

PROJECT MANUAL

*Repair Paving, Infrastructure
Bellefontaine Habilitation Center
St. Louis, Missouri*

Designed By: Meco-Heneghan Engineers, LLC
3120 Palmyra Rd
Hannibal, MO 63401

Date Issued: July 10, 2023

Project No.: M1904-01

STATE *of* MISSOURI

OFFICE *of* ADMINISTRATION
Facilities Management, Design & Construction

SECTION 000107 - PROFESSIONAL SEALS AND CERTIFICATIONS

PROJECT NUMBER: M1904-01

MECO No: 801-001

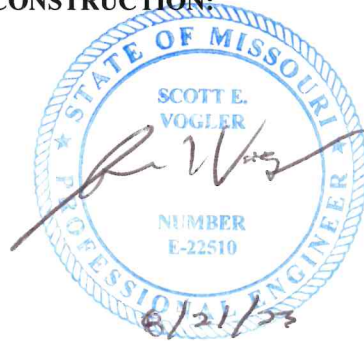
THE FOLLOWING DESIGN PROFESSIONALS HAVE SIGNED AND SEALED THE ORIGINAL PLANS AND SPECIFICATIONS FOR THIS PROJECT, WHICH ARE ON FILE WITH THE DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION:

Engineer on Site Work (Base Bid)

Scott E. Vogler, P.E.

MECO Engineering Company, Inc.

State of Mo Professional Engineer: MO/E-22510



Engineer on Structural Component for Retaining Wall (Alternates #1 and #2)

James D. Bensman, P.E., S.E.

MECO Engineering Company, Inc.

State of Mo Professional Engineer: MO/E-2001018705

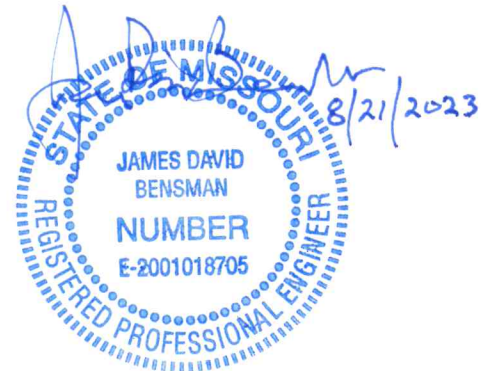


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SECTION 000115 – LIST OF DRAWINGS

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 - PRODUCTS (NOT APPLICABLE)

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> |
|-----|--|-----------------------|--------------------|
| 1. | Cover Sheet & Location Map | Sheet G-001 | 07/10/2023 |
| 2. | Sheet Layout Plan & General Notes | Sheet G-002 | 07/10/2023 |
| 3. | Project Sequencing Plan | Sheet G-003 | 07/10/2023 |
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| 8. | Parking Lot 3 Marking Plan, Profile & Sections | Sheet C-104 | 07/10/2023 |
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| 22. | West Walking Path & Sidewalk Improvement Plan | Sheet C-118 | 07/10/2023 |
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| 25. | Entrance Wall Rehabilitation | Sheet C-121 | 07/10/2023 |
| 26. | Entrance Wall Photographs & Details | Sheet C-501 | 07/10/2023 |
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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. Repair Paving, Infrastructure
Bellefontaine Habilitation Center
St. Louis, Missouri
Project No.: M1904-01

3.0 BIDS WILL BE RECEIVED:

- A. Until: 1:30 PM, Thursday, January 18, 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 five (5) parking lots, access road improvements encompassing apartments 1600 and 1800/1900 series, driveway and sidewalk modifications, interior walking trail in apartments 1600 and 1800/1900 series along with rear sidewalk replacement and improvements to Quiet Land, Quiet Drive, and Village Park Lane. Alternates have been included as part of the stone wall rehabilitation along Bellefontaine Road.
- 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.**
- C. ****NOTE:** Bidders are provided new Good Faith Effort (GFE) forms on MissouriBUYS.

5.0 PRE-BID MEETING:

- A. Place/Time: 10 AM, January 4, 2024, at 10695 Bellefontaine Road, St. Louis, MO 63137; Follow signs to the Maintenance Shop.
- 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: Meco-Heneghan Engineers, LLC, Jane Rushford, 573-221-4048, email: jrushford@mecoengineering.com
- B. Project Manager: Michael Schrader, 573-536-7105, email: michael.schrader@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.

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.

IMPORTANT REMINDER REGARDING REQUIREMENT FOR OEO CERTIFICATION

A. SECTION 002113 – INSTRUCTIONS TO
BIDDERS: Article 15.0, Section D1:

As of July 1, 2020, all MBE, WBE, and MBE/WBE contractors, subcontractors, and suppliers must be certified by the State of Missouri, Office of Equal Opportunity. No certifications from other Missouri certifying agencies will be accepted.

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 signator is other than the corporate president or vice president, the bidder must provide satisfactory evidence that the signator 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 an 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://oa.mo.gov/sites/default/files/sdvelisting.pdf>) or the Department of Veterans Affairs' directory (<https://vetbiz.va.gov/basic-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://oeo.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.

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: **Repair Paving, Infrastructure
Bellefontaine Habilitation Center
St. Louis, Missouri**

Project Number: **M1904-01**

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 **May 31st 2024**. 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 \$1,000** 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)

UNIT PRICES: The Owner accepts the following Unit Prices:

For changing specified quantities of work from those indicated by the contract drawings and specifications, upon written instructions of Owner, the following unit prices shall prevail. The unit prices include all labor, overhead and profit, materials, equipment, appliances, bailing, shoring, shoring removal, etc., to cover the finished work of the several kinds of work called for. Only a single unit price shall be given and it shall apply for either MORE or LESS work than that shown on the drawings and called for in the specifications or included in the Base Bid. In the event of more or less units than so indicated or included, change orders may be issued for the increased or decreased 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: If this Project is financed in whole or in part from Federal funds (as indicated in the Instructions to Bidders or other bid or contract documents for this Project), then this contract shall be subject to all applicable federal labor statutes, rules and regulations, including provisions of the Davis-Bacon Act, 40 U.S.C. §3141 et seq., and the “Federal Labor Standards Provisions,” as further set forth in Section 007333 – Supplementary General Conditions for Federally Funded/Assisted Construction Projects, which is incorporated into the contract by reference. Where the Missouri Prevailing Wage Law and the Davis-Bacon Act require payment of different wages for work performed under this contract, the Contractor and all Subcontractors shall pay the greater of the wages required under either law, on a classification by classification basis.

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. Unit Prices (Section 004322)
 - iii. Proposed Contractors Form (Section 004336)
 - iv. MBE, WBE, SDVE Compliance Evaluation Form(s) (Section 004337)
 - v. MBE, WBE, SDVE Eligibility Determination Form for Joint Ventures (Section 004338)
 - vi. MBE, WBE, SDVE Good Faith Effort (GFE) Determination Form (Section 004339)
 - vii. Missouri Service-Disabled Veteran Business Form (Section 004340)
 - viii. Affidavit of Work Authorization (Section 004541)
 - ix. 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 |
|------|

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NOTARY INFORMATION

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|------------------------------|
| NOTARY PUBLIC EMBOSSEER SEAL |
|------------------------------|

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|----------|
| STATE OF |
|----------|

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|-------------------------------|
| COUNTY (OR CITY OF ST. LOUIS) |
|-------------------------------|

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|--------------------------------------|
| USE RUBBER STAMP IN CLEAR AREA BELOW |
|--------------------------------------|

| |
|--------------------------------------|
| SUBSCRIBED AND SWORN BEFORE ME, THIS |
|--------------------------------------|

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|--------|
| 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 |
| LOCATION | DATE INSTALLED |

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 | ORIGINAL CONTRACT PARTICIPATION AMOUNT | PARTICIPATION AMOUNT PAID-TO-DATE (includes approved contract changes) | 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 | \$ | \$ | |

INSTRUCTIONS FOR MBE/WBE/SDVE PROGRESS REPORT

CONTRACTOR OR CONSULTANT TO FILL OUT AND REMIT WITH EACH PAY APPLICATION:

The MBE/WBE/SDVE Progress Report for the project is issued with the contract comprising values reported in the consultant's Proposal or on the successful contractor's Section 004337 Compliance Evaluation Forms.

At Initial Pay Application fill in the following:

1. Pay App No. Start with 1.
2. Fill in the Project Number and Date.
3. Enter Project Title, Project Location, and Firm.
4. Fill in the "Original Contract Sum" and "Total Contract Sum To Date" (Reference applicable Line Items on Form A of Application for Payment).
5. Indicate the Total Participation Dollar Amount from the Original Contract.
6. Select MBE, WBE, or SDVE for each Consultant/Subconsultant or Contractor/Subcontractor/Supplier.
7. Enter the "Total Amount of Subcontract", "\$ Amount (Paid-To-Date)", and Company Name.

For all subsequent Pay Applications fill in the following:

1. Pay App No.
2. If Final Pay App, check box.
3. Fill in the Project Number and Date.
4. Enter Project Title, Project Location, and Firm
5. At each Pay App fill in the "Original Contract Sum" and "Total Contract Sum To Date" (reference applicable Line Items on Form A of Application for Payment).
6. Indicate the Total Participation Dollar Amount from the Original Contract.
7. Select MBE, WBE, or SDVE for each Consultant/Subconsultant or Contractor/Subcontractor/Supplier
8. Enter the "Total Amount of Subcontract", "\$ Amount (Paid-To-Date)", and Company Name.



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 EMBOSSEY 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
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- 3.5. Operation and Maintenance Manuals
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- 6.1. Bond
- 6.2. Insurance

7. Termination or Suspension of Contract

- 7.1. For Site Conditions
- 7.2. For Cause
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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: Jane Rushford
Meco-Heneghan Engineers, LLC
3120 Palmyra Rd
Hannibal, MO 63401
Telephone: 573-221-4048
Email: jrushford@mecoengineering.com

Construction Representative: Mike Howard
Division of Facilities Management, Design and Construction
119 Olympic Way
St. Peters, MO 63376
Telephone: 636-524-8503
Email: mike.howard@oa.mo.gov

Project Manager: Michael Schrader
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: 573-536-7105
Email: michael.schrader@oa.mo.gov

Contract Specialist: Mandy Roberson
Division of Facilities Management, Design and Construction
301 West High Street, Room 730
Jefferson City, Missouri 65101
Telephone: 573-522-0074
Email: mandy.roberson@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 1 complete sets of drawings and specifications at no charge.
- B. The Owner will furnish the Contractor with approximately 1 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.

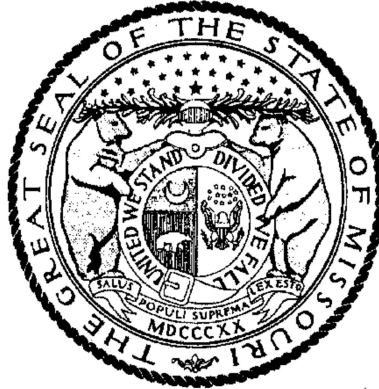
5.0 SAFETY REQUIREMENTS

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

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

Annual Wage Order No. 30

Section 100
ST. LOUIS COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by _____

Todd Smith, Director
Division of Labor Standards

Filed With Secretary of State: _____ **March 10, 2023**

Last Date Objections May Be Filed: **April 10, 2023**

Prepared by Missouri Department of Labor and Industrial Relations

| OCCUPATIONAL TITLE | **Prevailing Hourly Rate |
|------------------------------|--------------------------|
| Asbestos Worker | \$66.97 |
| Boilermaker | \$41.15* |
| Bricklayer | \$62.54 |
| Carpenter | \$61.56 |
| Lather | |
| Linoleum Layer | |
| Millwright | |
| Pile Driver | |
| Cement Mason | \$58.25 |
| Plasterer | |
| Communications Technician | \$62.85 |
| Electrician (Inside Wireman) | \$73.29 |
| Electrician Outside Lineman | \$58.76 |
| Lineman Operator | |
| Lineman - Tree Trimmer | |
| Groundman | |
| Groundman - Tree Trimmer | |
| Elevator Constructor | \$96.60 |
| Glazier | \$65.67 |
| Ironworker | \$67.11 |
| Laborer | \$52.47 |
| General Laborer | |
| First Semi-Skilled | |
| Second Semi-Skilled | |
| Mason | \$50.74 |
| Marble Mason | |
| Marble Finisher | |
| Terrazzo Worker | |
| Terrazzo Finisher | |
| Tile Setter | |
| Tile Finisher | |
| Operating Engineer | \$67.06 |
| Group I | |
| Group II | |
| Group III | |
| Group III-A | |
| Group IV | |
| Group V | |
| Painter | \$51.81 |
| Plumber | \$75.30 |
| Pipe Fitter | |
| Roofer | \$56.75 |
| Sheet Metal Worker | \$72.05 |
| Sprinkler Fitter | \$78.94 |
| Truck Driver | \$41.15* |
| Truck Control Service Driver | |
| Group I | |
| Group II | |
| Group III | |
| Group IV | |

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

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

Heavy Construction Rates for
ST. LOUIS County

Section 100

| OCCUPATIONAL TITLE | **Prevailing Hourly Rate |
|-------------------------------|--------------------------|
| Carpenter | \$62.80 |
| Millwright | |
| Pile Driver | |
| Electrician (Outside Lineman) | \$58.76 |
| Lineman Operator | |
| Lineman - Tree Trimmer | |
| Groundman | |
| Groundman - Tree Trimmer | |
| Laborer | \$53.14 |
| General Laborer | |
| Skilled Laborer | |
| Operating Engineer | \$67.79 |
| Group I | |
| Group II | |
| Group III | |
| Group IV | |
| Truck Driver | \$46.49 |
| 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 the repairing paving/infrastructure and rehabilitation of stone wall at Bellefontaine Habilitation Center.
- B. The Scope of Work includes five (5) parking lots, access road improvements encompassing apartments 1600 and 1800/1900 series, driveway and sidewalk modifications, interior walking trail in apartments 1600 and 1800/1900 series along with rear sidewalk replacement and improvements to Quiet Land, Quiet Drive and Village Park Lane. Alternates have been included as part of the stone wall rehabilitation along Bellefontaine Road.
 - 1. Project Location: 10695 Bellefontaine Road, St. Louis, Missouri.
 - 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.
- C. Contract Documents, dated July 10, 2023 were prepared for the Project by MECO-Heneghan Engineers, LLC, 400 N. 5th Street, Suite 107, St. Charles, Missouri.
- D. The Work consists of, but is not limited to removing pavement, milling, reconstruction, resurfacing, rehabilitation of driveways, trail, sidewalks and if Alternates are awarded then repairing/tuck pointing stone wall and all items incidental to the completion of work according to the plans and specifications.
- E. A Project Sequencing Plan and Traffic Control Plan have been provided as a guideline with the requirements necessary for access, safety, and emergency vehicles. The Contractor will be required to submit both a Traffic Control Plan and Project Sequencing Plan for approval by BHC prior to any work. The Contractor will be responsible to notify the Owner's Representative, Mike Tyler at 314-264-0725, 24 hours in advance of each sequence of work.
- F. The Contractor will be responsible for asphalt testing prior to delivery and application to adhere to the specifications.
- G. The Contractor will also be responsible for concrete testing as part of this project as stated in Section 033000.
- H. The Contractor shall be responsible for those areas within the plans that have tight grades to ensure that proper drainage is addressed. This is critical for the Contractor to check his grades before asphalt is laid and during the application of the asphalt. The final product shall provide sufficient positive flow of stormwater from the road to the point of outlet/discharge.
- I. The proposed project will disturb one (1) surface acre or more of land. The State of Missouri has a General Operating Permit which covers construction or land disturbance activities associated with stormwater runoff from construction sites. A copy of this

permit has been enclosed following the specifications. The Contractor is responsible for incorporating erosion control measures that will be a part of the Storm Water Pollution Prevention Plan (SWPPP). The Contractor shall also be responsible for the development of the site specific SWPPP and shall maintain/monitor the site during rainfall events as well as to ensure all erosion control measures stay in place to re-establish ground cover. Insert additional paragraphs for other major items of work.

- J. The Work will be constructed under a single prime contract as a lump sum (LS) base bid with unit price provided as requested and a lump sum (LS) Alternates #1 (Stone Wall Rehabilitation – Specific Locations) and #2 (Tucking Pointing of the Stone Wall, as defined on the Bid Form.

1.3 CONTRACTOR USE OF PREMISES

- A. General: During the construction period the Contractor shall have partial use as directed of the premises for construction operations, including use of the site. The Contractor's use of the premises 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.
 - 3. The Contractor will be responsible to adhere to the approved Traffic Control and Sequencing Plan.
 - 4. A designated parking area has been provided and noted on the Plans, for Contractor's vehicles and trucks during the duration of this project.

1.4 OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: The Owner will occupy the site and existing buildings during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate owner usage. Perform the Work so as not to interfere with the Owner's operations.

1.5 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 Contract Change.
- B. Types of allowances include the following:
 - 1. Unit Price allowances.
 - 2. Weather allowances.
- C. Related Sections include the following:
 - 1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Contract Changes 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 Contract Change time extension will be executed for “bad weather” days, as defined above, encountered during the remainder of the Project.

1.4 UNIT PRICE ALLOWANCES

- A. Contractor's costs associated with the requested benchmark prices are part of the base bid lump sum. The unit prices as requested for both unsuitable subsurface conditions and subgrade failure to address the cost associated with materials, handling, labor, installation, overhead and profit. Should these items be encountered beyond the listed quantities, a Change Order would be incorporated into the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

- A. Weather Allowance: Included within the working days completion period for this Project is ten (10) “bad weather” days.

END OF SECTION 012100

SECTION 012200 – UNIT PRICES

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.
- B. Unit Prices to be included as a component to the Base Bid for possible unsuitable subsurface conditions and subgrade failure.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Unit Prices.
- B. Related Sections include the following:
 - 1. Division 1 Section "Allowances" for procedures for using Unit Prices to adjust quantity allowances.
 - 2. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Contract Changes.
 - 3. Division 0 Section "Bid Form" for procedures for measurement and payment for lump sum Base Bid, unit price items, and lump sum Alternate #1 and Alternate #2.

1.3 DEFINITIONS

- A. Unit Price is [an amount proposed by bidders, stated on the Bid Form Attachment 004113] a price per unit of measurement for materials or services added to the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased.

1.4 PROCEDURES

- A. Unit Prices include all necessary material plus cost for delivery, installation, insurance, taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of Unit Prices. Methods of measurement and payment for Unit Prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of Work in-place that involves use of established Unit Prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of Unit Prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each Unit Price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

- A. Unit Price No. 1 – Unsuitable Subsurface Conditions
 - 1. Description: Unsuitable subsurface conditions are not anticipated for the reconstruction of roads or parking for this project, but soil probes were not completed. A unit price is requested by the Bidder to be used as a benchmark should this be encountered and will be addressed with a Change Order to the Contract, according to Division 31, Section 312300, Excavating, Filling and Grading, 3.1 D.
 - 2. Unit of Measurement: Cubic Yard
 - 3. Base Bid Quantity: 50 Cubic Yards

- B. Unit Price No. 2 – Subgrade Failure
 - 1. Description: Subgrade failure has been identified on the Plans. However, additional or extended subgrade failure may be more evident at the time this project is put out to bid. A unit price is requested by the Bidder to be used as a benchmark should additional reconstruction of the roads or parking be determined beyond what is outlined on the Plans and will be addressed with a Change Order to the Contract. Refer to Division 32, Section 321113 for Subgrade Failed Areas that has been made part of the original base bid.
 - 2. Unit of Measurement: Square Yard
 - 3. Base Bid Quantity: 9,984 Square Yards

END OF SECTION 012200

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: Stone Wall Rehabilitation (Specific Locations)
- B. Alternate No. 2: Tuck Point Stone Wall

END OF 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 0, Section 007213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
 - 2. Division 0, Section 007213, Article 4.0 "Changes in the Work" for Contract Change requirements.

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.
- C. Responses from the Designer will not change any requirement of the Contract Documents. In the event the Contractor believes that a response to a RFI will cause a change to the requirements of the Contract Document, the Contractor shall give written notice to the Designer requesting a Contract Change for the work. Failure to give such written notice within ten (10) working days, shall waive the Contractor's right to seek additional time or cost under Article 4, "Changes in the Work" of the General Conditions.

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 Contract Change Detailed Breakdown form. Subcontractors may use the appropriate Contract Change 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 CONTRACT CHANGE PROCEDURES

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REFERENCED FORMS

- A. The following forms can be found on our website at <https://oa.mo.gov/facilities/vendor-links/architectengineering-forms> or <https://oa.mo.gov/facilities/vendor-links/contractor-forms>:
 - 1. Request for Information
 - 2. Designer's Supplemental Instructions
 - 3. Request for Proposal
 - 4. Contract Change
 - 5. Contract Change Detailed Breakdown – SAMPLES

6. Contract Change Detailed Breakdown – General Contractor (GC)
7. Contract Change Detailed Breakdown – Subcontractor (SUB)

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. Coordination Drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
- B. Each Contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific Contractor.
- C. 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.
- B. Coordination: Each Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each Contractor shall coordinate its operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other Contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components.

- C. 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. Prepare similar memoranda for Owner and separate Contractors if coordination of their Work is required.

- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other Contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 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. Startup and adjustment of systems.
 - 7. Project Closeout activities.

- E. 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. Refer to Section 013300 for required Submittals.

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, outline of progress meetings and information necessary for submitting payment requests will be discussed and materials distributed along with any other pertinent information.

- B. Coordination of submittals and drawings as applicable shall be executed prior to commencement of work.

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 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.
- 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.

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. Samples
 - 4. Quality Assurance Submittals
 - 5. Construction Photographs
 - 6. Operating and Maintenance Manuals
 - 7. 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 each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. 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 36"x48".

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

- A. The Contractor shall comply with the General Conditions, Article 3.2.
- B. The Contractor shall submit full-size, fully fabricated samples, cured and finished as specified, and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 - 1. The Contractor shall mount or display samples in the manner to facilitate review of qualities indicated. Prepare samples to match the Designer's sample including the following:
 - a. Specification Section number and reference
 - b. Generic description of the Sample
 - c. Sample source
 - d. Product name or name of the Manufacturer
 - e. Compliance with recognized standards
 - f. Availability and delivery time
 - 2. The Contractor shall submit samples for review of size, kind, color, pattern, and texture. Submit samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show approximate limits of the variations.

- b. Refer to other Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - c. Refer to other Sections for samples to be returned to the Contractor for incorporation in the Work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of sample submittals.
 - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
3. Field samples are full-size examples erected onsite to illustrate finishes, coatings, or finish materials and to establish the Project standard.
- a. The Contractor shall comply with submittal requirements to the fullest extent possible. The Contractor shall process transmittal forms to provide a record of activity.

1.7 QUALITY ASSURANCE DOCUMENTS

- A. The Contractor shall comply with the General Conditions, Article 3.2
- B. The Contractor shall submit quality control submittals including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- C. 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.
- D. 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.

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, as noted on the following page.

| SPEC SECTION | TITLE | CATEGORY |
|---------------------|---|--------------------------------|
| 013200 | Schedules | Construction Schedule |
| 013200 | Schedules | Schedule of Values |
| 013200 | Schedules | List of Subcontractors |
| 013200 | Schedules | Major Material Suppliers |
| 033000 | Portland Cement Concrete | Product Data |
| 033000 | Portland Cement Concrete | Certification |
| 040140 | Maintenance of Stone Assembly (Alternate) | Product Data |
| 040140 | Maintenance of Stone Assembly (Alternate) | Sample |
| 040140 | Maintenance of Stone Assembly (Alternate) | Mock up |
| 312500 | Sedimentation, Erosion Control | Product Data |
| 313210 | Lawns and Grasses | Product Data |
| 320117.61 | Bituminous Pav. Crack Seal | Product Data |
| 320117.61 | Bituminous Pav. Crack Seal | Certification |
| 321123 | Aggregate Base Course | Certification |
| 321213.13 | Tack Coat | Product Data |
| 321213.13 | Tack Coat | Certification |
| 321216.13 | Plant Mix Bit. Pavement | Product Data |
| 321216.13 | Plant Mix Bit. Pavement | Certification |
| 321236.17 | Asphalt Base Pav. Sealer | Product Data |
| 321313 | Rigid Pavement | Product Data |
| 321313 | Rigid Pavement | Certification |
| 321313 | Rigid Pavement | Test Report |
| 321373 | PCC Pavement Sealant | Product Data |
| 321373 | PCC Pavement Sealant | Certification |
| 321623.00 | ADA Truncated Domes | Product Data |
| 321623.00 | ADA Truncated Domes | Shop Drawings |
| 321623.00 | ADA Truncated Domes | Test Report |
| 321623.00 | ADA Truncated Domes | Operation / Maintenance Manual |
| 321713 | Parking Blocks | Product Data |
| 321723 | Pavement Markings | Product Data |
| 321723 | Pavement Markings | Certification |

END OF SECTION 013300

SECTION 013513.19 - SITE SECURITY AND HEALTH REQUIREMENTS (DMH)

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 general Institution rules.
- B. This Section includes requirements for infection control in environments that Clients are housed in, dine in, or participate in program activities in or adjacent to the Scope of Work area:
 - 1. The Contractor shall have the applicable measures specified below in-place any time demolition or construction activities occur in occupied or non-occupied project work areas.
 - 2. The Contractor shall complete all specified cleaning procedures and receive clearance from the Construction Representative prior to removing any barriers and other precautionary measures – even for areas that the Clients do not occupy during construction.

1.3 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.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL RULES OF THE INSTITUTION

- A. All workers and supervisors employed by the Contractor or any Subcontractors shall be made aware that the buildings and grounds are part of a Department of Mental Health facility and that:
 - 1. The Residents or Patients are to be treated with dignity.
 - 2. Construction activities shall not interfere with normal facility operation, except as otherwise arranged with and approved by the Facility Authorities.
 - 3. Access to the Facility, Residents, and Staff by Emergency Responders shall not be compromised at any time.

4. Fire exits, alarm systems, and sprinkler systems shall remain fully operational at all times unless written approval is received from the Construction Representative and the appropriate Facility Representative at least (24) hours in advance. The Contractor shall submit a written time schedule for any proposed shutdowns.
 5. Smoking is not permitted in State-operated buildings. Smoking on grounds shall be in accordance with local Facility regulations and only as approved by Facility Management.
 6. Intoxicating beverages or narcotics shall not be brought upon the premises nor shall Contractor's personnel be under the influence of these substances while on the premises.
 7. Explosives or firearms and other weapons shall not be allowed onsite.
 8. Keys shall not be left in unattended vehicles. Vehicles shall be locked when not in use.
 9. The Residents shall not be photographed. Maintaining confidentiality of the Residents shall be required.
- B. Because of the persistent risk that Residents or Patients may cause harm to themselves or others, extreme caution and special care must be taken in the interest of safety.
1. Materials, tools, and construction apparatus including ropes, ladders, and flammable liquids shall not be left unattended during working hours and shall be securely stored during non-working hours. Secure storage includes lockable cabinets, rooms, trailers, and rigid fenced areas. The location and use of exterior storage areas shall be approved by the Construction Representative and Facility Management prior to their use.
 2. An inventory of tools, equipment, and materials intended to be left unsecured must be submitted to and approved by the Construction Representative in advance.
 3. Any missing tools, equipment, or material must be immediately reported to the Construction Representative and Facility Management. Unattended or unsecured tools, equipment, or material that poses a potential risk may be confiscated by Facility Staff and returned after completion of the appropriate request documents by the Contractor.
 4. Access to construction areas must be controlled at all times. Appropriate barriers must be erected to secure trenches, pits, wiring, etc.
 5. Material Safety Data Sheets, or their equivalent, shall be provided to the Construction Representative for all hazardous materials to be brought onsite at least a day before their delivery.
 6. Construction debris and trash must be securely stored in approved containers or removed from the site at least daily.
- C. If the safety of Residents or Staff is jeopardized because Safety Guidelines are not properly observed, the Facility Representative will notify the Construction Representative, who may stop the Work until the situation is resolved. In such case, the Work will resume only after the unsafe conditions have been corrected and the Contractor is notified by the Construction Representative to resume the Work.

3.2 ACCESS TO THE SITE

- A. The Contractor shall coordinate with the Facility and Construction Representative to establish a schedule for working hours. Normal working hours for this Facility are 7:30AM to 4:00PM Monday through Friday. Working hour changes or overtime are to be requested and approved (48) hours in advance. The need for emergency overtime shall be reported to the Construction Representative as soon as it is evident that overtime is needed.
- B. The Contractor shall provide the name and phone number of the individual who is in charge

onsite and who can be contacted in case of an emergency. This individual must maintain a current list of names and addresses of all project construction personnel and to furnish this list to the Construction Representative or Facility Representative upon request.

- C. All construction personnel shall be identified to the Facility Representative and, when the Facility Representative feels it is necessary, they will be issued identification cards.

3.3 HEALTH AND TRAFFIC CONTROLS

- A. Take all reasonable and necessary measures to reduce air and water pollution by any material or equipment used during construction. Keep volatile wastes in approved covered containers. Do not dispose of volatile wastes or oils in storm or sanitary drains.
- B. Keep project area in a neat, clean, orderly, and safe condition at all times. Immediately remove all waste materials. Do not allow trash or rubbish to accumulate. Provide approved onsite containers for collection of trash and rubbish and dispose of it at frequent intervals during progression of the Work.
- C. No burning will be permitted on the grounds.
- D. Conduct all construction-related activities and management of debris to ensure minimum interference with roadways, streets, walks, utilities, and adjacent facilities.
- E. Do not obstruct streets, driveways, walks, or use facilities without permission from the Facility Representative.
- F. No driver shall exceed the Facility speed limit of 5mph.

3.4 SPECIFICATION OF REQUIRED INFECTION CONTROL PRECAUTIONS BY CLASS

- A. The Facility Contact or the DMH Capital Improvements Administrator will help you determine which Class applies to this particular project.
- B. Class I is for inspection and non-invasive type activities. These include, but are not limited to, the removal of ceiling tiles for visual inspection (1 tile per 50SqFt, painting without sanding, wall covering, electrical trim work, minor plumbing, and activities which do not generate dust or require cutting of walls or access to ceilings other than for visual inspection.
 - 1. Class I Contractor shall perform the following precautionary measures during the project:
 - a. Execute work by methods to minimize raising dust from construction operations.
 - b. Immediately replace a ceiling tile displaced for visual inspection.
 - 2. Class I Contractor shall perform the following measures upon completion of the project.
 - a. No work is required.
- C. Class II is for work that generates minimal to a high level of dust, requires demolition, or

removal of any fixed building components or assemblies. Work of this type includes, but is not limited to, installation of telephone and computer cabling, access to chase spaces, cutting of walls or ceiling where dust migration can be controlled, sanding of walls for painting or wall covering, removal of floor coverings, ceiling tiles and casework, new wall construction, minor duct work, electrical or plumbing work above ceilings, and any activity that cannot be completed within a single work shift.

1. Class II Contractor shall perform the following precautionary measures during the project:
 - a. Provide active means to prevent airborne dust from dispersing into the atmosphere.
 - b. Water mist work surfaces to control dust while cutting.
 - c. Seal unused doors with duct tape.
 - d. Block off and seal air vents.
 - e. Place dust mat at entrance and exit of work area.
 - f. Remove or isolate HVAC system in areas where work is being performed.
2. Class II Contractor shall perform the following measures upon completion of the project:
 - a. Wipe work surfaces with disinfectant.
 - b. Contain construction waste before transport in tightly covered containers.
 - c. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area.
 - d. Remove isolation of HVAC system in areas where work was performed.

D. Class III is for major demolition and construction projects. Work includes, but is not limited to, activities which require consecutive work shifts, heavy demolition, the removal of a complete cabling system, and new construction.

1. Class III Contractor shall perform the following precautionary measures during the project:
 - a. Remove or isolate HVAC system in area where work is being done to prevent contamination of duct system including block off and seal air vents.
 - b. Complete all critical barriers, i.e., drywall, plywood, and plastic to seal area from non-work area or implement control cube method (use cart with plastic covering and sealed connection to worksite with HEPA vacuum for vacuuming prior to exit) before construction begins.
 - c. Maintain negative air pressure within worksite utilizing HEPA equipped air filtration units.
 - d. Place dust mat at entrance and exit of work area.
 - e. Contain construction waste before transport in tightly covered containers.
 - f. Cover transport receptacles or carts. Tape covering unless solid lid.
2. Class III Contractor shall perform the following measures upon completion of the project:
 - a. Do not remove barriers from work area until completed project is inspected by the Construction Representative and a Representative of the Facility's Safety and Inspection Control Section.
 - b. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction.

- c. Vacuum work area with HEPA filtered vacuums.
- d. Wet mop area with disinfectant.
- e. Remove isolation of HVAC system in areas where work is being performed.

3.5 SECURITY CLEARANCES AND RESTRICTIONS

A. FMDC CONTRACTOR BACKGROUND AND ID BADGE PROCESS

- 1. All employees of an OA/FMDC contractor (or subcontractor performing work under an OA/FMDC contract) are required to submit a fingerprint check through the Missouri State Highway Patrol (MSHP) and the FBI enabling OA/FMDC to obtain state and national criminal background checks on the employees, unless stated otherwise in the Contractor's contract.
- 2. 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.
- 3. 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 OA/FMDC Authorization for Release of Information Confidentiality Oath 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/facilities/facilities-operations/security-information/fmdc-contractor-background-and-id-badge>
- 4. Fingerprints and Authorization for Release of Information Confidentiality Oath form are valid for one (1) year and must be renewed annually. Changing or adding locations may result in additional required documentation. Certain employees may be required to be fingerprinted more frequently. OA/FMDC reserves the right to request additional background checks at any time for any reason.

- B. The Contractor shall notify FMDC via email to FMDCSecurity@oa.mo.gov within 48 hours of anyone severing employment with their company.

3.6 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 013513.19

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. Support facilities include, but are not limited to, the following:
 - 1. Field offices and storage sheds
- C. Security and protection facilities include, but are not limited to, the following:
 - 1. Barricades, warning signs, and lights
 - 2. Environmental protection

1.3 QUALITY ASSURANCE

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

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 signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sized and thicknesses indicated.
 - 2. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8” (16mm) thick exterior plywood.

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. 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.
- C. 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. 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.
- B. 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.

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: Field office is not required.
- C. Construction Parking: Parking at the site will be provided in the areas designated at the Pre-Construction Meeting.
- D. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 2 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations, and construction free of water.
- E. Project Identification and Temporary Signs: Prepare project identification and other signs of size indicated. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
 - 1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
 - 2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.
- F. 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.
 - 1. Store combustible materials in containers in fire-safe locations.
 - 2. 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.
- B. 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.
- C. 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 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.

END OF SECTION 015000

SECTION 015526 -TRAFFIC CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. This work shall consist of furnishing and installing traffic control devices as required to protect the public, employees and to protect the work throughout the duration of the project as directed by the Owner's Representative.
- B. The Contractor will be responsible to submit a traffic control plan that is approved by Bellefontaine Rehabilitation Center prior to any work.
- C. Access shall be maintained to drives unless permission is granted by the Owner's Representative for a temporary closure. The Contractor shall provide the Owner's Representative 72 hours notice prior to closure.
- D. The Contractor shall provide a contact, responsible for 24-hour maintenance of signage and traffic control devices. Provide the contact's telephone number(s) to Owner's Representative.

PART 2 - PRODUCTS

2.1 MATERIALS DESCRIPTION

- A. The materials used for traffic control shall include signage, cones, barricades, flashing lights, and other traffic control devices shall conform to the "Manual of Uniform Traffic Control Devices" (MUTCD).

PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall install, maintain, clean and relocate the traffic control devices as the work progresses. Any device that becomes unreadable or inoperable shall be repaired or replaced with 24 hours of notification by the Owner or Owner's Representative.
- B. Signs and barricades shall be covered, removed or relocated as their necessity ceases to exist. The temporary traffic control devices shall be removed at the end of the project.
- C. The Contractor shall add to the number and type of traffic control devices as required to adequately protect the public, employees and the work as he considers necessary or as directed by the Owner's Representative.
- D. The Contractor shall coordinate the stages of construction and traffic control plan with the Owner's Representative. The contractor's traffic control plan shall protect the public, employees and work during daytime and nighttime conditions. During periods of no work, the Contractor shall provide Type 2 Barricades with Flashing Lights at any closed location. Signage for specific construction operations is not listed, but shall be provided by the Contractor in accordance with MUTCD.
- D. The Contractor shall give written notice to the Owner's Representative if any accident, pedestrian or vehicular, has occurred on the project. The Contractor shall provide any law enforcement reports of accidents on the project to the Owner's Representative.
- F. The Contractor shall keep closers to a minimum and closers shall be subject to the Owner's Representative approval.

END OF SECTION 015526

SECTION 017123.13 - CONSTRUCTION LAYOUT

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Construction layout and staking.
- B. Drawings and General Provisions of contract apply to this section.

1.2 GENERAL

- A. The contractor will provide construction staking as herein described.
- B. Owner will provide control information for construction staking. The Contractor is responsible for all control staking of the Project.

PART 2 - PRODUCTS

N/A

PART 3 - EXECUTION

3.1 GENERAL

- A. Contractor is responsible to protect control points. The Owner's Representative will provide re-establishment of control. The cost of re-establishment may be deducted from the contract.

END OF SECTION 017123.13

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.

3.2 FINAL CLEANING

- A. 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. 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.
- B. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.
- C. 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

DIVISION 3 - CONCRETE

SECTION 033000 - PORTLAND CEMENT CONCRETE

1.0 GENERAL:

A. This section of the specifications covers the materials, methods of construction, and requirements necessary to complete the Portland Cement Concrete work as indicated on the Drawings or as specified herein.

B. SUBMITTALS:

1. Concrete Mix Design
2. Portland Cement
3. Fine Aggregate Gradation
4. Course Aggregate Gradation
5. Admixtures
6. Reinforcing Steel
7. Pre-molded Expansion Joint
8. Concrete Adhesive
9. Curing Compound
10. Shop Drawings
 - a) Above as required by project and further identified in the below sections.

1.1 TESTING AGENCY:

A. Observation and testing will be performed by a firm approved by the Owner and paid for by the Contractor.

C. Mix Design Submittals: Prior to beginning the work and within 14 days following the notice to proceed, the Contractor shall submit to the Owner's Representative, for review, previous independent laboratory generated data detailing performance (measures of performance as defined below) of the proposed mix design. Contractor shall also provide certification that materials used and their proportions are to be essentially unchanged from the mixture for which the data was generated. If independent laboratory data is not available, the proposed mix design shall be checked by an independent laboratory acceptable to the Owner's Representative. All costs related to such testing shall be paid for by the Contractor. Since laboratory trial batches require 35 calendar days to complete, the Contractor may consider testing more than one mix design for each class of concrete. Include the following information for each mix design:

1. Water/cement materials ratio
2. Slump as per ASTM C 143
3. Air content as per ASTM C 231 (pressure method), or ASTM C 173 (volumetric method)
4. Unit weight of concrete as per ASTM C 138
5. Compressive strength at 3, 7, and 28 days per ASTM C 39
6. Shrinkage (length change) as measured in accordance with Section 1.01 - Testing Agency, Paragraph C. - Shrinking Testing Procedure

D. Shrinkage Testing Procedure: Testing and reporting shall conform to the latest ASTM C 157-93 with the following modifications:

1. Wet cure specimens for a period of 7 days (including the period of time the specimens are in the mold). Wet cure may be achieved either through storage in a moist cabinet or room in accordance with ASTM C 511, or through storage in lime saturated water.
 2. Slump of concrete for testing shall match job requirements and need not be limited to restrictions as stated in ASTM C 157 Section 7.4.
 3. Report results in accordance with ASTM C 157 at 0, 7, 14, and 28 days of drying.
- E. Test of cement and aggregates shall be performed to ensure conformance with specification requirements. Manufacturer's certification that cement materials meet specification requirements and results of manufacturer's own material tests will be acceptable in lieu of tests by inspection and testing firm. Aggregate testing shall be performed by independent inspection and testing firm, for compliance with ASTM C33, including limits for deleterious substances, grading and physical property requirements.
- F. Field quality control tests are specified in Part 3 of this section.

1.2 REFERENCE STANDARDS:

- A. ACI 301 - Specification for Structural Concrete for Buildings.
- B. ACI 340 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- C. ACI 305 - Recommended Practice for Hot Weather Concreting.
- D. ACI 306 - Recommended Practice for Cold Weather Concreting.
- E. ACI 318 - Building Code Requirements for Reinforced Concrete.
- G. ASTM C33 - Concrete Aggregates.
- H. ASTM C39 - Compressive Strength of Cylindrical Concrete Specimens.
- I. ASTM C94 - Ready-Mixed Concrete.
- J. ASTM C138 - Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.
- K. ASTM C143 - Slump of Portland Cement Concrete.
- L. ASTM C150 - Portland Cement.
- M. ASTM C157-93 - Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
- N. ASTM C171 -Sheet Materials for Curing Concrete.
- O. ASTM C173 - Air Content of Freshly Mixed Concrete (Volumetric Method).
- P. ASTM C231 - Air Content of Freshly Mixed Concrete (Pressure Method).
- Q. ASTM C260 - Air Entraining Admixtures for Concrete.
- R. ASTM C309 - Liquid Membrane - Forming Compounds for Curing Concrete.

S. ASTM C494 - Chemical Admixtures for Concrete.

1.3 SHOP DRAWINGS

A. Shop drawings shall be submitted in accordance with the General Conditions and General Requirements. The Contractor shall furnish certified mill tests for all bars and shall submit duplicate copies of the bar drawings and schedules for preliminary checking and copies for final approval as specified in the General Conditions and General Requirements. Bending details shall conform to the standards of the Reinforcing Steel Institute.

2.0 MATERIALS

2.1 PORTLAND CEMENT:

A. The Portland Cement shall conform to A.S.T.M. Specifications C-150, Type I, or A.S.T.M. Specification C-175, Type IA air entrained cement, if approved by the Engineer.

2.2 The portland cement used under this contract shall be a standard brand of portland cement which has been in practical use in public works and which has heretofore given satisfactory results. The cement when delivered to the site or at the location where the concrete is to be mixed, shall be stored so as to protect it from damage; and no damaged, partially set, or lumpy cement shall be used in the work and shall immediately be removed from the premises. The cement shall be manufactured by only one mill and used throughout the entire project. Brands of cement shall not be mixed.

2.3 FINE AGGREGATE:

A. The fine aggregate shall consist of clean, natural sand of hard, strong, durable material, free from all foreign organic material or other injurious impurities conforming to A.S.T.M. C-33. The sand shall be graded to meet the following sieve analysis using the U.S. Standard sieve series, with all percentages determined by weight.

| <u>SIEVE SIZE</u> | <u>PERCENT PASSING</u> |
|-------------------|------------------------|
| 3/8 Inch | 100 |
| No. 4 | 95-100 |
| No. 16 | 60-75 |
| No. 50 | 10-30 |
| No. 100 | 0-5 |

The fineness modulus of the fine aggregate shall not be less than 2.50 nor more than 3.00.

2.4 COARSE AGGREGATE:

A. The coarse aggregate shall be clean washed and screened gravel or crushed limestone, having a specific gravity of not less than 2.56. The gravel shall be free from dust, loam, clay, alkali, or organic impurities, and free from thin porous, elongated, or laminated particles. A sample of the gravel when subjected to the sodium sulfate accelerated soundness test for freezing and thawing shall have a weighted average loss of not more than 15%. Crushed limestone aggregate shall consist of uncoated particles of sound, durable rock of uniform quality without an excess of flat, elongated, or laminated pieces.

B. The gravel or crushed limestone shall be graded to meet the following sieve analysis using the U.S. Standard Sieve Series, with all percentages determined by weight.

| <u>SIEVE SIZE</u> | <u>PERCENTAGE PASSING</u> |
|-------------------|---------------------------|
| 1 1/2 inch | 100 |

| | |
|----------|--------|
| 1 inch | 95-100 |
| 3/4 inch | 70-85 |
| 3/8 inch | 20-40 |
| No. 4 | 0-5 |

- C. The use of frozen aggregates will not be permitted. When the temperature of the air permits concreting to be carried on, the aggregates must be thawed out, thoroughly removing all frost before inclusion in the concrete mixture.

2.5 WATER:

- A. The water in mixing concrete shall be clean and free from injurious amounts of oil, acids, alkalis, salts, or organic matter. The water used shall be of potable quality.

2.6 ADMIXTURES:

- A. Should the Contractor desire to incorporate in the concrete mix an admixture to improve the workability of the concrete, the approval must be obtained from the Engineer. However, no additional payment will be made for the use of the admixture; the use of such admixture will be made at the Contractor's expense.

1. Air Entrainment: ASTM C260.
2. Chemical: ASTM C494, Type A - water reducing. Type B - retarding. Type C - accelerating. Type D - water reducing and retarding. Type E - water reducing and accelerating. Type F - high range water reducer. Type G - high range water reducing and retarding.
3. Shrinkage Reducing Admixture (SRA): Provide Eclipse™ Shrinkage Reducing Admixture as supplied by Grace Construction Products (or approved equal) at a rate of 1.5 gallons per cubic yard (liters per cubic meter).
4. Fibrous Reinforcing: Provide Grade MicroFiber® as supplied by Grace Construction Products (or approved equal) at a dosage rate not less than 0.5 lb per cubic yard.
5. The use of calcium chloride in concrete is strictly prohibited.

2.7 PREMOULDED EXPANSION JOINT:

- A. The premoulded expansion joint material shall be non-extruding resilient type conforming to ASTM designation D 1751.
- B. The joint filler shall be full depth of concrete section and 2" thick unless shown otherwise.

2.8 REINFORCING STEEL:

- A. The reinforcing steel shall be rolled from new Billet-Steel Bars for Concrete Reinforcement A.S.T.M.-615 with deformations conforming to A.S.T.M.-305 and 60,000 psi minimum yield strength, A.S.T.M. A-432.
- B. The reinforcing, when delivered, shall be protected from the weather. The reinforcing shall not be oiled or painted. Reinforcing with slight rust which can easily be removed with a wire brush may be used after removal of rust. All reinforcing steel unacceptable to the Owner will be immediately removed from the job site.
- C. Welded wire fabric shall conform to A.S.T.M. A-185 and shall be the size and gauge shown on the Drawings.

- D. All bent bars shall be accurately cold bent to conform to the approved shop drawings.
- E. All bars shall be tagged and bundled. Imperishable marking tags are to be used.
- F. Metal accessories, including spacers, chairs, ties, and other devices necessary for properly assembling, placing and spacing and supporting all reinforcing in place, shall be provided.
- G. Reinforcing steel shall be carefully handled so that it will not become bent or otherwise damaged, shall be stored on racks, skids or other supports which will keep the steel from contact with the ground.

2.9 CONCRETE ADHESIVE:

- A. Where indicated on the Drawings or requested by the Engineer, SIKA Corporation, SIKADUR 32, HI-MOD LPL, or equal adhesive shall be used.

2.10 LIQUID MEMBRANE CURING COMPOUND:

- A. Liquid Membrane Curing Compound shall comply with ASTM C-309, Type 1, and AASHTO M-148.
- B. Polyethylene Film: 4 mil thick, opaque ASTM C 171.

3.0 CONSTRUCTION REQUIREMENTS:

3.1 CONCRETE:

- A. Mix concrete in accordance with ASTM C94.
- B. Provide concrete of the following strength:
 - a. Compressive strength (28 day): 4000 psi
 - b. Entrained Air Content: As indicated in ACI 301, Table 3.4.1 or 6.5% +/- 1.5% with the Shrinkage Reducing Admixture.
 - c. Water Cement Ratio: Maximum 0.45.
 - d. Slump: 1 inch minimum, 3 inch maximum for footings and substructure walls; 4 inch maximum for slabs, beams, reinforced walls and columns. Loss of slump in pumping shall not exceed 1 1/2 inch.
- C. Select proportions for normal weight concrete in accordance with ACI 301, Chapter 3, Section 3.9 or 3.10.
- D. Admixtures shall be included with the mix design submittal and reviewed by the Engineer.
- E. Use accelerating admixtures for use only in cold weather. Concrete techniques and placement requirements shall be in place under the application and reviewed by the Engineer. Calcium chloride or admixtures containing chlorides may not be used in the concrete.
- F. Use retaining admixtures only in hot weather and shall follow hot weather concrete techniques to lower concrete temperature to an acceptable level. These techniques shall be reviewed by the Engineer.
- G. Use air entrained concrete for all concrete exposed to the exterior.

3.2 MIXING:

- A. Ready Mix (Central Plant) concrete shall be used for all work on this project, provided the concrete conforms to the proportions and strengths as specified herein. Two speed mixer trucks shall be utilized for transit to the job site.
- B. The concrete must be in place within one hour after water is added to the mix. A.S.T.M. Specifications for Ready Mix Concrete C-94 shall apply. The Central Mixing Plant shall be designated in writing to the Engineer for his approval one week prior to the usage of concrete on the job site.

3.3 COLD AND HOT WEATHER REQUIREMENTS:

- A. Cold weather concreting shall not be continued when the air temperature is below 45 degrees F, unless the following conditions are maintained:
 - 1. Mixing water shall be heated to a maximum of 150 degrees F.
 - 2. Aggregates shall be heated until free of all ice and frost.
 - 3. The concrete temperature after mixing shall be between 50 degrees F and 70 degrees F if the air temperature is 25 degrees F to 45 degrees F.
 - 4. After the concrete is placed, it shall be covered, protected and heated so as to maintain a minimum of 70 degrees F air temperature for the first 24 hours and 50 degrees F for the next six days.
 - 5. Moist conditions shall be maintained during the heating period.
 - 6. All covering, heating equipment, etc., shall be on hand and approved by the Engineer before any concrete is placed.
- B. No concrete shall be placed on iced or frozen subgrade or when the air temperature is below 25 degrees F.
- C. Hot weather concrete work will not be permitted on exposed surfaces while air temperature exceeds 100 degrees F. Cover and protect and cool as necessary to maintain the internal temperature of the concrete below 100 degrees F. Concrete delivered to the job site while in the Ready Mix truck shall maintain a temperature less than 85 degrees F.

3.4 CURING:

- A. Curing shall be accomplished by preventing loss of moisture, rapid temperature change, and mechanical injury or injury from rain or flowing water for a period of not less than 5 days when normal Portland Cement has been used. Curing shall be started as soon as free water has disappeared from the surface of the concrete after placing and finishing. Curing shall be accomplished by using any of the following methods or combination thereof, as approved by the Engineer.
- B. Unformed surfaces shall be covered with approved fabric, mats, burlap, or with sand, and shall be kept continually wet, or be covered with waterproof paper or polyethylene sheeting, or be coated with liquid membrane. Where formed surfaces are cured in forms, the forms shall be kept continually wet or the top forms may be loosened, as directed or approved by the Owner and water allowed to run down between the forms and concrete. If forms are removed before the end of the curing period, curing shall be continued as on unformed surfaces. Burlap shall be used only on surfaces which will be exposed in the finish work and shall be in two layers. Water shall be applied in a manner which will not damage the concrete, and shall be free from impurities which may damage or discolor the concrete.
- C. Liquid membrane-forming curing compounds, when approved by the Engineer, shall be applied by power spraying equipment using a spray nozzle equipped with a wind guard. The compound shall be applied in a

two-coat, continuous operation at a coverage of not more than 200 square feet per gallon for each coat or as recommended by the manufacturer. The compound shall form a uniform, continuous, adherent film that will not check, crack or peel and shall be free from pinholes or other imperfections. Surfaces subject to heavy rainfall within 3 hours after application of compound shall be re-sprayed at the rate specified above. Surfaces coated with curing compound shall be kept free of foot and vehicle traffic or other abrasions during the curing period. Membrane curing compound shall not be used on surfaces that are to receive concrete, bituminous membrane waterproofing, resilient floor covering, nor surfaces that are to be painted.

- D. Waterproof paper or polyethylene sheeting shall be placed to completely cover the concrete with enough overlap for secure anchorage around the edges. Adjoining sheets shall be lapped 6 inches and appropriately weighted, or sealed with tape or other approved means. Edge and lap anchorage shall be sufficient to prevent billowing or displacement by the wind. The sheeting material shall be no less than 4 mils thick and black in color for cold weather use and white or clear for hot weather.
- E. To facilitate rubbing of concrete, or for other reasons, forms may be removed from vertical surfaces of thick sections 48 hours after concreting, with the approval of the Engineer. Extreme caution should be exercised to prevent injury of concrete surfaces and edges during form removal. Surfaces revealed by form removal before the 5 day curing period shall have one of the other curing methods applied as soon as possible after from stripping.

3.5 FORMS:

- A. The forms utilized for concrete shall be watertight, true to line and elevation, and rigidly braced so as not to be disturbed during the placement of concrete. If the forms develop any defects such as bulging, sagging, or showing signs of lateral displacement after the concrete has been placed, the concrete shall be removed and replaced correctly at the Contractor's expense. The inside of all forms shall be coated with a light, clear, paraffin based oil, which will not discolor or otherwise mar the concrete surface. The oil will be applied prior to erection of the forms; any reinforcing steel contaminated with form oil will be removed and replaced.
- B. Forms for concrete surfaces which will be visible in the finished structure shall be lined with wooden sheets such as masonite or smooth plywood. The joints of this lining shall be neat and close. Lining damaged with hammer imprints shall not be used.
- C. Removal of forms shall be restricted to the following minimum time requirements:
 - 1. Floor slab (structural): 120 hours
 - 2. Floor slab on grade: 48 hours
 - 3. Walls: 48 hours
 - 4. Beam bottom forms 7 days or develop at least 3,000 psi
- D. The minimum times, shown above, shall be utilized unless specific instruction to increase this time period has been requested by the Engineer.
- E. Form ties shall be of the removable end, permanently embedded body type and shall have sufficient strength, stiffness, and rigidity to support and maintain the form in proper position and alignment without the use of auxiliary spreaders. Ties shall also have water stop collars.
- F. Chamfer strips shall be placed in forms to bevel all salient edges and corners and the top edges of walls. Unless otherwise noted, bevels shall be 3/4 inch wide and shall be cast in place.

3.6 PLACING REINFORCEMENT:

- A. Reinforcement shall be accurately formed and positioned, and shall be maintained in proper position while the concrete is being placed and compacted. Unless otherwise shown on the Drawings, the details of fabrication shall conform to ACI 315 and 318. In case of conflict, ACI 318 shall govern.
- B. Approval by the Owner's Representative is required at the completion of placing reinforcing steel prior to the placing of any concrete.

3.7 PLACING OF CONCRETE:

- A. The placing of concrete shall be accomplished by placing in one continuous operation between the limits of the work or between properly constructed and permissible construction joints.
- B. The Contractor shall place no concrete until after observation, by the Engineer of forms, reinforcing, and embedded items. Place no concrete over water covered, muddy, frozen soil or dry soil or sub-base. Dry sub-base shall be sprinkled with water prior to the placement of concrete.
- C. In preparation for the placing of concrete, all chips, and other construction debris and extraneous matter, shall be removed from the interior of the forms. Struts, stays and braces, serving temporarily to hold the forms in correct shape and alignment pending the placing of concrete in their locations, shall be removed when the concrete placing has reached an elevation rendering their services unnecessary. These temporary members shall be entirely removed from the forms and not buried in the concrete. Concrete shall be placed so as to avoid segregation of the materials and displacement of the reinforcement. The use of long troughs, chutes, and pipes for conveying concrete from the mixer to the forms shall be permitted only on written authorization from the Owner. In case an inferior quality of concrete is produced by the use of such conveyors, the Owner may order discontinuance of their use and the substitution of a satisfactory method of placing.
- D. Concrete shall be conveyed to place of deposit by methods which prevent separation of materials. Hoppers, chutes, tubes, or pumping equipment shall be sized to insure a practically continuous flow of concrete to point of delivery without separation of materials.
- E. The maximum free fall of concrete shall be less than six feet (6').
- F. Concrete shall be placed in a continuous operation until the panel or section is completed. Concrete for walls, piers, and columns shall be placed in layers not to exceed eighteen inches (18") in depth. Layers shall be incorporated together by vibrating a minimum of three inches (3") into the previously placed layer.
- G. During the placing of the concrete, it shall be compacted by mechanical vibration obtained by mechanical power operating within the mass of the concrete, supplemented by spading tools. Vibrators shall be of a type and design approved by the Engineer.
- H. The intensity of vibration shall be such as to visibly affect a mass of concrete of 1 inch slump over a radius of at least 18 inches. The Contractor shall provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the forms. Vibration shall be manipulated so as to thoroughly work the concrete around the reinforcement and embedded fixtures and in the corners and angles of the forms. Vibration shall be applied at the point of deposit and in the areas of the freshly deposited concrete.
- I. The vibrators shall be inserted and withdrawn out of the concrete slowly. The vibration shall be of sufficient duration and intensity to thoroughly compact the concrete, but shall not be continued so as to cause segregation of aggregate. Vibration shall not be continued at any one point to the extent that localized areas of grout are formed.
- J. Vibrations shall not be applied directly or through the reinforcement to sections or layers of concrete which have hardened to the degree that the concrete ceases to be plastic under vibration. It shall not be used to make

concrete flow in the forms over distances so great as to cause segregation, and vibrators shall not be used to transport concrete in the forms.

- K. Vibration shall be supplemented by such spading as is necessary to ensure smooth surfaces and dense concrete along form surfaces and in corners and locations impossible to reach with the vibrators.

3.8 FINISHING:

- A. Finishing of the concrete shall be accomplished as follows:

1. Immediately after removing the forms, all fins or irregular projections shall be removed from all surfaces exposed above ground. On all surfaces the areas of cavities produced by form ties, holes, honeycombing, broken edges or corners, and other surface defects, shall be cleaned and carefully filled, pointed, and trowelled to a true uniform smooth surface with sand-cement mortar mixed in the proportions used in the grade of concrete being furnished. Defective concrete as determined by the Owner shall be repaired by cutting out the unsatisfactory material and placing new concrete which shall be secured with keys, dovetails or anchors. Concrete for patching shall be drier than the usual mixture and shall be thoroughly tamped into place.
2. All exposed concrete surfaces, that is, those surfaces which will be visible (except floor slabs and sidewalks) shall be finished in the following manner: Forms shall be removed from such surfaces as soon as structurally possible, as approved by the Engineer and all depressions or imperfections immediately patched as described above. The surface shall then be machine or hand-rubbed until the entire surface has a smooth, homogeneous pleasant-appearing finish of uniform texture and color. Any delay in patching or rubbing such surfaces shall be cause for rejection of the entire structure or for requiring the surfaces to be ground smooth and painted or coated with thoroseal.
3. All surfaces to receive a decorative or protective coating shall be ground, rubbed and filled as necessary to provide a surface smooth enough to insure a good paint coverage.
4. No mortar wet cement shall be used in finishing except the mortar necessary to fill imperfections. Edging tools shall be used on all exposed top edges.
5. The top surface of walls where exposed shall receive a smooth trowelled finish. Where the top surface joins the sides, a 3/4 inch chamfer shall be provided. All floor slabs shall receive a steel trowel finish.
6. On pedestrian walks, before final troweling and brooming, and while concrete is still wet, apply Carborundum Company "Silicon Carbide" grains by sprinkling on at a rate of 1/4 pound per square foot and working grains with a wood float. Walks shall receive a light brush finish.

3.9 SAMPLES AND TEST:

- A. Concrete Control Tests: For strength tests of cylinders during work provide 3 cylinders for each 50 cu. yd. of concrete, a part thereof over 20 cu. yds. used on one days pour for each concrete class. Test 1 at 7 days; 1 at 28 days. Make and cure test cylinder per ASTM C31. Cure specimens under laboratory conditions except Owner may require curing under field conditions when he considers that there is a possibility air temperature may fall below 40 degrees F. Test cylinders per ASTM C39.
- B. Testing Questionable Concrete: In event cylinders indicate that concrete does not meet specified strength requirements, Engineer reserves right to order cores from hardened concrete secured and tested per ASTM C42, or order load tests per ACI 318, or both. Costs of such cores and tests shall be borne by Contractor. If tests indicate that concrete placed does not conform to drawings and specifications, Contractor shall take measures as directed by Engineer to correct deficiency without extra cost to Owner.

- C. Slump Test: Test should occur at the beginning of the day, whenever questionable concrete is encountered and whenever test cylinders are taken.
- D. Air Test: Test should occur whenever the air temperature changes, the aggregate grading changes and whenever test cylinders are taken.
- E. Reinforcing Steel: With each shipment of steel, submit to Engineer three (3) copies of certified mill test covering tensile strength of samples from shipment.

END OF SECTION 033000

DIVISION 4 - MASONRY

SECTION 040140—MAINTENANCE OF STONE ASSEMBLIES (ALTERNATES #1 / #2)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes maintenance of stone assemblies consisting of stone restoration and cleaning as follows:
 - 1. Repairing stone masonry.
 - 2. Repointing joints.
 - 3. Preliminary cleaning, including removing plant growth.

1.2 DEFINITIONS

- A. Low-Pressure Spray: 100 to 400 psi (4 to 6 gpm).

1.3 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on stone units as follows:
 - 1. Existing Mortar: Test according to ASTM C 295, modified as agreed by testing service and Engineer for Project requirements, to determine proportional composition of original ingredients, sizes and colors of aggregates, and approximate strength. Use X-ray diffraction, infrared spectroscopy, and differential thermal analysis as necessary to supplement microscopical methods. Carefully remove existing mortar from within joints at **five** locations designated by the Engineer.
 - 2. Replacement Stone: Test each proposed type of replacement stone, according to ASTM C 170 for compressive strength, ASTM C 99 for modulus of rupture, and ASTM C 97 for absorption and bulk specific gravity.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.
 - 1. Mortar Materials as specified in Section 2.1.
- B. Samples for Initial Selection: For the following:
 - 1. Pointing Mortar: Submit sets of mortar for pointing in the form of sample mortar strips, 6 inches long by 1/4 inch wide, set in aluminum or plastic channels.
 - a. Have each set contain a close color range of at least three Samples of different mixes of colored sands and cements that produce a mortar matching the cleaned masonry when cured and dry.

- b. Submit with precise measurements on ingredients, proportions, gradations, and sources of colored sands from which each Sample was made.
2. Mockups – Refer to Section 1.6 B below.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Society for Testing And Materials (ASTM):
 1. C97 / C97M - 09 Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone
 2. C99 / C99M - 09 Standard Test Method for Modulus of Rupture of Dimension Stone
 3. C170 / C170M - 09 Standard Test Method for Compressive Strength of Dimension Stone

1.6 QUALITY ASSURANCE

- A. Restoration Contractor Qualifications: Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience installing standard unit masonry or new stone masonry is not sufficient experience for stone restoration work.
 1. At Contractor's option, work may be divided between two specialist firms: one for cleaning work and one for repair work.
 2. Field Supervision: Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that stone restoration and cleaning work is in progress.
- B. Mockups: Prepare mockups of restoration and cleaning to demonstrate aesthetic effects and set quality standards for materials and execution and for fabrication and installation.
 1. Stone Repair: Prepare sample areas for each type of stone to have repair work performed. Size each mockup not smaller than 2 adjacent whole units or approximately 36 inches in least dimension. Erect sample areas in existing walls to demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:
 - a. Replacement: Four stone units replaced.
 - b. Patching: Three small holes at least 1 inch in diameter.
 2. Repointing: Rake out joints in 2 separate areas, each approximately 36 inches high by 48 inches wide for each type of repointing required and repoint one of the areas.

PART 2 - PRODUCTS

2.1 MORTAR MATERIALS

A. Masonry mortaring materials shall be in accordance with the following:

1. CEMENT

- a. Cement, shall be Portland Cement conforming to ASTM Specification C-150, Type I, non-staining.

2. LIME

- a. Lime shall be Quicklime for Structural Purposes conforming to ASTM Specification C-5 or Hydrated Lime for Masonry Purposes conforming to ASTM Specification C-207, Type S. The hydrated lime shall not contain air-entrainment additives.

3. SAND

- a. Sand shall be Aggregate for Masonry Mortar conforming to ASTM Specification C-144.

4. MORTAR

- a. Machine mix in a batch drum type mixer for not less than 3 minutes (continuous mortar mixer prohibited). Prepare lime putty by soaking dehydrated lime for a period of time sufficient to insure complete hydrated lime is acceptable. Proportion masonry mortar by volume as follows:
- b. One (1) part portland cement, one (1) part lime putty and six (6) parts sand. (Add mortar admix in accordance with manufacturer's directions). Re-tempering of mortar will not be permitted. Empty mixer completely and clean same prior to mixing succeeding batch.

5. WATER

- a. Water shall be clean and free of deleterious substances.

6. MORTAR COLORS

- a. Pure mineral mortar colors shall be used and in amounts as directed.

2.2 CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F.

C. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium polyphosphate, 1/2 cup of laundry detergent, and 20 quarts of hot water for every 5 gal. of solution required.

- D. Job-Mixed Mold, Mildew, and Algae Remover: Solution prepared by mixing 2 cups of tetrasodium polyphosphate, 5 quarts of 5 percent sodium hypochlorite (bleach), and 15 quarts of hot water for every 5 gal. of solution required.
- E. Mild Acidic Cleaner: Manufacturer's standard mildly acidic cleaner containing no muriatic (hydrochloric), hydrofluoric, or sulfuric acid; or ammonium bifluoride or chlorine bleaches.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. ABR Products, Inc.; X-190 Limestone & Concrete Cleaner.
 - b. PROSOCO; Enviro Klean BioWash.
 - c. Approved equal.
- A. Acidic Cleaner: Manufacturer's standard acidic masonry cleaner composed of hydrofluoric acid or ammonium bifluoride blended with other acids, detergents, wetting agents, and inhibitors.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Price Research, Ltd.; Price Heavy Duty Restoration Cleaner or Price Restoration Cleaner.
 - b. PROSOCO; Enviro Klean Restoration Cleaner or Sure Klean Heavy-Duty Restoration Cleaner.
 - c. Approved equal.
- B. One-Part Limestone Cleaner: Manufacturer's standard one-part acidic formulation for cleaning limestone.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Price Research, Ltd.; Price Limestone Restorer.
 - b. PROSOCO; Sure Klean Limestone Restorer.
 - c. Approved equal.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from stone restoration work.
- B. Comply with chemical-cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical cleaning solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
 - 1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking

agents to comply with manufacturer's written instructions. When no longer needed, promptly remove masking to prevent adhesive staining.

2. Keep wall wet below area being cleaned to prevent streaking from runoff.

3.2 STONE REMOVAL AND REPLACEMENT

- A. At locations indicated, remove stone that is to be reused. Carefully demolish or remove entire units from joint to joint, without damaging surrounding stone, in a manner that permits replacement with full-size units.
- B. Support and protect remaining stonework that surrounds removal area. Maintain adjoining material in an undamaged condition.
- C. Notify Engineer of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing stone masonry, rusted metal, and other deteriorated items.
- D. Remove in an undamaged condition as many whole stone units as required to reconstruct areas noted on the drawings. Remove mortar, loose particles, and soil from stone by cleaning with hand chisels, brushes, and water.
- E. Clean stone surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.
- F. Replace removed damaged stone with other removed stone in good quality, where possible, or with new stone matching existing stone, including size. Do not use broken units unless they can be reused or cut to usable size.
- G. Do not allow face bedding of stone. Before setting, inspect to verify that each stone has been cut so that, when it is set in final position, natural bedding planes are essentially horizontal. Reject and replace stones with vertical bedding planes except as required for arches, lintels, and copings.
- H. Install replacement stone into bonding and coursing pattern of existing stone. If cutting is required, use a motor-driven saw designed to cut stone in a controlled manner. Finish edges to blend with appearance of edges of existing stone.
 1. Maintain joint width for replacement stone to match existing joints.
 2. Use setting buttons or shims to set stone accurately spaced with uniform joints.
- I. Set replacement stone with completely filled bed, head, and collar joints. Butter vertical joints for full width before setting and set units in full bed of mortar unless otherwise indicated. Replace existing anchors with new anchors of size and type indicated.
 1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing stonework.
 2. Rake out mortar used for laying stone before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing stone, and at same time as repointing of surrounding area.
 3. When mortar is sufficiently hard to support units, remove shims and other devices interfering with pointing of joints.

3.3 STONE-FRAGMENT REPAIR

- A. Carefully remove cracked or fallen stone fragment indicated to be repaired. Reuse only stone fragments in sound condition.
- B. Remove soil, loose particles, mortar, and other debris or foreign material, from fragment surfaces to be bonded and from parent stone where fragment had broken off, by cleaning with stiff-fiber brush.
- C. Clean adhesive residue from exposed surfaces and patch chipped areas.

3.4 STONE PATCHING

- A. Remove deteriorated material and remove adjacent material that has begun to deteriorate. Carefully remove additional material so patch will not have feathered edges but will have square or slightly undercut edges on area to be patched and will be at least 1/4 inch thick, but not less than recommended by patching compound manufacturer.
- B. Mask adjacent mortar joint or rake out for repointing if patch will extend to edge of stone unit.
- C. Mix patching compound in individual batches to match each stone unit being patched.
- D. Brush-coat stone surfaces with slurry coat of patching compound according to manufacturer's written instructions.
- E. Place patching compound in layers as recommended by patching compound manufacturer, but not less than 1/4 inch or more than 2 inches thick. Roughen surface of each layer to provide a key for next layer.
 - 1. Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the stone. Shape and finish surface before or after curing, as determined by testing, to best match existing stone.
- F. Keep each layer damp for 72 hours or until patching compound has set.
- G. Remove and replace patches with hairline cracks or that show separation from stone at edges, and those that do not match adjoining stone in color or texture.

3.5 CLEANING STONE, GENERAL

- A. Proceed with cleaning in an orderly manner; work from **top to bottom** of each width and from one end of each elevation to the other. Ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.
- B. Use only those cleaning methods indicated for each stone material and location.
 - 1. Do not use wire brushes or brushes that are not resistant to chemical cleaner being used. Do not use plastic-bristle brushes if natural-fiber brushes will resist chemical cleaner being used.
 - 2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage stone.

- a. Equip units with pressure gages.
 3. For chemical-cleaner spray application, use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray tip.
 4. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
 5. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F at flow rates indicated.
- C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging stone surfaces.
- D. Water-Spray Application Method: Unless otherwise indicated, hold spray nozzle at least 6 inches from surface of stone and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.
- E. Chemical-Cleaner Application Methods: Apply chemical cleaners to stone surfaces to comply with chemical-cleaner manufacturer's written instructions; use brush or spray application. Do not spray-apply at pressures exceeding 50 psi. Do not allow chemicals to remain on surface for periods longer than those indicated or recommended by manufacturer.
- F. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.
1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.

3.6 PRELIMINARY CLEANING

- A. Removing Plant Growth: Completely remove visible plant, moss, and shrub growth from stone surfaces. Carefully remove plants, creepers, and vegetation by cutting at roots and allowing to dry as long as possible before removal. Remove loose soil or debris from open joints to whatever depth they occur.
- B. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to cleaning methods being used. Extraneous substances include paint, calking, asphalt, and tar.

3.7 CLEANING STONework

- A. Detergent Cleaning:
1. Wet stone with water applied by low-pressure spray.
 2. Scrub stone with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that stone surface remains wet.
 3. Rinse with water applied by **low** pressure spray to remove detergent solution and soil.

4. Repeat cleaning procedure above where required.

B. Mold, Mildew, and Algae Removal:

1. Wet stone with water applied by low-pressure spray.
2. Apply mold, mildew, and algae remover by brush or low-pressure spray.
3. Scrub stone with medium-soft brushes until mold, mildew, and algae are thoroughly dislodged and can be removed by rinsing. Use small brushes for mortar joints and crevices. Dip brush in mold, mildew, and algae remover often to ensure that adequate fresh cleaner is used and that stone surface remains wet.
4. Rinse with water applied by low pressure spray to remove mold, mildew, and algae remover and soil.
5. Repeat cleaning procedure above where required to match appearance of existing/surrounding stone masonry.

C. Chemical Cleaning:

1. Wet stone with water applied by low-pressure spray.
2. Apply cleaner to stone in two applications by brush or low pressure spray. Let cleaner remain on surface for period recommended by chemical-cleaner manufacturer, and as required to match appearance of existing/surrounding stone masonry.
3. Rinse with water applied by low pressure spray to remove chemicals and soil.
4. Repeat cleaning procedure above where required to match appearance of existing/surrounding stone masonry. Do not repeat more than once.

3.8 REPOINTING STONEMWORK

A. Rake out and repoint joints to the following extent:

1. All joints in areas indicated.
2. Joints where mortar is missing or where they contain holes.
3. Cracked joints where cracks are **1/16 inch** or more in width and of any depth.
4. Joints where they sound hollow when tapped by metal object.
5. Joints where they are worn back 1/4 inch or more from surface.
6. Joints where they are deteriorated to point that mortar can be easily removed by hand, without tools.
7. Joints, other than those indicated as sealant-filled joints, where they have been filled with substances other than mortar.

B. Do not rake out and repoint joints where not required unless otherwise noted.

C. Rake out joints as follows:

1. Remove mortar from joints to depth of 2 times joint width but not less than 1/2 inch or not less than that required to expose sound, unweathered mortar.
2. Remove mortar from stone surfaces within raked-out joints to provide reveals with square backs and to expose stone for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of stone units or widen joints. Replace or patch damaged stone units as directed by Architect.
 - a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders.
 - b. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and resilient mallet.

D. Notify Engineer of unforeseen detrimental conditions including voids in mortar joints, cracks, loose stone, rusted metal, and other deteriorated items.

E. Pointing with Mortar:

1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After low areas have been filled to same depth as remaining joints, point all joints by placing mortar in layers not greater than 3/8 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing stone has worn or rounded edges, slightly recess finished mortar surface below face of stone to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed stone surfaces or to featheredge the mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
 - a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

F. Where repointing work precedes cleaning of existing stone, allow mortar to harden at least 30 days before beginning cleaning work.

3.9 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed stone surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.

1. Do not use metal scrapers or brushes.
2. Do not use acidic or alkaline cleaners.

END OF SECTION 040140

DIVISION 31 – EARTHWORK

SECTION 312300 - EXCAVATING, FILLING AND GRADING

1.0 GENERAL

1.1 DESCRIPTION OF WORK

A. This section includes, but is not limited to, the following:

1. Trenching
2. Backfill, Compaction and Grading
3. All Related Items

1.2 QUALITY ASSURANCE

A. Applicable Standards:

1. American Society for Testing and Materials (ASTM).

1.3 JOB CONDITIONS

A. Existing Utilities:

1. Locate existing underground utilities in the areas of work before starting earthwork operations. Where utilities are to remain in place, provide adequate means of protection during earthwork operations.
2. Should uncharted, or incorrectly charted piping or other utilities be encountered during excavation, consult the utility owner immediately for directions. Cooperate with the owner and public and private utility companies in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the utility owner.
3. Do not interrupt existing utilities servicing facilities occupied and used by the Owner or others, except when permitted in writing by the Owner's Representative and only after acceptable temporary utility services have been provided. Completely remove from the site underground utilities indicated to be removed. Coordinate with local utility companies for shut-off services if lines are active.

B. Use of Explosives:

1. Blasting will not be permitted.

C. Temporary Protection:

1. Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction.
2. Protect structures, utilities, sidewalks, pavements and other facilities from damages caused by settlement, lateral movement, undermining, washout and other hazards created by excavation operations.

D. Temporary Erosion Control:

1. The Contractor shall be responsible for keeping surface water runoff free from silt, sediment and

earth fill material in areas disturbed by all construction activities.

E. Rock Excavation:

1. No additional or separate payment will be made for rock excavation.

2.0 PRODUCTS

2.1 MATERIALS DESCRIPTION

- A. 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.
- B. Cohesive materials shall include silts and clays generally exclusive of sands and gravel--materials for which impact compaction will produce a well-defined moisture-density relationship curve.
- C. Impervious cohesive materials shall be defined as CH or CL materials as defined by the Unified Soil Classification System.
- D. Permeable materials shall be defined as either non-cohesive or cohesive materials that do not meet the specifications for impervious cohesive materials.

E. Waste:

1. Waste materials include excess suitable materials and all materials unsuitable for use in the work.
 - a) Unsuitable materials include all materials that contain debris, roots, organic matter, frozen matter, rock (with any dimension greater than one-half the loose layer thickness) or other materials that are determined by Owner's Representative as too wet or otherwise unsuitable for providing a stable subgrade or stable foundation for structures.
 - b) Suitable materials include materials that are free of debris, roots, organic matter, refuse, ashes, cinders, frozen matter and that which is free of rock with any dimension greater than one-half of the specified loose layer thickness.
2. All waste materials (excess suitable and all unsuitable) encountered during grading shall be removed from the immediate work area and disposed of by the Contractor, as directed by the Owner's Representative.

F. Rock Excavation:

1. No additional or separate payment will be made for rock excavation.

G. Borrow:

1. Borrow materials include all fill materials and topsoil obtained from approved locations.
2. Borrow shall include all excavating, handling, and final disposal of materials as specified.
3. Proper methods of erosion and sediment control of the borrow site shall also be the Contractor's

responsibility.

H. Topsoil Materials:

1. Topsoil shall be a friable clay loam surface soil having a minimum depth of 4" and relatively free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots and other objectionable material.
2. Topsoil shall be stripped to appropriate depths to prevent intermingling with the underlying subsoil or other objectionable material. Heavy growths of grass shall be removed from construction areas prior to stripping.
3. Topsoil stripping shall be stopped a sufficient distance from trees to be left in place to prevent damage to the main root system.
4. Topsoil shall be stockpiled in designated areas or as otherwise directed. Piles shall be constructed to freely drain surface water.

2.2 SOIL CLASSIFICATIONS

- A. Satisfactory soil materials shall be nonswelling materials with plastic indexes of less than 20 and liquid limits less than 40. Soil meeting these requirements under the Unified Soil Classification System for the following soil groups are acceptable:

Classification Description

- | | |
|-------------|--|
| GW. | Well graded gravels, gravel-sand mixtures, little or no fines. |
| GP. | Poorly graded gravels, gravel-sand mixtures, little or no fines. |
| GM. | Silty gravels, poorly graded gravel-sand-silt mixtures. |
| SW. | Well graded sands, gravelly sand, little or no fines. |

Classification Description

- | | |
|-------------|--|
| SP. | Poorly graded sands, gravelly sands, little or no fines. |
| SM. | Silty sands, poorly graded sand-silt mixture. |
| SC. | Silty sands, sand-clay mixtures. |
| ML. | Inorganic silts, and very fine sands with slight plasticity. |
| CL. | Silty or sandy clays of low plasticity. |

- B. Unsatisfactory soil materials consist of all other materials including the following that are classified under the Unified Soil Classification System:

Classification Description

- | | |
|-------------|--|
| OL. | Organic silts and organic silty clays of low plasticity. |
| MH. | Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts. |
| CH. | Inorganic clays of high plasticity, fat clays. |
| OH. | Inorganic clays of medium to high plasticity, organic silts. |
| PT. | Peat and other highly organic soils. |

2.3 SOIL CATEGORIES

- A. Embedment soils used in pipe installation are described by ASTM and are grouped into five categories below:
1. Class I - Angular, 6 to 40 mm (1/4" to 1 1/2") graded stone, including materials such as coral, slag, cinders, crushed stone, and crushed shells.
 2. Class II - Coarse sands and gravels with maximum particle size of 40 mm (1 1/2") including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil types GW, GP, SW and SP are included in this class.
 3. Class III - Fine sand and clayey gravels, including fine sands, sand-clay mixtures, and gravel-clay mixtures. Soil types GM, GC, SM, and SC are included in this class.
 4. Class IV - Silt, silty clays, and clays, including inorganic clays and silts of medium to high plasticity and liquid limits. Soil types MH, ML, CH, and CL are included in this class. These materials are not recommended for bedding, haunching, or initial backfill.
 5. Class V - This class includes the organic soils, OL, OH, and PT as well as soils containing frozen earth, debris, rocks larger than 40 mm (1 1/2" in diameter), and other foreign materials. These materials are not recommended for bedding, haunching, or initial backfill.

3.0 EXECUTION

3.1 EXCAVATION

- A. Earth excavation includes the removal and disposal of pavements and other obstructions visible on the ground surface, underground structures and utilities indicated to be replaced and removed, material of any classification indicated in data on subsurface conditions and all other materials encountered that are not classified as rock excavation or unauthorized excavation.
- B. Rock excavation consists of the removal and disposal of materials encountered that cannot be excavated with a 3/4 cubic yard capacity power shovel without drilling and blasting, or continuous use of a ripper or other special equipment, except such materials that are classified as earth excavations.
1. Typical of materials classified as rock are boulders 1/2 cubic yard or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.
 2. Intermittent drilling that may be performed to increase production and is not necessary to permit excavation of the material encountered will be classified as earth excavation.
- C. Unauthorized excavation consists of removal of materials beyond indicated elevations without the specific direction of the Owner's Representative. Unauthorized excavation shall be replaced by backfilling and compacting as specified for authorized excavations of the same classification, unless otherwise directed by the Owner's Representative.
- D. Additional excavation consists of carrying excavations deeper and replacing the excavated material as directed by the Owner's Representative if unsuitable materials are encountered at the required subgrade elevations. When excavation has reached required subgrade elevations, the Contractor shall notify the Owner's Representative, who will make an inspection of conditions.

- E. All open trenches and other excavations shall be provided with suitable barriers, signs, and lights to the extent that adequate protection is provided to the public. Obstructions, such as material piles and equipment, shall be provided with similar warning signs and lights. All barricades and obstructions shall be illuminated by means of warning lights at night. All lights used for this purpose shall be kept burning from sunset to sunrise. Materials stored upon or alongside public streets and highways shall be so placed, and the work at all times shall be so conducted, so as to cause the minimum obstruction and inconvenience to the traveling public. All barricades and light expense will be paid by the Contractor.

3.2 DEWATERING

- A. Prevent surface water and subsurface or ground water from flowing into excavations and flooding the project site and surrounding area.
- B. Do not allow water to accumulate in excavations. Remove water from excavations to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey the water away from the site.
- C. Convey water removed from excavations and rain water to collector run-off areas. Do not use trench excavations for site utilities as temporary drainage ditches.
- D. Provide an adequate system to lower and control the groundwater in order to permit excavation, construction of structures and the placement of fill materials to be performed under dry conditions. Install sufficient dewatering equipment to pre-drain the waterbearing strata above and below the bottom of structure foundations, drains, sewers, and other excavations.
- E. Reduce the hydrostatic head in the waterbearing strata below structure foundations, drains, sewers, and other excavations to the extent that the water level and piezometric water levels in the construction areas are below the prevailing excavation surface at all times.
- F. Maintain piezometric water level a minimum of 1 foot below the excavation surface.
- G. Prior to excavation below groundwater level, place the dewatering system into operation to lower the water levels as required and then operate it continuously 24 hours a day, 7 days a week until drains, sewers and structures have been constructed, including placement of fill materials, and dewatering is no longer required.
- H. Dispose of water removed from excavations in such a manner so as to not endanger public health, property, and portions of the work under construction or completed. Dispose of water in such a manner that will cause no inconvenience to others engaged in work about the site. Provide sumps, sedimentation tanks, and other flow control devices as required by governing authorities.
- I. Provide complete standby equipment, installed and available, for immediate operation as may be required, to adequately maintain dewatering on a continuous basis in the event that any part of the system becomes inadequate or fails. In the event dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, perform such work as may be required to restore damaged structures and foundation soils at no additional expense.

3.3 MATERIAL STORAGE

- A. Stockpile excavated materials classified as satisfactory soil material where directed until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
- B. Locate and retain fill materials away from edges of excavations.

- C. Dispose of excess soil material and waste materials as herein specified, and as acceptable to the Owner.

3.4 MOISTURE CONTROL

- A. Where the subgrade of layer of soil material must be moisture conditioned before compaction, uniformly apply water to the surface of subgrade, or layer of soil material to prevent free water from appearing on the surface during or subsequent to compaction operations.
- B. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
 - 1. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until the moisture content is reduced to a satisfactory value.

3.5 GRADING

- A. Grading shall involve the bulk cutting, moving, redistribution, compaction and shaping of soil wherein there results a change in the topography of the site. Areas upon which fills are to be placed shall be scarified prior to placement of any fill material. All fill required for the construction shall be of material not containing stones larger than six inches in diameter, or frozen earth shall be free from stocks, large roots, or other organic matter coarser than grass roots, and shall have a moisture content such that optimum compaction is obtained when properly tamped or rolled. All fill shall be placed in layers of not more than 8 inches in uncompacted thickness and compacted to a density equal to or greater than 95% of maximum laboratory dry density as determined by ASTM D-698. No frozen material shall be placed nor shall any fill material be placed upon or against frozen surfaces.
- B. The fill areas shall be compacted by a minimum of two passes of tamping with a sheeps-foot roller over the surface of each layer. Fills shall be compacted to a density equal to or greater than 95% of maximum laboratory dry density as determined by ASTM D 698.
- C. General:
 - 1. Uniformly grade areas within the limits of site grading including adjacent transition areas. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
 - 2. The degree of finish required will be that ordinarily obtainable from either blade-grader or scraper operations.
- D. Ditches:
 - 1. Finish ditches to ensure proper flow and drainage. Conduct final rolling operations to produce a hard, uniform and smooth cross-section.
- E. Unpaved Areas:
 - 1. Finish areas to receive topsoil to within not more than 0.10' above or below the required subgrade elevations, compacted as specified, and free from irregular surface changes.

3.6 FIELD QUALITY CONTROL

- A. The testing service, provided by the Contractor will inspect and approve subgrades and fill layers before additional construction work is performed.
- B. Field density tests will be performed in accordance with ASTM C 1556 (sand cone method), ASTM D 2167 (rubber balloon test), ASTM D 2922-91 (density of soil and soil-aggregates in-place by Nuclear Methods) or ASTM D 3017 (water content of soil and rock in-place by Nuclear Methods).
- C. If, in the opinion of the Owner's Representative, based on testing service reports and inspection, the subgrade or fills which have been placed are below the specified density, additional compaction and testing will be required at no additional expense to the Owner.

3.7 MAINTENANCE

- A. Protection of Graded Areas:
 - 1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
 - 2. Repair and re-establish grades in settled, eroded and rutted areas to the specified tolerances.
 - 3. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, re-shape and compact to the required density prior to further construction. Use hand tamping for recompaction over underground utilities.

3.8 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Transport all trash, debris, trees, stumps, roots, ashes, cinders, or other refuse to an approved disposal area. Excess excavated material shall be removed by the Contractor.
- B. The disposal of waste and excess excavated materials, including hauling, handling, leveling and surfacing, shall be a subsidiary obligation of the Contractor and no separate payment will be made therefore.

END OF SECTION 312300

DIVISION 31 - EARTHWORK

SECTION 312313 - SUBGRADE PREPARATION

1.0 GENERAL

- A. This work shall consist of preparing the subgrade upon which a base course is to be constructed or a surfacing placed. After a base course has been constructed, the top of the completed base course will be considered the subgrade for the next operation. In surfacing contracts involving only incidental grading, the contract shall complete Subgrade Compaction before proceeding with this work.

2.0 PRODUCTS

3.0 EXECUTION

- A. The subgrade shall be substantially uniform in density throughout its entire width. It shall conform to the lines, grades and typical cross sections shown on the plans, or as established by the engineer. The subgrade shall be constructed to drain surface water to the side ditches and all ditches shall be kept open by the contractor. Where hauling results in ruts or other objectionable irregularities, the contractor shall reshape and reroll the subgrade before the base or surfacing is placed. If an old traveled roadway comprises any part of the roadbed, the contractor shall loosen the compacted portions to a depth of at least 12 inches and shall reshape the roadbed.
1. All subgrades, except those for aggregate type surfacing, shall be rolled. The subgrades shall be checked after rolling and, if not at the proper elevation at all points, sufficient material shall be removed or added and compacted to bring all portions of the subgrade to the required elevation and density. The moisture content of the top 6 inches of the finished subgrade at the time the base is placed, or at the time the pavement is placed if no base is provided under the pavement, shall be not less than the minimum specified for compacting. If the moisture content has not been maintained, the subgrade shall be scarified, wet to the required moisture content and compacted. A roughly compensating maximum deviation of $\frac{1}{4}$ inch, plus or minus, from the required elevation will be permitted on the surface of the finished subgrade.
 2. Prior to laying base or setting paving forms, the subgrade shall conform to the moisture and density requirements for compaction. Soft spots and unsuitable material shall be removed to a depth not to exceed 24 inches and backfilled with approved stable material.
 3. The subgrade for Portland cement concrete pavement shall be compacted, and brought to true shape by an approved subgrade machine. Any material added shall be satisfactorily incorporated and compacted. Before the concrete is placed, a true subgrade shall be shaped by an approved subgrade planer rolling on the forms and any resulting loose material on the subgrade behind the planer shall be recompacted with the 5-ton steel wheel roller. The planer shall be adjustable to produce a subgrade of the exact elevation and cross section. After all grading or planning operations have been completed, and immediately before the concrete is placed, the subgrade shall be checked with an approved heavy metal template which shall be rolled on the forms. Scratch templates with spikes or teeth will not be permitted. A taut line across the top of side forms and a ruler may be used in lieu of a template for checking the subgrade on irregular areas or variable widths. Extreme care shall be taken in forming the crown and shaping the subgrade to ensure that the specified thickness of concrete will be attained in the finished pavement.
 - a. The finished subgrade at the time of paving shall be moist, but sufficiently firm to resist rutting or deforming under construction traffic.
 - b. No direct payment will be made for subgrade preparation.

END OF SECTION 312313

DIVISION 31 - EARTHWORK

SECTION 312500 - SEDIMENTATION AND EROSION CONTROL

1.0 GENERAL

1.1 DESCRIPTION OF WORK

- A. The contractor shall provide sediment and erosion controls for all exposed areas within the project limits, throughout the duration of the contract, including any warranty periods. These controls shall include temporary erosion control, temporary sediment control, and final erosion control.
- B. Applicable sections: 312300 Excavating, Filling and Grading

1.2 SUBMITTALS

- A. All submittals shall be made in accordance with applicable requirements of Division 1.
- B. Material Reports: Submit material reports for the materials supplier under this section. Reports shall include:
 - 1. Source and Location of Material.
 - 2. Name and Address of Producer.
 - 3. Type and Name of Material.

2.0 MATERIALS

2.1 CONTROL MEASURES

- A. Temporary Erosion Control shall include protection of all exposed surfaces within the project limits, by surface grading/rolling, surface water diversion, or by temporary cover. Alternate methods may be submitted by the contractor for review and approval by the engineer.
- B. Temporary Sediment Control shall include silt fence, silt dike, straw bale dikes, temporary sediment checks, etc. Sediment controls shall be placed as required to maintain all sediment within the project boundaries. Sediment controls shall be inspected and cleaned/maintained as necessary to maintain function, following each major runoff event. All temporary sediment controls shall be removed and all surfaces protected upon project completion.
- C. Permanent Sediment Controls, if required, shall be as shown on the drawings. Permanent sediment controls shall be constructed and maintained by the Contractor, until accepted at project completion.
- D. Sediment Control shall include silt fence, silt dike, straw bale dikes, temporary sediment checks, etc. Sediment controls shall be placed as required to maintain all sediment within the project boundaries. Sediment controls shall be inspected and cleaned/maintained as necessary to maintain function, following each major runoff event. All temporary sediment controls shall be removed and all surfaces protected upon project completion. Permanent sediment controls shall be constructed and maintained until accepted at project completion. Permanent sediment controls, if required, shall be as shown on the drawings.

3.0 PROCEDURE

3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall install control measures as shown on the plans and as necessary to limit erosion and prevent sediment from leaving the project site. The control measures shall be built in accordance with the project plans, specification and detail drawing, as well as the use of good construction practices.

END OF SECTION 312500

DIVISION 31 - EARTHWORK

SECTION 313210-LAWNS AND GRASSES

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.

B. SUBMITTALS

- Product Data and Certification for Seed, Fertilizer and Erosion Control

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 with a minimum of 900_lbs applied.
- 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 Americal Excelsior Company in North Kansas City, Missouri (816) 842-3034; 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

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.

- F. Inspection: A minimum of 48 hours prior notice must be given to the Construction Administrator before fertilizing may commence.
- G. 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.
- H. 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 313210

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 320116.71 - MILLING AND PAVEMENT PREPARATION

1.0 GENERAL

1.1 SCOPE OF WORK

- A. Removal of surface or a portion of an asphaltic concrete surface.
- B. Drawings and General Provisions of contract, including General and Special Conditions, apply to this section.

1.2 WORK INCLUDED

- A. The Contractor shall furnish milling equipment to mill in-place, and broom excess millings from pavement profile as shown on the drawings and described in the specifications. Any and all deviations to the cross slope or depth of milling operation must be approved by the Owner's Representative.

2.0 PRODUCTS

2.1 EQUIPMENT

- A. Equipment for profiling and removing bituminous pavement surface shall be a power operated, self-propelled planing machine or grinder. The machine shall be capable of removing a 2" thickness or specified depth, and provide a uniform profile and cross slope.
- B. The equipment shall be self-propelled with sufficient power, traction and stability (rigid suspension, non-pneumatic tire) to maintain accurate depth of cut and slope.
- C. The equipment shall be capable of accurately, and automatically, establishing profile grades with $\pm 1/8$ inch along each edge of the machine. Grade referencing shall be from the existing pavement, by means of a ski or matching shoe, or from an independent grade control. The equipment shall be controlled by an automatic system for controlling grade elevation and cross slope at a given rate.
- D. The machine shall be equipped with water spray to control dust and other particulate matter created by the cutting action.
- E. The machine shall have an effective means of removing cuttings from the pavement and discharging them into a hauling-unit, all in one operation as the pavement is milled.

3.0 EXECUTION

3.1 PREPARATION

- A. Setup signage and other safety and traffic control devices.
- B. Coldmilling shall only begin when the contractor is ready to immediately follow-up with the resurfacing operation.
- C. The milled surface shall not be exposed to traffic for an extended period before being resurfaced. If the milled surface begins to ravel under traffic, or other problems resulting from the milling occur, restrictions on the amount of time the milled area may be left open will be determined by the Owner's Representative.

3.2 MILLING

- A. The pavement surface shall be removed to the depth as noted on the drawings. The width, grade and cross section shall conform the drawings, or as approved by the Owner's Representative.
- B. Automatically control grade leveling and slope. Provide control to produce a uniform surface to the established grade and a cross slope conforming to the requirements of the typical section.
- C. Remove and plane asphalt surface around and over manholes, utility valves and drainage appurtenances.
 - 1. Damage to manholes, valves, or drainage appurtenances by the removal and planing operation shall be the responsibility of the Contractor to correct.
 - 2. Place a temporary wedge of bituminous material at a slope no steeper than one inch in 4 feet around the manholes, utility valves and other appurtenances in the driving lanes.
 - 3. Remove bituminous wedges prior to resurfacing.
- D. Existing material shall be removed if necessary to maintain surface drainage after the milling operation.
- E. Exercise care not to damage existing concrete pavement.
- F. Loose material on roadway surface, not picked up by the milling machine, shall be swept and picked up immediately behind the milling operation.
 - 1. In areas with earth or stabilized aggregate shoulders, small amounts of loose material, not picked up by the milling machine, may be swept to the shoulders.
- G. Milled material is the property of the Contractor. Dispose of material offsite unless otherwise provided in the contract.
- H. Cost of replacement milling teeth shall be borne by the Contractor.
- I. Cost of remobilization due to equipment failure shall be borne by the Contractor.

3.3 FIELD QUALITY CONTROL

- A. For pavement surfaces, the surface of each layer shall be substantially free from waves or irregularities.
- B. The final surface, including pavement repair limits, shall not vary from a 10-foot straightedge, applied parallel to the centerline, by more than 1/8 inch.
- C. Spelled areas shall be repaired using an approved plant mix bituminous pavement commercial mix.
- D. The texture produced for the finished pavement shall be a grid surface with discontinuous longitudinal striations.
- E. The milling shall produce a serviceable riding texture with no objectionable noise level.

END OF SECTION 320116.17

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 320117.61 - BITUMINOUS PAVEMENT CRACK SEALING

1.0 GENERAL

1.1 SCOPE OF WORK

- A. Sealing cracks and joints in bituminous pavements.
- B. Drawings and General Provisions of contract, including General and Special Conditions, apply to this section.

1.2 WORK INCLUDED

- A. Work under this section includes cleaning and filling of longitudinal and transverse cracks, greater than 3/4" in width, in asphaltic pavements prior to overlay, seal, or chip and seal.
- B. Areas with block or alligator cracks, that will be wedged or resurfaced, do not require crack sealing.

1.3 SUBMITTALS

- A. Crack Filler – Product Data and Certification.

2.0 PRODUCTS

2.1 MATERIALS

- A. Crack filler shall be Trumball 3405 Rubber Asphalt Joint Sealer or an approved equal, and shall conform to AASHTO 173 and/or ASTM D-3405 or D-1190.
- B. Crack sealing must be compatible with the surface sealing material.
- C. Cold type crack sealing material will not be accepted as an equal.

3.0 EXECUTION

3.1 EXECUTION

- A. Clean material out of existing cracks by mechanical hand routing or a stiff bristle broom and compressed air.
 - 1. Use a sharp pick or other tool as necessary to remove weeds and other debris.
 - 2. If compressed air is used, do not connect to a port with automatic oiling.
 - 3. Clean immediately before the sealing operation. Maintain in a clean condition until sealed.
- B. Cracks greater than 3/4" in width:
 - 1. Remove foreign and loose material to the granular subgrade.
 - 2. Mill 1 ½ inches in depth, 6 inches wide and wedge in a BP-1 asphalt wedge course.

3. For cracks greater than 1 1/2" deep, use sand to fill the crack up to the 1 1/2" depth.
- C. Fill cracks less than 3/4" in width to slightly above the surface. Squeegee excess material to the side. Blot with sand.
- D. Heat crack filling material in accordance with the manufacturer's recommendations.

END OF SECTION 320117.61

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321113 - SUBGRADE FAILED AREAS

1.0 GENERAL

1.1 SCOPE OF WORK

- A. Replacement or patching subgrade failed areas or sections of flexible pavements.
- B. Drawings and General Provisions of contract, including General and Special Conditions, apply to this section.

1.2 WORK INCLUDED

- A. Work under this section includes removal of surface and failed subgrade, placement and recompaction of subgrade, and placement of hot plant mix bituminous surface to repair areas as noted on the drawings.

2.0 PRODUCTS

2.1 MATERIALS

- A. Asphalt: BP-1, Plant Mix Bituminous Surface shall be used for pavement repair.
- B. Granular Base shall conform to MODOT Type 5 Aggregate.
- C. In lieu of granular base, full depth asphalt patch may be utilized.

3.0 EXECUTION

3.1 PREPARATION

- A. Install signage and other safety and traffic control devices.

3.2 REPAIR PROCEDURE

- A. Reshape hole by cutting failed pavement area into square or rectangular shape with a pavement saw.
 - 1. Cut side faces vertically.
 - 2. Excavate vertically to solid material and around hole to sound pavement.
 - 3. Proceed with cutting and removal from the failure outward to sound pavement.
- B. Remove all loose material and thoroughly sweep the excavated area clean of mud and standing water.
- C. Fill hole and compact material in lifts no more than 3” thick.
- D. Place asphalt.
 - 1. Final uncompacted lift should be ½” to 1” above abutting pavement. Surface shall match the abutting pavement after compaction.

2. Thoroughly compact each lift with a plate compactor or roller, generally 15-20 passes with a vibratory roller is necessary to insure good compaction.
 3. Hand tamp should be used only for small holes (less than 1 sf).
- E. Clean up area. Do not leave excess fill or removal material on the pavement.
- F. Remove traffic control signs and barricades.

END OF SECTION 321113

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321123 - AGGREGATE BASE COURSE

1.0 GENERAL

1.1 DESCRIPTION OF WORK

- A. Work covered under this section consists of furnishing and placing one or more courses of crushed stone aggregate on prepared subgrade.
- B. Construction of aggregate base course shall conform to the typical sections, lines, grades and thicknesses as shown on the drawings. Type 5 aggregate base shall conform to the gradation specified in the most current edition of the Specifications for Highway Construction.
- C. Applicable Sections: 312300 Excavating, Filling, and Grading

1.2 TESTING AND INSPECTION

- A. The aggregate base shall be proof rolled by the contractor and observed by the Owner’s Representative. The proof roll shall consist of a fully loaded tandem axle truck passing over the prepared subgrade as directed by the Owner’s Representative. If site conditions warrant, the unacceptable area shall be regraded then re-compacted to the satisfaction of the Owner’s Representative.
 - 1. The Owner may hire a testing lab to perform compaction testing on the project. If in the opinion of the Owner’s Representative, based on testing service reports and inspection, the subgrade or fills which have been placed are below the specified density, additional compaction and testing will be required.
- B. Referenced standards of the American Society for Testing of Materials (ASTM) apply to this section.

1.3 SUBMITTALS

- A. Aggregate Gradation / Certification.

2.0 PRODUCTS

- A. Aggregate shall be crushed stone, and shall be the angular fragments resulting from crushing by mechanical means of calcareous or dolomitic limestone from undisturbed, consolidated deposits.
- B. The crushed stone shall contain not more than 15 percent deleterious rock and shale. Sand may be added to the crushed stone only for the purpose of reducing the plasticity index of the fraction passing the No. 40 sieve in the finished product. Any sand, silt, and clay, and any deleterious rock and shale shall be uniformly distributed throughout the mass.
- C. Gradation: The aggregates shall conform to the following gradation requirements:

| | <u>Percent</u> |
|---------------------------|----------------|
| 1. Passing 1 ½ Inch Sieve | 100 |
| 2. Passing 1 Inch Sieve | 90 – 100 |
| 3. Passing 1/2 Inch Sieve | 60 – 90 |
| 4. Passing No. 4 Sieve | 30 – 56 |
| 5. Passing No. 16 Sieve | 10 – 40 |
| 6. Passing No. 200 Sieve | 4 – 12 |

D. Quality: The aggregate base material shall be from an approved source.

3.0 CONSTRUCTION REQUIREMENTS

3.1 INSTALLATION

A. Inspection:

1. Examine the areas and conditions under which the aggregate base course is to be placed for conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.
2. The subgrade shall be compacted, graded and cut to proper lines, grades, and cross-sections to the satisfaction of the Engineer before placing of the base course.
3. Subgrade shall be protected from cold weather, base course shall not be placed on frozen subgrade or when the atmospheric temperature is less than 35 degrees F.

B. Placing Base Course:

1. Contractor shall be responsible for maintaining lines and grades including crown and cross-slope in base course.
2. The Contractor shall be responsible for placing the correct quantity of base material to construct a base of the required finish thickness.
3. The thickness of the compacted base course shall be as shown on the drawings.
4. The maximum compacted thickness of any one layer shall not exceed six (6) inches.
 - a) When specified compacted depth of base course exceeds 6 inches, the base course shall be constructed in two or more layers of approximately equal thickness.
 - b) No single layer shall be less than 3 inches in thickness when compacted.
5. The mixture shall be uniformly spread in successive layers of such depth that when compacted, the base will approximate the thickness specified.
6. Immediately before spreading the aggregate, the subgrade shall be wetted as directed by the Owner's Representative.
7. The base material shall be delivered to the site for placement with the material thoroughly mixed with water to approximate moisture content for desired compaction.

C. Compaction:

1. Maintain optimum moisture content for compacting base course material during placement shaping and compaction operations.
2. Each layer shall be compacted to not less than 95% maximum dry density per ASTM D698.

D. Grading:

1. Base course material after compaction shall be cut to proper lines, grades, sections and cross-slopes

as shown on the drawings.

2. Tolerances shall be plus or minus 0.1 of a foot.
3. Compacted areas that are below 0.1 of a foot of grade, additional material shall be brought in place, shaped and compacted to attain the proper thickness and subbase elevation.

E. Maintenance:

1. Protect newly graded areas from traffic and erosion.
2. Repair and re-establish grades in settled, eroded and rutted areas to specified tolerances.
3. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape and compact to required density prior to further construction.

F. Remove excess material, trash, debris and waste materials from the site.

END OF SECTION 321123

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321213.13 - TACK COAT

1.0 GENERAL

1.1 DESCRIPTION

- A. This work shall consist of preparing and treating an existing bituminous or concrete surface with bituminous material, and blotter material if required, in accordance with these specifications, as shown on the plans or as directed by the engineer.

1.2 EQUIPMENT

- A. The contractor may provide a system for heating and applying bituminous material and for applying blotter material. The system shall be designed, equipped, maintained and operated such that liquid asphalt at even heat may be applied uniformly on variable widths of surface up to 15 feet at readily determined controlled rates of 0.5 gallon per square yard with uniform pressure and with an allowable variation from any specified rate not to exceed 0.02 gallon per square yard. The system shall include a calibrated tank and a thermometer for measuring temperature of tank contents. The system shall be equipped with instrumentation that continuously verifies application rates. The calibration of the system shall be approved by the engineer prior to use, and the contractor shall furnish all equipment, material and assistance necessary if calibration is required.

1.3 SUBMITTALS

- A. Tack Coat Product Data and Certification.

2.0 MATERIALS

- A. Emulsified asphalt for tack coat shall be SS-1, SS-1h, CSS-1 diluted one part water to one part emulsified asphalt. Before dilution the emulsified asphalt shall comply with the requirements of AASHTO Specification M140 or M 208 (ASTM Specification D 977 or D2397)

3.0 CONSTRUCTION REQUIREMENTS

- A. The existing surface shall be free of all dust, loose material, grease or other foreign material at the time the tack is applied.
- B. Asphalt emulsion shall be applied uniformly with a pressure distributor at the rate of 0.05 gallon per square yard. Water may be added to the asphalt emulsion and mixed therewith in such a proportion that the resulting mixture will contain no more than 50 percent of added water. The application of the resulting mixture shall be such that the original emulsion will be spread at the specified rate. The asphalt emulsion shall be heated at the time of application to a temperature in accordance with the following table and shall be properly cured and cleaned of all dirt and surplus sand before the next course is placed:

(See table next page)

| Bituminous Material | Temperature, Degrees Fahrenheit (Celsius) | | | |
|-----------------------------|---|-----------|-----------|-----------|
| | Spraying | | Mixing | |
| | Min | Max | Min | Max |
| Asphalt Binder | | | | |
| PG 46-28 | 260 (125) | 325 (165) | --- | --- |
| All Other Grades | 285 (140) | 350 (175) | 275 (135) | 350 (175) |
| Liquid Asphalt RC-MC | | | | |
| Grade | | | | |
| 30 | 70 (20) | 150 (65) | 50 (10) | 110 (45) |
| 70 | 100 (40) | 180 (80) | 90 (30) | 140 (60) |
| 250 | 150 (65) | 220 (105) | 130 (55) | 170 (75) |
| 800 | 180 (80) | 260 (125) | 170 (75) | 210 (100) |
| 3000 | 210 (100) | 290 (145) | 200 (95) | 240 (115) |
| Asphalt Emulsions | | | | |
| RS-1 | 70 (20) | 140 (60) | --- | --- |
| RS-2 | 125 (50) | 185 (85) | --- | --- |
| SS-1 | 70 (20) | 160 (70) | 70 (20) | 160 (70) |
| SS-1h | 70 (20) | 160 (70) | 70 (20) | 160 (70) |
| CRS-1 | 125 (50) | 185 (85) | --- | --- |
| CRS-2 | 125 (50) | 185 (85) | --- | --- |
| CSS-1 | 70 (20) | 160 (70) | 70 (20) | 160 (70) |
| CSS-1h | 70 (20) | 160 (70) | 70 (20) | 160 (70) |
| EA-90P | 130 (55) | 180 (80) | --- | --- |
| CRS-2P | 130 (55) | 180 (80) | --- | --- |

- C. The tack coat shall be applied in such a manner as to cause the least inconvenience to traffic. All exposed tack coat shall be covered with sand or bituminous mixture prior to opening to traffic. Limestone or Dolomite sands shall not be used.

END OF SECTION 321213.13

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321216.13.A1 - PLANT MIX BITUMINOUS PAVEMENT (PMB)

1.0 GENERAL

- A. The Contractor shall furnish all labor, materials and equipment necessary to complete all Plant Mix Bituminous (PMB) paving indicated on the drawings and as specified herein.

1.1 WARRANTY

- A. Warranty to be against settlement, low spots, lift separation (delamination), shoving, channeling, or any other surface irregularities which does not provide a smooth driving surface. Make any repairs necessary during warranty period to maintain paving in perfect condition.

1.2 PAVING QUALITY REQUIREMENTS

- A. All paving shall conform to the current edition Missouri Department of Transportation (MoDOT) Specifications and Asphalt Institute Standards, Model Construction Specifications for Asphalt Concrete, Specification Series No. 1.

1.3 EQUIPMENT

- A. The equipment shall include: (1) one or more Plant Mix Bituminous (PMB) plants designed to produce a uniform PMB within the job-mix tolerances; (2) one or more self-powered pavers that are capable of spreading the PMB to the thickness and width specified, true to the line and grade shown on the plans; (3) enough smooth metal-bedded haul trucks with covers, when required, to ensure orderly and continuous paving operations; (4) a pressure distributor that is capable of applying tack coat and prime material uniformly without atomization or non-uniform "zebra-stripping", (5) one or more steel-wheeled, pneumatic-tired, or vibratory rollers capable of attaining the required density and smoothness; (6) a power broom or a power blower or both; (7) hand tools necessary to complete the job. Other equipment may be used in addition to, or in lieu of, the specified equipment when approved by the Engineer.

1.4 METHODS OF TESTING PLANT MIX BITUMINOUS PAVEMENT (PMB)

- A. Samples of materials will be tested for the requirements of Section B by the applicable methods specified in this section. The materials shall not be used until approved by the Owner's Representative.
- B. Plant Mix Bituminous (PMB) materials will be tested by the batch plant using methods of test of the American Association of State Highway and Transportation Officials (AASHTO) designated in the applicable specification. If an AASHTO method of test procedure is not available, the equivalent American Society for Testing and Materials (ASTM) method will be used.
- C. Mineral aggregates will be tested by one or more of the following methods of test of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).
- D. Results of single extraction and sieve tests shall not be used as the sole basis for acceptance or rejection of the PMB. Any variation from the job-mix formula in the grading of the aggregate or in the bituminous content greater than the tolerances shown above shall be investigated and the conditions causing the variation corrected.

| Characteristic | Method of Test | |
|---|----------------|-------|
| | AASHTO | ASTM |
| Amount of Material Finer than 75 µm (No. 200) | | |
| Sieve in Aggregate | T 11 | C 117 |
| Unit Weight of Aggregate | T 19 | C 29 |
| Sieve Analysis, Fine and Coarse Aggregates | T 27 | C 136 |
| Sieve Analysis of Mineral Filler | T 37 | D 546 |
| Abrasion of Coarse Aggregate, Los Angeles Machine | T 96 | D 131 |
| Plastic Fines in Graded Aggregates and Soils by use of the Sand Equivalent Test | T176 | D2419 |

E. The PMB will be tested for asphalt content by Method of Test for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures, AASHTO Designation T 164 (ASTM Designation D 2172). The PMB will be tested for compliance with aggregate grading requirements by Method of Test for Mechanical Analysis of Extracted Aggregate, AASHTO Designation T 30.

F. If the PMB is produced in a mixing plant having automatic controls and a print-out system, and the controls are in proper calibration, asphalt content compliance will be determined from recorded data. Hot bin analysis together with batch weight read-out data will be used to determine composition compliance.

1.5 PLACEMENT LIMITATIONS

A. PMB shall be placed only when the specified density can be achieved. Precautions shall be taken at all times to compact the PMB.

1.6 SUBMITTALS

A. Mix Design and Bituminous Material Certification.

1.7 WEATHER LIMITATIONS

A. PMB shall not be placed (1) when either the air temperature or the temperature of the surface on which the mixture is to be placed is below 50 F (10 C) for the surface course or below 40 F (5 C) for subsurface courses, (2) on any wet or frozen surface, (3) when weather conditions prevent the proper handling or finishing of the mixture, or (4) between December 1 and March 1 except when authorized by the Engineer. The Contractor shall conduct operations in such a manner that all binder course asphaltic concrete is covered with surface course asphaltic concrete prior to December 1. Temperatures are to be obtained in accordance with MoDOT Test Method T20.

1.8 TRAFFIC CONTROL

A. Traffic shall be directed through the project with such signs, barricades, devices, flagmen, and pilot vehicles as may be necessary to provide maximum safety for the public and the workmen with minimum interruption of the work.

1.9 SAFETY

A. The Contractor shall be solely responsible for safety precautions at all times during the progress of the work. As appropriate, workmen shall be furnished with hard hats, safety shoes, sturdy gloves, respirators, and any other safety apparel that will reduce the possibility of accidents. The Contractor shall insure that all Occupational Safety and Health Act requirements are observed.

2.0 MATERIALS

2.1 PLANT MIX BITUMINOUS CONCRETE

- A. The PMB shall be Plant Mixed Bituminous Pavement BP-1, used for paving and shall conform to the most current edition of the Missouri Department of Transportation (MoDOT) Specifications; Section 401.
- B. Emulsified asphalt for tack coat shall be SS-1, SS-1h, CSS-1, or CSS-1h diluted one part water to one part emulsified asphalt. Before dilution the emulsified asphalt shall comply with the requirements of AASHTO Specification M 140 or M 208 (ASTM Specification D 977 or D 2397).

2.2 MINERAL AGGREGATE

- A. Mineral aggregate shall be crushed stone, crushed slag, crushed gravel, stone, or slag screening, sand, mineral filler, or a combination of two or more of these materials. Other mineral aggregates, such as uncrushed gravel or sand, may be specified for base course PMB if local experience has demonstrated their ability to produce satisfactory PMB.
- B. Coarse and final aggregates shall comply with the quality requirements, except soundness, of ASTM Designation D 692 and ASTM Designation D 1073 respectively. Coarse aggregate failing to comply with abrasion requirements may be used if experience has demonstrated it to be satisfactory.
- C. Mineral filler shall comply with ASTM Designation D 242.
- D. Combinations of aggregates having a history of polishing shall not be used in surface courses.

2.3 BP-1: The Engineer will approve a job-mix formula.

- A. Mineral aggregate and bituminous combined in a mixing plant to meet the specifications set forth by MoDOT for the specified type of grade.

2.4 PREPARING THE PLANT MIX BITUMINOUS (PMB)

- A. The PMB shall be heated at the mixing plant to a temperature at which it can be applied uniformly to the aggregate.
- B. Coarse and fine aggregates shall be stored separately at the mixing plant in a manner that will prevent intermingling. Stockpiles shall be built in a manner that will prevent segregation of aggregate sizes. If the aggregate tends to segregate during handling it shall be supplied and stockpiled in two or more sizes.
- C. When it is necessary to blend aggregates from one or more sources to produce the combined gradation, each source or size of aggregate shall be stockpiled individually. Aggregate from the individual stockpiles shall be fed through separate bins to the cold elevator feeders. They shall not be blended in the stockpile.
- D. Cold aggregates shall be fed carefully to the plant so that surpluses and shortages will not occur and cause breaks in the continuous operation.
- E. The aggregate shall be dried and heated to provide a paving mixture temperature in conformance with placing conditions, but not to exceed 325°F.
- F. Heated and dried aggregates shall be screened and stored in sizes that may easily be recombined into a gradation meeting the requirements of the job-mix formula.
- G. The heated and dried aggregates shall not contain enough moisture to cause the PMB to slump, or the

aggregate to segregate during hauling and placing.

- H. Mixing time shall be the shortest time that will produce a satisfactory PMB. Prolonged exposure to air and heat in the pugmill hardens the asphalt film on the aggregate. Mixing time, then, should be shortest time required to obtain uniform distribution of aggregate sizes and thorough coating of aggregate particles with asphalt.
- I. For batch plants wet mixing time shall not exceed 50 seconds.
- J. For continuous mix plants, the mixing time will be computed by the following formula:

$$\text{Mixing time, seconds} = \frac{\text{Pugmill dead capacity, kg (lb.)}}{\text{(a) Pugmill output, kg/s (lb/s)}}$$

- K. Mixing time shall not exceed 60 seconds.

2.5 PREPARING AREA TO BE PAVED

- A. The area to be paved shall be substantially true to line and grade. It shall be dry, firm, and properly prepared before paving operations begin. All loose dirt and foreign material shall be removed.

2.6 PLACEMENT OF PLANT MIX BITUMINOUS TYPE BP-1

- A. The BP-1 surface course shall be placed while at a temperature of not less than 275°F, but not more than 330°F. Machine laid, the BP-1 pavement will be placed uniformly without intermittent operation of the paver. Leveling and spot welding may be required to obtain a continuous smooth surface. The final compaction shall be uniform and thorough, accomplished by using a roller as specified by the Asphalt Institute Standards and Missouri Highway Commission Standard Specifications.
- B. BP-1 shall not be placed if the un-compacted thickness of the mat is less than 3" when either the air temperature or the temperature of the surface to be paved is below 50°F, on any wet or frozen surface, and when weather conditions prevent the proper handling or finishing of the BP-1.
- C. BP-1 shall be compacted immediately after placing. Using steel-wheeled tandem roller, steel three-wheeled roller, vibrating roller or a pneumatic tired roller for initial, intermediate, and final rolling. Final rolling shall eliminate marks from previous rolling. Use vibrating plate compactor or hand tamper to compact areas too small for a roller. Compacted base and surface courses shall have a density equal to or greater than 95% of a laboratory specimen prepared by the method for BP-1 specified.
- D. The Contractor shall perform all the tests required by the Owner's Representative to insure that the BP-1 pavement is constructed of proper thickness, and density.

2.7 COMPACTING THE PLANT MIX BITUMINOUS (PMB)

- A. The PMB shall be compacted immediately after placing. Initial rolling with a steel-wheeled tandem roller, steel three-wheeled roller, vibratory roller, or a pneumatic-tired roller shall follow the paver as closely as possible. If needed, intermediate rolling with a pneumatic-tired roller shall be done immediately behind the initial rolling. Final rolling shall eliminate marks from previous rolling. In areas too small for the roller, a vibrating plate compactor or a hand tamper shall be used to achieve thorough compaction.
- B. When placing PMB adjacent to a concrete curb and gutter, each lift shall butt-joint tightly against the concrete.

3.0 CONSTRUCTION REQUIREMENTS

3.1 PAVING TECHNIQUE

- A. The PMB shall be placed and compacted at a minimum depth as directed by MECO's Resident Inspector, graded and compacted to the correct grade. The PMB shall be uniformly compacted by rolling as specified by Asphalt Institute Standards and Missouri Department of Transportation (MoDOT) Standard Specifications.
- B. Compaction. After the PMB has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. Rolling shall begin as soon after spreading the PMB as it will bear the weight of the roller without undue displacement. The type and number of rollers furnished shall be sufficient to obtain the required compaction while the PMB is in a workable condition. A pneumatic tire roller shall be used as the initial or intermediate roller on any course placed as a wedge or leveling course. All rolling shall be completed prior to the surface temperature of the PMB decreasing to 175°F.
1. A dual drum vibratory roller of a type specifically designed for the compaction of PMB may be used for initial rolling. A dual drum vibratory roller meeting the requirements for a steel wheel roller and operating in the static mode may be used as the finish roller. Except for projects involving small quantities of PMB, a single vibratory roller shall not be used as both the initial roller and final roller. The roller shall be equipped with a dual amplitude system and shall have a minimum frequency of 1500 vibrations per minute. The roller shall also be equipped with a speedometer that accurately indicates roller speed in maximum increments of either 2 mile per hour or 50 feet per minute. The roller controls shall include a device that prevents the roller from traveling in excess of 22 miles per hour when the roller is in a vibratory mode. If satisfactory compaction is not being obtained, the contractor shall cease using the vibratory roller.
 2. Rollers shall move at a slow but uniform speed with the drive roll or wheels nearest the paver. Rolling shall begin at the sides and proceed longitudinally parallel to the road center line, each trip overlapping one half the roller width, gradually progressing to the crown of the road. When paving in echelon or abutting a previously placed lane, the longitudinal joint shall be rolled first followed by the regular rolling procedure. On super-elevated curves the rolling shall begin at the low side and progress to the high side by overlapping of longitudinal trips parallel to the center line. Alternate trips of the roller shall be terminated in steps to prevent the formation of surface irregularities. The alternate stops shall be stepped in such manner that any excess water will drain quickly. Lateral or diagonal rolling may be permitted to remove high spots, provided the rolling is done in such manner and at such time that shoving or cracking will not result.
 3. Any displacement occurring as a result of starting, stopping, or changing direction of a roller, or from other causes, shall be avoided. Areas of displacement shall be corrected at once by the use of rakes and addition of fresh PMB when required. Care shall be exercised in rolling not to displace the line and grade of the edges of the asphaltic concrete. If necessary, to prevent adhesion of the PMB to the rollers, the wheels and rolls shall be kept properly moistened with water or water mixed with very small quantities of detergent or other approved material. Excess liquid will not be permitted. Diesel fuel, fuel oil, or other detrimental products shall not be used as wetting agents. Along forms, curbs, headers, walls, and other places not accessible to the roller, the PMB shall be thoroughly compacted with hot hand tampers, smoothing irons, or with mechanical tampers. A trench roller shall be used on depressed areas inaccessible to regular width equipment.
 4. Any PMB that becomes loose and broken, mixed with dirt, or is in any way defective shall be removed and replaced with fresh, hot PMB, which shall be compacted to conform with the surrounding area. Any area showing an excess or deficiency of asphalt cement shall be removed and replaced.

5. Except as otherwise specified, rolling shall be continued until all roller marks are eliminated and a minimum density of 95 percent of a laboratory specimen made in the proportions of the job-mix formula in accordance with AASHTO T 245, is attained. The applicable density will be determined by the engineer to correspond with the mix design test method. Density will be determined by nuclear methods in accordance with MoDOT Test Method T41 or by a specific gravity method.
6. Joints. Transverse joints shall be formed by any method that will produce a dense, vertical section for use when laying is resumed. The joint formed when the fresh PMB is placed shall be dense, well sealed, and the grade, line, and surface texture of the succeeding surface shall conform to that of the joined surface. If deemed necessary by the engineer, the transverse joint shall be painted with a light coating of asphaltic material. Hand manipulation of the PMB is to be minimized to avoid segregation of the surface texture. Placing of PMB shall be as nearly continuous as possible and the roller shall not pass over the unprotected end unless laying of additional PMB is to be delayed for sufficient time to permit the PMB to become chilled.
7. Longitudinal joints shall be formed by the use of an edging plate fixed on both sides of the finishing machine. These plates shall be adjustable and the outside plate shall be set at an angle of approximately 45 degrees with the surface of the roadbed and in a position that will lightly compact the PMB. The inside plate, or that placing material for the longitudinal joint, shall be normal to the roadbed. When placing the first lane, if the mixture at the longitudinal joint tends to slump, it shall be set up to a vertical edge by light compaction with the back of a rake. Care shall be taken to obtain a well bonded and sealed longitudinal joint by placing the PMB in a manner insuring maximum compaction at this point. If it is deemed necessary by the engineer in properly sealing the longitudinal joint, a light coating of asphaltic material shall be applied to the exposed edge before the joint is made. Irregularities in the outside edge alignment shall be corrected by removing or adding PMB before the surface is compacted.

C. Surface Tolerances: The finished courses shall have the nominal thickness shown on the plans and shall be substantially free from waves or irregularities. The final riding surface, except on medians and similar areas, shoulders, and temporary bypasses shall not vary from a 10-foot straightedge, applied parallel to the centerline, by more than 1/8 inch. At transverse construction joints, the surface of all other layers shall not vary from the 10-foot straightedge by more than 1/4 inch. Surfaces exceeding these tolerances shall be re-rolled, replaced, or otherwise corrected in a manner satisfactory to the Owner's Representative.

1. The surface of the PMB after compaction shall be smooth and true to the established crown and grade. Any PMB showing an excess of asphalt cement or that becomes loose and broken, mixed with dirt, or is in any way defective shall be removed and replaced with satisfactory PMB, which shall be immediately compacted to conform with the surrounding area.

3.2 CLEAN-UP

- A. Upon completion of paving work, remove all debris resulting from paving operations, clean or repair any adjacent work damaged by paving operations and leave entire premises in neat and clean conditions.

3.3 SHOP DRAWINGS

- A. If the Contractor feels it is advisable due to weather or site conditions to use a PMB or application procedure other than the specified one, he shall submit the alternate PMB design in writing. He shall receive the Owner's Representative approval prior to commencing of the paving operations.

END OF SECTION 321216.13.A1

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321236.17 – ASPHALT BASED PAVEMENT SEALER

1.0 GENERAL

- A. This work shall consist of the application of asphalt based sealer to an existing surface. The asphalt based sealer shall consist of high solids polymer modified asphalt emulsion sealer.
- B. **SUBMITTALS** – Sealer Product and Certification

2.0 MATERIALS

2.1 MATERIAL SPECIFICATIONS

- A. The asphalt based sealer shall meet or exceed the requirements of ASTM Specifications D-1010 and D-2939, D-466 and D-140.

2.2 APPLICATION RATE

- B. The asphalt based sealer shall be of proper consistency at all times so as to provide a two coat system with an application rate of 50 square feet per gallon per coat.
- C. The first coat shall be dry to the touch before the second coat is applied. The second coat should be dry within 24 hours. No traffic shall be allowed on the surface until the final coat has been cured.

3.0 CONSTRUCTION

3.1 CONSTRUCTION REQUIREMENTS

- A. Surface Preparation
 - 1. The pavement must be sound, clean and free from loose material. The pavement must be free of dirt, dust, clay, sand and all vegetation. Particular attention must be given to the treatment and removal of petroleum residues. All holes, crumbled areas, failed areas and cracks shall be repaired before sealing. Immediately prior to applying the asphalt based sealer, the contractor shall clean the surface. A pickup sweeper must be used unless otherwise approved by the Owner's Representative. Manholes, valve boxes, drop inlets and other service entrances shall be protected from the asphalt based sealer by a method approved by the Owner's Representative.
- B. Application Equipment
 - 1. The asphalt based sealer shall be applied by a pressurized spray application equipment or a self propelled squeegee equipment. Pressurized spray equipment shall be capable of spraying pavement sealer at the application rate specified. Equipment shall have continuous agitation or mixing capabilities to maintain homogenous consistency of pavement sealer mixture throughout the application process. Self propelled squeegee equipment shall have at least two squeegee or brush devices (one behind the other) to assure adequate distribution and penetration of sealer into the bituminous pavement. Hand squeegees and brushes shall be acceptable in areas where practicality prohibits the use of mechanized equipment.
 - 2. The first coat of asphalt based sealer shall be applied by self-propelled squeegee equipment.
- C. Weather Limitation
 - 1. The asphalt based sealer shall not be applied if either the pavement or air temperature is below 50° F and falling. The asphalt based sealer shall not be applied if rain is imminent within 24 hours of application.

D. Traffic Control

1. Suitable methods shall be used to protect the sealed pavement from all types of traffic until sufficiently cured to accept traffic. The length of time before traffic is permitted to use the surface depends on the mixture characteristics and weather conditions.

END OF SECTION 321236.17

DIVISION 32 - SITE CONSTRUCTION

SECTION 321313 - RIGID PAVEMENT

1.00 GENERAL

- A. The Contractor shall furnish all labor, materials, tools, equipment and services necessary to construct a concrete pavement in conformance with the lines, grades and thickness, as shown on the drawings and as specified herein.

1.01 RELATED WORK

- A. Laboratory and Field Testing Requirements: Testing Laboratory Services will be retained by the Contractor.
- B. Subgrade Preparation: Section 312300 - Excavating, Filling and Grading.
- C. Concrete Materials, Quality, Mixing, Design and Other Requirements: Section 033100 - Portland Cement Concrete.

1.02 WEATHER LIMITATIONS

- A. Placement of concrete shall be as specified under paragraphs Cold Weather and Hot Weather of Section 033100 - Portland Cement Concrete.

1.03 SUBMITTALS

- A. In accordance with Section Division 1 - General Requirements, furnish the following:
1. Manufacturers' Certificates and data certifying that the following materials conform to the requirements specified:
 - a. Expansion joint filler.
 - b. Hot poured sealing compound.
 - c. Dowels.
 - d. Curing materials.
 2. Data and Test Reports - Select Subbase Material:
 - a. Job-mix formula.
 - b. Source, gradation, liquid limit, plasticity index, percentage of wear and other tests as specified and in referenced publications.

1.04 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only:
- B. American Society for Testing and Materials (ASTM):
1. C94-84. Ready-Mixed Concrete.

2. C143078 ...Slump of Portland Cement Concrete.

2.00 PRODUCTS

2.01 GENERAL

A. Concrete shall be Class A, air-entrained as specified in the Portland Cement Concrete Section.

2.02 REINFORCEMENT

A. The type, amount and locations of steel reinforcement shall be as shown and specified. Welded wire fabric shall conform to AASHTO M55. Dowels shall be plain steel bars conforming to AASHTO M31 or M42.

2.03 AGGREGATE BASE

A. The type and amount of aggregate base to be placed under concrete pavement shall be as shown on the drawings.

2.04 FORMS

A. Forms shall be of metal or wood, straight and suitable for the work involved in cross-section, depth and strength to resist springing during depositing and consolidating the concrete. Wood forms should be at least 2" thick. Forms shall not be used if they vary from a straight line more than 1/8" in any 10' long section in either a horizontal or vertical direction. Wood forms shall also be free from warp, twist, loose knots, splits or other defects. Approved flexible or curved forms shall be used for radius forming.

2.05 CONCRETE CURING MATERIALS

A. Concrete curing materials shall conform to one of the following:

1. Burlap conforming to AASHTO M182 having a weight of 7 ounces or more per square yard when dry.
2. Impervious sheeting conforming to AASHTO M171.
3. Liquid membrane curing compound conforming to AASHTO M148, Type 2, and shall be free of paraffin or petroleum.

2.06 EXPANSION JOINT FILLERS

A. Material shall be a non-extruding and resilient bituminous type and conform to AASHTO M 213.

3.00 EXECUTION

3.01 SUBGRADE PENETRATION

A. The subgrade shall be constructed, prepared and finished as specified in the Section 02315 - Excavating, Filling and Grading. The complete subgrade shall be tested for grade and cross-section with a template. The subgrade shall be maintained in a smooth, compacted condition in conformance with the required section and established grade until the succeeding operation has been accomplished.

3.02 SETTING FORMS

A. Base Support: The foundation under the forms shall be compacted and true to grade so that the form when set will be uniformly supported for its entire length at the grade as shown. Imperfections or variations in the foundation grade shall be corrected by filling or cutting and compacting.

- B. Form Setting: Set forms sufficiently in advance of the placing of the concrete to permit the performance and approval of all operation required with and adjacent to the form lines. Set forms to true line and grade and hold rigidly in place by the use of stakes, clamps, spreaders and braces in such a manner that the forms and joints are free from play or movement in any direction. Forms shall conform to line and grade with an allowable tolerance of 1/8" when checked with a straightedge and shall not deviate from true line by more than 1/4" at any point. Forms shall not be removed until removal will not result in damaged concrete or at such time to facilitate finishing. Forms shall be cleaned and oiled each time they are used.
- C. Alignment and grade elevations of the forms shall be established and controlled as specified in the General Requirements. Necessary corrections to forms shall be made immediately before placing concrete. When any form has been disturbed or any subbase thereunder has become unstable, the form shall be reset and rechecked before placing concrete.

3.03 EQUIPMENT

- A. Equipment and tools necessary for handling materials and performing all parts of the work shall be approved by the Owners Representative prior to commencement of work. Maintain this equipment and tools in satisfactory working condition at all times.

3.04 PLACING REINFORCEMENT

- A. Reinforcement shall be free from dirt, oil, rust, scale or other substances that prevent the bonding of the concrete to the reinforcement. Reinforcement shall be accurately and securely fastened in place with suitable supports and ties and shall be approved by the Owners Representative before the concrete is placed. No reinforcement shall be placed within 2" of an exposed surface. The type, amount and position of the reinforcement shall be as shown on the drawings.

3.05 PLACING CONCRETE - GENERAL

- A. Remove debris and other foreign material from between the forms before placing concrete. Approval of the Owners Representative shall be obtained before placing concrete. Before the concrete is placed, the subbase shall be uniformly moist, but without puddles of water. Concrete from mixer to final place of deposit shall be conveyed by method which will prevent segregation or loss of ingredients, and be deposited in such a manner as to require as little handling as possible. Necessary hand spreading shall be done with shovels, not rakes. While being placed, the concrete shall be spaded or vibrated and compacted with suitable tools so that the formation of voids or honeycomb pockets is prevented. The concrete shall be especially well spaded or vibrated and tamped against the forms and along all joints. Over-vibration or manipulation causing segregation will not be permitted. Concrete shall be placed continuously between joints without bulkheads. A construction joint shall be installed whenever the placing of concrete is suspended for more than 30 minutes and at the end of each days work. Workmen or construction equipment coated with foreign material shall not be permitted to walk or operate in the concrete during placement and finishing operations.

3.06 PLACING CONCRETE FOR VEHICULAR PAVEMENT

- A. Concrete shall be deposited into the forms as close as possible to its final position. The placing of concrete shall be rapid and continuous between construction joints. Concrete shall be struck off and thoroughly consolidated by a finishing machine, vibrating screed or by hand-finishing and the surface finished to the exact elevation and crown as shown. When the forward motion of the vibrating screed is stopped, the vibrator shall be shut off. Concrete shall be deposited as near the joints as possible without disturbing them but shall not be dumped onto a joint assembly. Adjacent lanes shall not be placed without approval by the Resident Engineer.

3.07 CONCRETE FINISHING - GENERAL

- A. Finishing operations shall be started immediately after placement of the concrete. Finishing shall be by the machine method or the hand method. The sequence of operations, unless otherwise indicated, shall be as follows: Consolidating, floating, straight-edging, troweling, texturing, and edging of joints. Finishing equipment and tools shall be maintained clean and in an approved condition and shall be as specified in Section 3.1 - Portland Cement Concrete.
- B. Surface finish shall be by the use of a wire comb device producing a textured surface and vehicular pavement.

3.08 JOINTS - GENERAL

- A. Joints shall be placed where shown and conform to the details as shown, and shall be perpendicular to the finished grade of the concrete surface. Joints shall be straight and continuous from edge of gutter to back of curb.

3.09 CONTRACTION JOINTS

- A. Joints shall be cut to depth as shown with a grooving tool or jointer of a radius as shown or by sawing with a blade producing the required width and depth. Finish edges of all joints with an edging tool having the radius as shown. Score pedestrian pavement with a standard grooving tool or jointer.

3.10 EXPANSION JOINTS

- A. Form expansion joints by means of a preformed expansion joint filler material of the thickness as shown. Material shall be full depth of concrete, cut and shaped to the cross-section as shown, except that top edges of joint filler shall be below the finished concrete surface where shown to allow for sealing. Anchor with approved devices to prevent displacing during placing and finishing operations. Edges of joints shall be rounded with an edging tool. Expansion joints without dowels shall be formed about structures and features that project through, into, or against any site work concrete construction, using joint filler of the type, thickness and width as shown, and installed in such a manner as to form a complete, uniform separation between the structure and the site work concrete item.

3.11 CONSTRUCTION JOINTS

- A. Locate longitudinal and transverse construction joints between slabs of vehicular pavement as shown. Place transverse construction joints of the type shown, where indicated and whenever the placing of concrete is suspended for more than 30 minutes. Use a butt-type joint with dowels in curb and gutter if the joint occurs at the location of a planned joint. Use keyed joints with tiebars if the joint occurs in the middle third of the normal curb and gutter joint interval. In forming construction joints, care shall be taken to form a definite groove at the top, to the depth and width shown, to provide a recess for joint sealing material and to prevent any overhang onto concrete already in place. Install keyed joints and reinforcement as shown.

3.12 FORM REMOVAL

- A. Forms shall remain in place at least 24 hours after the concrete has been placed. Remove forms without injuring the concrete. Bars or heavy tools shall not be used against the concrete in removing the forms. Any concrete found defective after form removal shall be repaired promptly.

3.13 SEALING JOINTS

- A. At the end of the curing, joints shall be carefully cleaned and filled with joint sealer as shown. The concrete at the joint shall be surface dry and the ambient temperature shall be above 50 degrees F at the time of application. The joint sealer shall not spill over the joint onto adjacent surface. Refill joints where necessary before final acceptance.

3.14 CURING OF CONCRETE

- A. Cure concrete by one of the following methods appropriate to the weather conditions and local construction practices, against loss of moisture and rapid temperature changes for at least 7 days from the beginning of the curing operation. Protect unhardened concrete from rain and flowing water. All equipment needed for adequate curing and protection of the concrete shall be on hand and ready to install before actual concrete placement begins. Provide protection as necessary to prevent cracking of the pavement due to temperature changes during the curing period. If any selected method of curing does not afford the proper curing and protection against concrete cracking, the damaged pavement will be removed and replaced and another method of curing shall be employed as directed by the Engineer.
- B. Burlap Mat: Minimum of 2 layers kept saturated with water for the curing period. Mats shall overlap each other at least 6".
- C. Impervious Sheeting: Waterproof paper, polyethylene-coated burlap, or polyethylene sheeting may be used. Polyethylene shall be at least 4 mils in thickness. The entire exposed concrete surface shall be wet with a fine spray of water and then covered with the sheeting material. Sheets shall overlap each other at least 12". Sheeting shall be securely anchored.
- D. Liquid Membrane Curing: Apply pigmented membrane-forming curing compound in 2 coats at right angles to each other at a rate of 200 square feet per gallon for both coats. The concrete shall not be allowed to dry before the application of the membrane. Joints designated to be sealed shall be cured by inserting moistened paper or fiber rope or covering with waterproof paper prior to application of the curing compound, in a manner to prevent the curing compound from entering the joint. Any area covered with curing compound and damaged during the curing period shall be resprayed immediately.

3.15 CLEANING

- A. After completion of the curing period, remove the curing material (other than liquid membrane) sweep the concrete clean, and after removal of all foreign matter from the joints, seal joints as herein specified. Clean the entire concrete of all debris and construction equipment as soon as curing and sealing of joints has been completed.

3.16 PROTECTION

- A. The contractor shall protect the concrete against all damage prior to final acceptance by the Owner. Remove concrete containing excessive cracking, fractures, spalling or other defects and reconstruct the entire section between regularly scheduled joints, when directed by the Engineer, and at no additional cost to the Owner. Exclude traffic from vehicular pavement until the concrete is at least 7 days old, or for a longer period of time if so directed by the Engineer.

3.17 FINAL CLEANUP

- A. Remove all debris, rubbish and excess material from the site.

END OF SECTION 321313

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321373 - PCC PAVEMENT SEALANTS

1.00 GENERAL

- A. The sealants shall be properly applied to all expansion joints. All expansion joints and cracks shall be sealed to reduce water infiltration.
- B. Related Documents:
 - 1. The general provisions of the Contract apply to the work specified in this section.

1.01 SUBMITTALS

- A. Concrete Joint Sealer product data and Certification.

2.00 PRODUCTS

- A. Concrete Joint Sealer, Hot-Poured Elastic Type: The sealer material shall be in accordance with ASTM D6690, Type II. The joint sealer material shall be packed and shipped in suitable commercial containers clearly marked with the name of the material, the name of the manufacturer, brand name, weight (mass), batch number, pouring temperature recommended by the manufacturer and maximum safe heating temperature.
- B. Silicone Expansion Joint Sealant: The sealant for expansion joints shall be in accordance with Sec 717.30. The silicone joint sealant shall be a rapid cure, self-leveling, cold applied, two-component silicone sealant. The sealant shall demonstrate resilience, flexibility and resistance to moisture and puncture upon curing. The sealant shall demonstrate resilience, flexibility and resistance to moisture and puncture upon curing. The sealant shall demonstrate excellent adhesion to Portland cement concrete, polymer concrete and steel over a range of temperatures from -30 to 130 F (-34 to 54 C), while maintaining a watertight seal. The sealant shall not contain any solvents or diluents that cause shrinkage or expansion during curing. Acid-cure sealants shall not be used. The date of manufacture or “use by” date shall be provided with each lot of sealant or primer. Material 12 months old or older from the date of manufacture or past the “use by” date shall not be used. The engineer reserves the right to test representative samples from material proposed for use. The manufacturer shall certify that the sealant meets or exceeds the following test requirements before installation begins:

| Physical Properties: | Requirement |
|--|---|
| Each component as supplied: Specific Gravity (ASTM D 1475) Extrusion Rate (ASTM C 1183) Durometer Hardness, Shore (ASTM D 2240) “00” (0 C and 25 C ± C [77± 3 F]) Ozone and U.V. Resistance (ASTM C 793) | 1.2 -1.4 200 – 550 g/minute 30 – 60 No chalking, cracking or bond loss after 5000 hrs. |
| After Mixing: Flow Tack-Free Time (ASTM C 679) | Self-Leveling 60 minutes maximum |
| Upon Complete Cure: (ASTM D 5329 ^a) Joint Elongation (Adhesion to concrete/ Steel/polymer concrete) Joint Modulus (at 100% elongation) | 600% minimum 3-12 psi (21 – 83 kPa) |

^aModified; Sample cured two days at 77 ± 2 F (25 ± 1 C) and 50 ± 5 percent

- C. Silicone Joint Sealant for Saw Cut and Formed Joints: The silicone joint sealant shall be a cold applied, single component, chemically curing gray sealant with 100 percent elongation and 50 percent compressive joint movement capability. The sealant shall be type NS (Non-Sag) and the physical properties shall be in accordance with ASTM D 5893 and the following:

| Physical Properties | Requirement |
|----------------------------|---|
| Color | Gray |
| Tack free time | 35 – 75 minutes |
| Cure time | 7 days @ 75 F – 90 F (24 C-32 C) and 45 – 55% relative humidity |
| Elongation | 1200 % minimum |

- D. Backer Rod: The backer rod shall be closed-cell as recommend by the sealant manufacture and shall be in accordance with ASTM D 5249, Type 3.

3.00 EXECUTION

- A. All sealants shall be applied by skilled applicators.
- B. Examine all surfaces prior to application of material and notify the Engineer of any conditions detrimental to a satisfactory application.
- C. All surfaces to receive sealants shall be dry and cleaned thoroughly of all foreign matter likely to affect the performance of the application. No material is to be applied when the temperature is below 40 degrees F.
- D. Concrete surfaces shall be cleaned with a wire brush and blown clean. Any waterproofing treatments which would contaminate the joint shall be completely removed.
- E. Where joints are deeper than 1/2", polyethylene joint backing shall be used and packed into the joint to within 1/2" of the surface. A size shall be selected so as to allow for a minimum of 30% compression of the backing where inserted into the joint. Where joints are greater than 3/4" wide, the backing shall be placed so that the depth of the joint to receive sealant does not exceed 1/4".
- F. Sealant shall be gun applied through a nozzle opening of such a diameter than the full bead of sealant is gunned into the joint, filling the joint completely (a superficial or skin bead shall be acceptable).
- G. All beads shall be tooled immediately after application to insure firm, full contact with the inner faces of the joint. Excess material shall be struck off with a tooling stick or knife.
- H. After tooling the finish bead, natural sand shall be spread and compacted into the sealant bead.
- I. The finished bead shall be flush with the surface, or as otherwise indicated.
- J. Remove all excess materials and smears adjacent to the joint as work progresses.

END OF SECTION 321373

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321600 - WALKS AND CURBS

1.0 GENERAL

- A. The Contractor shall furnish all labor, materials, tools, equipment and services necessary and incidental to complete all concrete walks and curbs.
- B. All sidewalk and curbs removed on this project shall be replaced with new sidewalk and curbs of the same width and thickness as the original or as shown on the plans.

2.0 PRODUCTS

- A. Concrete for walks and curbs shall comply with ADA requirements.

3.0 EXECUTION

- A. All concrete walks and curbs shall be constructed in accordance with this specification.
- B. Slopes: Provide 1/4" per foot crown or cross slope unless indicated otherwise. Make adjustments in slopes at intersections as necessary or directed to provide proper drainage.
- C. Finish: Tamp and screen the concrete true to grade and section, bring sufficient mortar to the surface for finishing and give a light broomed finish, provided that where the grade exceeds 6% the surface shall be given a belted or stiff broomed finish. Round all edges including those along expansion joints and grooves to a 1/4" radius.
- D. Expansion Joints: Provide 1/2" transverse expansion joints, with premolded filler, not more than 24' apart, and also at walk intersection walk abutments, buildings, platforms or other fixed structures. Expansion joints shall be at right angles to the slab and extend the full depth thereof. The premolded filler shall extend to within 1/4" of the surface.
- E. Grooves in Walks: Between expansion joints, cut grooves 1/8" to 1/4" wide and at least 1" deep with transverse grooves with a spacing approximately equal to the walk width, but not less than 4'.
- F. Concrete curbs shall be constructed as detailed on the drawings.

END OF SECTION 321600

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321623.00.A1 - ADA HANDICAP RAMPS - DETECTABLE, TRUNCATED DOME WARNING PANELS

1.00 GENERAL

- A. This section American Disabilities Act (ADA) Handicap Ramp – Detectable, Truncated Dome Warning Panels as specified herein. The Detectable Warning Panels shall be ADA Solutions or approved equal.

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. The work shall consist of all labor, material, tools, equipment and services necessary to satisfactorily complete the installation of detectable warning panel surfaces.

1.03 SUBMITTALS

- A. Manufacturer's product data including specifications and samples of detectable panels and installation methods and materials.
- B. Shop Drawings are required for products showing fabrication details, detectable panels surface profile, and plans of placement including joints.
- C. Material test reports from qualified independent testing laboratory indicating that the material proposed for use meets the physical properties indicated herein.
- D. Maintenance instructions for Warning Panels are required.

1.04 QUALITY ASSURANCE

- A. All Warning Panels are made to the highest compliance with the physical properties listed herein. Installation of Warning Panels shall only be done by a qualified contractor.
- B. Proven detectable warning surfaces which comply with the Americans with Disabilities Act.
- C. Cementitious Concrete Panels shall be an average compressive strength of 9,000 psi (62 MPa) and shall be reinforced with High Tensile 1/16" 7x7 304 Stainless Steel Tendons 4" on center both directions and both faces. Final prestress force after losses shall be 300 lbs per tendon, resulting in a net panel prestress of 172 psi in both directions.
- D. Physical Properties of the Warning Panel Composite:
 - 1. Compressive Strength ASTM C390 10,000 psi average
 - 2. Flexural Strength ASTM C140 750 lbs average
 - 3. Water Absorption ASTM C140 5" average
 - 4. Freeze Thaw Resistance ASTM C666 (300 cycles), <1%
 - 5. Freeze That Resistance ASTM C1262 (75 cycles), 3% NaCl, <1%
 - 6. Abrasion Resistance ASTM C418 4 cm³/50cm²

7. Slip Resistance ASTM D2047 Modified >.8 wet or dry

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Warning Panels shall be packaged or crated to prevent damage in shipment or handling.
- B. Panels shall be delivered to location at building site for storage prior to installation.

1.07 WARRANTY

- A. The Supply Company shall warrant to the Owner for 5 years after the date of purchase that the panels purchased shall be free from defects in material and workmanship and shall not split, crack, or delaminate under normal use and conditions. Suppliers warranty does not cover changes in color or damages arising from:
 1. Failure of substrate.
 2. Improper or poor installation.
 3. Improper maintenance or neglect.
 4. Abnormal use or any conditions resulting from other than ordinary wear and usage.
 5. Damage from use under vehicle, equipment, or other heavy loads.
 6. Natural disaster.
- B. In the event of any breach of warranty. The Supplier shall at its option repair or replace (but not install) the defective panels. The Owner must submit a written notice of warranty claim to the Supplier no later than 90 days after Owner has reason to know that the panels have failed to comply with warranty. Written Notice of such warranty claim shall be sent to Supplier. The Supplier shall have 30 days after receipt of such notice to inspect the panels prior to any alterations, change, or repair by owner.

2.00 PRODUCTS

2.01 MATERIALS

- A. ADA Solutions or Approved Equal Warning Panels for detectable warning surfaces.

3.00 EXECUTION

3.01 INSTALLATION

- A. Temperature affects the setting time and rate of strength of concrete, standard ACI procedures for storing, mixing, and placing concrete in hot or cold weather are recommended. See ACI 305 “Standards on Hot Weather Concreting”, or ACI 306 “Standard on Cold Weather Concreting”.
- B. Prepare a well drained and properly compacted subgrade. Leave no puddles, standing water, ice, frost, or mud. Consult contract documents for information on subgrade and compaction details.
- C. Position forms for proper grade, slopes and uniform slab thickness. Consult contract documents for details on reinforcement and control joint placement to prevent random cracking.
- D. The concrete specified shall conform to contract documents with a maximum slump of 4”. Concrete shall be poured and finished to the proper grade and slope prior to detectable panel placements. Concrete thickness shall be increased 1” in depth beneath area receiving warning panels.
- E. Consult contract documents for details on areas to receive detectable warning panels. Place panels at the bottom of curb ramps and other blended transitions. Detectable warning panels must have visual contrast with adjacent walking surfaces. Install across full width of ramp a minimum 24” in width and set back 8”

from bottom of curb. Provide adequate drainage to prevent the accumulation of water and debris on or at the bottom of ramp.

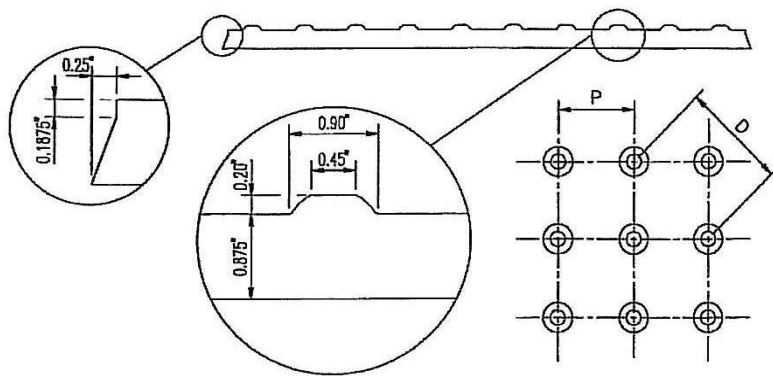
- F. Recessed panels below finish grade with an installation template tool before initial concrete set and level base with wood float to leave an open surface.
- G. Pre-dampen back of panels with potable water. Apply 1/8" thickness of PreMix (3:1 ration of powder to potable water) or (2:1:1 ration of Portland cement, clean masons sand and potable water). Work into keyed surface on back of panel with rubber float for 100% surface coverage. Alternatively a scrub coat of fresh concrete removed from the tool can be used as a parge coat.
- H. Install Detectable Panels immediately in fresh concrete and lightly tap panels to grade using a rubber mallet to insure bond and 100% surface contact with square edges of panels butted tightly together. Base of truncated dome should be flush with adjacent surfaces to permit proper drainage and eliminate tripping hazard between surfaces. Tolerance between detectable panels and surrounding surfaces is 1/16" maximum. Immediately after placement re-check slope and elevation for proper grade.
- I. Finish surrounding concrete flush with detectable panels. Edge around panels with 1/8" radius edger, install control joints and finish in accordance with project specifications.
- J. Clean concrete residue off panels with a damp hydra sponge to ensure a clean appearance.
- K. Fresh concrete surrounding detectable panels should be cured in accordance with ACI 308. Use a curing compound meeting ASTM C 309.

3.02 CLEANING

- A. Remove all unused material, tools, and equipment. Dispose of properly.
- B. If the detectable surface requires, clean the panels in accordance with Suppliers Cleaning and Maintenance Guide.

3.03 PROTECTION

- A. Protect the Warning Panels surface from traffic until desired strength is achieved. Protect if required until acceptance of work.
- B. Refer to detail on following page.

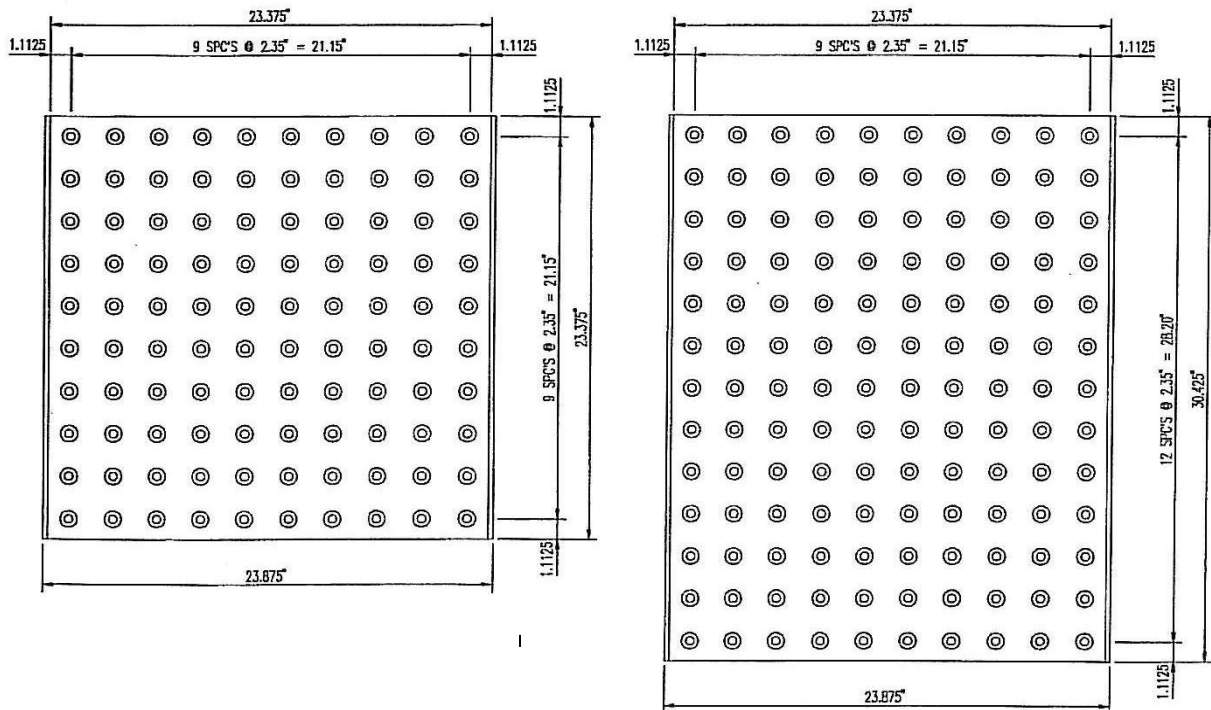


DOME SPECIFICATION

Americans with Disabilities Act 4.29.2 Standards
 Dome Base = 0.9" (23 mm)
 Dome Top = 0.45" (12 mm)
 Dome Height = 0.2" (5 mm)
 Dome Spacing (P) = 2.35" (60 mm)
 Dome Diag. Spacing (D) = 3.32" (85 mm)

PANEL SPECIFICATION

Panel Thickness = .0875" (22 mm)
 Panel PSI = 10,000 (69 Mpa) ASTM C39
 Reinforcement = 304 Stainless Steel 1/16"
 7x7 4" OC both directions and faces.
 Final prestress forces after loss, 300 lbs per
 tendon, net panel prestress force 172 psi in both
 directions.
 Slip Resistance = 0.80 ASTM D 2047 Modified



Nominal panel sizes include 1'x2', 2'x2', 2.5'x2' and 3'x2' for 4', 5' and 6' ramps.
 1'x2' radius panel and other custom sizes available.
 Available in yellow, red, black and white. Custom colors available.

END OF SECTION 321613.00.A1

DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 321713 - PARKING BLOCKS

1.0 GENERAL

1.1 SCOPE OF WORK

- A. Furnishing and installing Parking Blocks (Wheel Stops) in conformity with the drawings.
- B. Drawings and General Provisions of contract, including General and Special Conditions, apply to this section.

1.2 SUBMITTALS

- A. Manufacturer's specifications and/or catalog data listing geometry and materials for new Parking Blocks.
- B. Other information as the Owner's Representative may request.

2.0 PRODUCTS

2.1 MATERIALS

- A. New Parking Blocks shall be pre-formed rubber conforming to the following:
 - 1. Embed a minimum of two (2), #4 bars longitudinally in each unit. Drill or sleeve for two ½" rebar or pipe.
 - 2. Size:
 - a) Nominal Size: 4 inches high, 6 inches wide at base, and 6 feet long.
 - b) Profile: Manufacturer's Standard having a rectangular cross section with sloped vertical faces and square ends.

2.2 ANCHOR BARS

- A. Anchor bars shall be ½" rebar or pipe and shall be 2' – 0" in length.

3.0 EXECUTION

3.1 GENERAL

- A. Care will be taken in removal, handling, storing, and resetting of parking blocks.
- B. The Contractor at no extra cost to the Owner shall replace parking blocks, damaged or broken in removal or reinstallation.
- C. Parking Blocks removed and not noted to be reset, shall be removed from the site by the Contractor.

3.2 INSTALLATION

A. Installation of Parking Blocks shall be in accordance with the drawings.

END OF SECTION 321713

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321723 - PAVEMENT MARKINGS

1.0 GENERAL

1.1 SCOPE OF WORK

- A. Painting pavement marking of all types.
- B. Drawings and General Provisions of contract, including General and Special Conditions, apply to this section.

C. SUBMITTALS:

- a. Paint Product Data and Certification.

1.2 WORK INCLUDED

- A. Cleaning and preparation of surfaces to receive paint striping with a high pressure water sprayer. Cleaning shall be limited to only those surfaces to be striped.
- B. Paint in parking lines, safety zones, handicap zones, loading zones, no parking zones, in parking lots indicated on drawings.
- C. Protecting adjacent surfaces from paint drips, spatters and over spray.
- D. Protecting wet paint from vehicular and pedestrian traffic.

2.0 PRODUCTS

2.1 PAINT

- A. Paint for traffic applications shall be Acrylic Latex Pavement Marking Material conforming to MODOT 1048.90 without glass beads for white and yellow paint. The material shall have a no-track time of 10 minutes or less and applied at 16 mils wet film thickness at $70 \pm F$ ($21 \pm 1 C$).
- B. Paint for parking lot striping shall be chlorinated rubber conforming to TT-P-115F, epoxy pavement marking material without glass beads (per subsection A), or approved equal.
- C. Paint shall be manufactured by Pratt and Lambert, Glidden, Cook, Pittsburgh, Benjamin Moore, or approved equal.
- D. Paint type must be compatible with the surfaces to be painted.

2.2 COLORS

- A. Colors of paint shall be applied per the following color code:
 - 1. White: Parking space lines, stop bars, curbs, cross walks and directional arrows.
 - 2. Yellow: Loading zones, safety zones, no parking zones, curbs, and median edges.
 - 3. Blue: Access parking stalls.

4. Red: Fire Lanes.

2.3 MATERIALS

- A. Materials shall include standard commercial grade masking materials, scrapers, cleaning solvents, and other materials required for the work.
- B. Use only materials specified by the manufacturer's direction label on container.

2.4 CERTIFICATION

- A. The contactor shall furnish a manufacturer's certification to the engineer for each lot furnished, certifying that the material supplied conform to all requirements specified. The certification shall include or have attached typical results of all required tests. Acceptance of the material will be based on the manufacturer's certification and upon results of such tests as may be performed by the engineer. The certification shall show the quantity and lot number it represents.

2.5 DELIVERY AND STORAGE

- A. Deliver materials to the site in original containers with seals unbroken and labels intact. The pavement marking material shall be shipped to the job site in strong, substantial containers. The manufacturer shall include the MSDS with each shipment. The manufacturer's name and address, name of the product, lot number and/or batch number, color, tare weight, manufacturing date, and date of expiration.
- B. Protect all paint from freezing.
- C. Paint shall not be settled, caked or thickened in the container, and shall be readily stirred with a paddle to a smooth consistency.
- D. The Contractor shall ensure that all colors match the color selected by the Owner's Representative prior to application.

3.0 EXECUTION

3.1 EQUIPMENT FOR TRAFFIC APPLICATIONS AND PARKING LOTS

- A. The application equipment shall have a system capable of spraying both yellow and white pavement marking material in the proportions recommended by the manufacturer.

3.2 PROTECTION

- A. Prior to beginning cleaning or painting operations, Contractor shall protect all items or surfaces not included in area to be painted. Protection shall include vehicles, equipment, and structures, which shall be kept free of paint spatters, over spray or damage.
- B. Contractor shall provide fencing, barricades, signage, and other devices to protect all painted areas from pedestrian and vehicular traffic until sufficient drying time has been achieved.

3.3 SURFACE PREPARATION FOR TRAFFIC APPLICATIONS AND PARKING LOTS

- A. The pavement surface on which the pavement marking is placed shall be free of all debris, laitance and other contaminants that may hinder the adhesion of the system to the surface. Whenever grinding, scarifying, sandblasting, shot blasting or other operations are performed, the debris generated must be contained through vacuum type equipment or equivalent. The pavement surface shall not be left scarred

with an image that might mislead traffic. Any excess damage or scarring of the pavement shall be repaired at the contractor's expense.

- B. Removal and cleaning work shall be conducted in such a manner as to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owner.
- C. Care shall be taken on bituminous and Portland cement concrete surface when performing removal and cleaning work to prevent damage to transverse and longitudinal joints.
- D. After all cleaning operations are completed, the pavement surface shall be power broomed and then blown with compressed air to remove residue and debris resulting from the cleaning work. All such debris must be properly contained and disposed of as approved by the engineer.
- E. Limits of Work: Cleaning and surface preparation work shall be confined to the area specified for the application of the pavement marking materials; or the surface area of existing pavement markings that are specified for removal on the plans, or as directed by the engineer.
 - 1. Surface preparation work includes cleaning for lines.
 - 2. When lines are cleaned, the area of preparation shall be the width of the new pavement marking, or existing line, plus one inch (25mm) on each side of the line.
- F. Surface Preparation on Asphalt Surfaces: On new bituminous pavement cleaning operations shall not begin until after the asphalt mat has reached ambient temperature.

3.4 JOB CONDITIONS

- A. Painting shall be done immediately after final surfacing as practical unless instructed otherwise by the Owner's Representative.
- B. Adequate illumination shall be available.
- C. Surfaces to receive paint shall be examined carefully for defects, which might prevent satisfactory striping results.
 - 1. Do not paint over rust, scale, grease, oil, fuel, dust, moisture, or conditions otherwise detrimental to paint adhesion.
 - 2. Grease, oil, or fuel on any surface shall be removed before painting.
 - 3. Work shall not proceed until such defects are corrected.
- D. Contractor shall examine areas to be painted and notify Owner's Representative in writing of conditions that might delay timely completion of the work.

3.5 WEATHER CONDITIONS

- A. Painting shall not be performed when the ambient temperature is less than 55° F, while the surface is damp, or in rainy weather.
- B. The surface must be five degrees or more above the dew point temperature during painting operations and while paint is drying.
- C. Avoid painting while surfaces are exposed to direct sunlight.

3.6 PARKING LOT STRIPING APPLICATION

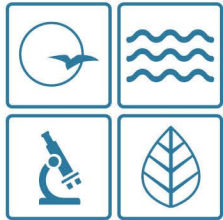
- A. Areas to be painted shall receive one coat of paint not less than 16 mils thickness wet.
 - 1. In locations requiring multiple coats, prior coat shall be dry to manufacturer's recommendations before applying succeeding coat.
- B. Finished work shall be uniform, of approved color, free of runs, drips, defective brushing, spraying, and clogging.
 - 1. Lines and symbols shall be neat and well defined.
 - 2. Only skilled applicators may be employed to apply paint.
 - 3. Application techniques shall be approved by Owner's Representative.

3.7 QUALITY CONTROL

- A. Remove paint splatter from adjacent areas or areas not designated to receive paint.
- B. Contractor shall repair or touch up any surfaces if exposed to vehicular and pedestrian traffic, to the satisfaction of the Owner's Representative, at no additional cost to the Owner.
- C. When color, dirt, stains, existing paint, etc., show through the final coat, the surface shall be repainted until the film is uniform in finish, coverage, color and appearance.

END OF SECTION 321723

APPENDICES



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/>.

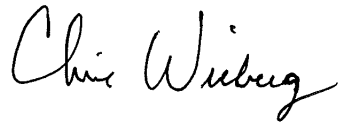


Office of Administration
Page Two

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

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