANDARD PERMIT CONDITIONS, Condition 1 of this permit. The SWPPP shall be readily available upon request and should not be sent to the Department unless specifically requested
2. Failure to implement and maintain the BMPs chosen, which can be revised and updated, is a permit violation. The chosen BMPs will be the most reasonable and cost effective while also ensuring the highest quality water discharged attainable for the facility. Facilities with established SWPPPs and BMPs shall evaluate BMPs on a regular basis and change the BMPs as needed if there are BMP deficiencies.
 3. The SWPPP must:
 - (a) List and describe the location of all outfalls;
 - (b) List any allowable non-stormwater discharges occurring on site and where these discharges occur;
 - (c) Incorporate required practices identified below;
 - (d) Incorporate sediment and erosion control practices specific to site conditions;
 - (e) Discuss whether or not a 404 Permit is required for the project; and
 - (f) Name the person(s) responsible for inspection, operation, and maintenance of BMPs. The SWPPP shall list the names and describe the role of all owners/primary operators (such as general contractor, project manager) responsible for environmental or sediment and erosion control at the land disturbance site.
 4. The SWPPP briefly must describe the nature of the land disturbance activity, including:
 - (a) The function of the project (e.g., low density residential, shopping mall, highway, etc.);
 - (b) The intended sequence and timing of activities that disturb the soils at the site; and
 - (c) Estimates of the total area expected to be disturbed by excavation, grading, or other land disturbance support activities including off-site borrow and fill areas;
 5. In order to identify the site, the SWPPP shall include site information including size in acres. The SWPPP shall have sufficient information to be of practical use to contractors and site construction workers to guide the installation and maintenance of BMPs.
 6. The function of the SWPPP and the BMPs listed therein is to prevent or minimize pollution to waters of the state. A deficiency of a BMP means it was not effective in preventing or minimizing pollution of waters of the state.

The permittee shall select, install, use, operate and maintain appropriate BMPs for the permitted site. The following manuals are acceptable resources for the selection of appropriate BMPs.

Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites, (Document number EPA 833-R-06-004) published by the United States Environmental Protection Agency (USEPA) in May 2007. This manual as well as other information, including examples of construction SWPPPs, is available at the USEPA internet site at https://www.epa.gov/sites/production/files/2015-10/documents/sw_swppp_guide.pdf; and <https://www.epa.gov/npdes/developing-stormwater-pollution-prevention-plan-swppp>.

The latest version of *Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri*, published by the Department. This manual is available at: <https://dnr.mo.gov/document-search/protecting-water-quality-field-guide>.

The permittee is not limited to the use of these guidance manuals. Other guidance publications may be used to select appropriate BMPs. However, all BMPs must be described and justified in the SWPPP. Although the use of these manuals or other resources is recommended and may be used for BMP selection, they do not supersede the conditions of this permit. They may be used to inform in the decision making process for BMP selection but they are not themselves part of the permit conditions.

The permittee may retain the SWPPP, inspection reports, and all other associated documents (including a copy of this permit) electronically pursuant to RSMo 432.255. The documents must be made available to all interested persons in either paper or electronic format as required by this permit and the permittee must remit a copy (electronic or otherwise) of the SWPPP and inspection reports to the Department upon request.

7. The SWPPP must contain a legible site map, multiple maps if necessary, identifying:
 - (a) Site boundaries of the property;
 - (b) Locations of all waters of the state (including wetlands) within the site and half a mile downstream of the site's outfalls;
 - (c) Location of all outfalls;
 - (d) Direction(s) of stormwater flow (use arrows) and approximate slopes before and after grading activities;
 - (e) Areas of soil disturbance and areas that will not be disturbed (or a statement that all areas of the site will be disturbed unless otherwise noted);
 - (f) Location of structural and non-structural BMPs, including natural buffer areas, identified in the SWPPP;
 - (g) Locations where stabilization practices are expected to occur;
 - (h) Locations of on-site and off-site material, waste, borrow, or equipment storage areas and stockpiles;
 - (i) Designated points where vehicles will exit the site;
 - (j) Location of stormwater inlets and conveyances including ditches, pipes, man-made conduits, and swales; and
 - (k) Areas where final stabilization has been achieved.
8. An individual shall be designated by the permittee as the environmental lead. This environmental lead shall have knowledge in erosion, sediment, and stormwater control principles, knowledge of the permit, and the site's SWPPP. The environmental lead shall ensure all personnel and contractors understand any requirements of this permit may be affected by the work they are doing. The environmental lead or designated inspector(s) knowledgeable in erosion, sediment, and stormwater control principles shall inspect all structures that function to prevent or minimize pollution of waters of the state.
9. Throughout coverage under this permit, the permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. All SWPPP modifications shall be signed and dated. The permittee shall amend the SWPPP to incorporate any significant site condition changes which impact the nature and condition of stormwater discharges. At a minimum, these changes include whenever the:
 - (a) Location, design, operation, or maintenance of BMPs is changed;
 - (b) Design of the construction project is changed that could significantly affect the quality of the stormwater discharges;
 - (c) The permittee's inspections indicate deficiencies in the SWPPP or any BMP;
 - (d) Department notifies the permittee in writing of deficiencies in the SWPPP;
 - (e) SWPPP is determined to be ineffective in minimizing or controlling erosion and sedimentation (e.g., there is visual evidence of excessive site erosion or sediment deposits in streams, lakes, or downstream waterways, sediment or other wastes off site); and/or
 - (f) Department determines violations of water quality standards may occur or have occurred.
10. Site Inspections: The environmental lead, or a designated inspector, shall conduct regularly scheduled inspections. These inspections shall be conducted by a qualified person, one who is responsible for environmental matters at the site, or a person trained by and directly supervised by the person responsible for environmental matters at the site. Site inspections shall include, at a minimum, the following:
 - (a) For disturbed areas that have not achieved final stabilization, all installed BMPs and other pollution control measures shall be inspected to ensure they are properly installed, appear to be operational, and are working as intended to minimize the discharge of pollutants.
 - (b) For areas on site that have achieved either temporary or final stabilization, while at the same time active construction continues on other areas, ensure that all stabilization measures are properly installed, appear to be operational, and are working as intended to minimize the discharge of pollutants.
 - (c) Inspect all material, waste, borrow, and equipment storage and maintenance areas that are covered by this permit. Inspect for conditions that could lead to spills, leaks, or other accumulations of pollutants on the site.
 - (d) Inspect all areas where stormwater typically flows within the site, including drainage ways designed to divert, convey, and/or treat stormwater.

- (e) All stormwater outfalls shall be inspected for evidence of erosion, sediment deposition, or impacts to the receiving stream. If a discharge is occurring during an inspection, the inspector must observe and document the visual quality of the discharge and take note of the characteristics of the stormwater discharge, including turbidity, color; odor; floating, settled, or suspended solids; foam; oil sheen; and other indicators of stormwater pollutants.
 - (f) When practicable the receiving stream shall also be inspected for a minimum of 50 feet downstream of the outfall.
 - (g) The perimeter of the site shall be inspected for evidence of BMP failure to ensure concentrated flow does not develop a new outfall.
 - (h) The SWPPP must explain how the environmental lead will be notified when stormwater runoff occurs.
11. Inspection Frequency: All BMPs must be inspected in accordance to one of the schedules listed below. The inspection frequency shall be documented in the SWPPP, and any changes to the frequency of inspections, including switching between the options listed below, must be documented on the inspection form:
- (a) At least once every seven (7) calendar days and within 48 hours after any storm event equal to or greater than a 2-year, 24-hour storm has ceased during a normal work day or within 72 hours if the rain event ceases during a non-work day such as a weekend or holiday; or
 - (b) Once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches of precipitation or greater, or the occurrence of runoff from snowmelt. To determine if a storm event of 0.25 inches or greater has occurred on the site, the permittee shall either keep a properly maintained rain gauge on site, or obtain the storm event information from a weather station near the site location.
 - 1) Inspections are only required during the project's normal working hours.
 - 2) An inspection must be conducted within 24 hours of a storm event which has produced 0.25 inches. The inspection shall be conducted within 24 hours of the event end, or within 72 hours if the rain event ceases during a non-work day such as a weekend or holiday.
 - 3) If it is elected to inspect every 14 calendar days and there is a storm event at the site that continues for multiple days, and each day of the storm produces 0.25 inches or more of rain, the permittee shall conduct an inspection within 24 hours of the end of the storm or within 72 hours if the rain event ceases during a non-work day such as a weekend or holiday.
 - (c) Areas on site that have achieved stabilization, while at the same time active construction continues on other areas, may reduce inspection frequency to monthly, for those stabilized areas, if the following conditions exist:
 - 1) For areas where disturbed portions have undergone temporary stabilization, inspections shall occur at least once a month while stabilized and when re-disturbed shall follow either frequency outlined in (a),(b), or (c) above.
 - 2) Areas on site that have achieved final stabilization must be inspected at least once per month until the permit is terminated.
 - (d) If construction activities are suspended due to frozen conditions, the permittee may temporarily reduce site inspections to monthly until thawing conditions begin to occur if all of the following are met:
 - 1) Land disturbances have been suspended; and
 - 2) All disturbed areas of the site have been stabilized in accordance with Part V. BMP REQUIREMENTS, Condition 13.
 - 3) The change shall be noted in the SWPPP.
 - (e) Any basin dewatering shall be inspected daily when discharge is occurring. The discharge shall be observed and dewatering activities shall be ceased immediately if the receiving stream is being impacted. These inspections shall be noted on a log or on the inspection report.

If weather conditions or other issues prevent correction of BMPs within seven calendar days, the reasons for the delay must be documented (including pictures), and there must be a narrative explaining why the work cannot be accomplished within the seven day time period. The documentation must be filed with the regular inspection reports. The corrections shall be made as soon as weather conditions or other issues allow.

12. Site Inspection Reports: A log of each inspection and/or copy of the inspection report shall be kept readily accessible and must be made available upon request by the Department. Electronic logs are acceptable as long as reports can be provided within 24 hours. If inspection reports are kept off site, the SWPPP must indicate where they are stored. The inspection report shall be signed by the environmental lead or designated inspector (electronically or otherwise).
- (a) The inspection report is to include the following minimum information:
 - 1) Inspector's name and title.
 - 2) Date and time of inspection.
 - 3) Observations relative to the effectiveness of the BMPs and stabilization measures. The following must be

documented:

- a. Whether BMPs are installed, operational, and working as intended;
 - b. Whether any new or modified stormwater controls are needed;
 - c. Facilities examined for conditions that could lead to spill or leak;
 - d. Outfalls examined for visual signs of erosion or sedimentation at outfalls. Excessive erosion or sedimentation may be due to BMP failure or insufficiency. Response to observations should be addressed in the inspection report.
- 4) Corrective actions taken or necessary to correct the observed problem.
 - 5) Listing of areas where land disturbance operations have permanently or temporarily stopped.
13. Any structural or maintenance deficiencies for BMPs or stabilization measures shall be documented and corrected as soon as possible but no more than seven (7) calendar days after the inspection.
- (a) Corrective action documentation shall be stored with the associated site inspection report.
 - (b) Immediately take all reasonable steps to address the condition, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events.
 - (c) If weather conditions or other issues prevent correction of BMPs within seven calendar days, the reasons for the delay must be documented (this may include pictures) and there must be a narrative explaining why the work cannot be accomplished within the seven day time period. The permittee shall correct the problem as soon as weather conditions or issues allow.
 - (d) Corrective actions may be required by the Department. The permittee must comply with any corrective actions required by the Department as a result of permit violations found during an inspection.

V. BMP REQUIREMENTS

1. The information, practices, and BMP requirements in this section shall be implemented on site and, where noted, provided for in the SWPPP.
2. Existing vegetation and trees shall be preserved where practicable. The permittee is encouraged to preserve topsoil where practicable.
3. The permittee shall select appropriate BMPs for use at the site and list them in the SWPPP. When selecting effective BMPs, the permittee shall consider stormwater volume and velocity. A BMP that has demonstrated ineffectiveness in preventing or minimizing sediment or other pollutants from leaving a given site shall be replaced with a more effective BMP, or additional and sequential BMPs and treatment devices may be incorporated as site conditions allow. The permittee should consider a schedule for performing erosion control measures when selecting BMPs.
4. The SWPPP shall include a description of both structural and non-structural BMPs that will be used at the site.
 - (a) The SWPPP shall provide the following general information for each BMP which will be used one or more times at the site:
 - 1) Physical description of the BMP;
 - 2) Site conditions that must be met for effective use of the BMP;
 - 3) BMP installation/construction procedures, including typical drawings; and
 - 4) Operation and maintenance procedures and schedules for the BMP.
 - (b) The SWPPP shall provide the following information for each specific instance where a BMP is to be installed:
 - 1) Whether the BMP is temporary or permanent;
 - 2) When the BMP will be installed in relation to each phase of the land disturbance procedures to complete the project; and
 - 3) Site conditions that must be met before removal of the BMP if the BMP is not a permanent BMP.
5. Structural BMP Installation: The permittee shall ensure all BMPs are properly installed and operational at the locations and relative times specified in the SWPPP.
 - (a) Perimeter control BMPs for runoff from disturbed areas shall be installed before general site clearing is started. Note this requirement does not apply to earth disturbances related to initial site clearing and establishing entry, exit, or access of the site, which may require that stormwater controls be installed immediately after the earth

disturbance.

- (b) For phased projects, BMPs shall be properly installed as necessary prior to construction activities.
 - (c) Stormwater discharges which leave the site from disturbed areas shall pass through an appropriate impediment to sediment movement such as a sedimentation basin, sediment traps (including vegetative buffers), or silt fences prior to leaving the land disturbance site.
 - (d) A drainage course change shall be clearly marked on a site map and described in the SWPPP.
 - (e) If vegetative stabilization measures are being implemented, stabilization efforts are considered “installed” when all activities necessary to seed or plant the area are completed. Vegetative stabilization is not considered “operational” until the vegetation is established.
6. Install sediment controls along any perimeter areas of the site that are downgradient from any exposed soil or other disturbed areas. Prevent stormwater from circumventing the edge of the perimeter control. For sites where perimeter controls are infeasible, other practices shall be implemented to minimize discharges to perimeter areas of the site.
7. For surface waters of the state, defined in Section 644.016.1(27) RSMo, located on or adjacent to the site, the permittee must maintain a riparian buffer or structural equivalent in accordance with at least one of the following options. The selection and location must be described in the SWPPP.
- (a) Provide and maintain a 50-foot undisturbed natural buffer; or
 - (b) Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer; or
 - (c) If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
 - (d) The permittee is not required to comply with (a), (b), or (c) above if one or more of the following exceptions apply and documentation is provided in the SWPPP:
 - 1) As authorized per CWA Section 404 Department of the Army permit and its associated Section 401 Water Quality Certification from the Department.
 - 2) If there is no discharge of stormwater to waters of the state through the area between the disturbed portions of the site and waters of the state located within 50 feet of the site. This includes situations where the permittee has implemented permanent control measures that will prevent such discharges, such as a berm or other barrier.
 - 3) Where no natural buffer exists due to preexisting development disturbances that occurred prior to the initiation of planning for the current development of the site.
 - a. Where some natural buffer exists but portions of the area within 50 feet of the waters of the state are occupied by preexisting development disturbances the permittee is required to comply with (a), (b), or (c) above.
 - 4) For linear projects where site constraints make it infeasible to implement a buffer or equivalent provided the permittee limit disturbances within 50 feet of any waters of the state and/or the permittee provides supplemental erosion and sediment controls to treat stormwater discharges from earth disturbances within 50 feet of the water of the state. The permittee must also document in the SWPPP the rationale for why it is infeasible for the permittee to implement (a), (b), or (c) and describe any buffer width retained and supplemental BMPs installed.
 - (e) Where the permittee is retaining a buffer of any size, the buffer should be measured perpendicularly from any of the following points, whichever is further landward from the water:
 - 1) The ordinary high water mark of the water body, defined as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, and/or the presence of litter and debris; or
 - 2) The edge of the stream or river bank, bluff, or cliff, whichever is applicable.
8. Slopes for disturbed areas must be identified in the SWPPP. A site map or maps defining the sloped areas for all phases of the project must be included in the SWPPP. The disturbance of steep slopes shall be minimized.
9. Manage stockpiles or land clearing debris piles composed, in whole or in part, of sediment and/or soil.
- (a) Locate the piles outside of any natural buffers zones, established under the condition above, and away from any stormwater conveyances, drain inlets, and areas where stormwater flow is concentrated;
 - (b) Install a sediment barrier along all downgradient perimeter areas;
 - (c) Divert surface flows around stockpiles to reduce and minimize erosion of the stockpile.

- (d) For piles that will be unused for 14 or more days, provide cover with appropriate temporary stabilization in accordance with Part V. BMP REQUIREMENTS, Condition 13.
 - (e) Rinsing, sweeping, or otherwise placing any soil, sediment, debris, or stockpiled product which has accumulated on pavement or other impervious surfaces into any stormwater conveyance, storm drain inlet, or water of the state is prohibited.
10. The site shall include BMPs for pollution prevention measures and shall be noted in the SWPPP. At minimum such measures must be designed, installed, implemented, and maintained to:
- (a) Minimize the discharge of pollutants from equipment and vehicle rinsing; no detergents, additives, or soaps of any kind shall be discharged. Rinse waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
 - (b) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater;
 - (c) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures, including, but not limited to, the installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers; and
 - (d) Prevent discharges from causing or contributing to an exceedance of water quality standards including general criteria.
11. Sedimentation Basins: The SWPPP shall include a sedimentation basin for each drainage area with ten or more acres disturbed at one time.
- (a) The sedimentation basin shall be sized, at a minimum, to treat a local 2-year, 24-hour storm.
 - (b) Sediment basins shall not be constructed in any waters of the state or natural buffer zones.
 - (c) Discharges from dewatering activities shall be managed by appropriate controls. The SWPPP shall include a description of any anticipated dewatering methods and specific BMPs designed to treat dewatering water.
 - 1) Appropriate controls include, but are not limited to, sediment socks, dewatering tanks, tube settlers, weir tanks, filtration systems (e.g. bag or sand filters), and passive treatment systems that are designed to remove or retain sediment.
 - 2) Erosion controls and velocity dissipation devices (e.g., check dams, riprap, and vegetated buffers) to minimize erosion at inlets, outlets, and discharge points from shall be utilized.
 - 3) Water with an oil sheen shall not be discharged and shall be marked in SWPPP.
 - 4) Visible floating solids and foam shall not be discharged.
 - (d) Until final stabilization has been achieved, sediment basins and impoundments shall utilize outlet structures or floating skimmers that withdraw water from the surface when discharging.
 - 1) Under frozen conditions, it may be considered infeasible to withdraw water from the surface and an exception can be made for that specific period as long as discharges that may contain sediment and other pollutants are managed by appropriate controls. If determined infeasible due to frozen conditions, documentation must be provided in the SWPPP to support the determination, including the specific conditions or time period when this exception applies.
 - (e) Accumulated sediment shall not exceed 50% of total volume or as prescribed in the design, whichever is less. Note in the SWPPP the locations for disposal of the material removed from sediment basins.
 - (f) Prevent discharges to the receiving stream causing excessive visual turbidity. For the purposes of this permit, visual turbidity refers to a sediment plume or other cloudiness in the water caused by sediment that can be identified by an observer.
 - (g) The SWPPP shall require the basin be maintained until final stabilization of the disturbed area served by the basin.

Where use of a sediment basin is infeasible, the SWPPP shall evaluate and specify other similarly effective BMPs to be employed to control erosion and sediment. These similarly effective BMPs shall be selected from appropriate BMP guidance documents authorized by this permit. The BMPs must provide equivalent water quality protection to achieve compliance with this permit. The SWPPP shall require both temporary and permanent sedimentation basins to have a stabilized spillway to minimize the potential for erosion of the spillway or basin embankment.

12. Soil disturbing activities on site that have ceased either temporarily or permanently shall initiate stabilization immediately in accordance with the options below. For soil disturbing activities that have been temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days:
 - (a) The permittee shall construct BMPs to establish interim stabilization; and
 - (b) Stabilization must be initiated immediately and completed within 14 calendar days.
 - (c) For soil disturbing activities that have been permanently ceased on any portion of the site, final stabilization of disturbed areas must be initiated immediately and completed within 14 calendar days.
 - 1) Allowances to the 14-day completion period for temporary and final stabilization may be made due to weather and equipment malfunctions. The use of allowances shall be documented in the SWPPP. Allowances may be determined unnecessary after review by the Department.
 - (d) Until stabilization is complete, interim sediment control shall consist of well-established and maintained BMPs that are reasonably certain to protect waters of the state from sediment pollution over an extended period of time. This may require adding more BMPs to an area than is normally used during daily operations. The types of BMPs used must be suited to the area disturbed, taking into account the number of acres exposed and the steepness of the slopes. If the slope of the area is greater than 3:1 (three feet horizontal to one foot vertical), then the permittee shall establish interim stabilization within seven days of ceasing operations on that part of the site. The following activities would constitute the immediate initiation of stabilization:
 - 1) Prepping the soil for vegetative or non-vegetative stabilization as long as seeding, planting, and/or installation of non-vegetative stabilization products takes place as soon as practicable;
 - 2) Applying mulch or other non-vegetative product to the exposed areas;
 - 3) Seeding or planting the exposed areas;
 - 4) Finalizing arrangements to have stabilization product fully installed in compliance with the deadlines for completing stabilization.
 - (e) If vegetative stabilization measures are being implemented, stabilization is considered “installed” when all activities necessary to seed or plant the area are completed. Installed does not mean established.
 - (f) If non-vegetative stabilization measures are being implemented, stabilization is considered “installed” when all such measures are implemented or applied.
 - 1) Non-vegetative stabilization shall prevent erosion and shall be chosen for site conditions, such as slope and flow of stormwater.
 - (g) Final stabilization is not considered achieved until vegetation has grown and established to meet the requirements below.
13. Prior to removal of BMPs, ceasing site inspections, and removing from the quarterly report, final stabilization must be achieved. Final stabilization shall be achieved as soon as possible once land disturbance activities have ceased. Document in the SWPPP the type of stabilization and the date final stabilization is achieved.
 - (a) The project is considered to have achieved final stabilization when perennial vegetation (excluding volunteer vegetation), pavement, buildings, or structures using permanent materials (e.g., riprap, gravel, etc.) cover all areas that have been disturbed. With respect to areas that have been vegetated, vegetation must be at least 70% coverage of 100% of the vegetated areas on site. Vegetation must be evenly distributed.
 - (b) Disturbed areas on agricultural land are considered to have achieved final stabilization when they are restored to their preconstruction agricultural use. If former agricultural land is changing to non-agricultural use, this is no longer considered agricultural land and shall follow condition (a).
 - (c) If the intended function of a specific area of the site necessitates that it remain disturbed, final stabilization is considered achieved if all of the following are met:
 - 1) Only the minimum area needed remains disturbed (i.e., dirt access roads, motocross tracks, utility pole pads, areas being used for storage of vehicles, equipment, materials). Other areas must meet the criteria above.

- 2) Permanent structural BMPs (e.g., rock checks, berms, grading, etc.) or non-vegetative stabilization measures are implemented and designed to prevent sediment and other pollutants from entering waters of the state.
- 3) Inspection requirements in Part IV. SWPPP MANAGEMENT REQUIREMENT, Condition 11 are met and documented in the SWPPP.
- (d) Winter weather and frozen conditions do not excuse any of the above final stabilization requirements. If vegetation is required for stabilization the permittee must maintain BMPs throughout winter weather and frozen conditions until thawing and vegetation meets final stabilization criteria above. Document stabilization attempts during frozen conditions in the SWPPP. Consider future freezing when removing vegetation and plan with temporary stabilization techniques before the ground becomes frozen.

VI. SITE FINALIZATION & PERMIT TERMINATION

1. Until a site is finalized, the permittee must comply with all conditions in the permit, including continuation of site inspections and reporting quarterly to the Department. To finalize the site and remove from this permit coverage, the site shall meet the following requirements:
 - (a) For any areas that (1) were disturbed during construction, (2) are not covered over by permanent structures, and (3) over which the permittee had control during the construction activities, the requirements for final vegetative or non-vegetative stabilization in Part V. BMP REQUIREMENTS, Condition 13;
 - (b) The permittee has removed and properly disposed of all construction materials, waste, and waste handling devices and has removed all equipment and vehicles that were used during construction, unless intended for long-term beyond construction phase;
 - (c) The permittee has removed all temporary BMPs that were installed and maintained during construction, except those that are intended for long-term use or those that are biodegradable; and
 - (d) The permittee has removed all potential pollutants and pollutant-generating activities associated with construction, unless needed for long-term use following the construction activities.
2. The permit may be terminated if;
 - (a) There has been a transfer of control of all areas of the site for which the current permittee is responsible under this permit to another operator, and that operator has obtained coverage under this permit;
 - (b) Active sites obtain coverage under an individual or alternative general NPDES permit, with land disturbance conditions; or
 - (c) This permit may be terminated when all projects covered under this permit are finalized. In order to terminate the permit, the permittee shall notify the Department by submitting a Request for Termination along with the final quarterly report for the current calendar quarter.

VII. REPORTING AND SAMPLING REQUIREMENTS

1. The permittee is not required to sample stormwater under this permit. The Department may require sampling and reporting as a result of illegal discharges, compliance issues related to water quality concerns, or evidence of off-site impacts from activities at a site. If such an action is needed, the Department will specify in writing the sampling requirements, including such information as location and extent. If the permittee refuses to perform sampling when required, the Department may terminate the general permit and require the facility to obtain a site-specific permit with sampling requirements.
2. Electronic Discharge Monitoring Report (eDMR) Submission System. The NPDES Electronic Reporting Rule, 40 CFR Part 127, reporting of any report required by the permit shall be submitted via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data for the NPDES program. The eDMR system is currently the only Department-approved reporting method for this permit unless specified elsewhere in this permit, or a waiver is granted by the Department. The facility must register in the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before the first report is due.
3. Permittees shall prepare a quarterly report with a list of active land disturbance sites including any off-site borrow or depositional areas associated with the construction project and submit the following information electronically as an

attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data:

- (a) The name of the project;
- (b) The location of the project (including the county);
- (c) The name of the primary receiving water(s) for each project;
- (d) A description of the project;
- (e) The number of acres disturbed;
- (f) The percent of completion of the project; and
- (g) The projected date of completion.

The quarterly report(s) shall be maintained by the permittee and readily available for review by the Department at the address provided on the application as well as submitted quarterly via the Department’s eDMR system. The permittee shall submit quarterly reports according to Table A.

Table A	Schedule for Quarterly Reporting
Activity for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

VIII. STANDARD PERMIT CONDITIONS

1. Records: The permittee shall retain copies of this general permit, the SWPPP and all amendments for the site named in the State Operating Permit, results of any monitoring and analysis, and all site inspection records required by this general permit.
 - (a) The records shall be accessible during normal business hours and retained for a period of at least three (3) years from the date of termination.
 - (b) The permittee shall provide a copy (electronic or otherwise) of the SWPPP to the Department, USEPA, or any local agency or government representative if they request a copy in the performance of their official duties within 24 hours of the request (or next working day), unless given more time by the representative.
 - (c) The permittee shall provide a copy of the SWPPP to those who are responsible for installation, operation, or maintenance of any BMP. The permittee, their representative, and/or the contractor(s) responsible for installation, operation and maintenance of the BMPs shall have a current copy of the SWPPP with them when on the project site.

2. Land Ownership and Change of Ownership: Federal and Missouri stormwater regulations [10 CSR 20-6.200(1) (B)] require a stormwater permit and erosion control measures for all land disturbances of one or more acres. These regulations also require a permit for less than one acre lots if the lot is part of a larger common plan of development or sale where that plan is at least one acre in size.
 - (a) If the permittee sells any portion of a permitted site to a developer for commercial, industrial, or residential use, this land remains a part of the common sale and the new owner must obtain a permit prior to conducting any land disturbance activity. Therefore, the original permittee must amend the SWPPP to show that the property has been sold and, therefore, no longer under the original permit coverage.
 - (b) Property of any size which is part of a larger common plan of development where the property has achieved final stabilization and the original permit terminated will require application of a new land disturbance permit for any future land disturbance activity unless the activity is by an individual residential building lot owner on a site less than one acre.
 - (c) If a portion of a larger common plan of development is sold to an individual for the purpose of building his or her own private residence, a permit is required if the portion of land sold is equal to or greater than one acre. No permit is required, however, for less than one acre of land sold.

3. Permit Transfer: This permit may not be transferred to a new owner.

4. Termination: This permit may be terminated when the project has achieved final stabilization, defined in Part VI. **SITE FINALIZATION & PERMIT TERMINATION.**
 - (a) In order to terminate the permit, the permittee shall notify the Department by submitting the form Request for Termination of Operating Permit Form MO 780-2814. The form should be submitted to the appropriate regional office or through an approved electronic system if it should become available.
 - (b) The Cover Page (Certificate Page) of the Master General Permit for Land Disturbance specifies the “effective date” and the “expiration date” of the Master General Permit. The “issued date” along with the “expiration date” will appear on the State Operating Permit issued to the applicant. **This permit does not continue administratively beyond the expiration date.**
5. Duty to Reapply: If the project or development completion date will be after the expiration date of this general permit, then the permittee must reapply to the Department for a new permit. This permit may be applied for and issued electronically in accordance with Section 644.051.10, RSMo.
 - (a) Due to the nature of the electronic permitting system, a period of time may be granted at the discretion of the Department in order to apply for a new permit after the new version is effective. Applicants must maintain appropriate best management practices and inspections during the discretionary period.
6. Duty to Comply: The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
7. Modification, Revocation, and Reopening:
 - (a) If at any time the Department determines that the quality of waters of the state may be better protected by reopening this permit, or revoking this permit and requiring the owner/operator of the permitted site to apply for a site-specific permit, the Department may revoke a general permit and require any person to obtain such an operating permit as authorized by 10 CSR20-6.010(13) and 10 CSR 20-6.200(1)(B).
 - (b) If this permit is reopened, modified, or revoked pursuant to this Section, the permittee retains all rights under Chapter 536 and 644 Revised Statutes of Missouri upon the Department’s reissuance of the permit as well as all other forms of administrative, judicial, and equitable relief available under law.
8. Other Information: Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
9. Duty to Provide Information: The permittee shall furnish to the Department, within 24 hours unless explicitly granted more time in writing, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
10. Inspection and Entry: The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
 - (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of the permit;
 - (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - (d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.

11. Signatory Requirement:

- (a) All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
- (b) The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit (including monitoring reports or reports of compliance or non-compliance) shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
- (c) The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.

12. Property Rights: This permit does not convey any property rights of any sort or any exclusive privilege.

13. Notice of Right to Appeal: If you were adversely affected by this decision, you may be entitled to pursue an appeal before the administrative hearing commission (AHC) pursuant to Sections 621.250 and 644.051.6 RSMo. To appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: <https://ahc.mo.gov>



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

STORMWATER DISCHARGES FROM
THIS LAND DISTURBANCE SITE ARE
AUTHORIZED BY THE MISSOURI
STATE OPERATING PERMIT NUMBER:

ANYONE WITH QUESTIONS OR
CONCERNS ABOUT STORMWATER
DISCHARGES FROM THIS SITE,
PLEASE CONTACT THE MISSOURI
DEPARTMENT OF NATURAL
RESOURCES AT

1-800-361-4827

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET FOR MASTER GENERAL PERMIT
MO-R100xxx**

The Federal Water Pollution Control Act [Clean Water Act (CWA)] Section 402 of Public Law 92-500 (as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the CWA). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Missouri Department of Natural Resources (Department) under an approved program operated in accordance with federal and state laws (Federal CWA and Missouri Clean Water Law Section 644 as amended). Permits are issued for a period of five (5) years unless otherwise specified.

Per 40 CFR 124.56, 40 CFR 124.8, and 10 CSR 20-6.020(1)(A)2, a Fact Sheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the permit. A Fact Sheet is not an enforceable part of an MSOP.

DEFINITIONS FOR THE PURPOSES OF THIS PERMIT:

Common Promotional Plan: A plan undertaken by one (1) or more persons to offer lots for sale or lease; where land is offered for sale by a person or group of persons acting in concert, and the land is contiguous or is known, designated, or advertised as a common unit or by a common name or similar names, the land is presumed, without regard to the number of lots covered by each individual offering, as being offered for sale or lease as part of a common promotional plan.

Dewatering: The act of draining rainwater and/or groundwater from basins, building foundations, vaults, and trenches.

Effective Operating Condition: For the purposes of this permit, a stormwater control is kept in effective operating condition if it has been implemented and maintained in such a manner that it is working as designed to minimize pollutant discharges.

Emergency-Related Project: A project initiated in response to a public emergency (e.g. earthquakes, extreme flooding conditions, tornado, disruptions in essential public services, pandemic) for which the related work requires immediate authorization to avoid imminent endangerment to human health/safety or the environment or to reestablish essential public services.

Exposed Soils: For the purposes of this permit, soils that as a result of earth-disturbing activities are left open to the elements.

Immediately: For the purposes of this permit, immediately should be defined as within 24 hours.

Impervious Surface: For the purpose of this permit, any land surface with a low or no capacity for soil infiltration including, but not limited to, pavement, sidewalks, parking areas and driveways, packed gravel or soil, or rooftops.

Infeasible: Infeasible means not technologically possible or not economically practicable and achievable in light of best industry practices.

Install or Installation: When used in connection with stormwater controls, to connect or set in position stormwater controls to make them operational.

Land Disturbance Site or Site: The land or water area where land disturbance activities will occur and where stormwater controls will be installed and maintained. The land disturbance site includes construction support activities, which may be located at a different part of the property from where the primary land disturbance activity will take place or on a different piece of property altogether. Off-site borrow areas directly and exclusively related to the land disturbance activity are part of the site and must be permitted.

Larger Common Plan of Development or Sale: A continuous area where multiple separate and distinct construction activities are occurring under one plan, including any off-site borrow areas that are directly and exclusively related to the land disturbance activity. Off-site borrow areas utilized for multiple different land disturbance projects are considered their own entity and are not part of the larger common plan of development or sale. See definition of Common Promotional Plan to understand what a 'common plan' is.

Minimize: To reduce and/or eliminate to the extent achievable using stormwater controls that are technologically available and economically practicable and achievable in light of best industry practices.

Non-structural Best Management Practices (BMPs): Institutional, educational, or pollution prevention practices designed to limit the amount of stormwater runoff or pollutants that are generated in the landscape. Examples of non-structural BMPs include picking up trash and debris, sweeping up nearby sidewalks and streets, maintaining equipment, and training site staff on stormwater control practices.

Operational: for the purposes of this permit, stormwater controls are made "operational" when they have been installed and implemented, are functioning as designed, and are properly maintained.

Ordinary High Water Mark: The line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, and/or the presence of litter and debris.

Peripheral: For the purposes of this permit, peripheral should be defined as the outermost boundary of the area that will be disturbed.

Permanently: For the purposes of this permit, permanently is defined as any activity that has been ceased without any intentions of future disturbance.

Pollution Prevention Controls (or Measures): Stormwater controls designed to reduce or eliminate the addition of pollutants to construction site discharges through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Qualified Person (inspections): A person knowledgeable in the principles and practice of erosion and sediment controls and pollution prevention who possesses the appropriate skills and training to assess conditions at the construction site that could impact stormwater quality and the appropriate skills and training to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of this permit.

Stormwater Control (also referred to as sediment/erosion controls): refers to any temporary or permanent BMP or other method used to prevent or reduce the discharge of pollutants to waters of the state.

Structural BMP: Physical sediment/erosion controls working individually or as a group (treatment train) appropriate to the source, location, and area climate for the pollutant to be controlled. Examples of structural BMPs include silt fences, sedimentation ponds, erosion control blankets, and seeding.

Temporary Stabilization: A condition where exposed soils or disturbed areas are provided temporary vegetation and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb this area.

Treatment Train: A multi-BMP approach to managing the stormwater volume and velocity and often includes erosion prevention and sediment control practices often applied when the use of a single BMP is inadequate in preventing the erosion and transport of sediment. A good option to utilize as a corrective action.

Volunteer Vegetation: A volunteer plant is a plant that grows on its own, rather than being deliberately planted for stabilization purposes. Volunteers often grow from seeds that float in on the wind, are dropped by birds, or are inadvertently mixed into soils. Commonly, volunteer vegetation is referred to as 'weeds'. This does not meet the requirements for final stabilization.

Waters of the State: Section 644.016.1(27) RSMo. defines waters of the state as, "All waters within the jurisdiction of this state, including all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two or more persons jointly or as tenants in common."

PART I – BASIC PERMIT INFORMATION

Facility Type: Industrial Stormwater; Land Disturbance
Facility SIC Code(s): 1629
Facility Description: Construction or land disturbance activity (e.g., clearing, grubbing, excavating, grading, filling, and other activities that result in the destruction of the root zone and/or land disturbance activity that is reasonably certain to cause pollution to waters of the state).

This permit establishes a Stormwater Pollution Prevention Plan (SWPPP) requirement for pollutants of concern from this type of facility or for all facilities and sites covered under this permit. 10 CSR 20-6.200(7) specifies "general permits shall contain BMP requirements and/or monitoring and reporting requirements to keep the stormwater from becoming contaminated".

Land disturbance activities include clearing, grubbing, excavating, grading, filling and other activities that result in the destruction of the root zone and/or other activities that are reasonably certain to cause pollution to waters of the state. A Missouri State Operating Permit for land disturbance permit is required for construction disturbance activities of one or more acres or for construction activities that disturb less than one acre when they are part of a larger common plan of development or sale that will disturb a cumulative total of one or more acres over the life of the project.

The primary requirement of a land disturbance permit is the development of a SWPPP which incorporates site-specific BMPs to minimize soil exposure, soil erosion, and the discharge of pollutants. The SWPPP ensures the design, implementation, management, and maintenance of BMPs in order to prevent sediment and other pollutants from leaving the site.

When it precipitates, stormwater washes over the loose soil on a construction site and various other materials and products being stored outside. As stormwater flows over the site, it can pick up pollutants like sediment, debris, and chemicals from the loose soil and transport them to nearby storm sewer systems or directly into rivers, lakes, or coastal waters.

The Missouri Department of Natural Resources is responsible for ensuring that construction site operators have the proper stormwater controls in place so that construction can proceed in a way that protects your community's clean water and the surrounding environment. One way the department helps protect water quality is by issuing land disturbance permits.

Local conditions are not considered when developing conditions for a general permit. A facility may apply for a site-specific permit if they desire a review of site-specific conditions.

PART II – RECEIVING STREAM INFORMATION

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

Per Missouri Effluent Regulations (10 CSR 20-7.015), the waters of the state are divided into seven (7) categories. This permit applies to facilities discharging to the following water body categories:

- ✓ Missouri or Mississippi River [10 CSR 20-7.015(2)]
- ✓ Lakes or Reservoirs [10 CSR 20-7.015(3)]
- ✓ Losing Streams [10 CSR 20-7.015(4)]
- ✓ Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]
- ✓ Special Streams [10 CSR 20-7.015(6)]
- ✓ Subsurface Waters [10 CSR 20-7.015(7)]
- ✓ All Other Waters [10 CSR 20-7.015(8)]

Missouri Water Quality Standards (10 CSR 20-7.031) defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's designated water uses shall be maintained in accordance with 10 CSR 20-7.031(24). A general permit does not take into consideration site-specific conditions.

MIXING CONSIDERATIONS:

This permit applies to receiving streams of varying low flow conditions. Therefore, the effluent limitations must be based on the smallest low flow streams considered, which includes waters without designated uses. As such, no mixing is allowed [10 CSR 20-7.031(5)(A)4.B.(I)(a)]. No Zone of Initial Dilution is allowed. [10 CSR 20-7.031(5)(A)4.B.(I)(b)].

RECEIVING STREAM MONITORING REQUIREMENTS:

There are no receiving water monitoring requirements recommended at this time.

PART III – RATIONALE AND DERIVATION OF EFFLUENT LIMITATIONS & PERMIT CONDITIONS

305(B) REPORT, 303(d) LIST, & TOTAL MAXIMUM DAILY LOAD (TMDL):

Section 305(b) of the Federal CWA requires each state identify waters not meeting Water Quality Standards and for which adequate water pollution controls have not been required. Water Quality Standards protect such beneficial uses of water as whole body contact, maintaining fish and other aquatic life, and providing drinking water for people, livestock, and wildlife. The 303(d) list helps state and federal agencies keep track of waters which are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed which shall include the TMDL calculation. For facilities with an existing general permit before a TMDL is written on their receiving stream, the Department will evaluate the permit and may require any facility authorized by this general permit to apply for and obtain a site-specific operating permit.

ANTI-BACKSLIDING:

A provision in the Federal Regulations [CWA Section 303(d)(4); CWA Section 402(c); 40 CFR Part 122.44(I)] requires a reissued permit to be as stringent as the previous permit with some exceptions.

- ✓ Not Applicable: All effluent limitations in this permit are at least as protective as those previously established.

ANTIDEGRADATION:

Antidegradation policies ensure protection of water quality for a particular water body on a pollutant by pollutant basis to ensure Water Quality Standards are maintained to support beneficial uses such as fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as an Outstanding National Resource Water or Outstanding State Resource Water [10 CSR 20-7.031(3)(C)]. Antidegradation policies are adopted to minimize adverse effects on water.

The Department has determined the best avenue forward for implementing the Antidegradation requirements into general stormwater permits is by requiring the appropriate development and maintenance of a SWPPP. The SWPPP must identify all reasonable and effective BMPs, taking into account environmental impacts and costs. This analysis must document why no discharge or no exposure options are not feasible at the facility. This selection and documentation of appropriate control measures will then serve as the analysis of alternatives and fulfill the requirements of the Antidegradation Rule and Implementation Procedure 10 CSR 20-7.031(3) and 10 CSR 20-7.015(9)(A)5.

Any facility seeking coverage under this permit which undergoes expansion or discharges a new pollutant of concern must update their SWPPP and select reasonable and cost effective new BMPs. New facilities seeking coverage under this permit are required to develop a SWPPP including this analysis and documentation of appropriate BMPs. Renewal of coverage for a facility requires a review of the SWPPP to ensure the selected BMPs continue to be appropriate.

- ✓ Applicable; the facility must review and maintain stormwater BMPs as appropriate.

BENCHMARKS:

When a permitted feature or outfall consists of only stormwater, a benchmark may be implemented at the discretion of the permit writer. Benchmarks require the facility to monitor and, if necessary, replace and update stormwater control measures. Benchmark concentrations are not effluent limitations. A benchmark exceedance, therefore, is not a permit violation; however, failure to take corrective action is a violation of the permit. Benchmark monitoring data is used to determine the overall effectiveness of control measures and to assist the permittee in knowing when additional corrective actions may be necessary to comply with the limitations of the permit.

- ✓ Not applicable; this permit does not contain numeric benchmarks.

BEST MANAGEMENT PRACTICES (BMPs):

Minimum site-wide BMPs are established in this permit to ensure all permittees are managing their sites equally to protect waters of the state from certain activities which could cause negative effects in receiving water bodies. While not all sites require a SWPPP because the SIC codes are specifically exempted in 40 CFR 122.26(b)(14), these BMPs are not specifically included for stormwater purposes. These practices are minimum requirements for all industrial sites to protect waters of the state. If the minimum BMPs are not followed, the facility may violate general criteria [10 CSR 20-7.031(4)]. Statutes are applicable to all permitted facilities in the state; therefore, pollutants cannot be released unless in accordance with RSMo 644.011 and 644.016 (17).

CHANGES IN DISCHARGES OF TOXIC POLLUTANT:

This special condition reiterates the federal rules found in 40 CFR 122.44(f) and 122.42(a)(1). In these rules, the facility is required to report changes in amounts of toxic substances discharged. Toxic substances are defined in 40 CFR 122.2 as "...any pollutant listed as toxic under section 307(a)(1) or, in the case of "sludge use or disposal practices," any pollutant identified in regulations implementing section 405(d) of the CWA." Section 307 of the CWA then refers to those parameters found in 40 CFR 401.15.

The permittee should also consider any other toxic pollutant in the discharge as reportable under this condition.

EFFLUENT LIMITATION GUIDELINE:

Effluent Limitation Guidelines, or ELGs, are found at 40 CFR 400-499. These are limitations established by the EPA based on the SIC code and the type of work a facility is conducting. Most ELGs are for process wastewater and some address stormwater. All are technology based limitations which must be met by the applicable facility at all times.

- ✓ The industries covered under this permit have an associated Effluent Limit Guideline (ELG) which is applicable to the stormwater discharges in this permit and is applied under 40 CFR 125.3(a).

ELECTRONIC DISCHARGE MONITORING REPORT (EDMR) SUBMISSION SYSTEM:

The U.S. Environmental Protection Agency (EPA) promulgated a final rule on October 22, 2015, to modernize CWA reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. The final rule requires regulated entities and state and federal regulators to use information technology to electronically report data required by the National Pollutant Discharge Elimination System (NPDES) permit program instead of filing paper reports. To comply with the federal rule, the Department is requiring all permittees to begin submitting discharge monitoring data and reports online.

- ✓ Applicable; this permit requires quarterly reports.

GENERAL CRITERIA CONSIDERATIONS:

In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into permits for pollutants determined to cause, have reasonable potential to cause, or to contribute to, an excursion above any water quality standard, including narrative water quality criteria. In order to comply with this regulation, the permit writer has completed a reasonable potential determination on whether discharges have reasonable potential to cause or contribute to an excursion of the general criteria listed in 10 CSR 20-7.031(4). In instances where reasonable potential exists, the permit includes limitations within the permit to address the reasonable potential. In discharges where reasonable potential does not exist, the permit may include monitoring to later determine the discharge's potential to impact the narrative criteria. Additionally, RSMo 644.076.1, as well as Standard Permit Conditions Part VIII of this permit state it shall be unlawful for any person to cause or allow any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule, or regulation promulgated by the commission.

LAND APPLICATION:

Land application, or surficial dispersion of wastewater and/or sludge, is performed by facilities to maintain a basin as no-discharge. Requirements for these types of operations are found in 10 CSR 20-6.015; authority to regulate these activities is from RSMo 644.026.

- ✓ Not applicable; this permit does not authorize operation of a surficial land application system to disperse wastewater or sludge.

LAND DISTURBANCE:

Land disturbance, sometimes called construction activities, are actions which cause disturbance of the root layer or soil; these include clearing, grading, and excavating of the land. 40 CFR 122.26(b)(14) and 10 CSR 20-6.200(3) requires permit coverage for these activities. Coverage is not required for facilities when only providing maintenance of original line and grade, hydraulic capacity, or to continue the original purpose of the facility.

- ✓ Applicable; this permit provides coverage for land disturbance activities. These activities have SWPPP requirements and may be combined with the standard site SWPPP. Land disturbance BMPs should be designed to control the expected peak discharges. The University of Missouri has design storm events for the 25 year 24 hour storm; these can be found at: http://ag3.agebb.missouri.edu/design_storm/comparison_reports/20191117_25yr_24hr_comparison_able.htm; to calculate peak discharges, the website <https://www.lmnoeng.com/Hydrology/rational.php> has the rational equation to calculate expected discharge volume from the peak storm events.

NUTRIENT MONITORING:

Nutrient monitoring is required for facilities characteristically or expected to discharge nutrients (nitrogenous compounds and/or phosphorus) when the design flow is equal to or greater than 0.1 MGD per 10 CSR 20-7.015(9)(D)8.

- ✓ This is a stormwater only permit; therefore, it is not subject to provisions found in 10 CSR 20-7.015 per 10 CSR 20-7.015(1)(C).

OIL/WATER SEPARATORS:

Oil water separator (OWS) tank systems are frequently found at industrial sites where process water and stormwater may contain oils and greases, oily wastewaters, or other immiscible liquids requiring separation. Food industry discharges typically require pretreatment prior to discharge to municipally owned treatment works. Per 10 CSR 26-2.010(2)(B), all oil water separator tanks must be operated according to manufacturer's specifications and authorized in NPDES permits per 10 CSR 26-2.010(2) or may be regulated as a petroleum tank.

- ✓ Not applicable; this permit does not authorize the operation of OWS. The facility must obtain a separate permit to cover operation of and discharge from these devices.

PERMIT SHIELD:

The permit shield provision of the CWA (Section 402(k)) and Missouri Clean Water Law (644.051.16 RSMo) provides that when a permit holder is in compliance with its NPDES permit or MSOP, they are effectively in compliance with certain sections of the CWA and equivalent sections of the Missouri Clean Water Law. In general, the permit shield is a legal defense against certain enforcement actions but is only available when the facility is in compliance with its permit and satisfies other specific conditions, including having completely disclosed all discharges and all facility processes and activities to the Department at time of application. It is the facility's responsibility to ensure that all potential pollutants, waste streams, discharges, and activities, as well as wastewater land application, storage, and treatment areas, are all fully disclosed to the Department at the time of application or during the draft permit review process. Subsequent requests for authorization to discharge additional pollutants or expanded or newly disclosed flows, or for authorization for previously unpermitted and undisclosed activities or discharges, will likely require permit modification or may require the facility be covered under a site specific permit.

PRETREATMENT PROGRAM:

This permit does not regulate pretreatment requirements for facilities discharging to an accepting permitted wastewater treatment facility. If applicable, the receiving entity (the publicly owned treatment works - POTW) must ensure compliance with any effluent limitation guidelines for pretreatment listed in 40 CFR Subchapter N per 10 CSR 20-6.100. Pretreatment regulations per RSMo 644.016 are limitations on the introduction of pollutants or water contaminants into publicly owned treatment works or facilities.

- ✓ Not Applicable; the facilities covered under this permit are not required to meet pretreatment requirements under an ELG.

PUBLIC NOTICE OF COVERAGE FOR AN INDIVIDUAL FACILITY:

Public Notice of reissuance of coverage is not required unless the facility is a specific type of facility as defined in 10 CSR 20-6.200(1). The need for an individual public notification process shall be determined and identified in the permit [10 CSR 20-6.020(1)(C)5.].

- ✓ Not applicable; public notice is not required for coverage under this permit to individual facilities. The MGP is public noticed in lieu of individual permit PN requirements.

REASONABLE POTENTIAL ANALYSIS (RPA):

Federal regulation 40 CFR Part 122.44(d)(1)(i) requires effluent limitations for all pollutants which are or may be discharged at a level which will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard. In accordance with 40 CFR Part 122.44(d)(iii) if the permit writer determines any given pollutant has the reasonable potential to cause or contribute to an in-stream excursion above the water quality standard, the permit must contain effluent limits for the pollutant.

- ✓ The permit writer reviewed industry materials, available past inspections, and other documents and research to evaluate general and narrative water quality reasonable potential for this permit. Permit writers also use the Department's permit writer's manual, the EPA's permit writer's manual (<https://www.epa.gov/npdes/npdes-permit-writers-manual>), program policies, and best professional judgment. For each parameter in each permit, the permit writer carefully considers all applicable information regarding technology based effluent limitations, effluent limitation guidelines, and water quality standards. Best professional judgment is based on the experience of the permit writer, cohorts in the Department and resources at the EPA, research, and maintaining continuity of permits if necessary. For stormwater permits, the permit writer is required per 10 CSR 6.200(6)(B)2 to consider: A. application and other information supplied by the permittee; B. effluent guidelines; C. best professional judgment of the permit writer; D. water quality; and E. BMPs.

SCHEDULE OF COMPLIANCE (SOC):

Per § 644.051, RSMo, a permit may be issued with a Schedule of Compliance (SOC) to provide time for a facility to come into compliance with new state or federal effluent regulations, water quality standards, or other requirements. Such a schedule is not allowed if the facility is already in compliance with the new requirement or if prohibited by other statute or regulation. An SOC includes an enforceable sequence of interim requirements (e.g. actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. *See also* Section 502(17) of the CWA, and 40 CFR 122.2. For new effluent limitations, the permit may include interim monitoring for the specific parameter to demonstrate the facility is not already in compliance with the new requirement. Per 40 CFR 122.47(a)(1) and 10 CSR 20-7.031(11), compliance must occur as soon as possible. If the permit provides a schedule for meeting new water quality based effluent limits, an SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

- ✓ Not Applicable: This permit does not contain a SOC.

SETBACKS:

Setbacks, sometimes called separation distances, are common elements of permits and are established to provide a margin of safety in order to protect the receiving water and other features from accidents, spills, unusual events, etc. Specific separation distances are included in 10 CSR 20-8 for minimum design standards of wastewater structures. While wastewater is considered separately from stormwater under this permit, the guides and Chapter 8 distances may remain relevant to requirements under this permit if deemed appropriate by the permittee.

- ✓ Discharge to the watersheds of a Metropolitan No-Discharge Stream (10 CSR 20-7.031 Table F) is authorized by this permit if the discharges are in compliance with 10 CSR 20-7.015(5) and 10 CSR 20-7.031(7). Discharges to these watersheds are authorized for uncontaminated stormwater discharges only.
- ✓ This permit authorizes stormwater discharges which are located in a way to allow water to be released into sinkholes, caves, fissures, or other openings in the ground which could drain into aquifers (except losing streams) per 10 CSR 20-7.015(7). It is the best professional judgment of the permit writer to allow discharges to losing streams as the effluent is stormwater only.
- ✓ This permit authorizes stormwater discharge in the watersheds of Outstanding state Resource Waters (OSRW); Outstanding National Resources Waters (ONRW), which includes the Ozark National Riverways and the National Wild and Scenic Rivers System; and impaired waters as designated in the 305(b) Report provided no degradation of water quality occurs in the OSRW and ONRW due to discharges from the permitted facility per 10 CSR 20-7.015(6)(B) and 10 CSR 20-7.031(3)(C). Additionally, if the facility is found to be causing degradation or contributing to an impairment by discharging a pollutant of concern during an inspection or through complaint investigations, they will be required to become a no discharge facility or obtain a site specific permit with more stringent monitoring and SWPPP requirements. Missouri's impaired waters can be found at <https://dnr.mo.gov/water/what-were-doing/water-planning/quality-standards-impaired-waters-total-maximum-daily-loads/impaired-waters>. Sites within 1000 feet of a OSRW, ONRW, or water impaired for sediment must operate as a no-discharge facility. These additional protections are borrowed from the USEPA 2021 draft Construction General Permit.

SLUDGE – DOMESTIC BIOSOLIDS:

Biosolids are solid materials resulting from domestic wastewater treatment meeting federal and state criteria for beneficial use (i.e. fertilizer). Sewage sludge is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works; including, but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

- ✓ This permit does not authorize discharge or land application of biosolids. Sludge/biosolids is not generated by this industry.

SLUDGE – INDUSTRIAL:

Industrial sludge is solid, semi-solid, or liquid residue generated during the treatment of industrial process wastewater in a treatment works; including, but not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment process; scum and solids filtered from water supplies and backwashed; and a material derived from industrial sludge.

- ✓ Not applicable; sludge is not generated by this industry.

SPILL REPORTING:

Any emergency involving a hazardous substance must be reported to the Department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The Department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply when the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the noncompliance reporting requirement found in Standard Conditions Part I. <https://dnr.mo.gov/waste-recycling/investigations-cleanups/environmental-emergency-response>.

Underground and above ground storage devices for petroleum products, vegetable oils, and animal fats may be subject to control under federal Spill Prevention, Control, and Countermeasure Regulation and are expected to be managed under those provisions, if applicable. Substances regulated by federal law under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) which are transported, stored, or used for maintenance, cleaning or repair shall be managed according to the provisions of RCRA and CERCLA.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k), BMPs must be used to control or abate the discharge of pollutants when: 1) Authorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) Authorized under section 402(p) of the CWA for the control of stormwater discharges; 3) Numeric effluent limitations are infeasible; or 4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites*, (Document number EPA 833-R-06-004) published by the EPA in 2007 https://www.epa.gov/sites/production/files/2015-10/documents/sw_swppp_guide.pdf, BMPs are measures or practices used to reduce the amount of pollution entering waters of the state from a permitted facility. BMPs may take the form of a process, activity, or physical structure. Additionally, in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to 1) identify sources of pollution or contamination, and 2) select and carry out actions which prevent or control the pollution of storm water discharges. Additional information can be found in *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-006; September 1992).

A SWPPP must be prepared if the SIC code for the facility is found in 40 CFR 122.26(b)(14) and/or 10 CSR 20-6.200(2). A SWPPP may be required of other facilities where stormwater has been identified as necessitating better management.

The purpose of a SWPPP is to comply with all applicable stormwater regulations by creating an adaptive management plan to control and mitigate stream pollution from stormwater runoff. Developing a SWPPP provides opportunities to employ appropriate BMPs to minimize the risk of pollutants being discharged during storm events. The following paragraph outlines the general steps the permittee should take to determine which BMPs will work to achieve the benchmark values or limits in the permit. This section is not intended to be all encompassing or restrict the use of any physical BMP or operational and maintenance procedure assisting in pollution control. Additional steps or revisions to the SWPPP may be required to meet the requirements of the permit.

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures, proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed, the facility will employ the control measures determined to be adequate to prevent pollution from entering waters of the state. The facility will conduct inspections of the BMPs to ensure they are working properly and re-evaluate any BMP not achieving compliance with permitting requirements. For example if the BMP being employed is deficient in controlling stormwater pollution, corrective action should be taken to repair, improve, or replace the failing BMP. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

The EPA has developed factsheets on the pollutants of concern for specific industries along with the BMPs to control and minimize stormwater (<https://www.epa.gov/npdes/stormwater-discharges-industrial-activities>). Along with EPA's factsheets, the International Stormwater BMP database (<https://bmpdatabase.org/>) may provide guidance on BMPs appropriate for specific industries.

For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)].

Alternative analysis evaluation of the BMPs is a structured evaluation of BMPs which are reasonable and cost effective. The alternative analysis evaluation should include practices designed to be: 1) non-degrading; 2) less degrading; or 3) degrading water quality. The glossary of the *Antidegradation Implementation Procedure* defines these three terms. The chosen BMP will be the most reasonable and effective management strategy while ensuring the highest statutory and regulatory requirements are achieved and the highest quality water attainable for the facility is discharged. The alternative analysis evaluation must demonstrate why "no discharge" or "no exposure" is not a feasible alternative at the facility. This structured analysis of BMPs serves as the antidegradation review, fulfilling the requirements of 10 CSR 20-7.031(3) Water Quality Standards and *Antidegradation Implementation Procedure*, Section II.B.

- ✓ Applicable: A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the Department with jurisdiction, incorporate control practices specific to site conditions, and provide for maintenance and adherence to the plan.

UNDERGROUND INJECTION CONTROL (UIC):

The UIC program for all classes of wells in the State of Missouri is administered by the Missouri Department of Natural Resources and approved by EPA pursuant to section 1422 and 1425 of the Safe Drinking Water Act (SDWA) and 40 CFR 147 Subpart AA. Injection wells are classified based on the liquids which are being injected. Class I wells are hazardous waste wells which are banned by RSMo 577.155; Class II wells are established for oil and natural gas production; Class III wells are used to inject fluids to extract minerals; Class IV wells are also banned by Missouri in RSMo 577.155; Class V wells are shallow injection wells; some examples are heat pump wells and groundwater remediation wells. Domestic wastewater being disposed of sub-surface is also considered a Class V well.

In accordance with 40 CFR 144.82, construction, operation, maintenance, conversion, plugging, or closure of injection wells shall not cause movement of fluids containing any contaminant into Underground Sources of Drinking Water (USDW) if the presence of any contaminant may cause a violation of drinking water standards or groundwater standards under 10 CSR 20-7.031 or other health-based standards or may otherwise adversely affect human health. If the Department finds the injection activity may endanger USDWs, the Department may require closure of the injection wells or other actions listed in 40 CFR 144.12(c), (d), or (e). In accordance with 40 CFR 144.26, the permittee shall submit a Class V Well Inventory Form for each active or new underground injection well drilled, or when the status of a well changes, to the Missouri Department of Natural Resources, Geological Survey Program, P.O. Box 250, Rolla, Missouri 65402. Single family residential septic systems and non-residential septic systems used solely for sanitary waste and having the capacity to serve fewer than 20 persons a day are excluded from the UIC requirements (40 CFR 144.81(9)).

- ✓ Not applicable; this permit does not authorize subsurface wastewater systems or other underground injection. These activities must be assessed under an application for a site specific permit. Certain discharges of stormwater into sinkholes may qualify as UIC. It is important the permittee evaluate all stormwater basins, even those holding water; as sinkholes have varying seepage rates. This permit does not allow stormwater discharges into sinkholes. The facility must ensure sinkholes are avoided in the construction process. The State's online mapping resource <https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=87ebef4af15d438ca658ce0b2bbc862e> has a sinkhole layer.

VARIANCE:

Per the Missouri Clean Water Law Section 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law Section 644.006 to 644.141 or any standard, rule, or regulation promulgated pursuant to Missouri Clean Water Law Section 644.006 to 644.141.

- ✓ Not Applicable: This permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITATIONS:

Per 10 CSR 20-2.010(78), the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant which may be discharged into the stream without endangering its water quality. Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's Technical Support Document For Water Quality-based Toxics Control (TSD) (EPA/505/2-90-001).

- ✓ Not applicable; water quality limitations were not applied in this permit.

WATER QUALITY STANDARDS:

Per 10 CSR 20-7.031(4), General Criteria shall be applicable to all waters of the state at all times, including mixing zones. Additionally, 40 CFR 122.44(d)(1) directs the Department to include in each NPDES permit conditions to achieve water quality established under Section 303 of the CWA, including state narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

Per 10 CSR 20-7.031(1)(FF), a toxicity test conducted under specified laboratory conditions on specific indicator organism; and per 40 CFR 122.2, the aggregate toxic effect of an effluent measured directly by a toxicity test. A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with, or through synergistic responses when mixed with receiving water.

- ✓ Not applicable: At this time, permittees are not required to conduct a WET test. This permit is for stormwater only.

PART IV – EFFLUENT LIMITATIONS DETERMINATION

EPA Construction General Permit (CGP)

The CGP was used to research and support best professional judgment decisions made in establishing technology-based conditions for this general permit which are consistent with national standards. The permit writer determined the standards established by the CGP are achievable and consistent with federal regulations. Additionally, the conditions reflecting the best practicable technology currently available are utilized to implement the ELG.

In this general permit, technology-based effluent conditions are established through the SWPPP and BMP requirements. Effective BMPs should be designed on a site-specific basis. The implementation of inspections provides a tool for each facility to evaluate the effectiveness of BMPs to ensure protection of water quality. Any flow through an outfall is considered a discharge. Future permit action due to permit modification may contain new operating permit terms and conditions which supersede the terms and conditions, including effluent limitations, of this operating permit.

PART V–REPORTING REQUIREMENTS

SAMPLING:

The permittee is not required to sample stormwater under this permit. The Department may require sampling and reporting as a result of illegal discharges, compliance issues related to water quality concerns or BMP effectiveness, or evidence of off-site impacts from activities at the facility. If such an action is needed, the Department will specify in writing the sampling requirements, including such information as location and extent. If the permittee refuses to perform sampling when required, the Department may terminate the general permit and require the facility to obtain a site-specific permit with sampling requirements.

REPORTING:

There are quarterly reporting requirements for MO-R100xxx land disturbance permits. Project specific information is required to be report to the Department through the eDMR system.

PART VI – RAINFALL VALUES FOR MISSOURI & SURFACE WATER BUFFER ZONES

Knowledge of the 2-year, 24-hour storm event is used in this permit for two main reasons:

- 1) The design, installation, and maintenance of effective erosion and sediment controls to minimize the discharge of pollutants.
- 2) If the seven-day inspection frequency is utilized, an inspection must occur within 48 hours after any storm event equal to or greater than a 2-year, 24 hour storm has ceased.

For site-specific 2-year, 24-hour storm event information utilize the National Oceanic and Atmospheric Administration’s National Weather Service Atlas 14 (NOAA Atlas 14) which is located at https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html. For more information visit; https://www.weather.gov/media/owp/oh/hdsc/docs/Atlas14_Volume8.pdf.

Surface Water Buffer Zones: In order to design controls that match the sediment removal efficiency of a 50-foot buffer, you first need to know what this efficiency is for your site. The sediment removal efficiencies of natural buffers vary according to a number of site-specific factors, including precipitation, soil type, land cover, slope length, width, steepness, and the types of erosion and sediment controls used to reduce the discharge of sediment prior to the buffer. For additional information;

https://www.epa.gov/sites/default/files/2017-02/documents/2017_cgp_final_appendix_g_-_buffer_reqs_508.pdf

PART VII – ADMINISTRATIVE REQUIREMENTS

On the basis of preliminary staff review and applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the permit. The proposed determinations are tentative pending public comment.

PUBLIC MEETING:

The department hosted three public meetings for this permit. The meetings were held on January 27, February 17, and March 9, 2021.

PUBLIC NOTICE:

The Department shall give public notice when a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest or because of water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and facility must be notified of the denial in writing.

The Department must give public notice of a pending permit or of a new or reissued Missouri State Operating Permit. The public comment period is a length of time not less than thirty (30) days following the date of the public notice, during which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed permit, please refer to the Public Notice page located at the front of this draft permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- ✓ The Public Notice period for this permit is started March 25, 2022 and ended April 25, 2022. Two comment letters were received.

DATE OF FACT SHEET: 03/2/2022

COMPLETED BY:

SARAH WRIGHT

MS4 & LAND DISTURBANCE PERMITTING COORDINATOR

MISSOURI DEPARTMENT OF NATURAL RESOURCES

WATER PROTECTION PROGRAM

OPERATING PERMITS SECTION - STORMWATER AND CERTIFICATION UNIT

(573) 526-1139

Sarah.wright@dnr.mo.gov, dnr.generalpermits@dnr.mo.gov