

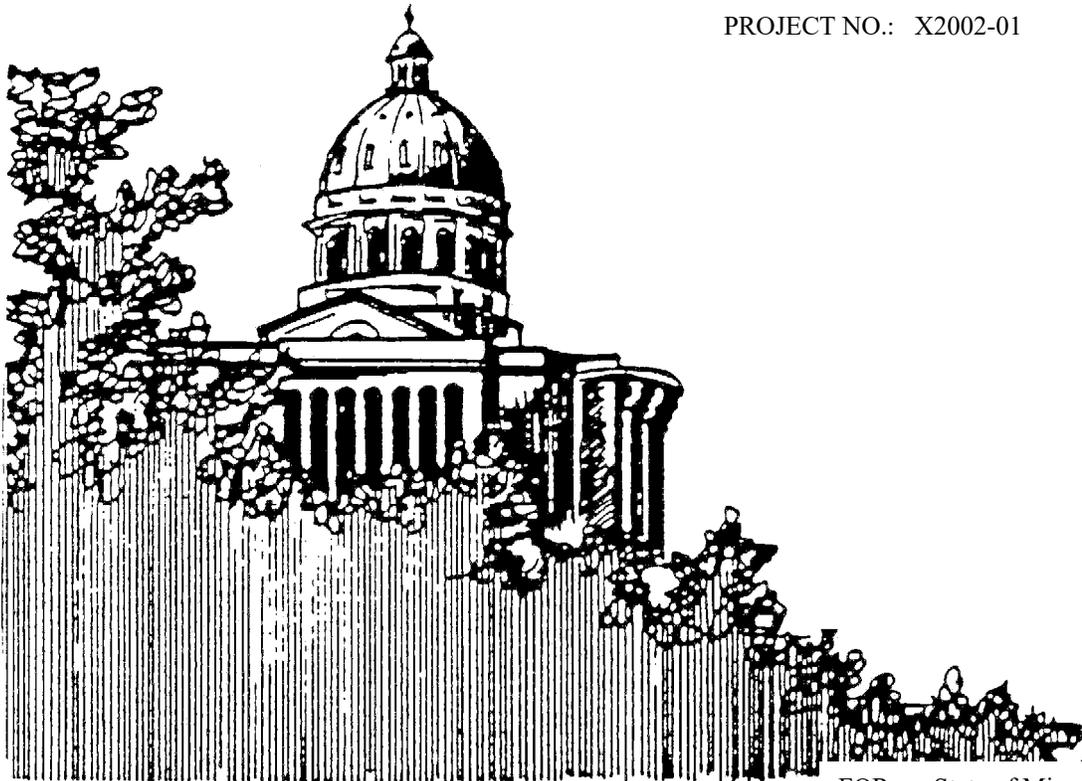
# PROJECT MANUAL

## Castlewood State Park Streambank Restoration Phase I Ballwin, Missouri

DESIGNED BY: STANTEC  
10509 Timberwood Circle  
Suite 100  
Louisville, KY 40223

DATE ISSUED: 3/24/2020

PROJECT NO.: X2002-01



FOR: State of Missouri  
Office of Administration  
Division of Facilities Management,  
Design and Construction

**SECTION 000107 - PROFESSIONAL SEALS AND CERTIFICATIONS**

**PROJECT NUMBER:** X2002-01 Castlewood State Park – Streambank Restoration Phase I

**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:**

Oakes Routt, P.E.  
Stantec Consulting Inc.,  
10509 Timberwood Circle  
Suite 100  
Louisville, KY 40223  
(502) 212-5083

Discipline: Civil Engineer  
License No.: PE-2017026130  
Expires: 12/31/2021



03/24/2020

**END OF SECTION 000107**

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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>	<u>CAD #</u>
1.	Cover Sheet	Sheet G-001	03/24/2020	G-001.dwg
2.	General Notes	Sheet G-002	03/24/2020	G-002.dwg
3.	Alignment Layout & Control Point	Sheet C-101	03/24/2020	C-101.dwg
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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:

Castlewood State Park  
Streambank Restoration  
Phase I  
Ballwin, Missouri

**Project No.: X2002-01**

### 3.0 BIDS WILL BE RECEIVED:

- A. Until: 1:30 PM, Thursday, June 4, 2020
- 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 The project consist of bank stabilization and riparian buffer planting. The work includes the uprooting and processing of trees left standing in the disturbance limits, installation of boulder toe with live brush layering, on-site transportation and installation of root wads, and native riparian vegetation installation.
- B. Estimate: \$165,000 to \$225,000
- C. MBE/WBE/SDVE Goals: MBE 10.00%, WBE 10.00%, & SDVE 3.00%. **NOTE: Only MBE/WBE firms certified by a State of Missouri public entity 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.**
- D. **\*\*NOTE:** Bidders are provided new Good Faith Effort (GFE) forms on MissouriBUYS.

### 5.0 PRE-BID MEETING:

- A. Place/Time: 11:00 AM; Thursday, May 21, 2020; Castlewood State Park, 1401 Kiefer Creek Road, Ballwin, MO 63021.
- 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 \$30 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: STANTEC, Oakes Routt, phone # 502-212-5083,
- B. Project Manager: Leanne Mattern, phone # 573-751-8618, fax # 573-751-7277

### 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 before access is granted to the solicitation details and bidding is possible, however, the bidder can review a summary of the project by selecting “Bid Board” and then checking off “Open” under “Status” and “OA-FMDC-Contracts Chapter 8” under “Organization” in the boxes shown on the left margin.
- B. Once registered, log in.
1. Under “Solicitation” select “View Current Solicitations.” A new screen will open.
  2. Under “Filter by Agency” select “OA-FMDC-Contracts Chapter 8.”
  3. Under “Filter by Opp. No.” type in the State Project Number. Select “Submit.”
  4. Above the dark blue bar, select “Other Active Opportunities.”
  5. 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.
- 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, we encourage you to submit a fake bid early. Label the fake bid as such to distinguish it from the real bid. The contracts person you contact will let you know if your “bid” was received successfully. Please contact Kelly Copeland: 573-522-2283, [kelly.copeland@oa.mo.gov](mailto:kelly.copeland@oa.mo.gov), Paul Girouard: 573-751-4797, [paul.girouard@oa.mo.gov](mailto:paul.girouard@oa.mo.gov) or Mandy Roberson: 573-522-0074, [mandy.roberson@oa.mo.gov](mailto: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](mailto:cathy.holliday@oa.mo.gov).

# IMPORTANT INFORMATION REGARDING REQUIREMENT FOR OEO CERTIFICATION

## SPECIFICATION CHANGES:

A. SECTION 002113 – INSTRUCTIONS TO BIDDERS: Article 14.0, Section B.1. (bottom of page 6 of 8): Delete: “an MBE or WBE must be certified by the State of Missouri, Office of Equal Opportunity and”.

To allow MBE, WBE, or MBE/WBE contractors, subcontractors, and suppliers to have ample time to register with the Office of Equal Opportunity, this requirement will not take effect until July 1, 2020. Until then, we will continue to accept certifications from the Office of Equal Opportunity and other Missouri certifying agencies.

## **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, will be required to undergo a fingerprint background check and obtain a State of Missouri identification badge prior to beginning work on site. The Bidder should review the information regarding this requirement in Section 013513 – Site Security and Health Requirements prior to submitting a bid.
- 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

- 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. In awarding the contract the Owner may take into consideration the bidder's skill, facilities, capacity, experience, responsibility, previous work record, financial standing and the necessity of prompt and efficient completion of work herein described. Inability of any bidder to meet the requirements mentioned above may be cause for rejection of his bid. However, no contract will be awarded to any individual,

partnership or corporation, who has had a contract with the State of Missouri declared in default within the preceding twelve months.

- 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 low bidder.
- E. No bid shall be considered binding upon the Owner until the written contract has been properly executed, a satisfactory bond has been furnished, evidence of required insurance coverage, submittal of executed Section 004541, Affidavit of Work Authorization form, documentation evidencing enrollment and participation in a federal work authorization program has been received and an affirmative action plan submitted. Failure to execute and return the contract and associated documents within the prescribed period of time shall be treated, at the option of the Owner, as a breach of bidder's obligation and the Owner shall be under no further obligation to bidder.
- F. If the successful bidder is doing business in the State of Missouri under a fictitious name, he shall furnish to Owner, attached to the Bid Form, a properly certified copy of the certificate of Registration of Fictitious Name from the State of Missouri, and such certificate shall remain on file with the Owner.
- G. Any successful bidder which is a corporation organized in a state other than Missouri shall furnish to the Owner, attached to the Bid Form, a properly certified copy of its current Certificate of Authority to do business in the State of Missouri, such certificate to remain on file with the Owner. No contract will be awarded by the Owner unless such certificate is furnished by the bidder.
- H. Any successful bidder which is a corporation organized in the State of Missouri shall furnish at its own cost to the Owner, if requested, a Certificate of Good Standing issued by the Secretary of State, such certificate to remain on file with the Owner.
- I. Transient employers subject to Sections 285.230 and 285.234, RSMo, (out-of-state employers who temporarily transact any business in the State of Missouri) may be required to file a bond with the Missouri Department of Revenue. No contract will be awarded by the Owner unless the successful bidder certifies that he has complied with all applicable provisions of Section 285.230-234.
- J. Sections 285.525 and 285.530, RSMo, require business entities to enroll and participate in a federal work authorization program in order to be eligible to receive award of any state contract in excess of \$5,000. Bidders should submit with their bid an Affidavit of Work Authorization (Section 004541) along with appropriate documentation evidencing such enrollment and participation. Section-004541, Affidavit of Work Authorization is located on the MissouriBUYS solicitation for this project. Bidders must also submit an E-Verify Memorandum before the Owner may award a contract to the Bidder. Information regarding a E-Verify is located at <https://www.uscis.gov/e-verify/>. The contractor shall be responsible for ensuring that all subcontractors and suppliers associated with this contract enroll in E-Verify.

#### **10.0 - CONTRACT SECURITY**

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

#### **11.0 - LIST OF SUBCONTRACTORS**

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

#### **12.0 - WORKING DAYS**

- A. Contract duration time is stated in working days and will use the following definition in determining the actual calendar date for contract completion:

1. Working days are defined as all calendar days except Saturdays, Sundays and the following State of Missouri observed holidays: New Year's Day, Martin Luther King, Jr. Day, Lincoln Day, Washington's Birthday, Truman Day, Memorial Day, 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 - 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.

**A. 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.

**B. 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/oeo/>). 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 (<http://oa.mo.gov/purchasing/vendor-information/missouri-service-disabled-veteran-business-enterprise-sdve-information>) or the Department of Veterans Affairs' directory (<https://www.vip.vetbiz.gov/>).
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).

**C. 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.

**D. 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 DIRECTORY***

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

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

Please note that you may search by MBE, WBE, or both as well as by region, location of the business by city or state, as well as by commodity or service.

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

<https://oa.mo.gov/sites/default/files/sdvelisting.pdf>

<https://www.vip.vetbiz.va.gov>



# State of Missouri Construction Contract

THIS AGREEMENT, made (DATE) by and between:

## *Contractor Name and Address*

hereinafter called the "Contractor,"

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

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:** **Castlewood State Park  
Streambank Restoration  
Phase I  
Ballwin, Missouri**

**Project Number:** **X2002-01**

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 performance time is **28** working days from the transmittal date of this agreement. The contract completion date is **MONTH, DAY, YEAR**. 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 \$300** 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: \$

**DELETE THE ALTERNATE INFORMATION IF NOT USED**

The Owner accepts the following Alternate Bids:

Alternate One: \$

**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.

***INSERT UNIT PRICE DESCRIPTIONS AND QUANTITY INCLUDED IN THE BASE BID FROM SECTION 01026***

**OR**

**IF NO Unit Prices are used, type "NOT APPLICABLE"**

**ARTICLE 5. PREVAILING WAGE RATE**

It is understood and agreed by and between the parties that not less than the prevailing hourly rate of wages shall be paid for work of a similar character 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 in the locality in which the work is performed, both as determined by the Department of Labor and Industrial Relations or as determined by the court on appeal, to all workmen employed by or on behalf of the Contractor or any subcontractor, exclusive of maintenance work. Only such workmen as are directly employed by the Contractor or his subcontractors, in actual construction work on the site shall be deemed to be employed.

When the hauling of materials or equipment includes some phase of the construction other than the mere transportation to the site of the construction, workmen engaged in this dual capacity shall be deemed to be employed directly on the project and entitled to the prevailing wage.

**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**

Contract documents shall consist of the following component parts:

- 1. Division 0, with executed forms
- 2. Division 1
- 3. Executed Construction Contract Form
- 4. The Drawings
- 5. The Technical Specifications
- 6. Addenda
- 7. Contractor's Proposal as accepted by the Owner

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

**APPROVED:**

\_\_\_\_\_  
 Mark Hill, P.E., Director  
 Division of Facilities Management,  
 Design and Construction

\_\_\_\_\_  
 Contractor's Authorized Signature

DELETE IF PRIVATE OR PARTNERSHIP

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
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NAME
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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
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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
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DATE
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**NOTARY INFORMATION**

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

**SECTION 006113 - PERFORMANCE AND PAYMENT BOND FORM**

KNOW ALL MEN BY THESE PRESENTS, THAT we \_\_\_\_\_

as principal, and \_\_\_\_\_

\_\_\_\_\_ as Surety, are held and firmly bound unto the

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

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

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

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Insert Project Title and Number)

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

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

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

**AS APPLICABLE:**

**AN INDIVIDUAL**

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

**A PARTNERSHIP**

Name of Partner: \_\_\_\_\_

Signature of Partner: \_\_\_\_\_

Name of Partner: \_\_\_\_\_

Signature of Partner: \_\_\_\_\_

**CORPORATION**

Firm Name: \_\_\_\_\_

Signature of President: \_\_\_\_\_

**SURETY**

Surety Name: \_\_\_\_\_

Attorney-in-Fact: \_\_\_\_\_

Address of Attorney-in-Fact: \_\_\_\_\_

Telephone Number of Attorney-in-Fact: \_\_\_\_\_

Signature Attorney-in-Fact: \_\_\_\_\_

**NOTE:** Surety shall attach Power of Attorney



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

PROJECT NUMBER

PROJECT TITLE AND LOCATION

CHECK APPROPRIATE BOX

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

FROM: BIDDER/CONTRACTOR (PRINT COMPANY NAME)

TO: ARCHITECT/ENGINEER (PRINT COMPANY NAME)

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

SPECIFIED PRODUCT OR SYSTEM

SPECIFICATION SECTION NO.

SUPPORTING DATA

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

**QUALITY COMPARISON**

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

**PREVIOUS INSTALLATIONS**

PROJECT	ARCHITECT/ENGINEER	DATE INSTALLED
LOCATION		

**SIGNIFICANT VARIATIONS FROM SPECIFIED PRODUCT**

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**REASON FOR SUBSTITUTION**

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**DOES PROPOSED SUBSTITUTION AFFECT OTHER PARTS OF WORK?**

YES     NO

IF YES, EXPLAIN

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**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:

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Substitution is accepted.

Substitution is accepted with the following comments:

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Substitution is not accepted.

ARCHITECT/ENGINEER

DATE



STATE OF MISSOURI  
 OFFICE OF ADMINISTRATION  
 DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION  
**FINAL RECEIPT OF PAYMENT AND RELEASE**

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**  
 SUBMIT WITH ALL INVOICES: (PLEASE CHECK APPROPRIATE BOX BELOW)  
CONSULTANT      CONSTRUCTION

INVOICE NO.	PROJECT NUMBER
CHECK IF FINAL <input type="checkbox"/> <b>FINAL</b>	DATE

PROJECT TITLE
PROJECT LOCATION
FIRM
TOTAL CONTRACT AMOUNT \$

THE PERCENTAGE AND DOLLAR AMOUNT OF THIS PROJECT THAT ARE TO BE MBE/WBE/SDVE AS INDICATED IN THE ORIGINAL CONTRACT:      % and \$ .

<b>CHECK</b> MBE WBE SDVE	ITEM OF WORK	TOTAL AMOUNT OF SUBCONTRACT	\$ AMOUNT & % COMPLETE (PAID-TO-DATE)	CONSULTANT/SUBCONSULTANT OR CONTRACTOR/SUBCONTRACTOR/SUPPLIER NAME, ADDRESS, CONTACT, AND PHONE NUMBER
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"/>		\$	\$  %	- -

ORIGINAL: Attach to ALL Progress and Final Payments



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)		<b>USE RUBBER STAMP IN CLEAR AREA BELOW</b>

FILE: Closeout Documents

# GENERAL CONDITIONS

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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

- A. 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.
- 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"**: Labor, material, supplies, plant and equipment required to perform and complete the service agreed to by the Contractor in a safe, expeditious, orderly and workmanlike manner so that the project shall be complete and finished 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, 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**

- A. 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**

- A. 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**

#### **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 plate 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 negotiated, and may vary according to the nature, extent, and complexity of the work

involved. However, the overhead and profit for the Contractor or subcontractor actually performing the work shall not exceed 14%. When one or more tiers of subcontractors are used, in no event shall any Contractor or subcontractor receive as overhead and profit more than 3% of the cost of the work performed by any of his subcontractors. In no case shall the total overhead and profit paid by the Owner on any Contract Changes exceed twenty percent (20%) 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 bonding and insurance to their cost of work. This 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 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 negotiated, and may vary according to the nature, extent and complexity of the work involved, but in no case shall be less than ten percent (10%). If the percentage for overhead and profit charged for work added by Contract Changes for this contract has been negotiated to less than 10%, the negotiated rate shall then apply to credits as well.
- 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**

- A. 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:

Oakes Routt  
Stantec  
10509 Timberwood Circle  
Louisville, KY 40223  
Telephone: 502-212-5083  
Email: [Oakes.Routt@stantec.com](mailto:Oakes.Routt@stantec.com)

Construction Representative,  
Project Manager

Leanne Mattern  
Division of Facilities Management, Design and Construction  
301 W. High St. Ste. 730  
Jefferson City, MO 65101  
Telephone: 573-751-8618; Fax: 573-751-7277  
Email: [leanne.mattern@oa.mo.gov](mailto:leanne.mattern@oa.mo.gov)

Contract Specialist:

Mandy Roberson  
Division of Facilities Management, Design and Construction  
301 West High Street, Room 730  
Jefferson City, Missouri 65102  
Telephone: 573-522-0074; Fax: 573-751-7277  
Email: [mandy.roberson@oa.mo.gov](mailto: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 10 complete sets of drawings and specifications at no charge.
- B. The Owner will furnish the Contractor with approximately 10 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 ILLEGAL IMMIGRATION REFORM AND IMMIGRANT RESPONSIBILITY ACT

The Contractor understands and agrees that by signing a contract for this project, they certify the following:

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

### 6.0 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. 26

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

Taylor Burks, Director  
Division of Labor Standards

Filed With Secretary of State: \_\_\_\_\_ **March 8, 2019**

Last Date Objections May Be Filed: **April 8, 2019**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	** Date of Increase	Basic Hourly Rates
Asbestos Worker		\$62.18
Boilermaker		\$34.43*
Bricklayer		\$57.54
Carpenter		\$55.75
Lather		
Linoleum Layer		
Millwright		
Pile Driver		
Cement Mason		\$51.54
Plasterer		
Communications Technician		\$53.72
Electrician (Inside Wireman)		\$63.21
Electrician Outside Lineman		\$68.18
Lineman Operator		
Lineman - Tree Trimmer		
Groundman		
Groundman - Tree Trimmer		
Elevator Constructor		\$34.43*
Glazier		\$61.38
Ironworker		\$59.87
Laborer		\$47.32
General Laborer		
First Semi-Skilled		
Second Semi-Skilled		
Mason		\$48.70
Marble Mason		
Marble Finisher		
Terrazzo Worker		
Terrazzo Finisher		
Tile Setter		
Tile Finisher		
Operating Engineer		\$59.71
Group I		
Group II		
Group III		
Group III-A		
Group IV		
Group V		
Painter		\$48.50
Plumber		\$68.44
Pipe Fitter		
Roofer		\$50.87
Sheet Metal Worker		\$65.87
Sprinkler Fitter		\$68.56
Truck Driver		\$34.43*
Truck Control Service Driver		
Group I		
Group II		
Group III		
Group IV		

\*The Division of Labor Standards received less than 1,000 reportable hours as required by RSMo 290.257.4(b). Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center, in accordance with RSMo 290.257.2.

OCCUPATIONAL TITLE	** Date of Increase	Basic Hourly Rates
Carpenter		\$56.25
Millwright		
Pile Driver		
Electrician (Outside Lineman)		\$63.17
Lineman Operator		
Lineman - Tree Trimmer		
Groundman		
Groundman - Tree Trimmer		
<b>Laborer</b>		<b>\$47.89</b>
General Laborer		
Skilled Laborer		
<b>Operating Engineer</b>		<b>\$60.56</b>
Group I		
Group II		
Group III		
Group IV		
Truck Driver		\$42.64
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 less than 1,000 reportable hours as required by RSMo 290.257.4(b). Public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center, in accordance with RSMo 290.257.2.

# 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 bank stabilization and riparian buffer planting.
  - 1. Project Location: This project is located within Castlewood State Park near Ballwin in St. Louis County, MO (centroid 38°33'6.36''N, 90°32'36.73''W).
  - 2. Owner: State of Missouri, Office of Administration, Division of Facilities Management, Design and Construction, Harry S Truman State Office Building, Post Office Box 809, 301 West High Street, Jefferson City, Missouri 65102.
- B. Contract Documents dated February 17, 2020 were prepared for the Project by Stantec Consulting, 10509 Timberwood Circle, Louisville, KY 40223.
- C. The Work consists of bank stabilization and riparian buffer planting.
  - 1. The Work includes the uprooting and processing of trees left standing in the disturbance limits, installation of boulder toe with live brush layering, on-site transportation and installation of root wads, and native riparian vegetation installation.
  - 2. Boulder toe with live brush layering is a commonly applied technique for streambank stabilization and habitat enhancement associated with aquatic resource mitigation. The purpose of the technique is to provide a natural and non-deformable boundary condition where streambank erosion is occurring.
  - 3. The stone used in the technique is installed up to the baseflow elevation of the water in the channel in order to provide a non-deformable foundation for the re-construction of the streambank. Root wads can be incorporated into the stone matrix to provide habitat and to help dissipate energy along the bank margin. The streambanks are re-constructed on top of the stone foundation by wrapping soil with woven coconut coir fiber blankets, securing it to the existing ground with wood stakes, and installing live willow (or other specified species) branches between the soil lift layers. The coir matting provides short term bank erosion protection while the vegetation roots and colonizes the soil lift. Once established, live stake vegetation also provides surface cover during flood flows and reduces near bank flow velocities.
- D. The Work will be constructed under a single prime contract.

#### **1.3 DESIGNER'S ESTIMATE OF CONSTRUCTION COST RANGE**

- A. The project designer has prepared this cost estimate range. The State of Missouri makes no guarantee regarding the accuracy of the estimate range nor does the State of Missouri intend to imply that the estimate range in any way reflects the actual cost required to perform the work represented by the specifications and drawings. The contractor should not rely on this estimate range in any way while preparing a bid for this project or otherwise.

Estimate Range: \$165,000 - \$225,000

#### **1.4 WORK SEQUENCE**

- A. The Work shall be conducted as follows.
  - 1. Stage 1: Identify project boundary, limits of disturbance, sensitive areas, staging area(s), stabilized entrances, haul routes, and access points with the Engineer. Install erosion control measures and construct staging areas.
  - 2. Stage 2: Excavate proposed channel and/or banks. Install habitat and bank stabilization features as required, grade floodplain, and cover with seed mix, straw, and erosion control blanket.
  - 3. Stage 3: Upon project approval, remove temporary erosion and sediment control measures. Provide final stabilization and add additional seed as necessary.
- B. The Contractor may propose an alternative work sequence. Any proposed alternative work sequence shall be contingent upon Engineer and State of Missouri approval.

#### **1.5 CONTRACTOR USE OF PREMISES**

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

#### **1.6 OCCUPANCY REQUIREMENTS**

- A. Full Owner Occupancy: The Owner will occupy the site 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.
- B. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.
  - 1. The Designer will prepare a Certificate of Partial Occupancy for each specific portion of the Work to be occupied prior to substantial completion.

#### **1.7 OWNER-FURNISHED PRODUCTS**

- A. The Owner will furnish approximately 30 standing trees, having DBH greater than 6 inches, with a at least a 15-foot standing height. The Work includes uprooting these

trees, transporting to the bank stabilization locations, trimming as necessary, and incorporating the trees into the boulder toe protection.

## **1.8 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. 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 COORDINATION**

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

#### **PART 2 - PRODUCTS (Not Used)**

#### **PART 3 - EXECUTION**

##### **3.1 SCHEDULE OF ALLOWANCES**

- A. Weather Allowance: Included within the completion period for this Project 4 “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. Quantities of Units to be included in the Base Bid are indicated in Section 004322 – Unit Prices.

#### **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.

#### **1.3 DEFINITIONS**

- A. Unit Price is a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

#### **1.4 PROCEDURES**

- A. Unit Prices include all necessary material plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of Unit Prices.
- 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 – Channel Excavation

1. Description: Channel Excavation according to Division 31 Section 312000 Earthwork
  2. Unit of Measurement: CY
  3. Base Bid Quantity: 1630
- B. Unit Price No. 2 – Fill
1. Description: Fill including channel and filling void space in boulder toe, according to Division 31 Section 312000 Earthwork
  2. Unit of Measurement: CY
  3. Base Bid Quantity: 990
- C. Unit Price No. 3 – Straw Mulch
1. Description: Straw mulch, material and installation, according to Division 31 Section 312500 Erosion and Sediment Controls
  2. Unit of Measurement: Bales
  3. Base Bid Quantity: 71
- D. Unit Price No. 4 – Temporary Construction Entrance
1. Description: Temporary Construction Entrance, material and installation, according to Division 31 Section 312510 Temporary Construction Entrance
  2. Unit of Measurement: Each
  3. Base Bid Quantity: 2
- E. Unit Price No. 5 – Live Brush Layering
1. Description: Live Brush Layering, material and installation for 3 lifts per running linear foot, according to Division 31 Section 313501.2 Live Brush Layering
  2. Unit of Measurement: L.F.
  3. Base Bid Quantity: 530
- F. Unit Price No. 6 – Boulder Toe with Root Wads
1. Description: Boulder Toe with Root Wads, material and installation, according to Division 31 Section 313502 Boulder Toe with Root Wads
  2. Unit of Measurement: L.F.
  3. Base Bid Quantity: 530
- G. Unit Price No. 7 – Temporary Seeding
1. Description: Temporary seeding, material and installation for all disturbed areas, according to Division 32 Section 329200 Turf and Grasses
  2. Unit of Measurement: AC
  3. Base Bid Quantity: 1.8
- H. Unit Price No. 8 – Permanent Seeding
1. Description: Permanent seeding, material and installation for all disturbed areas, according to Division 32 Section 329200 Turf and Grasses

2. Unit of Measurement: AC
  3. Base Bid Quantity: 1.8
- I. Unit Price No. 9 – Trees and Shrubs
1. Description: Trees and shrubs, material and installation, according to Division 32 Section 329300 Trees and Shrubs
  2. Unit of Measurement: Each
  3. Base Bid Quantity: 370
- J. Unit Price No. 10 – Live Stakes
1. Description: Live stakes, material and installation for gravel bar live stakes only, according to Division 32 Section 329350.1 Live Stakes
  2. Unit of Measurement: Each
  3. Base Bid Quantity: 7623

**END OF SECTION 012200**

## **SECTION 012600 – CONTRACT MODIFICATION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for handling and processing Contract Modifications.
- B. Related Sections include the following:
  - 1. Division 1, Section 012100 "Allowances" for procedural requirements for handling and processing Allowances.
  - 2. Division 1, Section 012200 "Unit Prices" for administrative requirements for using Unit Prices.
  - 3. Division 0, Section 007213, Article 3.1 "Acceptable Substitutions" for administrative procedures for handling Requests for Substitutions made after Contract award.
  - 4. 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 including mechanical and electrical.

- 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. Preinstallation conferences.
  - 7. Startup and adjustment of systems.
  - 8. 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. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
  
- B. Key Personnel Names: Within fifteen (15) work days of starting construction operations, submit a list of key personnel assignments including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
  - 1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

#### **1.5 PROJECT MEETINGS**

- A. The Owner's Construction Representative will schedule a Pre-Construction Meeting prior to beginning of construction. The date, time, and exact place of this meeting will be determined after Contract Award and notification of all interested parties. The

Contractor shall arrange to have the Job Superintendent and all prime Subcontractors present at the meeting. During the Pre-Construction Meeting, the construction procedures and information necessary for submitting payment requests will be discussed and materials distributed along with any other pertinent information.

1. Minutes: Designer will record and distribute meeting minutes.
- B. Progress Meetings: The Owner's Construction Representative will conduct Monthly Progress Meetings as stated in Articles 1.8.B and 1.8.C of Section 007213 "General Conditions".
1. Minutes: Designer will record and distribute to Contractor the meeting minutes.
- C. Preinstallation Conferences: Contractor shall conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of Manufacturers and Fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Designer and Construction Representative of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration including requirements for the following:
    - a. Contract Documents
    - b. Options
    - c. Related RFIs
    - d. Related Contract Changes
    - e. Purchases
    - f. Deliveries
    - g. Submittals
    - h. Review of mockups
    - i. Possible conflicts
    - j. Compatibility problems
    - k. Time schedules
    - l. Weather limitations
    - m. Manufacturer's written recommendations
    - n. Warranty requirements
    - o. Compatibility of materials
    - p. Acceptability of substrates
    - q. Temporary facilities and controls
    - r. Space and access limitations
    - s. Regulations of authorities having jurisdiction
    - t. Testing and inspecting requirements

- u. Installation procedures
  - v. Coordination with other Work
  - w. Required performance results
  - x. Protection of adjacent Work
  - y. Protection of construction and personnel
3. Contractor shall record significant conference discussions, agreements, and disagreements including required corrective measures and actions.
  4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
  5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
  6. Revise paragraph below if Project requires holding progress meetings at different intervals. Insert special intervals such as "every third Tuesday" to suit special circumstances.
  7. Project name
  8. Name and address of Contractor
  9. Name and address of Designer
  10. RFI number including RFIs that were dropped and not submitted
  11. RFI description
  12. Date the RFI was submitted
  13. Date Designer's response was received
  14. Identification of related DSI or Proposal Request, as appropriate

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 013100**

## **SECTION 013200 – SCHEDULE – BAR CHART**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

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

### **PART 2 - PRODUCTS – (Not Applicable)**

### **PART 3 - EXECUTION**

#### **3.1 SUBMITTAL PROCEDURES**

- A. The Contractor shall submit to the Designer, within ten (10) working days following the Notice to Proceed, a Progress Schedule including Schedule of Values showing the rate of progress the Contractor agrees to maintain and the order in which he proposed to carry out the various phases of Work. No payments shall be made to the Contractor until the Progress Schedule has been approved by the Owner.
- 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. Deliveries
  5. Installation

6. Adjusting
  7. 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.
- E. Construction Photographs: The Contractor shall submit record construction photographs as specified in this Section and in other Sections of the Contract Documents.
  1. The Contractor shall submit digital photographs. The Construction Administrator shall determine the quantity and naming convention at the preconstruction meeting.
  2. The Contractor shall identify each photograph with project name, location, number, date, time, and orientation.
  3. The Contractor shall submit progress photographs monthly unless specified otherwise. Photographs shall be taken one (1) week prior to submitting.
  4. The Contractor shall take four (4) site photographs from differing directions and a minimum of five (5) interior photographs indicating the relative progress of the Work.

**1.8 OPERATING AND MAINTENANCE MANUALS AND WARRANTIES**

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

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION**

**3.1 REQUIRED SUBMITTALS**

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

SECTION	DESCRIPTION	TYPE OF SUBMITTAL											
		Shop Drawings	Product Data	Sample	Certifications	Manufacturer’s Instruc-	Test report	Inspection Report	Wiring Diagrams	Record Photographs	Maintenance Data	Operating Instruction	Warranty
310516	Aggregate		X										
311000	Site Clearing	See Specification											
312500	Erosion Protection and Sedi- ment Control		X		X								
313501.2	Live Brush Layering		X		X								
314000	Geosynthetics		X		X								
329200	Turf and Grasses		X		X								
329300	Trees and Shrubs		X		X								
329350.1	Live Stakes		X		X								

**END OF SECTION 013300**

## **SECTION 013513.31 – SITE SECURITY AND HEALTH REQUIREMENTS (DNR)**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUBMITTALS**

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

### **PART 2 - PRODUCTS (Not Applicable)**

### **PART 3 - EXECUTION**

#### **3.1 ACCESS TO THE SITE**

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

#### **3.2 FIRE PROTECTION, SAFETY, AND HEALTH CONTROLS**

- A. The Contractor shall take all necessary precautions to guard against and eliminate possible fire hazards.
  - 1. Onsite burning is prohibited.
  - 2. The Contractor shall store all flammable or hazardous materials in proper containers located outside the buildings or offsite, if possible.
  - 3. The Contractor shall provide and maintain, in good order, during construction fire extinguishers as required by the National Fire Protection Association. In areas of

flammable liquids, asphalt, or electrical hazards, 15-pound carbon dioxide or 20-pound dry chemical extinguishers shall be provided.

- B. The Contractor shall not obstruct streets or walks without permission from the Owner's Construction Representative and Facility Representatives.
- C. The Contractor's personnel shall not exceed the speed limit of 15 mph while at the Facility unless otherwise posted.
- D. The Contractor shall take all necessary, reasonable measures to reduce air and water pollution by any material or equipment used during construction. The Contractor shall keep volatile wastes in covered containers, and shall not dispose of volatile wastes or oils in storm or sanitary drains.
- E. The Contractor shall keep the project site neat, orderly, and in a safe condition at all times. The Contractor shall immediately remove all hazardous waste, and shall not allow rubbish to accumulate. The Contractor shall provide onsite containers for collection of rubbish and shall dispose of it at frequent intervals during the progress of the Work.
- F. For all hazardous materials brought onsite, Material Safety Data Sheets shall be on site and readily available upon request at least a day before delivery.
- G. Alcoholic beverages or illegal substances shall not be brought upon the Facility premises. The Contractor's workers shall not be under the influence of any intoxicating substances while on the Facility premises.

### **3.3 DISRUPTION OF UTILITIES**

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

**END OF SECTION 013513.31**

## **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. The Bid Item Mobilization/Demobilization has a designated unit of measurement “each”. It is anticipated that the Contractor shall only need 1 mobilization/demobilization effort.
- C. Temporary utilities include, but are not limited to, the following:
  - 1. Water service and distribution
  - 2. Temporary electric power and light
  - 3. Temporary heat
  - 4. Ventilation
  - 5. Telephone service
  - 6. Sanitary facilities, including drinking water
  - 7. Storm and sanitary sewer
- D. Support facilities include, but are not limited to, the following:
  - 1. Field offices and storage sheds
  - 2. Temporary roads and paving
  - 3. Dewatering facilities and drains
  - 4. Temporary enclosures
  - 5. Hoists and temporary elevator use
  - 6. Temporary project identification signs and bulletin boards
  - 7. Waste disposal services
  - 8. Rodent and pest control
  - 9. Construction aids and miscellaneous services and facilities
- E. Security and protection facilities include, but are not limited to, the following:
  - 1. Temporary fire protection
  - 2. Barricades, warning signs, and lights
  - 3. Sidewalk bridge or enclosure fence for the site
  - 4. Environmental protection

### **1.3 SUBMITTALS**

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Within (15) days of the date established for commencement of the Work, submit a schedule indicating implementation and termination of each temporary utility.

### **1.4 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
- B. Standards: Comply with NFPA 241 “Standard for Safeguarding Construction, Alterations, and Demolition Operations”. ANSI A10 Series standards for “Safety Requirements for Construction and Demolition”, and NECA Electrical Design Library “Temporary Electrical Facilities”.
  - 1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 “National Electric Code”.
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

### **1.5 PROJECT CONDITIONS**

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

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. General: Provide new materials. If acceptable to the Designer, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.

- B. Lumber and Plywood: Comply with requirements in Division 6 Section “Rough Carpentry”.
  - 1. For job-built temporary office, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
  - 2. For signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sized and thicknesses indicated.
  - 3. For fences and vision barriers, provide minimum 3/9” (9.5mm) thick exterior plywood.
  - 4. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8” (16mm) thick exterior plywood.
- C. Gypsum Wallboard: Provide gypsum wallboard on interior walls of temporary offices.
- D. Roofing Materials: Provide UL Class A standard-weight asphalt shingles or UL Class C mineral-surfaced roll roofing on roofs of job-built temporary office, shops, and shed.
- E. Paint: Comply with requirements of Division 9 Section “Painting”.
  - 1. For job-built temporary offices, shops, sheds, fences, and other exposed lumber and plywood, provide exterior-grade acrylic-latex emulsion over exterior primer.
  - 2. For sign panels and applying graphics, provide exterior-grade alkyd gloss enamel over exterior primer.
  - 3. For interior walls of temporary offices, provide two (2) quarts interior latex-flat wall paint.
- F. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of (15) or less. For temporary enclosures, provide translucent, nylon-reinforced laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- G. Water: Provide potable water approved by local health authorities.
- H. Open-Mesh Fencing: Provide 0.120” (3mm) thick, galvanized 2” (50mm) chainlink fabric fencing 6’ (2m) high with galvanized steel pipe posts, 1½” (38mm) ID for line posts and 2½” (64mm) ID for corner posts.

## 2.2 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Designer, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
- B. Water Hoses: Provide ¾” (19mm), heavy-duty, abrasion-resistant, flexible rubber hoses 100’ (30m) long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.

- D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage rating.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixture where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- H. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated re-circulation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- I. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers, or a combination of extinguishers of NFPA-recommended classes for the exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

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

### **3.2 TEMPORARY UTILITY INSTALLATION**

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
  - 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.

4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Designer. Neither the Owner nor Designer will accept cost or use charges as a basis of claims for Contract Change.
- 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.
  - C. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a health and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
    1. Provide paper towels or similar disposable materials for each facility.
    2. Provide covered waste containers for used material.
    3. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
  - D. Drinking-Water Facilities: Provide drinking-water fountains where indicated, including paper cup supply.
  - E. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

### **3.3 SUPPORT FACILITIES INSTALLATION**

- A. General: Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.
  1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Storage facilities: Install storage sheds sized, furnished, and equipped to accommodate materials and equipment involved. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere onsite.
- 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 OPERATION, TERMINATION AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
  
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  - 2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
  
- C. Termination and Removal: Unless the Designer requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.
  - 2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances as required by the governing authority.

**END OF SECTION 015000**

## **SECTION 017400 – CLEANING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

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

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS**

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

### **PART 3 - EXECUTION**

#### **3.1 PROGRESS CLEANING**

- A. General
  - 1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
  - 2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
  - 3. At least once 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.

### **3.2 FINAL CLEANING**

- A. General: Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning.
- B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the Project.
  1. Clean the Project Site, yard and grounds, in areas disturbed by construction activities including landscape development areas, of rubbish, waste material, litter, and foreign substances.
  2. Sweep paved areas broom clean. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
  3. Remove petrochemical spills, stains, and other foreign deposits.
  4. Remove tools, construction equipment, machinery, and surplus material from the site.
  5. 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.
  6. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- C. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.
- D. Compliances: Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of lawfully.
  1. Where extra materials of value remain after Final Acceptance by the Owner, they become the Owner's property.

**END OF SECTION 017400**

## **SECTION 310516 – AGGREGATE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.
- B. In addition to complying with all pertinent codes and regulations, the Contractor shall comply with all applicable provisions of the following standards.
  - 1. Missouri Department of Transportation (MODOT) Standard Specifications for Highway Construction, 2019 edition.

#### **1.2 SUMMARY**

- A. This Section includes:
  - 1. Machined stone for Temporary Construction Entrances and Boulder Toe with Root Wads structures.
  - 2. Existing channel material including cobble, gravel, and fine sediments
- B. Related Sections include the following:
  - 1. Division 31 Section 312510 “Temporary Construction Entrance”.
  - 2. Division 31 Section 313502 “Boulder Toe with Root Wads”.
  - 3. Division 31 Section 313810 “Native Rock Riffle”.
  - 4. Division 31 Section 313850 "Rock Silt Screen".

#### **1.3 SUBMITTALS**

- A. The Contractor shall furnish the Engineer with a classification and gradation curve for each material and certification that the aggregate materials meet these Specifications.
- B. Certifications shall be supplied ten (10) working days prior to any material arriving at the job site.

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS**

- A. Machined Stone
  - 1. Machined stone to be used for the Temporary Construction Entrances shall consist of MODOT Type I Rock Ditch Liner and Type 7 Aggregate for Base that meets the requirements of MODOT Standard Specifications for Highway Construction, Section 609.60 and Section 1007, 2019 edition, respectively.
  - 2. Boulder Toe with Root Wads structures shall consist of MODOT Type IV Rock Ditch Liner that meets the requirements of MODOT Standard Specifications for Highway Construction, Section 609.60, 2019 edition.
- B. Potential Supplier (Contractor not limited to list below):

1. Mid-Missouri Limestone, Inc.  
322 Robbler Vineyard Road  
New Haven, MO 63068  
888-637-8367
  2. BMC Stone, LLC (St. Louis)  
P.O. Box 440459  
St. Louis, MO 63144  
636-685-8006
  3. Antire Quarry  
680 Bussen Road  
Eureka, MO 63025  
636-938-4910
- C. Existing Channel Material
1. Existing channel material shall consist of cobble, gravel, and fine sediments located within the existing channel bed. Source location shall be approved onsite by the Engineer.
  2. Boulder Toe with Root Wads structures shall use existing channel bed material to fill the voids of the Type IV Rock Ditch Liner.
  3. Native Rock Riffle structures shall be constructed completely of native cobbles and gravels.
  4. Rock Silt Screen structures shall be constructed completely of existing channel material.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Any contamination of machined stone from deleterious materials shall be reason to reject and replace the machined stone.

### **3.2 PLACEMENT**

- A. Machined stone for the construction entrance (Type I Rock Ditch Liner) shall be placed in maximum 6-inch loose lifts).
- B. Machined stone shall be placed as shown on the Plans for Construction by mechanical means using an excavator or loader. The maximum allowable drop height for machined stone placement is 2 feet. Machined stone shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of the underlying materials. The stone shall be delivered and placed in a manner that results in a reasonably homogeneous appearance, with the larger stones uniformly distributed and firmly in contact one to another and with the smaller stones and spalls filling the voids between the larger stones.
- C. Machined stone (Type IV Rock Ditch Liner) for the Boulder Toe with Root Wads structures shall be placed in accordance with Section 313502 "Boulder Toe with Root Wads" of these Construction Specifications and as shown on the Plans for Construction.

- D. Existing channel material for the Boulder Toe with Root Wads structures shall be placed in accordance with Section 313502 "Boulder Toe with Root Wads" of these Construction Specifications and as shown on the Plans for Construction.
- E. Existing gravel and cobble material for the Native Construction Riffle structures shall be placed in accordance with Section 313810 "Native Rock Riffle" of these Construction Specifications.
- F. Existing channel material for the Rock Silt Screen structures shall be placed in accordance with Section 313850 "Rock Silt Screen" of these Construction Specifications and as shown on the Plans for Construction.

**END OF SECTION 310516**

## **SECTION 311000 – SITE CLEARING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes:
  - 1. Removing existing vegetation and topsoil.
  - 2. Removing trees and backfilling voids from root wads.
- B. Related Sections include the following:
  - 1. Division 31 Section 312000 “Earthwork”.
  - 2. Division 31 Section 312500 “Erosion and Sediment Controls”.
  - 3. Division 32 Section 329200 “Turf and Grasses”.

#### **1.3 SUBMITTALS**

- A. Contractor shall submit a Maintenance of Traffic Plan for review and approval by the Engineer and the Owner prior to commencing construction.
- B. Survey data identifying and accurately showing locations of any utilities and other structural, electrical, and mechanical conditions within the construction limits that are not shown on the Plans for Construction.

#### **1.4 PROJECT CONDITIONS**

- A. Traffic: Minimize interference with haul routes and on-going operations at the facility during site-clearing operations.
  - 1. Do not close or obstruct roadways, haul routes, or adjacent facilities without permission from the Owner and authorities having jurisdiction.
  - 2. Comply with the approved Maintenance of Traffic Plan.
- B. Utility Locator Service: Contractor shall locate, mark, and verify all utilities prior to construction.
- C. Erosion and Sediment Control: Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place in accordance with Section 312500 “Erosion and Sediment Controls” of these Specifications.
- D. The Contractor shall mark or designate ALL trees that are intended for removal and get approval from the Engineer and Owner before actual removal. Tree clearing or removal shall be performed in accordance with the project permits and local, state, and federal regulations.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Soil fill for use in backfilling voids following root wad removal shall meet the requirements outlined in Section 312000 "Earthwork" of these Construction Specifications.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Protect and maintain any benchmarks and survey control points from disturbance during construction as shown on Plans for Construction.
- B. Protect any structures, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations. Restore damaged facilities to their original condition as acceptable to the Owner.
- C. The Contractor shall be responsible for the maintenance of all haul routes and staging areas used during construction, and shall restore said areas to their original condition, or better, once construction is complete, unless otherwise indicated by the Owner. Actions must be taken to minimize the tracking of mud and soil from the project area onto the existing roads. Soil or mud tracked from the site and on roads shall be removed daily and in accordance with Section 312500 "Erosion and Sediment Controls" of these Construction Specifications.
- D. All areas to be excavated shall be stripped of topsoil where small shrubs and grasses are growing, and the topsoil shall be stockpiled separately for later replacement. Care shall be taken to disturb trees or their roots unless otherwise directed by the Engineer.

### **3.2 EROSION AND SEDIMENT CONTROL**

- A. Provide temporary erosion and sedimentation control measures prior to site clearing to prevent soil erosion and discharge of sediment-laden runoff from the site. Install measures according to Section 312500 "Erosion and Sediment Controls" of these Specifications. Refer to the Plans for Construction for specific requirements.
- B. Inspect, maintain, and repair erosion and sedimentation control measures during construction until permanent vegetation has been established. Repairs are to be approved by the Engineer or the designated representative.
- C. Sediment control devices that must be removed to allow work to be performed shall be removed immediately before work occurs and re-installed as soon as practicable afterward.

### **3.3 TREE REMOVAL**

- A. Tree removal shall be accomplished in a manner that will not result in damage to any existing utilities, structures, or trees not designated for removal. Tree removal shall include removal of the stump to at least one foot below the finished grade where excavation is to occur. Stump removal shall be performed by mechanical excavation. Areas where trees are being removed for trail or road clearing, trees may be cut flush

with the ground as approved by the Owner or Engineer. Trees that have been trimmed and left standing are marked for removal and use in bank stabilization structures shall be removed with care.

- B. It is emphasized that damage to trees is prohibited unless authorized by the Engineer. Prior to construction, the Engineer may mark trees designated for removal. Any tree not marked shall remain and be protected by the Contractor unless otherwise directed by the Owner or Engineer.
- C. The Contractor shall replace any tree damaged during construction not identified for removal on the plans or by the Engineer to the satisfaction of the Owner and at no additional cost to the Owner or the Engineer.

### **3.4 DISPOSAL OR SURPLUS AND WASTE MATERIAL**

- A. Remove obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them at a permitted disposal location. The Contractor is responsible for identifying a permitted, off-site disposal location of surplus and waste material.

**END OF SECTION 311000**

## **SECTION 312000 – EARTHWORK**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes:
  - 1. Excavation.
  - 2. Subgrade.
  - 3. Backfill for Boulder Toe with Root Wads and Live Brush Layering Structures.
  - 4. Topsoil.
  - 5. Finish Grading.
  - 6. Disposal.
- B. Related Sections include the following:
  - 1. Division 31 Section 310516 “Aggregate”.
  - 2. Division 31 Section 311000 “Site Clearing”.
  - 3. Division 31 Section 312500 “Erosion and Sediment Controls”.
  - 4. Division 31 Section 313501.2 “Live Brush Layering”.
  - 5. Division 31 Section 313502 “Boulder Toe with Root Wads”.
  - 6. Division 32 Section 329200 “Turf and Grasses”.

#### **1.3 DEFINITIONS**

- A. Backfill: Material used to fill an excavation or to build out the existing banks from the subgrade of the Boulder Toe with Root Wads and Live Brush Layering structures. Backfill may consist of native gravel and fines excavated from the stream channel during channel grading operations.
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill, backfill, or topsoil.
- C. Topsoil: Top layer of soil used to meet final grade and as interim cover to establish vegetation.
- D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
- E. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below topsoil or structures.

## **PART 2 - PRODUCTS**

### **2.1 SOIL MATERIALS**

- A. Provide borrow soil materials from off-site when sufficient satisfactory soil materials are not available from excavations.
- B. Topsoil shall be obtained from sources approved by the Engineer. Topsoil shall be fertile, friable and loamy soil of uniform quality, without admixture of subsoil material, and shall be free from material such as hard clods, stiff clay, hardpan, partially disintegrated stone, pebbles larger than one inch in diameter and other impurities. Topsoil shall be relatively free from grass, roots, weeds and other objectionable plant material or vegetative debris undesirable or harmful to plant life or which will prevent the formation of a suitable seedbed.
- C. Potential Suppliers (Contractor not limited to list below):
  - 1. Fick Supply Services  
501 N. Eatherton Road  
Wildwood, MO 63005  
636-532-4978
  - 2. St. Louis Composting, Inc.  
39 Old Elam Ave  
Valley Park, MO 63088  
636-861-3344
  - 3. Kurtz Nursery  
2054 Swaying Oakes Road  
Wentzville, MO 63385  
636-332-1928

### **2.2 MACHINED STONE**

- A. Machined stone shall meet the requirements outlined in Section 310516 "Aggregate" of these Construction Specifications.

## **PART 3 - EXECUTION**

### **3.1 EXCAVATION**

- A. Excavation shall be accomplished by mechanical means. No blasting will be permitted. Any property damage caused by rock excavation operations shall be the responsibility of the Contractor. Excavation shall be shaped and graded as shown on the Plans for Construction.
- B. During excavation, suitable materials may be used as fill for the construction of Live Brush Layering structures as shown in the Plans for Construction. Utilization of excavated materials for this purpose shall occur as directed by the Engineer.
- C. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials. Unsatisfactory soil materials and rock shall be hauled off site unless otherwise directed by the Engineer.

- D. All excavations shall be prepared in accordance with the Occupational Safety and Health Administration (OSHA) standards. Stability of excavation slopes is the responsibility of the Contractor.

### **3.2 SUBGRADE**

- A. Notify Engineer when excavations have reached required subgrade.
- B. If Engineer determines that unsatisfactory subgrade conditions, materials, or soft areas are present, continue excavation and replace with compacted backfill or crushed stone as directed by the Engineer.
- C. The subgrade surface of the Boulder Toe with Root Wads structures, before building the structure, shall be compacted utilizing the bucket of a tracked excavator such that future settlement of the subgrade is minimal.
- D. Hand compaction shall be used for fill areas inaccessible to a tracked excavator and areas within two feet of any buried pipe or structure.
- E. Adjustments in the compactive effort may be made by the Engineer as the construction progresses. Outside of the fill areas, care shall be taken to avoid over-compaction.
- F. No fill or backfill shall be placed on frozen material or subgrade.
- G. No frozen fill or backfill shall be placed or otherwise incorporated into the work.
- H. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Engineer, without additional compensation.

### **3.3 BACKFILL FOR BOULDER TOE WITH ROOT WADS AND LIVE BRUSH LAYERING STRUCTURES**

- A. Prior to construction of the Boulder Toe with Root Wads and Live Brush Layering structures, suitable backfill material shall be used to construct the subgrade for the new stream bank.
- B. Backfill material shall be compacted as described above, in paragraph 3.2 Subgrade.

### **3.4 TOPSOIL**

- A. Plow, scarify, or break up smooth surfaces of existing material to promote bonding with topsoil.
- B. Place topsoil on surfaces free of mud, frost, snow, or ice. Topsoil shall be a minimum of four (4) inches thick on all finished surfaces.
- C. The distribution and gradation of material throughout the topsoil shall be such that this layer is free of lenses, pockets, streaks or layers of soft material differing substantially in texture or gradation from the surrounding material.
- D. Efforts to establish vegetation shall begin as soon as practicable after the topsoil has been approved by the Engineer.

### **3.5 FINISH GRADING**

- A. Uniformly grade areas to a smooth surface, free of irregular surface changes. Grade to cross sections, lines, and elevations indicated on the Plans for Construction.
- B. Provide a smooth transition between adjacent existing grades and new grades.
- C. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- D. Slope grades to prevent ponding.

### **3.6 DISPOSAL OR SURPLUS AND WASTE MATERIAL**

- A. Unsuitable material shall be properly disposed of off the property by the Contractor. Unsuitable material is defined as trash, metal pieces, concrete with rebar, or similar material that is non-native to the site. The Contractor should anticipate encountering some unsuitable material during excavation. Rock, wood or other biodegradable organic debris is considered suitable for the site and project and may be used in project structures or on site. All unsuitable material shall be legally disposed of off-site at a permitted disposal location.

**END OF SECTION 312000**

## SECTION 312500 – EROSION AND SEDIMENT CONTROLS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.
- B. The Contractor shall abide by the instructions set forth in the Storm Water Pollution Prevention Plan (SWPPP). The Contractor is responsible for providing components of the SWPPP related to fuel, lubricant, and product storage and use on the work site. See **Attachment 1** for the SWPPP for this project.

#### 1.2 SUMMARY

- A. This Section includes:
  - 1. Erosion and sediment control, including seeding, installation of reinforced silt fence, erosion control blanket, and construction entrances.
- B. Related Sections include the following:
  - 1. Division 31 Section 310516 “Aggregate”.
  - 2. Division 31 Section 311000 “Site Clearing”.
  - 3. Division 31 Section 312000 “Earthwork”.
  - 4. Division 31 Section 313501.2 “Live Brush Layering”.
  - 5. Division 32 Section 329200 “Turf and Grasses”.

#### 1.3 DEFINITIONS

- A. **General Permit:** The General Permit for storm water discharges associated with construction activity (Land Disturbance General Permit No. MO-R100038) issued to FMDC as a blanket permit by the Missouri Department of Natural Resources, Water Pollution Program.
- B. **Storm Water Pollution Prevention Plan (SWPPP):** A plan required by the General Permit that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants.
- C. **Best Management Practice (BMP):** Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.
- D. **Temporary Seeding and Mulching:** Placement of a quick ground cover to reduce erosion in areas expected to be re-disturbed.
- E. **Straw Bales:** Standard agricultural bales used to filter the flow of water, trap, deposit sediment, and/or divert water.
- F. **Silt Fence:** A geotextile barrier fence to contain sediment by removing suspended particles from water passing through the fence.

- G. Sediment Removal: Removal of accumulated sediment to restore the efficiency of sediment control features.

#### **1.4 SUBMITTALS**

- A. The Contractor shall review the SWPPP provided by the Engineer, make appropriate field corrections to the document, and submit final corrected copies of the SWPPP to the Owner.
- B. The Contractor shall provide certifications stating that the furnished erosion control blanket (ECB), reinforced silt fence, and aggregate for the construction entrances meet this Specification. The certifications, upon request, shall be accompanied by the Manufacturer's quality control program and supporting data.
- C. These certifications shall be supplied at least ten (10) working days prior to any material arriving at the job site.

#### **1.5 PROJECT CONDITIONS**

- A. All erosion control measures shall be constructed in accordance with the SWPPP and all local, state, and federal regulations.
- B. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.
- C. The Contractor shall keep onsite the following:
  - 1. A copy of the SWPPP.
  - 2. A maintenance log book.
- D. The maintenance log book shall identify the following:
  - 1. A list of every best management practice (BMP) on the project.
  - 2. The Contractor's schedule for inspecting and reviewing each BMP.
  - 3. The inspector's name and date of inspection.
  - 4. The condition of each BMP following any scheduled inspection or significant storm event.
  - 5. The Contractor's action for repairs, replacement, etc., for each BMP following any scheduled inspection or significant storm event.
  - 6. Any comments pertinent to the performance of the entire SWPPP in general and any BMPs.
  - 7. The Contractor shall submit the maintenance log schedule to the Engineer for review and approval prior to beginning construction.
- E. During the entire construction period, the Contractor's superintendent, or other duly authorized representative, shall:
  - 1. Inspect all BMPs as listed in the log book.
  - 2. Note the condition and performance of each BMP.
  - 3. Take corrective action for each BMP, as required.

4. Inspections shall take place at least once weekly, within 48 hours after any runoff producing rain event, and within 72 hours if a runoff producing rain event has ended on a weekend or holiday.
- F. The Engineer shall also inspect the BMPs at regular progress meetings or other normal intervals, just as they would inspect the basic construction work. They shall enforce construction standards for these BMPs.
- G. During the construction period, the Contractor will promptly repair, rebuild, replace, clean out, or otherwise modify any BMPs that require attention or that do not perform as required. The Contractor will note in the maintenance log what maintenance or reconstruction was required and any action taken.
- H. For any BMPs that do not appear to perform as designed, the Contractor shall notify the Engineer for review. If the Engineer determines that a BMP needs to be redesigned or replaced with another more appropriate BMP because of actual field performance or otherwise, the Engineer will make those design changes and provide to the Contractor for construction. If this requires measurable additional work above the specified scope of work, the Contractor may request a Change Order for the work.
- I. Upon completion of the project and once final vegetative cover has been established to the satisfaction of the Engineer, the Contractor will remove all BMPs, restore the disturbed portions of the project to the final contour.
- J. The Contractor shall use any of the acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of silt fence, hay bales, water diversion structures, temporary re-vegetation, diversion ditches and settling basins.
- K. Construction operations shall be restricted to the areas of work indicated on the Plans for Construction and to the area which must be entered for the construction of temporary or permanent facilities. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of wetlands and adjacent watercourses. Such work may involve the use of temporary mulches, mats, or other control devices or methods necessary to control erosion.
- L. Excavated soil material shall not be placed adjacent to wetlands or watercourses in a manner that will cause it to be washed away by high water or runoff. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas. Diversion outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason construction materials are washed away during construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer.
- M. All materials used in construction such as excavation, backfill, roadway, and pipe bedding and equipment shall be kept within the limits of the disturbance.
- N. The Contractor shall not pump silt-laden water from trenches or other excavations into wetlands, or adjacent watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.

**PART 2 - PRODUCTS**

**2.1 REINFORCED SILT FENCE**

- A. Synthetic filter fabric shall be a pervious sheet of woven propylene, nylon, and polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

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

- Notes: 1. All numerical values represent minimum average roll value.  
 2. When tested in any principal direction.  
 3. Virginia DOT test method.

- B. Posts: Wood, steel or synthetic posts may be used. Posts shall have a minimum length of 36" plus embedment depth (24" min.). Posts shall have sufficient strength to resist damage during installation and to support applied loads.
- C. Support Fence: Wire or other support fence shall be at least 24" high and strong enough to support applied loads.
- D. Prefabricated Fence: Prefabricated fence systems may be used provided they meet all of the above material requirements.
- E. Potential Suppliers (Contractor not limited to list below):
  - 1. Hanes Geo Components  
7 Guenther Blvd  
St. Peters, MO 63376  
636-875-7317
  - 2. ASP Enterprises  
1099 Cassens Industrial Court  
Fenton, MO 63026  
636-343-4357
  - 3. L&M Supply  
1800 Springhead Church Road  
Willacoochee, GA 31650-0640  
800-948-7870

## 2.2 TEMPORARY SEED

- A. Temporary seed species for surface erosion control or over-seeding shall comply with the requirements given in Section 329200 "Turf and Grasses" of these Construction Specifications.

## 2.3 PERMANENT SEED

- A. Permanent seed species for surface erosion control or over-seeding shall comply with the requirements given in Section 329200 "Turf and Grasses" of these Construction Specifications.

## 2.4 STRAW MULCH

- A. Straw mulch for this item shall be small-grain straw free of weeds, disease, and rot. Straw mulch obtained from regular farming operations is not free of weeds and will be rejected. Straw shall be oat, wheat, rye, barley, or rice stalk. Straw stock shall be in air-dry condition and of a suitable consistency to be broadcast by commercial mulch-blowing equipment.

## 2.5 EROSION CONTROL BLANKET (ECB)

- A. ECB shall be GEOCOIR® / DeKoWe® 700 coir fiber blanket or approved equal.
- B. Potential Suppliers (Contractor not limited to list below):
  - 1. Hanes Geo Components  
7 Guenther Blvd  
St. Peters, MO 63376  
636-875-7317
  - 2. L&M Supply  
1800 Springhead Church Road  
Willacoochee, GA 31650-0640  
800-948-7870
  - 3. Belton Industries  
1205 Hamby Road  
Honea Path, SC 29654  
800-845-8753

## 2.6 AGGREGATE

- A. Aggregate for construction entrances shall conform to applicable requirements as stated in Section 310516 "Aggregate" of these Construction Specifications.

# PART 3 - EXECUTION

## 3.1 REINFORCED SILT FENCE

- A. Silt fence shall be installed in accordance with the Plans for Construction.
- B. Silt fence shall be inspected as previously described in this Specification. Damaged, dislodged, or decomposed fence shall be repaired or replaced immediately. Silt fence shall be replaced at least every six months.

- C. Sediment deposits shall be removed after each storm event or when deposits reach approximately one-half of the fence height.
- D. Silt fence shall remain in place until permanent soil stabilization has become established.

### **3.2 SEEDING**

- A. Temporary seeding shall be used on exposed soil surfaces where additional work will not occur for a period of more than 14 calendar days and shall be completed within 7 days. Temporary seeding shall be performed at no additional cost to the Owner.
- B. Disturbed portions of the site where construction activity permanently ceases shall be stabilized with permanent seeding no more than 7 days after construction activity has ceased.
- C. Seed shall be applied at the rates indicated on the Plans.
- D. Apply mulch cover to all seeded areas to promote germination and growth; water and/or other approved measures shall be applied in sufficient quantities to secure the mulch without inhibiting grass growth.
- E. Protection of seeded areas shall be the responsibility of the Contractor. Protection shall be provided against traffic or other use by erecting barricades immediately after treatment is completed, and by placing warning signs, as directed.
- F. Temporary seeded areas shall be maintained until permanent seeding can be placed on the area. Any damage shall be repaired, and mulch material that has been removed by wind or other causes shall be replaced and secured.
- G. The Contractor shall be responsible for the proper care of seeded areas. Water and fertilizer shall be applied to seeded areas as necessary to promote seed growth and prevent erosion.

### **3.3 EROSION CONTROL BLANKET (ECB)**

- A. Prepare the seed bed and place seed and straw mulch prior to installing ECB.
- B. The blanket shall be rolled out in the direction of anticipated flow and installed in accordance with the Plans for Construction.
- C. Secure the blanket by staking and overlap at the seams with a shingle style method. Blanket staking shall be performed with 18'' long wooden stakes that are 3/4'' thick by 1.5'' wide (min.). Position stakes approximately 2.5 feet on center (4 per square yard of blanket). Additional staking shall be applied if the ECB separates from the soil more than one inch under a reasonable pull.
- D. ECB that is used in the installation of Live Brush Layering shall be installed in accordance with the Plans for Construction and Section 313501.2 "Live Brush Layering" of these Construction Specifications.

**END OF SECTION 312500**

## **SECTION 312510 – TEMPORARY CONSTRUCTION ENTRANCE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.
- B. In addition to complying with all pertinent codes and regulations, the Contractor shall comply with all applicable provisions of the following standards.
  - 1. Missouri Department of Transportation (MODOT) Standard Specifications for Highway Construction, 2019 edition.

#### **1.2 SUMMARY**

- A. This Section includes:
  - 1. This specification covers furnishing all materials, equipment, and labor for clearing and grubbing, unclassified excavation and bedding required for construction and maintenance of temporary construction entrances as required by the Plans for Construction or as directed by the Engineer.
- B. Related Sections include the following:
  - 1. Division 31 Section 310516 “Aggregate”.
  - 2. Division 31 Section 311000 “Site Clearing”.
  - 3. Division 31 Section 312000 “Earthwork”.
  - 4. Division 32 Section 312500 “Erosion and Sediment Control”.

#### **1.3 PROJECT CONDITIONS**

- A. Temporary construction entrances shall be used at all points where traffic will be leaving a construction site and moving directly onto a public road. Temporary construction entrances shall be located as shown on the Plans for Construction unless otherwise directed by the Engineer.
- B. If washing is used, provisions shall be made to intercept the wash water and trap the sediment before it is carried offsite or into the creek. Washdown facilities shall be required as directed by the Engineer. Washdown areas in general must be stabilized with crushed gravel and drain into a temporary sediment trap or sediment basin. Construction entrances should be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by vehicles.
- C. Temporary construction entrances shall consist of a layer geotextile fabric overlain by at least 6-inches of MODOT Type 7 aggregate, overlain by another layer of geotextile fabric, and finally overlain with at least 8-inches of MODOT Type 1 Rock Ditch Liner.

## **PART 2 - PRODUCTS**

### **2.1 AGGREGATE**

- A. Aggregate for temporary construction entrances shall conform to applicable requirements as stated in Section 310516 "Aggregate" of these Construction Specifications.

### **2.2 GEOTEXTILE FABRIC**

- A. Geotextile fabric shall comply with the requirements given in Section 314000 "Geosynthetics" of these Construction Specifications.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Temporary construction entrances shall consist of a layer geotextile fabric overlain by at least 6-inches of MODOT Type 7 aggregate, overlain by another layer of geotextile fabric, and finally overlain with at least 8-inches of MODOT Type 1 Rock Ditch Liner.
- B. Entrances shall be a minimum of 100 feet in length and 22 feet wide.
- C. An underdrain pipe may be installed as necessary to pass roadside ditch flows.

### **3.2 MAINTENANCE**

- A. Inspect entrances every seven (7) calendar days and within 24-hours after each rainfall that produces 0.5 inches or more precipitation, or after heavy use. Check for mud and sediment buildup and pad integrity. Make daily inspections during periods of wet weather. Maintenance is required more frequently in wet weather conditions. Reshape the stone pad as needed for drainage and runoff control.
- B. Wash and replace stones as needed and as directed by the Engineer. The stone in the entrance should be washed and replaced whenever the entrance fails to reduce mud being carried off-site by vehicles.
- C. Remove mud and sediment tracked or washed onto public roads by brushing or sweeping at the end of each day. Flushing should only be used when the water can be discharged to a sediment trap or basin.
- D. Repair any broken pavement immediately.
- E. Inspect and clean sediment traps immediately following each rainfall.
- F. Dispose and clean sediment traps immediately following each rainfall.

### **3.3 REMOVAL**

- A. Remove temporary construction entrances as soon as they are no longer needed to provide access to the site. Bring the disturbed area to grade, and stabilize it using appropriate permanent stabilization methods. Removal of the construction entrances and restoration of the construction area is part of this item.

## **END OF SECTION 312510**

## **SECTION 313353 – GRAVEL BAR LIVE STAKE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. Description of work:
  - 1. Gravel bar live stakes are intended to stabilize the existing gravel bar through the development of root mass from the live stakes.
- B. Related Sections include the following:
  - 1. Division 32 Section 329350.1 “Live Stakes”.

### **PART 2 - PRODUCTS**

#### **2.1 LIVE STAKES**

- A. Live stakes for this item shall be a mixture of species specified by the Planting Plan in the Plans for Construction. Live stakes shall comply with the requirements given in Section 329350.1 “Live Stakes” of these Construction Specifications.
- B. Live stakes for this item shall be 4 to 6 feet long, 0.5 to 2 inches in diameter, and the basal end shall be cut at a 45-degree angle.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. Gravel bar live stakes shall be installed in locations specified in the Plans for Construction.
- B. Starting from the downstream end of the existing gravel bar, the Contractor shall excavate trenches running perpendicular to the channel, for the entire width of the gravel bar. These trenches shall be spaced four (4) feet on center.
- C. The Contractor shall use an excavator with a maximum bucket width of 2.0 feet to excavate trenches.
- D. The trenches shall be excavated to a depth and angle which allows live stakes to be installed at a 45-degree angle downstream and buried with ¼ of the total stake length exposed.
- E. Live stakes shall be planted two (2) per running linear foot of trench.
- F. The excavated material shall then be used to cover the placed stakes.

- G. Planting shall begin on the downstream, streamward side of respective planting area and shall be completed perpendicularly across the existing gravel bar. Once a row of plantings has been completed across the area, the excavator shall trench and plant in successive rows moving upstream.
- H. All live stakes split or broken during installation may be left in place but must be supplemented with a new live stake that remains un-split or unbroken after installation.
- I. Installation of live stakes can only occur when conditions and timing are conducive to their establishment. Alternative methods of planting, storage, or timing of installation shall be approved by the Engineer in writing. The Engineer may stop work if live stakes are being installed under undesirable conditions, and the planting material can be stored as approved by the Engineer until proper conditions for planting are met. If live stakes cannot be installed within two days from harvest or stored properly the Engineer may require new materials to be harvested or purchased at the expense of the Contractor.
- J. Live stakes are typically installed when they are dormant, which typically occurs between November 1 and March 31. However, for this project all live stakes shall be installed during construction with the anticipation of a high mortality rate.
- K. The Client anticipates re-installing live stakes during dormancy.

**END OF SECTION 313502**

## **SECTION 313501.2 –LIVE BRUSH LAYERING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. Description of work:
  - 1. Live Brush Layering is a structure, consisting of natural materials, to build and reinforce the bank of the channel. The layering of live brush material, and topsoil with erosion control blanket create a stable interlocking matrix.
- B. Related Sections include the following:
  - 1. Division 31 Section 312000 “Earthwork”.
  - 2. Division 31 Section 312500 “Erosion and Sediment Control”.
  - 3. Division 31 Section 313502 “Boulder Toe with Root Wads”.
  - 4. Division 31 Section 313810 “Native Rock Riffle”.
  - 5. Division 31 Section 314000 “Geosynthetics”.
  - 6. Division 32 Section 329200 “Turf and Grasses”.
  - 7. Division 32 Section 329350.1 “Live Stakes”.

#### **1.3 SUBMITTALS**

- A. The Contractor shall provide certifications stating that the furnished erosion control blanket (ECB) meet this specification. The certifications, upon request, shall be accompanied by the Manufacturer's quality control program and supporting data.
- B. These certifications shall be supplied at least ten (10) working days prior to any material arriving at the job site.

### **PART 2 - PRODUCTS**

#### **2.1 LIVE BRUSH**

- A. Live Brush material will consist of live branches that are of the length, size, and species as prescribed on the plans and as listed in the planting plan. Live Branch species shall be the same as the Live Stake species.
- B. Live Brush material shall comply with the requirements given in Section 329350.1 “Live Stakes” of these Construction Specifications.

#### **2.2 EROSION CONTROL BLANKET (ECB)**

- A. Live Brush Layering requires two types of ECB, woven and continuous weave.
- B. Woven ECB shall be GEOCOIR® / DeKoWe® 700 coir fiber blanket or approved equal.

C. Potential Suppliers (Contractor not limited to list below):

1. Hanes Geo Components  
7 Guenther Blvd  
St. Peters, MO 63376  
636-875-7317
2. L&M Supply  
1800 Springhead Church Road  
Willacoochee, GA 31650-0640  
800-948-7870
3. Belton Industries  
1205 Hamby Road  
Honea Path, SC 29654  
800-845-8753

D. Continuous Weave ECB shall be C-125BN Coir Matting or approved equal.

E. Potential Suppliers (Contractor not limited to list below):

1. Hanes Geo Components  
7 Guenther Blvd  
St. Peters, MO 63376  
636-875-7317
2. ASP Enterprises  
1099 Cassens Industrial Court  
Fenton, MO 63026  
636-343-4357
3. L&M Supply  
1800 Springhead Church Road  
Willacoochee, GA 31650-0640  
800-948-7870

**2.3 GEOTEXTILE**

- A. Geotextile for this item shall comply with Section 314000 “Geosynthetics” of these Construction Specifications.

**2.4 SEED SPECIES AND MIXTURES**

- A. Seed for this item shall comply with Section 329200 “Turf and Grasses” of these Construction Specifications.

**2.5 STRAW MULCH**

- A. Straw mulch for this item shall comply with the requirements given in Section 312500 “Erosion and Sediment Controls” of these Construction Specifications.

**2.6 BACKFILL AND TOPSOIL**

- A. Backfill and topsoil used to create the soil lifts shall comply with the requirements given in Section 312000 “Earthwork” of these Construction Specifications.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. This structure begins at the toe of the inner berm elevation and shall be constructed on top of proposed Boulder Toe or on top of the Native Rock Riffle as shown on the details in the Plans for Construction.
- B. Place a layer of Geotextile over the finished Boulder Toe or Native Rock Riffle surface beginning 6 inches from the face of the proposed bank and extending back a minimum of 3 feet into the proposed bank to help prevent piping of soil material into any remaining void space within the Boulder Toe.
- C. Place topsoil on top of the non-woven geotextile to create a planting surface slope approximately 5% away from stream. The width of planting surface should be a minimum of two feet. Place topsoil on planting surface and place live brush such that 2/3 of the brush will be covered with soil and 1/3 of the brush is exposed, extending beyond the face of the bank. Place a minimum of 8 to 12 stems per running foot of bank in a slight crisscross pattern. Backfill above the live brush with a four-inch layer of topsoil.
- D. Place a layer of 6.5 feet wide (min.) woven ECB on top of the topsoil and live branches such that a minimum of 2 feet of the blanket will be buried below the next soil lift. Allow excess blanket to lay over the bank, toward the channel.
- E. Place a layer of 3.3 feet wide (min.) continuous weave ECB over the woven ECB such that it covers the entire face of the lift beneath the woven ECB. Allow excess matting to lay over the bank, on top of the woven ECB.
- F. Place soil backfill up to the lift height specified of no greater than 1.0 foot being careful not to push/pull or tear the fabric previously placed. The top of the soil backfill shall be flat within the lift setback distance specified in the Plans for Construction. Beyond the lift setback distance, the soil backfill shall be sloped at an approximate 5% slope away from the stream.
- G. Top dress the soil lift with topsoil from the face of the soil lift back into the floodplain at least 4 feet. Apply seed mix on soil at the seeding rate shown on the Planting Plan in the Plans for Construction and apply straw mulch.
- H. Wrap the face and top of the soil lift using the excess woven and continuous weave ECB. The ECB shall be pulled as tight as possible without tearing or excessively distorting the fabric.
- I. Secure the ECB in place by staking the end of the ECB with wood stakes on 3-foot centers. See the wood stake detail in the Plans for Construction for specifications.
- J. Repeat steps above to build the next soil wrap and live brush layer. Reconstruct the slopes such that the overall slope matches the proposed cross section shape.
- K. The ECB used for the upper most soil lift will be secured by staking the end of the blanket approximately 4-inches below finish grade elevation and backfilling over the end of the ECB and stake during finish grading operations.
- L. The surface of this structure shall be finished to a smooth and compact surface in accordance with the lines, grades, and details shown in the Plans for Construction.

- M. Live brush is typically installed when they are dormant, which typically occurs between November 1 and March 31. However, for this project all live brush shall be installed during construction with the anticipation of a high mortality rate.
- N. The Client anticipates re-installing live brush during dormancy.

**END OF SECTION 313501.2**

## **SECTION 313502 – BOULDER TOE WITH ROOT WADS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.
- B. In addition to complying with all pertinent codes and regulations, the Contractor shall comply with all applicable provisions of the following standards.
  - 1. Missouri Department of Transportation (MODOT) Standard Specifications for Highway Construction, 2019 edition.

#### **1.2 SUMMARY**

- A. Description of work:
  - 1. Boulder Toe with Root Wads structures consist of natural materials to reinforce the outer channel bank along a meander. The machined stone is installed up to the baseflow elevation of the water in the channel in order to provide a non-deformable foundation for the re-construction of the streambank. In addition, a stone footing is installed beneath the channel bed. Root wads, as available, are incorporated into the stone matrix to provide habitat and help dissipate energy along the bank margin.
- B. Related Sections include the following:
  - 1. Division 31 Section 310516 “Aggregate”.
  - 2. Division 31 Section 311000 “Site Clearing”.
  - 3. Division 31 Section 312000 “Earthwork”.
  - 4. Division 31 Section 313501.2 “Live Brush Layering”.
  - 5. Division 31 Section 314000 “Geosynthetics”.

#### **1.3 PROJECT CONDITIONS**

- A. Wood material shall be gathered from remaining onsite trees within the disturbance limits that have been trimmed and woody plants taken during the clearing and grubbing process as specified in Section 311000 “Site Clearing”.

### **PART 2 - PRODUCTS**

#### **2.1 AGGREGATE**

- A. Machined stone shall consist of MODOT Type 4 Rock Liner with existing bed material used to fill the voids. Machined stone and existing bed material shall comply with the requirements given in Section 310516 “Aggregate” of these Construction Specifications.

#### **2.2 COARSE WOOD MATERIAL**

- A. The coarse wood material may consist of root wads, logs, and tree trunks. Root wad logs shall be a minimum 6 inches in diameter and all other coarse woody debris shall be at

least 4-inches in diameter. The smaller or fine wood material shall be branches of various diameters and lengths that interlock together.

### **2.3 GEOTEXTILE FABRIC**

- A. Geotextile fabric material for this item shall comply with the requirements given in Section 314000 “Geosynthetics” of these Construction Specifications.

### **2.4 LIVE BRUSH LAYERING**

- A. Live Brush Layering shall comply with the requirements given in Section 313501.2 “Live Brush Layering” of these Construction Specifications.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Construct Boulder Toe with Root Wads by first shaping the reconstructed bank to the specified grades. Next, excavate 4 feet deep by 3 feet wide footing and backfill with machined stone. Use existing streambed material to fill all voids of placed stone. This may require pre-mixing or installing material in lifts.
- B. Construct the Boulder Toe and backfill matrix as shown on the detail in the Plans for Construction. The machined stone and backfill matrix will cover the outer bank from the bottom of the pool (top of footing) up to the low flow stage. The resulting, filled void, stone matrix shall have a relatively smooth surface to place geotextile fabric.
- C. Root wads and accompanying coarse wood material shall be placed on approximate 25 feet spacing as shown in the Plans for Construction or as instructed by the Engineer, based upon site availability. Root wads should be placed in pairs as shown on the details in the Plans for Construction. Root wads shall tie back into the bank a minimum of 10 feet and shall be angled upstream.
- D. Place a layer of Geotextile over the finished Boulder Toe surface beginning 6 inches from the face of the proposed bank and extending back a minimum of 3 feet into the proposed bank to help prevent piping of soil material into any remaining void space within the Boulder Toe.
- E. Install live brush layering on top of the Geotextile fabric. Live brush layering shall be installed in accordance with Section 313501.2 “Live Brush Layering” of these Construction Specifications.

### **END OF SECTION 313502**

## **SECTION 313810– NATIVE ROCK RIFFLE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. Description of work:
  - 1. This work consists of preparing the areas at which the Native Rock Riffle is to be placed; excavation of channel material; placement of native gravel; and finishing banks, and stream channel at the locations specified on the plans to provide grade control for the newly constructed channel. The Native Rock Riffle is comprised of existing gravel harvested on-site. The harvested riffle rock is to be placed and compacted in the channel bed to bankfull width, where the riffle is located.
- B. Related Sections include the following:
  - 1. Division 31 Section 310516 “Aggregate”.
  - 2. Division 31 Section 312000 “Earthwork”.

#### **1.3 PROJECT CONDITIONS**

- A. Native rock shall be harvested on-site from a location approved by the Engineer.

### **PART 2 - PRODUCTS**

#### **2.1 NATIVE ROCK**

- A. Native rock shall comply with the requirements given in Section 310516 “Aggregate” of these Construction Specifications.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. Construct the Native Rock Riffle by first shaping the channel to the approximate lines, slopes, and grades specified in the Plans for Construction.
- B. Native rock shall then be placed in the bed of the channel to bankfull width, creating a firm channel bed.
- C. Some excavation of channel material may be necessary to achieve the correct grades. This shall be considered incidental to construction of Native Rock Riffle.

**END OF SECTION 313810**

## **SECTION 313850 – ROCK SILT SCREEN**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. Description of work:
  - 1. The rock silt screen structure is intended to divert flow away from the work area and help trap any eroded bank sediments that may occur during bank reconstruction. This is accomplished by constructing a berm from existing bed material that encloses the work area and ties into the existing stream banks upstream and downstream of the bank reconstruction area.
- B. Related Sections include the following:
  - 1. Division 31 Section 310516 “Aggregate”.
  - 2. Division 31 Section 312000 “Earthwork”.

### **PART 2 - PRODUCTS**

#### **2.1 EXISTING CHANNEL MATERIAL**

- A. Rock silt screen shall be constructed entirely of existing channel material. Existing channel material shall consist of cobble, gravel, and fine sediments located within the existing channel bed. Source location shall be approved onsite by the Engineer.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. Excavate enough existing channel material from approved location to construct the rock silt screen as shown on the details in the Plans for Construction.
- B. The downstream end of the rock silt screen structure shall be constructed with a low point such that ponded water is able to flow over the low point, but not able to flow over any other location of the rock silt screen during baseflow conditions.
- C. Upon completion of the toe stabilization treatment, the rock silt screen shall remain in place until the observed turbidity of the ponded water in the work area returns to the normal level.
- D. Remove the rock silt screen and use the rock material as backfill for the remaining bank stabilization work.

**END OF SECTION 313850**

## **SECTION 314000 – GEOSYNTHETICS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes:
  - 1. Installation of geotextile fabric.
- B. Related Sections include the following:
  - 1. Division 31 Section 310516 “Aggregate”.
  - 2. Division 31 Section 312000 “Earthwork”.
  - 3. Division 31 Section 312510 “Temporary Construction Entrance”.
  - 4. Division 31 Section 313501.2 “Live Brush Layering”.
  - 5. Division 31 Section 313502 “Boulder Toe with Root Wads”.

#### **1.3 SUBMITTALS**

- A. The Contractor shall furnish the Engineer with certifications that geotextile materials meet these Specifications.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- A. During all periods of shipment and storage, the separation geotextile shall be protected from direct sunlight, ultra-violet rays, temperature greater than 120 degrees Fahrenheit, and mud, dirt, dust, and debris. To the extent possible, the separation geotextile shall be maintained, wrapped in a heavy-duty protective covering to keep dry, and shall not be stored directly on the ground.

### **PART 2 - PRODUCTS**

#### **2.1 TYPE I NON-WOVEN GEOTEXTILE FABRIC**

- A. Geotextile fabric shall be at least 8 oz., non-woven, polyester or polypropylene fabric meeting the following minimum physical properties:

Property	Value	Test Method
Grab Tensile Strength	205 lbs	ASTM D – 4632
Grab Tensile Elongation	50 %	ASTM D – 4632
Trapezoid Tear Strength	85 lbs	ASTM D – 4533
CBR Puncture Strength	535 lbs	ASTM D – 6241
Permittivity	1.35 sec <sup>-1</sup>	ASTM D – 4491
Apparent Opening Size	No. 80 U.S. Sieve	ASTM D – 4751
UV Resistance (at 500 hours)	70 % strength retained	ASTM D – 4355
Fabric weight	8 oz. / SY	

A. Potential Suppliers (Contractor not limited to list below):

1. Hanes Geo Components  
7 Guenther Blvd  
St. Peters, MO 63376  
636-875-7317
2. ASP Enterprises  
1099 Cassens Industrial Court  
Fenton, MO 63026  
636-343-4357
3. L&M Supply  
1800 Springhead Church Road  
Willacoochee, GA 31650-0640  
800-948-7870

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. The Contractor shall follow the manufacturer's recommendations and these Specifications during installation of the geosynthetics.
- B. Geosynthetics shall be rejected if they have defects, rips, flaws, deterioration or damage incurred during manufacture, transportation, storage, or installation.
- C. The surface to receive geosynthetics shall be prepared to a relatively smooth condition that is free of obstructions, depressions, debris, and soft or low-density pockets of material that could result in gaps, tears or punctures during the cover operation.
- D. Geotextile fabric to be used for Temporary Construction Entrances shall be installed in accordance with Section 312510 “Temporary Construction Entrance” of these Construction Specifications.
- E. Geotextile fabric to be used for Boulder Toe with Root Wads shall be installed in accordance with Section 313502 “Boulder Toe with Root Wads” of these Construction Specifications.

### **3.2 PROTECTION FROM DAMAGE**

- A. Geosynthetics shall be protected from contamination by surface runoff. Construction equipment shall not operate directly on the geotextile.
- B. The work shall be scheduled so that the covering of the geosynthetic with a layer of the specified material is accomplished within seven (7) days after placement of the geosynthetic.
- C. Geosynthetics shall be protected from damage by limiting the height of drop of material, installing cushion layers, and any other means acceptable to the Engineer. Before placement of material, the Contractor shall demonstrate, using field tests, that the placement technique will prevent damage.
- D. Any damage during installation, placement of materials or failure to cover the geosynthetics within the specified time, shall warrant removal and replacement

**END OF SECTION 314000**

## **SECTION 329200 – TURF AND GRASSES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes:
  - 1. Seeding.
  - 2. Erosion Control Materials.
- B. Related Sections include the following:
  - 1. Division 31 Section 312000 “Earthwork”.
  - 2. Division 31 Section 312500 “Erosion and Sediment Controls”.

#### **1.3 SUBMITTALS**

- A. Certification of Grass Seed: From seed vendor for each grass-seed mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
  - 1. Certification of each seed mixture. Include identification of source, name and telephone number of supplier(s).
  - 2. Seed collected from “the wild” is prohibited.
- B. Product Certificates: For erosion control blanket and/or straw mulch, from manufacturer, stating material content.
- C. These submittals shall be supplied at least ten (10) working days prior to any material arriving at the job site.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.
- B. Bulk Materials: Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.
- C. Storage:
  - 1. Store seed and other materials in a cool, dry location away from contaminants.
  - 2. Do not dump or store bulk materials near structures, utilities, or roadways or on existing turf areas.

3. Provide erosion control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, or airborne dust reaching adjacent properties, water conveyance systems, or walkways.
- D. Handling: Do not drop or dump materials from vehicles.

## 1.5 PROJECT CONDITIONS

- A. Seed Identification: State-approved seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Other materials shall be inspected for compliance with specified requirements. Labels shall be in conformance with AMS Seed Act and applicable state seed laws.
- B. Weather Limitations: Proceed with seeding only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions. Do not plant when the ground is frozen, snow covered, or muddy or when air temperature exceeds 90 degrees Fahrenheit.
- C. Substitutions: All proposed species substitutions or changes in percent composition of species or USDA Hardiness Zone must be approved by the Engineer in writing prior to purchase and planting. Only specified seed species will be accepted. Cultivated varieties (cultivars) will be rejected.

## PART 2 - PRODUCTS

### 2.1 SEED

- A. Permanent Seed Species and Mixtures
  1. Seed for this item shall be a mixture specified by the Planting Tables in the Plans for Construction, and the Engineer. Pure live seed shall be a minimum 99 percent by weight of the total mixture.
- B. Temporary Seed Species and Mixtures
  1. Temporary seed species for surface erosion control or over seeding shall be a minimum of 95 percent pure live seed in accordance with the temporary crop cover specification found in the planting schedule in the plans.
  2. Seed for this item shall be a mixture specified by the Planting Tables in the Plans for Construction, and the Engineer.
- C. Potential Suppliers ((Contractor not limited to list below):
  1. Ernst Conservation Seeds, Inc.  
8884 Mercer Pike  
Meadville, PA 16335  
800-873-3321
  2. Sharp Bros. Seed Co.  
1005 S Sycamore  
Healy, KS 67850  
620-398-2231

3. Stock Seed Farms, Inc.  
Murdock, NE  
800-759-1520

## 2.2 EROSION CONTROL MATERIALS

### A. Straw Mulch

1. Straw mulch for this item shall comply with the requirements given in Section 312500 "Erosion and Sediment Controls" of these Construction Specifications.

### B. Erosion Control Blanket

1. Erosion control blanket for this item shall comply with the requirements given in Section 312500 "Erosion and Sediment Controls" of these Construction Specifications.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. All non-paved disturbed areas within the Riparian Zone specified on the Plans for Construction shall be restored, seeded, fertilized, and mulched unless otherwise directed by the Engineer.
- B. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
  1. Verify that no foreign or deleterious material or liquid has been deposited in soil within a planting area. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by the Engineer and replace with new planting soil.
  2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
  3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- C. Seed shall be inspected upon arrival at the job site for conformity to species and quality. Seed that is wet, moldy, or bears a test date five months or older, shall be rejected. Other materials shall be inspected for compliance with specified requirements.

### 3.2 PREPARATION

- A. Preparation of ground before seeding shall be in accordance with Section 312000 "Earthwork" of these Construction Specifications.
- B. The Contractor shall verify that finished grades are as indicated on drawings, and the placing of topsoil, smooth grading, and compaction requirements have been completed

prior to commencement of the seeding operation. Topsoil shall be a minimum of four (4) inches thick on all finished surfaces. The location of underground utilities and facilities in the area of the planting operation shall be verified. Damage to underground utilities and facilities shall be repaired at the Contractor's expense.

### **3.3 SEEDING**

- A. Seeding shall be accomplished by hand or using a broadcast spreader. Seeds should be broadcast at rates specified in the Plans for Construction. Any alternative seeding methods must be approved by the Engineer.
- B. In areas where the soil is very loose and unconsolidated, the Contractor shall maximize the seed/soil contact by firming soil after seeding with a cultipacker or by dragging the surface with a finish harrow or chain link fence. A cultipacker shall not be used on clay soils.
- C. Immediately after seeding, the site shall be watered lightly but thoroughly so that the top four inches of soil is saturated.
- D. Alternative seeding methods, equipment, or timing shall be approved by the Engineer in writing. The Engineer may stop work if seeding is being performed under undesirable conditions, and the seeding material may be properly stored for up to 4 months until proper conditions for planting are met.

### **3.4 MULCHING**

- A. The Contractor shall mulch and tack all seeded areas within 12 hours after seeding with a weed-free straw at the rate of 40 bales/acre.

### **3.5 EROSION CONTROL BLANKET INSTALLATION**

- A. Where indicated on the Plans for Construction or as directed by the Engineer, erosion control blanket shall be installed.
- B. Seed and mulch shall be spread prior to placement of blanket. Placement of the material shall be accomplished without damage to installed material or without deviation to finished grade.
- C. Blanket shall be installed in accordance to the Plans for Construction and Section 312500 "Erosion and Sediment Control" of these Construction Specifications.

### **3.6 MAINTENANCE DURING SEED ESTABLISHMENT**

- A. Maintenance of plant material including supplementing mulch; watering; eradicating weeds, insects, and disease; and post-fertilization are the responsibility of the contractor.
- B. The plant material shall be watered as necessary to prevent desiccation and to maintain an adequate supply of moisture within the root zone. An adequate supply of moisture is estimated to be the equivalent of one inch of absorbed water per week, delivered in the form of rain or augmented by irrigation. Run-off, puddling, and wilting shall be

prevented. Unless otherwise directed, watering trucks shall not be driven over planted areas. Watering of other adjacent areas or existing plant material shall be prevented.

**END OF SECTION 329200**

## **SECTION 329300 – TREES AND SHRUBS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes:
  - 1. Planting.
  - 2. Erosion Control Materials.
- B. Related Sections include the following:
  - 1. Division 31 Section 312000 “Earthwork”.
  - 2. Division 31 Section 312500 “Erosion and Sediment Controls”.

#### **1.3 SUBMITTALS**

- A. Certification of plants from supplier for all plant stock shall be approved by the Engineer in writing. The Plant Supplier shall certify that all Plant Stock were produced from USDA Hardiness Zone 6 and written certification shall be provided to the Engineer upon request. Plant stock collected from “the wild” is prohibited.
- B. All proposed species substitutions or changes in percent composition of species or USDA Hardiness Zone must be approved by the Engineer in writing prior to purchase and planting. Only specified plant species will be accepted. Cultivated varieties (cultivars) will be rejected.
- C. Product certificates for erosion control blanket and/or straw mulch, from manufacturer, stating material content.
- D. These submittals shall be supplied at least ten (10) working days prior to any material arriving at the job site.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- A. Plant stock shall be protected during delivery to prevent desiccation and damage to the branches, trunk, root system, or earth ball. Branches shall be protected by tying-in. Exposed branches shall be covered during transport.
- B. Plant stock shall be inspected upon delivery to the project site for conformity to species and quality. Plants shall be well shaped, vigorous and healthy with a well branched root system, free from disease, harmful insects and insect eggs, sun-scald injury, disfigurement, abrasion, mishandling or poor pruning. Plant stock shall be inspected for unauthorized substitution and to certify nursery grown status. Plant stock shall be inspected to certify production in USDA Hardiness Zone 6.
- C. Plant stock should also be inspected to verify that they are the intended species. It has become much more common for some nurseries to supply non-native ornamental “look-

alikes” in place of the requested native tree stock. Examples include Japanese Zelkova in place of American Elm, various non-native Willows in place of Black Willow, and a variety of non-native Viburnum species in place of the native Viburnums. Any non-natives or cultivated varieties should be rejected and replaced by the correct specified stock.

- D. Plants showing desiccation, abrasion, sun-scald injury, disfigurement, or unauthorized substitution shall be rejected. Container-grown plant stock shall have new fibrous roots and the root mass shall contain its shape when removed from the container.
- E. Plants with broken or cracked balls shall be rejected. Plants with broken containers shall be rejected. Bare-root plant stock that is not dormant or is showing roots where pulled from the ground shall be rejected. Plants that have evidence of stress, disease, dieback or mishandling will be rejected. Plants damaged in handling or transportation may be rejected by the Engineer.
- F. Storage:
  - 1. Plants not installed on the day of arrival at the site shall be stored and protected in areas approved by the Engineer. Plants shall not be stored longer than 20 days. Plants shall be protected from direct exposure to wind and sun. Containerized trees and shrubs shall be kept in a moist condition by watering the base of each plant. Bare-root trees and shrubs shall be stored in buckets of cool water so that the water level covers the roots and placed in a cool dark storage area. However, to prevent drowning, bare-root stock shall not be stored in water for more than 3 days.

## 1.5 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions. Do not plant when the ground is frozen, snow covered, or muddy or when air temperature exceeds 90 degrees Fahrenheit.

## PART 2 - PRODUCTS

### 2.1 TREES AND SHRUBS

- A. Plant species shall be selected to meet the requirements of the Planting Plan in the Plans for Construction.
- B. All plant stock must be healthy, vigorous, and free of damage and disease. Plant stock shall be healthy representatives typical of their species or variety and exhibit a normal habit of growth.
- C. Potential Suppliers (Contractor not limited to list below):
  - 1. Forrest Keeling Nursery  
88 Forrest Keeling Lane  
Elsberry, MO  
800-356-2401
  - 2. Sherwood's Forest Nursery and Garden Center

2651 Barrett Station Rd.  
Manchester, MO 63021  
314-966-0028

3. Hillermann Nursery & Florist, Inc.  
2601 E. 5<sup>th</sup> Street  
Washington, MO 63090  
636-239-6729

## 2.2 EROSION CONTROL MATERIALS

### A. Straw Mulch

1. Straw mulch for this item shall comply with the requirements given in Section 312500 "Erosion and Sediment Controls" of these Construction Specifications.

### B. Erosion Control Blanket

1. Erosion control blanket for this item shall comply with the requirements given in Section 312500 "Erosion and Sediment Controls" of these Construction Specifications.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Installation of trees or shrubs can only occur when conditions and timing are conducive to their establishment. Alternative methods of planting, storage, or timing of installation shall be approved by the Engineer in writing. The Engineer may stop work if planting is being performed under undesirable conditions, and the planting material can be stored as approved by the Engineer until proper conditions for planting are met.

### 3.2 PREPARATION

- A. Planting locations and bed outlines shall be staked on the project site before any digging or planting is performed. Planting locations may be adjusted to meet field conditions following approval by the Engineer.
- B. Preparation of ground before planting shall be in accordance with Section 312000 "Earthwork" of these Construction Specifications.
- C. The Contractor shall verify that finished grades are as indicated on drawings, and the placing of topsoil, smooth grading, and compaction requirements have been completed prior to commencement of the planting operation. Topsoil shall be a minimum of four (4) inches thick on all finished surfaces. The location of underground utilities and facilities in the area of the planting operation shall be verified. Damage to underground utilities and facilities shall be repaired at the Contractor's expense.

### 3.3 CONTAINERIZED TREES AND SHRUBS

- A. Planting Pits

1. Excavate the planting pit to at least 1½ times the width of the root mass of the plant to be installed. Excavate the planting pit to a depth that allows the surface of the containerized plant to be flush with the existing grade after the soil in the bottom of the pit is tamped. To the extent practicable, containerized plantings should be installed when soil conditions are friable and not overly wet. This prevents the sides of the planting pit from becoming “glazed” which can cause root binding.

B. Planting

1. For burlap containers, remove burlap from top 1/3 of rootball. For other containers, remove the plant by inverting the container and pushing on the container bottom. Place the plants in the center of the planting pit by carrying the plant by the root mass.

C. Backfill

1. Backfill the planting pit with native soil to a depth equal to 2/3 times the depth of the root ball. Cover the native soil with a soil mix composed of 5 parts topsoil to 1-part organic matter and a 2” layer of wood cellulose fiber mulch to a depth equal to 1/3 times the depth of the rootball.

D. Staking Materials

1. Bracing stakes and guying material shall be installed according to the Plans. Bracing stakes shall be set without damaging rootball. 2 ply rubber hose shall be used as chafing guards shall be used to protect tree trunks and branches.

E. Watering

1. The Contractor shall water plant thoroughly immediately after planting. Water shall be of a sufficient quantity to saturate the backfill and shall be applied slowly enough to infiltrate the soil without runoff. The need for additional watering shall be at the discretion of the Engineer.

### 3.4 BAREROOT TREES AND SHRUBS

A. Planting Holes

1. Planting holes shall be excavated by hand using a dibble bar, mattock, pick, or iron bar. Planting holes shall be excavated to a depth that allows the first lateral root of the root mass to be flush with the existing grade. Roots protruding above the soil surface will be rejected. Additionally, the planting hole shall be deep enough to accommodate the entirety of the tap root vertically without “J-rooting” the plant. “J-rooted” plants will be rejected.

B. Planting

1. Plant bare-root trees and shrubs by spreading the roots in the hole and gradually backfilling hole with soil. Ensure that plant remains straight while placing backfill and firm the soil, being careful to avoid breaking the roots.

C. Watering

1. The Contractor shall water plant thoroughly immediately after planting. Water shall be of a sufficient quantity to saturate the backfill and shall be applied slowly enough to infiltrate the soil without runoff. The need for additional watering shall be at the discretion of the Engineer.

### **3.5 FINISHING**

#### **A. Pruning**

1. Pruning shall be accomplished by trained and experienced personnel. The pruning of trees and shrubs shall be in accordance with ANSI A300. Only dead or broken material shall be pruned from installed plants. The typical growth habit of individual plant material shall be retained. Clean cuts shall be made flush with the parent trunk. Improper cuts, stubs, dead and broken branches shall be removed. "Headback" cuts at right angles to the line of growth will not be permitted. Trees shall not be poled, or the leader removed, nor shall the leader be pruned or "topped off".

### **3.6 MAINTENANCE DURING PLANT ESTABLISHMENT**

- A. Maintenance of plant material shall include straightening plant material, pruning dead or broken branch tips; watering; eradicating weeds, insects and disease; post-fertilization; and removing and replacing unhealthy plants.
- B. The plant material shall be watered as necessary to prevent desiccation and to maintain an adequate supply of moisture within the root zone. An adequate supply of moisture is estimated to be the equivalent of one inch of absorbed water per week, delivered in the form of rain or augmented by irrigation. Run-off, puddling, and wilting shall be prevented. Unless otherwise directed, watering trucks shall not be driven over planted areas. Watering of other adjacent areas or existing plant material shall be prevented.

**END OF SECTION 329300**

## **SECTION 329350.1 – LIVE STAKES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The conditions and description of work shown in other sections of these Construction Specifications and the Plans for Construction apply to this Section.

#### **1.2 SUMMARY**

- A. This work consists of the harvest, transport, maintenance, and installation of live stake materials. Live stakes are to be installed into stream banks between low flow and bankfull and as specified on the Plans for Construction or as directed by the Engineer.
- B. Related Sections include the following:
  - 1. Division 31 Section 313353 “Gravel Bar Live Stakes”.
  - 2. Division 31 Section 313501.2 “Live Brush Layering”.

#### **1.3 SUBMITTALS**

- A. If the Contractor decides to purchase live stake materials the Contractor shall provide the name and location of and contact information for the supplier. Suppliers must provide all the written information required of the Contractor. The Contractor must furnish a copy of tags used to identify cuttings after harvest and during transport, or any tickets, tags, or manifests for purchased material to the Engineer.
- B. If the Contractor decides to harvest their own live stakes:
  - 1. A copy of the signed written agreement and applicable correspondence between the harvest site property owner and Contractor shall be provided ten (10) working days prior to harvesting. At a minimum, the signed agreement shall:
    - a. Grant permission to harvest.
    - b. Specify the requirements of access/egress.
    - c. Specify the use of and condition in which the harvesting site is to be left.
    - d. Acknowledge that the Contractor shall be solely responsible for activities on the harvesting site and shall hold the Owner and any other parties harmless.
    - e. Certify that the proposed cutting material is insect and disease free.
  - 2. The Contractor shall provide a copy of any applicable permits from regulatory agencies for the harvest site.
  - 3. The Contractor shall notify the Engineer 72 hours prior to harvesting to review and approve all harvesting sites. The Contractor shall locate, flag, and code the live cutting sites. Upon approval by the Engineer, the Contractor shall be responsible for harvesting and transporting the cuttings to the job site.
- C. These submittals shall be supplied at least ten (10) working days prior to any material arriving at the job site.

## **1.4 DELIVERY, STORAGE AND HANDLING**

- A. Live stake materials must be protected against drying out and overheating before/during transport (e.g., they shall be covered, transported in unheated vehicles, moistened, kept in soak pits).
- B. Storage:
  - 1. Live stake materials shall receive continuous shade, shall be sheltered from the wind, and shall be continuously protected from drying by being heeled into moist soils. Where water is available, live cuttings shall be sprayed or immersed. Warm water (over 150°F) stimulates growth and should be used only upon the approval of the Engineer. Any costs associated with such storage are incidental to the overall unit costs. Live stake materials shall be installed the same day that the cuttings are harvested. If installation of live stake materials cannot be accomplished on the same day and storage is required, live stake materials shall be stored for a period no longer than two (2) days. Any storage of live stake materials must be approved by the Engineer prior to storing.

## **1.5 PROJECT CONDITIONS**

- A. Any proposed species substitutions or changes in percent composition of species shall require prior written approval by the Engineer. Only specified plant species will be accepted. No cultivated varieties (cultivars) are acceptable.
- B. Live stakes shall be installed in areas specified by the Planting Plan, Plans for Construction, and the Engineer. In general, live stakes are planted on streambanks at an elevation no higher than bankfull and no lower than the low-flow water surface.

## **PART 2 - PRODUCTS**

### **2.1 LIVE STAKES**

- A. Live stake species shall be selected to meet the requirements of the Planting Plan in the Plans for Construction.
- B. Live stakes (except for gravel bar live stakes) shall be ½ to 2 inches in diameter and 2 to 2.5 feet in length. Side branches shall be removed, and the bark left intact prior to installation. Buds on the stakes shall be oriented in an upward position so that stakes are not planted upside-down. The basal ends shall be tapered to a point for easy insertion into the soil. The top shall be cut smooth and square.
- C. Live stakes to be used for gravel bar live stakes shall be at 4 feet to 6 feet in length.
- D. Potential Suppliers (Contractor not limited to list below):
  - 1. Ernst Conservation Seeds, Inc.  
8884 Mercer Pike  
Meadville, PA 16335  
800-873-3321
  - 2. Cardno Native Plant Nursery  
128 Sunset Drive

Walkerton, IN 46574  
574-586-2412

3. Foggy Mountain Nursery, LLC  
2251 Ed Little Road  
Creston, NC 28615  
336-977-2958

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. All materials and construction techniques shall be inspected and approved by the Engineer prior to installation.

### **3.2 INSTALLATION**

#### **A. Live Stakes for Live Brush Layering**

1. Drive live stakes through the erosion control blanket and into the ground so that 80 percent of the stake is below the ground surface. The Contractor shall use a dead-blow hammer for driving the stake directly into the ground or drive a pilot hole, smaller in diameter than the live stake, and then drive the live stake into the pilot hole. There shall not be an oversized hole around the live stake after installation. An oversized hole will allow the stake to dry and shall be closed immediately upon installation. Stagger the live stakes in a random pattern throughout the specified planting area at the density specified by the plans, Planting Schedule, and the Engineer. Live stakes shall be installed above the low flow water surface and below bankfull elevation.
2. All live stakes split or broken during installation may be left in place but must be supplemented with a new live stake that remains un-split or unbroken after installation.
3. Installation of live stakes can only occur when conditions and timing are conducive to their establishment. Alternative methods of planting, storage, or timing of installation shall be approved by the Engineer in writing. The Engineer may stop work if live stakes are being installed under undesirable conditions, and the planting material can be stored as approved by the Engineer until proper conditions for planting are met. If live stakes cannot be installed within two days from harvest or stored properly the Engineer may require new materials to be harvested or purchased at the expense of the Contractor.
4. Live stakes are typically installed when they are dormant, which typically occurs between November 1 and March 31. However, for this project all live stakes shall be installed during construction with the anticipation of a high mortality rate.
5. The Client anticipates re-installing live stakes during dormancy.

#### **B. Live Stakes for Gravel Bar Live Stakes**

1. Gravel bar live stakes shall be installed in accordance with Section 313353 "Gravel Bar Live Stakes" of these Construction Specifications.

### **3.3 MAINTENANCE DURING PLANT ESTABLISHMENT**

- A. The Contractor shall perform maintenance, during construction activities, as follows:
  - 1. Replace all diseased and dead vegetation caused by factors other than what the Contractor is not responsible for.
  - 2. Keep vegetation cleared of debris after storm events.
  - 3. Prune all dead wood and vegetation as needed.
  - 4. Water as necessary to prevent desiccation and to maintain an adequate supply of moisture within the root zone.
  
- B. An adequate supply of moisture is estimated to be the equivalent of 1-inch of absorbed water per week, delivered in the form of rain or augmented by watering. It will be the Contractor's responsibility to supply water if there is none available on the site. Any costs associated with supplying water shall be the responsibility of the Contractor and shall be included in the unit cost of the live staking installation.

**END OF SECTION 329350.1**

**APPENDIX 1:**  
**MODOT STANDARD SPECIFICATIONS FOR**  
**HIGHWAY CONSTRUCTION, 2019 EDITION**  
**SECTION 609.60 AND SECTION 1007**

drop inlet for the drain basin will be paid for at the contract unit price.

**SECTION 609.50 BLANK.**

**SECTION 609.60 ROCK DITCH LINER.**

**609.60.1 Description.** This work shall consist of constructing rock ditch liners at locations shown on the plans or as directed by the engineer.

**609.60.2 Material.** The material for rock ditch liner shall consist of a predominantly one-sized, durable stone, shot rock or broken concrete. Acceptance by the engineer may be made by visual inspection. All material shall be in accordance with [Division 1000](#), Material Details, and specifically as follows:

Item	Section
Geotextile Fabric	<a href="#">1011</a>

**609.60.2.1** Type 1 Rock Ditch Liner shall consist of material with a predominant rock size of 3 inches, a maximum rock size of 6 inches and a gradation such that no more than 15 percent will be less than one inch.

**609.60.2.2** Type 2 Rock Ditch Liner shall consist of material with a predominant rock size of 6 inches, a maximum rock size of 10 inches and a gradation such that no more than 15 percent will be less than 3 inches.

**609.60.2.3** Type 3 Rock Ditch Liner shall consist of material with a predominant rock size of 12 inches, a maximum rock size of 20 inches and a gradation such that no more than 15 percent will be less than 4 inches.

**609.60.2.4** Type 4 Rock Ditch Liner shall consist of material with a predominant rock size of 19 inches, a maximum rock size of 28 inches and a gradation such that no more than 15 percent will be less than 6 inches.

**609.60.2.5** Bedding material shall be used under Type 3 and Type 4 Rock Ditch Liner. Bedding material shall consist of crushed stone or gravel with a gradation consisting of 100 percent passing the 3-inch sieve, 30 to 70 percent passing the 1 1/2-inch sieve and 0 to 15 percent passing the No. 4 sieve.

**609.60.3 Construction Requirements.** Rock ditch liner shall be placed to the approximate shape and thickness shown on the plans for the specified ditch or as directed by the engineer. The rock shall be dumped on a subgrade of reasonably uniform density and left in a rough condition meeting the approval from the engineer.

**609.60.4 Method of Measurement.** Rock ditch liner and bedding material will each be measured to the nearest cubic yard of material.

**609.60.5 Basis of Payment.**

**609.60.5.1** If shown on the plans that the material for rock ditch liner is to be obtained from the right of way or other sources furnished by the Commission, the excavating, including all breaking, loading, and hauling, regardless of distance, to the site of the rock ditch liner will be paid for and considered completely covered under such contract items as Class A Excavation, Class C Excavation, Unclassified Excavation, Excavation for Structures or other applicable items. If payment is made under these conditions, separate payment for furnishing rock ditch liner will not be made.

**609.60.5.2** If the plans show material for rock ditch liner to be secured from sources cited in [Sec 609.60.5.1](#) and this material is made unsuitable or unattainable by the contractor's operations, the contractor shall provide suitable material and dispose of any surplus material at the contractor's expense.

**609.60.5.3** If the contract documents provide for obtaining material from the right of way or other source furnished by the Commission, but all or part of the required quantity of acceptable material is not available, unless the shortage is due to the contractor's operations, payment for such additional rock base material that the contractor will be required to furnish and haul will be made per square yard at the fixed contract unit price in [Sec 109](#), and will be measured in accordance with [Sec 109.1](#).

**609.60.5.4** If the plans do not provide for a source of material, the contractor shall provide the material. All

**SECTION 1007**  
**AGGREGATE FOR BASE**

**1007.1 Scope.** This specification covers aggregate to be used for base.

**1007.2 Type 1 Aggregate.**

**1007.2.1** Type 1 aggregate for base shall consist of crushed stone, sand and gravel or reclaimed asphalt or concrete. The aggregate shall not contain more than 15 percent deleterious rock and shale. The fraction passing No. 40 sieve shall have a maximum plasticity index of six. Any sand, silt and clay and any deleterious rock and shale shall be uniformly distributed throughout the material.

**1007.2.2** The aggregate shall be in accordance with the following gradation requirements:

Sieve	Percent by Weight
Passing 1-inch	100
Passing 1/2-inch	60-90
Passing No. 4	35-60
Passing No. 30	10-35

**1007.3 Type 5 Aggregate.**

**1007.3.1** Type 5 aggregate for base shall consist of crushed stone, sand and gravel or reclaimed asphalt or concrete. The aggregate shall not contain more than 15 percent deleterious rock and shale. The fraction passing the No. 40 sieve shall have a plasticity index not to exceed six. Any sand, silt and clay, and any deleterious rock and shale shall be uniformly distributed throughout the material.

**1007.3.2** Type 5 aggregate shall be in accordance with the following gradation requirements:

Sieve	Percent by Weight
Passing 1-inch	100
Passing 1/2-inch	60-90
Passing No. 4	35-60
Passing No. 30	10-35
Passing No. 200	0-15

**1007.4 Type 7 Aggregate.**

**1007.4.1** Type 7 aggregate for base shall consist of crushed stone, sand and gravel, or reclaimed asphalt or concrete. The aggregate shall not contain more than 15 percent deleterious rock and shale. The fraction passing the No. 40 sieve shall have a plasticity index not to exceed six. Any sand, silt and clay, and any deleterious rock and shale shall be uniformly distributed throughout the material.

**1007.4.2** Type 7 aggregate shall be in accordance with the following gradation requirements:

Sieve	Percent by Weight
Passing 1 1/2-inch	100
Passing 1-inch	70-100
Passing No. 8	15-50
Passing No. 200	0-12

**APPENDIX 2A:**  
U.S. ARMY CORPS OF ENGINEERS SECTION 404  
PERMIT



REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
ST. LOUIS DISTRICT CORPS OF ENGINEERS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2833

April 4, 2019

Regulatory Branch  
File Number: MVS-2017-559

Mr. Steven Herrington  
The Nature Conservancy- Missouri Chapter  
PO Box 440400  
St. Louis, Missouri 63144

Dear Mr. Herrington:

We have reviewed the application dated June 30, 2017, regarding the project known as *Kiefer Creek Bank Stabilization- Castlewood State Park*. Per the submittal, the project proposes impacts to 2,473 linear feet of boulder toe with live brush layering and woody debris toe protection. The bank stabilization is not contiguous and will be completed within 9 areas along the tributary's length. In addition, the project will include gravel bar plantings of native woody vegetation to be installed to provide stabilization in depositional area, while promoting the narrowing and deepening of the channel. The total site disturbance will be less than 10-acres. The purpose of the project is to address areas of accelerated erosion along Kiefer Creek to reduce sedimentation and improve habitat.

The project is located within Castlewood State Park, located at 1518 Kiefer Creek Road in the City of Ballwin. More specifically, the project site occurs in Section 14, Township 44 North, Range 4 East, St. Louis County, Missouri. The approximate geographic coordinates of the site are 38.5506° north, -90.5417° east. Kiefer Creek flows into the Meramec River.

The Corps of Engineers has determined that this activity is authorized under Section 404 of the Clean Water Act by an existing Department of the Army nationwide permit for *Bank Stabilization*, as described in the January 6, 2017 Federal Register, Reissuance of Nationwide Permits; Notice (82 FR 1986), Appendix A (B)(14). This verification is valid until March 18, 2022, unless the District Engineer modifies, suspends, or revokes the nationwide permit authorizations in accordance with 33 CFR 330.5(d). If you commence, or are under contract to commence, this activity before the nationwide permits expire, you will have 12 months after the date the nationwide permits expire or are modified, suspended, or revoked, to complete the activity under the present terms and conditions of these nationwide permits. **This verification also provides a waiver of the 500 linear foot impact and 1 cubic yard per running foot.** The District Engineer has further conditioned this permit to include the following special condition:

1. The project site may contain suitable summer roosting habitat for the endangered Indiana Bat (*Myotis sodalis*) and threatened Northern Long-eared Bat (*Myotis septentrionalis*). **Tree clearing must not occur between April 1 and October 31** in order to prevent any incidental take of these species during the summer roosting period.
2. The permittee must notify the Corps should any change in size, location or methods to accomplish the work occur. Changes could potentially require additional authorizations from the Corps as well as other federal, state or local agencies.

3. Permittee shall cease work immediately and notify the Corps and MDNR-SHPO if cultural resource material is discovered during construction of the project.

Enclosed is a copy of the nationwide permit and conditions and management practices with which you must comply. You are reminded that General Condition 12 of the nationwide permit mandates that "Appropriate soil erosion and sediment controls must be used and maintained in operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date."

In accordance with General Condition number 30 of the Nationwide Permit, a compliance certification (Attachment A of this package) must be completed within 30 days of project completion or the permit issuance may be revoked and considered null and void.

The Missouri Department of Natural Resources Water Protection Program (MDNR/WPP) has conditionally issued general Section 401 Water Quality Certification for this nationwide permit, subject to special conditions (see enclosure). These conditions are part of the Corps permit. If you have any questions regarding the water quality certification conditions, you may call Mr. Mike Irwin, MDNR/WPP, at 573-522-1131 or [wpsc401cert@dnr.mo.gov](mailto:wpsc401cert@dnr.mo.gov).

This determination is applicable only to the permit program administered by the Corps of Engineers. It does not eliminate the need to obtain other federal, state or local approvals before beginning work. In addition to the Corps requirements, **please coordinate with your local floodplain administrator for any activity within the floodplain.** This permit verification does not convey property rights, nor authorize any injury to property or invasion of other rights.

You are reminded that the permit is based on submitted plans. Variations from these plans shall constitute a violation of Federal law and may result in the revocation of the permit. If this nationwide permit is modified, reissued, or revoked during this period, the provisions described at 33 CFR 330.6(b) will apply.

If you have any questions please contact me at (314) 331-8579. Please refer to file number **MVS-2017-559**. I am forwarding a copy of this letter, without enclosures, to Mr. Mike Irwin, MDNR-WPP; Ms. Amy Rubingh, MDNR-SHPO; Ms. Vona Kuczynska, USFWS; Mr. Jason Daniels, USEPA and Mr. Matt Vitello, MDC. The St. Louis District Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to go to our Customer Service Survey found on our web site at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=regulatory\\_survey](http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey).



Jennifer L. Skiles  
Missouri Section  
Regulatory Branch

**Enclosures**

Nationwide Permit Conditions

**ATTACHMENT A**

**COMPLETED WORK CERTIFICATION**

Date of Issuance: April 4, 2019

File Number: MVS-2017-559

Name of Permittee: The Nature Conservancy-Missouri Chapter; c/o Mr. Steven Herrington

Name of Project: Kiefer Creek Bank Stabilization-Castlewood State Park

Project Location: Section 14, Township 44 North, Range 4 East

River Basin/County/State: Mississippi/St. Louis/Missouri

Project Manager: J. Skiles

Upon completion of this activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

**U.S. Army Corps of Engineers  
Attn: Regulatory Branch (OD-F)  
1222 Spruce Street  
St. Louis, Missouri 63103-2833**

(Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification or revocation.)

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

\_\_\_\_\_  
**Signature of Permittee**

\_\_\_\_\_  
**Date**

**APPENDIX 2B:**  
U.S. ARMY CORPS OF ENGINEERS NATIONWIDE  
PERMIT 13



# 2017 Nationwide Permit Summary

U.S Army Corps  
Of Engineers  
St. Louis District

Issued: March 19, 2017

Expires: March 18, 2022

## No. 13 Bank Stabilization (NWP Final Notice, 82 FR, 1986)

Bank stabilization activities necessary for erosion control or prevention, such as vegetative stabilization, bioengineering, sills, rip rap, revetment, gabion baskets, stream barbs, and bulkheads, or combinations of bank stabilization techniques, provided the activity meets all of the following criteria:

(a) No material is placed in excess of the minimum needed for erosion protection;

(b) The activity is no more than 500 feet in length along the bank, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in no more than minimal adverse environmental effects (an exception is for bulkheads – the district engineer cannot issue a waiver for a bulkhead that is greater than 1,000 feet in length along the bank);

(c) The activity will not exceed an average of one cubic yard per running foot, as measured along the length of the treated bank, below the plane of the ordinary high water mark or the high tide line, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in no more than minimal adverse environmental effects;

(d) The activity does not involve discharges of dredged or fill material into special aquatic sites, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in no more than minimal adverse environmental effects;

(e) No material is of a type, or is placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the United States;

(f) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored native trees and treetops may be used in low energy areas);

(g) Native plants appropriate for current site conditions, including salinity, must be used for bioengineering or vegetative bank stabilization;

(h) The activity is not a stream channelization activity; and

(i) The activity must be properly maintained, which may require repairing it after severe storms or erosion events. This NWP authorizes those maintenance and repair activities if they require authorization.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the bank stabilization activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After construction, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

**Notification:** The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if the bank stabilization activity: (1) involves discharges into special aquatic sites; or (2) is in excess of 500 feet in length; or (3) will involve the discharge of greater than an average of one cubic yard per running foot as measured along the length of the treated bank, below the plane of the ordinary high water mark or the high tide line. (See general condition 32.) (**Authorities:** Sections 10 and 404)

## Nationwide Permit General Conditions

**Note:** To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

### 1. Navigation.

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal,

relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

**2. Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

**3. Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

**4. Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

**5. Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

**6. Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

**7. Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

**8. Adverse Effects From Impoundments.** If the activity creates an impoundment of water, adverse effects

to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

**9. Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

**10. Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

**11. Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

**12. Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

**13. Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

**14. Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

**15. Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

**16. Wild and Scenic Rivers.**

(a) No NWP activity may occur in a

component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

**17. Tribal Rights.** No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

**18. Endangered Species.**

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for

the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWP.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the

United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide Web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

**19. Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

## **20. Historic Properties.**

(a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)).

When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the

activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

**21. Discovery of Previously Unknown Remains and Artifacts.** If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

**22. Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NHPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NHPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NHPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

**23. Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (*i.e.*, on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent

necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed  $1/10$ -acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of  $1/10$ -acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (*e.g.*, conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species.

The width of the required riparian area will address documented water quality or aquatic habitat loss concerns.

Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (*e.g.*, riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may

waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR

332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

**24. Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

**25. Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section

401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

**26. Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

**27. Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

**28. Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

**29. Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

*"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."*

(Transferee)

(Date)

**30. Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation. The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

**31. Activities Affecting Structures or Works Built by the United States.** If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

**32. Pre-Construction Notification.**

(a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district

engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and

other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:*

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate

in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

#### **D. District Engineer's Decision**

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (*i.e.*, NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands,

cannot exceed 1/2- acre.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (*e.g.*, partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (*e.g.*, watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (*e.g.*, streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters

of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of

the required compensatory mitigation.

#### **E. Further Information**

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

#### **F. Definitions**

*Best management practices (BMPs):* Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

*Compensatory mitigation:* The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

*Currently serviceable:* Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

*Direct effects:* Effects that are caused by the activity and occur at the same time and place.

*Discharge:* The term "discharge" means any discharge of dredged or fill material into waters of the United States.

*Ecological reference:* A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

*Enhancement:* The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource

function(s). Enhancement does not result in a gain in aquatic resource area.

*Ephemeral stream:* An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

*Establishment (creation):* The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

*High Tide Line:* The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

*Historic Property:* Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

*Independent utility:* A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

*Indirect effects:* Effects that are caused by the activity and are later in time or

farther removed in distance, but are still reasonably foreseeable.

*Intermittent stream:* An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

*Loss of waters of the United States:* Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the acres or linear feet of stream bed that are filled or excavated as a result of the regulated activity.

Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

*Navigable waters:* Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

*Non-tidal wetland:* A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

*Open water:* For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

*Ordinary High Water Mark:* An ordinary high water mark is a line on the shore established by the fluctuations of

water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas.

*Perennial stream:* A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

*Practicable:* Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

*Pre-construction notification:* A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit. *Preservation:* The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

*Protected tribal resources:* Those natural resources and properties of traditional or customary religious or cultural importance, either on or off Indian lands, retained by, or reserved by or for, Indian tribes through treaties, statutes, judicial decisions, or executive orders, including tribal trust resources.

*Re-establishment:* The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

*Rehabilitation:* The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

*Restoration:* The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic

resource area, restoration is divided into two categories: Re-establishment and rehabilitation.

*Riffle and pool complex:* Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

*Riparian areas:* Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

*Shellfish seeding:* The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (*i.e.*, spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

*Single and complete linear project:* A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (*i.e.*, a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

*Single and complete non-linear project:* For non-linear projects, the term "single and complete project" is defined at 33 CFR

330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

*Stormwater management:* Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

*Stormwater management facilities:* Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (*i.e.*, by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

*Stream bed:* The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

*Stream channelization:* The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

*Structure:* An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

*Tidal wetland:* A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

*Tribal lands:* Any lands title to which is either: (1) Held in trust by the United

States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

*Tribal rights:* Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

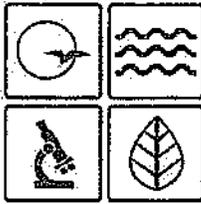
*Vegetated shallows:* Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

*Waterbody:* For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

[FR Doc. 2016-31355 Filed 1-5-17; 8:45 am]

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**APPENDIX 2C:**  
MISSOURI DEPARTMENT OF NATURAL  
RESOURCES SECTION 106 PERMIT  
COORDINATION



Missouri Department of dnr.mo.gov

## NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

July 25, 2018

Dr. Michael Ohnersorgen  
Missouri State Parks  
P.O. Box 176  
Jefferson City, MO 65102

Re: SHPO Project No.:143-SL-17 – Kiefer Creek Bank Stabilization (COB), Castlewood Park, St. Louis County, Missouri.

Dear Dr. Ohnersorgen:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

We have reviewed the May 2018 report entitled *Cultural Resource Survey for Proposed Stabilization of Kiefer Creek within Castlewood State Park St. Louis County, Missouri* by Joe Harl, Meredith Hawkins Trautt, and Jeff Kruchten, provided concerning the above referenced project. Based on this review, we concur that the archaeological site 23SL561 that may be eligible for inclusion in the National Register of Historic Places, and has been successfully avoided by the project. We concur with the investigator's recommendation that the archaeological site 23SL467 is eligible for inclusion in the National Register of Historic Places and has been successfully avoided by the project through the re-use of an existing haul road. We concur with the investigator's recommendation that the archaeological site 23SL226 that may be eligible for inclusion in the National Register of Historic Places, has been successfully avoided by design of project activities to occur in areas that have limited potential for intact deposits. We concur with the recommendation from Missouri State Parks staff that overall benefits from this project, such as protection from future erosion, outweigh the minimal risk. We concur with the recommendation that this project will have "no adverse effect" on 23SL226, 23SL467, and 23SL561.

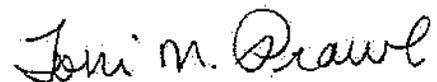
Please be advised that, should project plans change, information documenting the revisions should be submitted to this office for further review. In the event that cultural materials are encountered during project activities, all construction should be halted, and this office notified as soon as possible in order to determine the appropriate course of action.

Page 2.

If you have any questions, please write Heather Gibb at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862. Please be sure to include the SHPO Log Number (143-SL-17) on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

A handwritten signature in cursive script that reads "Toni M. Prawl".

Toni M. Prawl, Ph.D.  
Director and Deputy  
State Historic Preservation Officer

TMP:hg

c Mr. Chris Koenig, USCOE

**APPENDIX 2D:**  
**U.S. FISH AND WILDLIFE SERVICE SECTION 7**  
**PERMIT COORDINATION**

**From:** Kuczynska, Iwona

**To:** Skiles, Jennifer L CIV CEMVS CEMVD (USA)

**Subject:** [Non-DoD Source] Re: [EXTERNAL] Consultation Request-Castlewood State Park, Kiefer Creek Bank Stabilization

**Date:** Tuesday, March 12, 2019 12:14:52 PM

**Attachments:** MDC Best Management Practices Streams and Rivers.pdf  
Protecting Den Trees and Snags \_ Missouri Department of Conservation.pdf

Hi Jennifer,

The U.S. Fish and Wildlife Service has reviewed your March 11, 2019 email and enclosures, requesting consultation on the proposed Castlewood State Park, Kiefer Creek Bank Stabilization Project in St. Louis County, Missouri, and submits these comments pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544).

Based on the information, the Service concurs with the proposed winter tree clearing restrictions and with the U.S. Army Corps of Engineer's determination that the proposed work is not likely to adversely affect federally listed bats. Due to the close proximity of Indiana, northern long-eared bats to the project area, the Service would like to recommend that to the extent possible, the project component preserve as many live and dead standing trees as possible. Best Management Practices for preserving den and dead standing trees are provided by the Missouri Department of Conservation and are available at [Blockedhttps://mdc.mo.gov/property/improve-my-property/habitat-management/forest-andwoodland-management/protecting-den-tree](https://mdc.mo.gov/property/improve-my-property/habitat-management/forest-andwoodland-management/protecting-den-tree) , and provided as the an attachment to this email.

There are numerous records of freshwater mussels directly downstream in the Meramec River. The Meramec supports many freshwater mussel populations including federally endangered pink mucket (*Lampsilis abrupta*), scaleshell (*Leptodea leptodon*), sheepsnose (*Plethobasus cyphus*), snuffbox (*Epioblasma triquetra*) and spectaclecase (*Margaritifera monodonta*). In general, freshwater mussels are known to be among the most sensitive aquatic species to sedimentation and water quality degradation. Please consider implementing the attached Missouri Department of Conservation Guidelines, *Recommendations for Construction Projects Affecting Missouri Streams and Rivers*, which were developed to minimize impacts to species of concern and their riverine habitats.

Should the scope, timing, or manner of activity change, please contact this office.

Thank you for the opportunity to review the proposed project.

Vona

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## PROTECTING DEN TREES AND SNAGS

Den trees are live trees with a natural hollow in the trunk or limbs, while a snag is a standing dead tree. Both are essential habitat for many kinds of woodland wildlife.

Once a tree dies, the slow process of decay begins. As the heartwood in a snag softens, woodpeckers excavate nest holes, which other wildlife use later on. Many birds, mammals, and reptiles use tree cavities throughout the year for nesting, feeding, perching, escape cover, and protection from the weather. Limited den tree availability usually reduces the amount of wildlife in an area.

Woodlands typically have few trees with cavities, so it is important to protect both existing and potential den trees. Old, open-grown, large-crowned trees should be protected because they are likely to become good den trees. These trees also produce nuts, seeds, and fruits, making them doubly valuable for wildlife.

White oak, post oak, and other members of the long-lived white oak group make the best den trees. Other excellent den trees include: ash, basswood, hickory, American elm, American sycamore, eastern cottonwood, black gum, sugar maple, and black or red oak.

As a general rule, seven snags or living den trees per acre provide an adequate number of cavities. Live den trees will last longer and often produce fruits or nuts. Standing dead trees attract insects and do not compete with other trees for water, nutrients, and sunlight. Consider the option of deadening undesirable trees instead of removing them.

Preserving existing snags and den trees, as well as protecting potential den trees, helps the woodland become a productive wildlife area for many years to come. A woodland management plan for wildlife should include the following practices for protecting snags and den trees within a woodland:

- Leave at least one snag and one den tree larger than 20 inches at diameter at breast height (DBH) for every acre of woodland.
- Keep at least four snags ranging between 10 and 20 inches at DBH per acre.
- Leave at least two snags and two den trees ranging between 6 and 10 inches at DBH.
- Create den trees and snags by wounding selected trees. Open wounds allow fungi to enter the tree and begin the decay process. It may take several years for trees to develop cavities. This process can be hastened through the following techniques:



Great horned owls often nest in cavities in trees. They sometimes appropriate old nests of other large birds or squirrels in den trees.

*Noppadol Paothong*

- Cut a limb (the larger the better) about 6 inches from the trunk of the tree. Ash, elm, cottonwood, sycamore, basswood, and silver maple are especially prone to develop natural cavities from cuts.
- Chop a section of bark from the trunk of a suitable tree, preferably one that already shows signs of damage or decay. Select trees at about 100-foot intervals.
- Drill a hole at least 2 inches in diameter and 3 inches deep into the trunk of a tree. If possible, make the hole under a limb that is 3 inches or more in diameter.
- For more immediate results, put up birdhouses and [den boxes](#). Request the [Woodworking for Wildlife](#) publication for instructions on building 11 wildlife houses, feeders and traps.

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## MISSION & VISION

We protect and manage the fish, forest, and wildlife of the state. We facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources.

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**From:** [Skiles, Jennifer L CIV CEMVS CEMVD \(USA\)](mailto:Jennifer.L.Skiles@usace.army.mil)  
**To:** [Steven J. Herrington](mailto:sherrington@tnc.org); [Kuczynska, Iwona](mailto:iwona_kuczynska@fws.gov)  
**Subject:** RE: [EXTERNAL] HAB ASSESS: Tree clearing variance for Kiefer Creek permit MVS-2017-559  
**Date:** Monday, March 16, 2020 11:29:37 AM

---

Thank you both for the additional information.

The April 4, 2019 permit letter for this project has been determined to still be valid. However, based on the information below, Special Condition #1 within the permit letter will be removed since there have been negative surveys at the project site. Therefore, there will be no tree clearing restrictions within the site for this project. An updated permit letter will not be issued and this email should be retained with the original permit to reflect the changes in the special conditions.

In addition, the Corps concurs that TNC has agreed to have the potentially suitable trees removed prior to April 1, 2020 but will continue to clear the non-potentially suitable trees after April 1st.

Steve, would you please send me the habitat form that you submitted to USFWS. It was not attached to Vona's email. Thank you!

Jennifer L. Skiles  
U.S. Army Corps of Engineers  
Regulatory Branch  
314-331-8579

-----Original Message-----

From: Steven J. Herrington [<mailto:sherrington@tnc.org>]  
Sent: Monday, March 16, 2020 10:44 AM  
To: Kuczynska, Iwona <[iwona\\_kuczynska@fws.gov](mailto:iwona_kuczynska@fws.gov)>; Skiles, Jennifer L CIV CEMVS CEMVD (USA) <[Jennifer.L.Skiles@usace.army.mil](mailto:Jennifer.L.Skiles@usace.army.mil)>  
Subject: [Non-DoD Source] RE: [EXTERNAL] HAB ASSESS: Tree clearing variance for Kiefer Creek permit MVS-2017-559

Thanks for the clarification, Vona.

Jennifer: Please let me know when you make a decision given the USFWS recommendations below. Thanks...

Steve

---

Steven J. Herrington, Ph.D.  
Director of Science and Impact Measures

[sherrington@tnc.org](mailto:sherrington@tnc.org) <<mailto:sherrington@tnc.org>>

(850) 381-1147 (Cell)

(314) 968-1105 x1110 (Office)

(314) 968-3659 (Fax)

nature.org <Blockedhttp://nature.org/>

The Nature Conservancy  
Missouri Chapter  
3110 Crape Myrtle Drive

Columbia, MO 65203

Blockedhttps://www.facebook.com/natureconservancymissouri

From: Kuczynska, Iwona <iwona\_kuczynska@fws.gov>  
Sent: Monday, March 16, 2020 10:11 AM  
To: Steven J. Herrington <sherrington@tnc.org>; Skiles, Jennifer L CIV CEMVS CEMVD (USA) <Jennifer.L.Skiles@usace.army.mil>  
Subject: Re: [EXTERNAL] HAB ASSESS: Tree clearing variance for Kiefer Creek permit MVS-2017-559

Hi again - sorry if my message was unclear. It's a hectic Monday morning. The answer is yes.

When bat surveys have been conducted in an area, and they are negative, the Service recommends no tree clearing restrictions. Any trees (suitable or not) should be able to be removed after April 30. And, especially with suitable potential roost trees being identified and removed prior to April 1 by TNC, the Service supports lifting the April 1 winter tree clearing restriction for the project area.

Hopefully that's a bit more clear!

Thank you,

Vona Kuczynska

Fish and Wildlife Biologist

U.S. Fish and Wildlife Service

Missouri Ecological Services Field Office

101 Park DeVille Drive, Suite A, Columbia, MO 65203

Office: 573-234-5011

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From: Steven J. Herrington <sherrington@tnc.org <<mailto:sherrington@tnc.org>>>  
Sent: Monday, March 16, 2020 9:59 AM  
To: Kuczynska, Iwona <iwona\_kuczynska@fws.gov <[mailto:iwona\\_kuczynska@fws.gov](mailto:iwona_kuczynska@fws.gov)>>; Skiles, Jennifer L  
CIV CEMVS CEMVD (USA) <Jennifer.L.Skiles@usace.army.mil <<mailto:Jennifer.L.Skiles@usace.army.mil>>>  
Subject: RE: [EXTERNAL] HAB ASSESS: Tree clearing variance for Kiefer Creek permit MVS-2017-559

Just to confirm per Option 1 and Option 2 below , Vona:

If we DO complete felling of potential bat trees per the guidance and within date limits below, we can still complete (after April 30) “Any other clearing that takes place thereafter of other trees would not affect bats”, correct? This is important because additional trees (non-bat trees) will still need to be cleared after April 30 in the Phase 1 construction limits area in order to construct the project in Summer 2020, per the map in the report.

Thanks...

Steve

---

Steven J. Herrington, Ph.D.  
Director of Science and Impact Measures

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From: Kuczynska, Iwona <iwona\_kuczynska@fws.gov <[mailto:iwona\\_kuczynska@fws.gov](mailto:iwona_kuczynska@fws.gov)> >  
Sent: Monday, March 16, 2020 9:53 AM  
To: Skiles, Jennifer L CIV CEMVS CEMVD (USA) <Jennifer.L.Skiles@usace.army.mil <<mailto:Jennifer.L.Skiles@usace.army.mil>> >  
Cc: Steven J. Herrington <sherrington@tnc.org <<mailto:sherrington@tnc.org>> >  
Subject: Fw: [EXTERNAL] HAB ASSESS: Tree clearing variance for Kiefer Creek permit MVS-2017-559

Hi Jennifer,

The Nature Conservancy is unable to clear all of the trees in the project area by April 1, and contacted the Service to discuss options for removing some of the trees after April 1. I requested that Steven Herrington conduct an on-site bat habitat assessment and identify the number of potentially suitable roost trees present that will need to be removed. That BHA is attached to this email. Following the assessment, TNC realized they will be able to remove all of the potentially suitable roost trees prior to April 1 - there are not that many suitable dead standing or live trees, but regardless, they will remove ALL snags and also any live trees >9 inches in DBH that appear to be suitable. There will be some smooth barked trees remaining in the ~1.5 acre area that they would like to remove prior to April 30. While the remaining habitat will contain some suitable foraging habitat, I believe the project is still not likely to impact listed bats because I have personally surveyed this specific section of Castlewood State Park just a few years ago, and Shelly Colatskie also surveyed the area since then, and we both did not find any listed bats to be present in the area (surveys were negative for listed bats).

In my opinion, the remaining tree removal prior to April 30th will not have adverse impacts to federally listed bats. Steven is hoping that you can remove or edit the special condition of his permit that says all trees need to be removed by April 1, and I wanted to write this note to you in support of that change.

Please let me know if you have any questions, I'm around and available to chat by phone most of this week.

Thank you,

Vona Kuczynska

Fish and Wildlife Biologist

U.S. Fish and Wildlife Service

Missouri Ecological Services Field Office

101 Park DeVill Drive, Suite A, Columbia, MO 65203  
Office: 573-234-5011

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From: Steven J. Herrington <sherrington@tnc.org <<mailto:sherrington@tnc.org>>>  
Sent: Monday, March 16, 2020 9:29 AM  
To: Kuczynska, Iwona <iwona\_kuczynska@fws.gov <[mailto:iwona\\_kuczynska@fws.gov](mailto:iwona_kuczynska@fws.gov)>>  
Subject: RE: [EXTERNAL] HAB ASSESS: Tree clearing variance for Kiefer Creek permit MVS-2017-559

Thanks ve4ry much for the review of the report, Vona. I'm glad you think that we marked things appropriately and the recommendations below.

Can you please share your evaluation and recommendations with Jennifer Skiles from USACE (see her contact info below). Jennifer is the USACE point-person for the project and directly responsible for our permit and approving any quasi-variances such as this. Please do CC me on any of those emails so we can all be in the loop on your evaluation and USACE decisions per our permit.

Thanks again for your guidance and assistance throughout.

Steve

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Steven J. Herrington, Ph.D.

Director of Science and Impact Measures

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From: Kuczynska, Iwona <iwona\_kuczynska@fws.gov <[mailto:iwona\\_kuczynska@fws.gov](mailto:iwona_kuczynska@fws.gov)> >  
Sent: Monday, March 16, 2020 9:18 AM  
To: Steven J. Herrington <sherrington@tnc.org <<mailto:sherrington@tnc.org>> >  
Subject: Re: [EXTERNAL] HAB ASSESS: Tree clearing variance for Kiefer Creek permit MVS-2017-559

Hi Steven,

Thank you for such a thorough habitat assessment, it certainly made it easier to understand the scope of the project and the type of trees and habitat that are slated for removal. Based on your description and photos, I agree that you selected all of the potentially suitable roost trees for removal in the work area, which will be removed prior to April 1. The remaining potentially suitable foraging habitat will be removed by April 30.

The proposed plan, further supported by previous acoustic survey efforts I conducted very close to the project area just a few years ago, and a recent mist net survey conducted by Shelly Colatskie with MDC (which all showed that

listed bats are absent from this area), I believe the proposed approach is not likely to impact any federally listed bat species.

Please let Jaynie know (or pass along this note) that this area has been surveyed in recent past and the surveys were negative for listed species. I also have a call with Jaynie regarding another project, so I can also talk to her about this project then if she has time.

Thank you,

Vona Kuczynska

Fish and Wildlife Biologist

U.S. Fish and Wildlife Service

Missouri Ecological Services Field Office

101 Park DeVill Drive, Suite A, Columbia, MO 65203  
Office: 573-234-5011

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From: Steven J. Herrington <sherrington@tnc.org <<mailto:sherrington@tnc.org>> >  
Sent: Sunday, March 15, 2020 12:43 PM  
To: Kuczynska, Iwona <iwona\_kuczynska@fws.gov <[mailto:iwona\\_kuczynska@fws.gov](mailto:iwona_kuczynska@fws.gov)> >  
Subject: [EXTERNAL] HAB ASSESS: Tree clearing variance for Kiefer Creek permit MVS-2017-559

Vona,

Please find attached a habitat assessment of the Phase 1 tree harvest area for the Kiefer Creek Streambank Stabilization Project, USACE Permit MVS-2017-559, as described in the email string below, for your consideration. Note that I have many more pictures that I can share of the project area, if needed. Note that we intend to fell all of the trees/snags identified in this survey before April 1, 2020 (anticipating either 3/16 or 3/17), which is consistent with our current permit conditions. Please let me know what you think and if this short report satisfies the requirement of Option #2 as described below. Thanks and I look forward to your response.

Steve

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Director of Science and Impact Measures

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From: Kuczynska, Iwona <iwona\_kuczynska@fws.gov <[mailto:iwona\\_kuczynska@fws.gov](mailto:iwona_kuczynska@fws.gov)> >  
Sent: Thursday, March 12, 2020 12:30 PM  
To: Steven J. Herrington <sherrington@tnc.org <<mailto:sherrington@tnc.org>> >; Jennifer Skiles (Jennifer.L.Skiles@usace.army.mil <<mailto:Jennifer.L.Skiles@usace.army.mil>> ) <Jennifer.L.Skiles@usace.army.mil <<mailto:Jennifer.L.Skiles@usace.army.mil>> >; Jaynie.G.Doerr@usace.army.mil <<mailto:Jaynie.G.Doerr@usace.army.mil>>  
Subject: Re: [EXTERNAL] PLEASE REPLY ASAP: Tree clearing variance for Kiefer Creek permit MVS-2017-559

Hi everyone,

Thank you Steve. Everything you wrote reflects what we talked about today, no changes needed. I just want to add to Jaynie and Jennifer that this is a ~ 1.7 acre area in Zone 2, and of the 1.7 acres, a 3rd or more of this area is not forested, so we are probably talking about one to less than one acre of tree clearing total.

Thank you,

Vona Kuczynska

Fish and Wildlife Biologist

U.S. Fish and Wildlife Service

Missouri Ecological Services Field Office

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---

From: Steven J. Herrington <sherrington@tnc.org <<mailto:sherrington@tnc.org>> >  
Sent: Thursday, March 12, 2020 12:09 PM  
To: Jennifer Skiles (Jennifer.L.Skiles@usace.army.mil <<mailto:Jennifer.L.Skiles@usace.army.mil>> )  
<Jennifer.L.Skiles@usace.army.mil <<mailto:Jennifer.L.Skiles@usace.army.mil>> >;  
Jaynie.G.Doerr@usace.army.mil <<mailto:Jaynie.G.Doerr@usace.army.mil>> <Jaynie.G.Doerr@usace.army.mil  
<<mailto:Jaynie.G.Doerr@usace.army.mil>> >  
Cc: Kuczynska, Iwona <iwona\_kuczynska@fws.gov <[mailto:iwona\\_kuczynska@fws.gov](mailto:iwona_kuczynska@fws.gov)> >  
Subject: [EXTERNAL] PLEASE REPLY ASAP: Tree clearing variance for Kiefer Creek permit MVS-2017-559

TIME SENSITIVE

Jennifer and Jaynie,

I left voice messages for you both today, per Jennifer's voice mail and per recommendation of Vona Kuczynska, the USFWS bat biologist that provided review of the Kiefer permit (see attached).

I discussed the project and our issues with tree clearing in full with Vona (and will do so with you and/or Janie when we connect). In short, Vona said that she would be comfortable that the two options below would not impact protected bats in the proposed clearing area (see attached):

1. Option 1:

- \* Extending the tree harvest limit to April 15
- \* Felling only (1) >9" DBH trees that have suitable bark for roosting (i.e., shaggy bark), such as shagbark hickory, white oak, and very large locust trees, and (2) any dead trees (i.e., "snags"), regardless of size.

- \* Any other clearing that takes place thereafter of other trees would not affect bats

2. Option 2:

- \* Extending the tree harvest limit to April 30
- \* First, require a "habitat assessment" of the proposed clearing area to quantify trees that fit the size and type as above
- \* If reviewed and approved by USFWS, the same felling tree size and type, as above.

Because this is very time sensitive, Vona assured me that she would work with you/me to provide a review that could be completed providing such a variance to this permit as early as next week. Vona: please correct anything above in case I misinterpreted.

Please give me a call at your earliest convenience to discuss this variance request (if that indeed is the correct term here). I can organize a conference call amongst us all, if needed. Thank you both for your consideration and I look forward to your response.

Steve

---

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From: Steven J. Herrington  
Sent: Thursday, March 12, 2020 10:09 AM  
To: 'Skiles, Jennifer L CIV CEMVS CEMVD (USA)' <Jennifer.L.Skiles@usace.army.mil  
<<mailto:Jennifer.L.Skiles@usace.army.mil>> >  
Subject: REPLY ASAP: Tree clearing issue for Kiefer Creek permit MVS-2017-559  
Importance: High

Re: MVS-2017-559

Jennifer,

I just left you a voice mail. I would like to speak with you ASAP re: tree clearing restrictions for the Kiefer Creek permit (see attached). The State of Missouri was unable to secure a tree-clearing contractor that was needed in order to designate staging areas and prepare the site for partial completion during Summer 2020. I would like to discuss the possibility of clearing trees after April 1 in a way that will still ensure that protected bats are no impacted by the project. I'm assuming this would require consultation with USFWS.

We are very close to the April 1 deadline so I would very much appreciate it if you got back to me ASAP. I'm very sorry for the rush here but the state's inability to secure a tree-clearing contractor was unexpected by all.

Thank you for your attention to this and I look forward to hearing back from you soon.

Steve

Also, I intend to contact "Jaime Door" at 314-331-8581, per your voicemail, if I don't hear from you this morning. Thanks...

---

Steven J. Herrington, Ph.D.  
Director of Science and Impact Measures

sherrington@tnc.org <<mailto:sherrington@tnc.org>>

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**APPENDIX 2E:**  
MISSOURI DEPARTMENT OF NATURAL  
RESOURCES SECTION 401 WATER QUALITY  
CERTIFICATION

**CLEAN WATER ACT SECTION 401 WATER QUALITY  
CERTIFICATION 2017 GENERAL AND SPECIFIC CONDITIONS  
NWP 13 - Bank Stabilization**

Consistent with Section 401 of the Clean Water Act, these precertified conditions are designed to ensure activities carried out under Nationwide Permits (NWPs) authorized by the U.S. Army Corps of Engineers (USACE) do not violate Missouri Water Quality Standards at 10 CSR 20-7.031, resulting in permanent damage to habitat, increased turbidity, reduced bank and channel stability or impacts to the biological and chemical integrity of the waters. Where applicable, these conditions are in addition to, not a replacement for, any federal requirements or conditions.

The conditions outlined in this document apply to those authorized projects where the applicant has chosen to accept these conditions instead of pursuing an individual Clean Water Act Section 401 Water Quality Certification (WQC) for the following NWPs:

- Only General Conditions apply to projects authorized by NWPs 5, 7, 15, 18, 23, 25, 27, 29, 30, 31, 36, 39, 40, 43, 45, and 46.
- Both General and Specific Conditions apply to projects authorized by NWPs 3, 4, 6, 7, 12, 13, 14, 16, 19, 20, 22, 33, 41, 42, 53 and 54.

Alternatively, an applicant may apply for individual WQC if they do not wish to accept the conditions outlined in this document.

Projects authorized by NWPs 17, 21, 32, 34, 37, 38, 44, 48, 49, 50, 51 and 52 require individual WQC by the Department of Natural Resources.

NWPs 1, 2, 8, 9, 10, 11, 28 and 35 authorize projects under Section 10 of the Rivers and Harbors Act of 1899 only. An activity needing only a Section 10 permit may require a WQC if that activity can reasonably be expected to result in any discharge either during construction or operation of the facility. Thus, if the agency determines the activity is likely to result in a discharge during construction or operation, the Department of Natural Resources has the discretion to require a WQC for a Section 10 activity. The USACE will advise a Section 10 permit applicant that they may need a WQC if there is a reasonable expectation that a discharge will occur either during the construction or operation of the project.

Pursuant to Chapter 644.037, RSMo, the Department of Natural Resources shall certify without conditions NWPs as they apply to impacts on wetlands in Missouri.

Pursuant to Chapter 644.038, RSMo, the Department of Natural Resources certifies all NWPs for impacts in all waters of the state without the above-stated or any other conditions for the construction of highways and bridges approved by the Missouri Highway and Transportation Commission. The Memorandum of Understanding of 2016 and any subsequent modifications between the two agencies outline the requirements by which the Missouri Department of Transportation will design and construct projects in order to protect the water quality of waters of the state.

## **GENERAL CONDITIONS**

1. NWPs shall not allow the filling of jurisdictional springs such as those associated with a water body's point of origin or located in a streambed.
2. Acquisition of NWPs and the attendant WQCs shall not be construed or interpreted to imply the requirements for other permits are replaced or superseded, including Clean Water Act Section 402 National Pollutant Discharge Elimination System Permits for land disturbance or return water from material deposition. Permits or any other requirements shall remain in effect. Applicants with questions are encouraged to contact the Department of Natural Resources' regional office in the project area. A regional office map with contact information can be located at [www.dnr.mo.gov/regions/regions.htm](http://www.dnr.mo.gov/regions/regions.htm).
3. Care shall be taken to keep machinery out of the water way as much as possible. If work in the water way is unavoidable, it shall be performed in a way that minimizes the duration and amount of any disturbance to banks, substrate and vegetation to prevent increases in turbidity. Fuel, oil and other petroleum products, equipment, construction materials and any solid waste shall not be stored below the ordinary high water mark at any time or in the adjacent flood-prone areas beyond normal working hours. All precautions shall be taken to avoid the release of wastes or fuel to streams and other adjacent waters as a result of this operation.
4. Petroleum products spilled into any water or on the banks where the material may enter waters of the state shall be immediately cleaned up and disposed of properly. Any such spills of petroleum shall be reported as soon as possible, but no later than 24 hours after discovery to the Department of Natural Resources' Environmental Emergency Response number at 573-634-2436 or website at <http://dnr.mo.gov/env/esp/esp-eer.htm>.

5. Only clean, nonpolluting fill shall be used. The following materials are not suitable where contact with water is expected such as for bank stabilization, and shall not be used due to their potential to cause violations of the general and numeric criteria of the Water Quality Standards:
  - a. Earthen fill, gravel, broken concrete where the material does not meet the specifications stated in the "Missouri Nationwide Permit Regional Conditions" ([updated link based on 2017 regional condition revisions](#)) and fragmented asphalt, since these materials are usually not substantial enough to withstand erosive flows. b. Concrete with exposed rebar.
  - c. Tires, vehicles or vehicle bodies, construction or demolition debris are solid waste and are excluded from placement in the waters of the state.
  - d. Liquid concrete, including grouted riprap, if not placed as part of an engineered structure.
  - e. Any material containing chemicals that would result in violation of water quality standards.
6. Clearing of vegetation and trees shall be the minimum necessary to accomplish the activity except for the removal of invasive or noxious species and placement of ecologically beneficial practices. A vegetated riparian buffer strip shall be maintained during all stages of the project, including post-construction, from the high bank on either side of the jurisdictional channel to protect water quality and to provide for long-term stability of the stream channel, unless physical barriers prevent such a corridor. For purposes of these NWP, lack of ownership or control of any portion of the riparian buffer strip may be considered a legitimate and discretionary cause to waive this requirement on that portion.
7. An individual WQC is required for any NWP issued on a water that is:
  - a. Listed for a sediment-related impairment, aquatic habitat alteration or unknown impairment as listed in the most current Water Quality Report (Section 305(b) Report) at <http://dnr.mo.gov/env/wpp/waterquality/303d/303d.htm>;  
or
  - b. Located in or occur within two miles upstream of a designated outstanding state or national resource water as found in 10 CSR 20-7.031, Tables D and E at <http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-7a.pdf>.

The Department of Natural Resources' geospatial data is available upon request, and all published data is available on the Missouri Spatial Data Information Services website at [msdis.missouri.edu/](http://msdis.missouri.edu/). Additional information to identify the project location, including stream reaches with listed impairments or special water designations, may be obtained from the Department of Natural Resources' Water Protection Program at 573-522-4502.

8. Discharge to designated metropolitan no-discharge streams is prohibited, except as specifically permitted under the Water Quality Standards, 10 CSR 20-7.031, and non-contaminated stormwater flows. No water contaminant except uncontaminated cooling water, permitted stormwater discharges in compliance with permit conditions, and excess wet-weather bypass discharges not interfering with beneficial uses should be discharged to the watersheds of streams listed in 10 CSR 20-7.031, Table F at <http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c207a.pdf>.
9. A stream's pattern, profile and dimension, including but not limited to sinuosity, slope and channel width, shall be maintained as much as practicable. Streambed gradient shall not be adversely impacted during project construction. No project shall accelerate bed or bank erosion.
10. NWPs authorized by the USACE for which the district engineer waives the impact limit related to linear feet (LF) or width shall require notification to the Department of Natural Resources. The Department of Natural Resources shall respond within 15 calendar days whether or not individual WQC would be required. This is applicable to NWPs 13, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52 and 54.
11. Proposed projects authorized by the USACE and containing a waiver of any "Missouri Nationwide Permit Regional Condition," except Regional Conditions 2, 3 and 7, shall require an individual WQC by the state.
12. Representatives from the Department of Natural Resources shall be allowed upon request on the project property, which includes the site(s) where the authorized activity takes place and any associated compensatory mitigation site(s), to inspect the authorized activity and mitigation efforts as deemed necessary by the Department of Natural Resources to ensure compliance with WQC conditions and water quality standards. The applicant or their consultant shall submit any requested information deemed necessary by the Department of Natural Resources to ensure compliance with WQC conditions.
13. After avoidance and minimization for the project, all unavoidable, adverse impacts shall be mitigated appropriately based on type and extent of impact.
  - a. Mitigation for loss of aquatic resources shall be in conformance with the currently approved "Missouri Stream Mitigation Method" and/or other mitigation guidance approved for use in Missouri. Mitigation guidance documents can be located online at [www.nwk.usace.army.mil/Missions/RegulatoryBranch/StateofMissouri](http://www.nwk.usace.army.mil/Missions/RegulatoryBranch/StateofMissouri). b. Mitigation shall be within the state of Missouri.

- c. The applicant shall comply with the higher value of compensatory mitigation required by either the Department of Natural Resources or the USACE, but not both unless explicitly noted.
  - d. Stream impacts shall require compensatory mitigation with only in-stream or riparian corridor credits, unless the Department of Natural Resources agrees to an alternative.
14. Antidegradation requirements dictate all appropriate and reasonable Best Management Practices related to erosion and sediment control, project stabilization and prevention of water quality degradation are applied and maintained; for example, preserving vegetation, streambank stability and basic drainage. Best Management Practices shall be properly installed prior to conducting authorized activities and maintained, repaired and/or replaced as needed during all phases of the project to limit the amount of discharge of water contaminants to waters of the state. The project shall not involve more than normal stormwater or incidental loading of sediment caused by project activities so as to comply with Missouri's general water quality criteria [10 CSR 20-7.031(4); Page 15 at <http://www.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-7a.pdf>].
15. Channelization of streams is not allowed under this precertification:
- a. Channelization includes but is not limited to reducing the length of the channel, widening the channel for increased water storage or flow, and/or construction of hard structures which concentrate flow.
  - b. Bank stabilization activities along one bank of a stream are permitted, including but not limited to, bank sloping and riprapping.
  - c. The redirection of flow by excavation of the opposite bank or a streambed is considered a channel modification and is prohibited.
16. No new or expanded wet stormwater retention basins or similar impoundment structures may be constructed unless they are located off-channel. In-channel dry stormwater detention basins are allowable if the stream channel is either temporarily or not adversely affected by the basin.
17. Any waste concrete or concrete rinsate shall be disposed of in a manner that does not result in any discharge to the jurisdictional waterways.

## **SPECIFIC CONDITIONS**

### Nationwide Permit 13 Bank Stabilization

- a. Innovative stabilization approaches require consultation with the Department of Natural Resources prior to approval and may require an individual WQC. The permittee shall invite the USACE and the Department of Natural Resources as well as the other state and federal resource agencies to examine innovative approaches.

Applications for WQC should be sent to the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176, or electronically to [wpsc401cert@dnr.mo.gov](mailto:wpsc401cert@dnr.mo.gov). A complete application consists of the application submitted to the USACE as well as additional information necessary for a complete review of the project. This may include but is not limited to topographical maps, locational maps, engineering plans, project diagrams and where applicable mitigation plans [Section 644.026.26, RSMo and 10 CSR 20-6.060(5)].

An issued WQC becomes part of and expires with the Section 404 and/or Section 10 permit unless explicitly stated in the WQC. Consultation with the Department of Natural Resources is required should the permit require modification. Not all permit modifications require the WQC to be modified or reissued. For example when a permit expiration date is extended or the permit is reissued and there are no changes to the original project or water quality standards, the WQC may remain valid for that project.

The Department of Natural Resources encourages, but does not require the permittee to consider environmentally-friendly design techniques to include stormwater management strategies that maintain or restore the original site hydrology through infiltration, evaporation or reuse of stormwater. Designs might include creating vegetated swales or rain gardens, or using porous pavement. More information can be found at these websites: [www.epa.gov/owow/NPS/lid/](http://www.epa.gov/owow/NPS/lid/) and [www.lid-stormwater.net/lid\\_techniques.htm](http://www.lid-stormwater.net/lid_techniques.htm).

The Department of Natural Resources encourages the use of native vegetation to protect impacted areas from future water quality concerns. Native vegetation has evolved with Missouri's geology, climate and wildlife to occur within a region as a result of natural processes rather than human intervention. For areas where direct impacts to streams are to be avoided, the Department of Natural Resources recommends a minimum riparian buffer strip width of 50 feet as measured from top of bank.

The following publication provides guidance on how to protect water quality through Best Management Practices on project sites. For more information, please read: "Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri and Kansas" dated January 2011 and located online at <http://dnr.mo.gov/env/wpp/wpcp-guide.htm>.

To help determine if a proposed activity could encounter species or sites of conservation concern within or near a project, including those that have not been recorded, the applicant is encouraged to visit:

- Missouri Department of Conservation's "Natural Heritage Review" website at <https://naturalheritagereview.mdc.mo.gov/>, and
- U.S. Fish and Wildlife Service's "Information, Planning and Conservation" website at <http://ecos.fws.gov/ipac/>. If the proposed project encounters and will potentially affect a species of concern, please report it to the Missouri Department of Conservation and the U.S. Fish and Wildlife Service.

For more information

Missouri Department of Natural Resources Water Protection Program

P.O. Box 176

Jefferson City, MO 65102-0176 [wpsc401cert@dnr.mo.gov](mailto:wpsc401cert@dnr.mo.gov)

800-361-4827 or 573-522-4502

<http://www.dnr.mo.gov/env/wpp>



## Introduction

The streams and rivers of Missouri support a wide and diverse community of wildlife that includes many species of mammals, birds, fishes, mussels, crayfish, and insects. The continued diversity and health of this community is dependent upon how well Missourians manage and protect this resource. While water quality is essential, maintaining a diverse array of habitat features also is essential for aquatic wildlife to persist. Since implementation of the Clean Water Act, point source pollution has been greatly reduced, but polluted and sediment-laden runoff (non-point source) from rural and urban development is still a serious problem.

There are management practices that can be implemented to prevent degradation of our streams and rivers. By adapting these best management practices we can prevent the loss of species diversity and maintain the quality of our lives as well. Preventative measures may require extra effort initially, but they provide long term dividends by eliminating costly damage resulting from poor management practices.

## Access and Staging Area

### Management Recommendations

Staging areas are those short- or long-term sites within a construction or development area where most equipment and materials are stored. These areas often are accessed frequently, and when fuel and oil are stored here, the potential for runoff and erosion in these areas may be high.

- > Erosion and sediment controls should be installed and maintained to prevent discharge from the site.
- > Staging areas for crew, equipment, and materials should be established well away from streams and rivers or highly erodible soils.
- > Stationary fuel and oil storage containers should remain within a staging area or another confined area to avoid accidental spills into the stream systems.
- > Excess concrete and wash water from trucks and other concrete mixing equipment should be disposed of where this material cannot enter the stream systems.
- > If temporary roadways must be built, ensure that roadways are of low gradient with sufficient roadbed and storm water runoff drains and outlets. Containment basins, silt fences, filter strips, etc. should be included for retention of storm water runoff for reducing sediment introduction into natural waterways.

-> Avoid stream crossings. If unavoidable, temporary crossings should be used. Temporary crossings should not restrict or interrupt natural stream flow. If temporary in-channel fill is necessary, culverts of sufficient size should be employed to avoid water impoundment and allow for fish passage.

## Riparian Corridor Management Recommendations

The riparian corridor is the vegetation adjacent to a stream or river. This area is critical to the health and quality of the aquatic environment because of its ability to slow and reduce sediment and chemical runoff into the stream or river channel. A riparian corridor with a minimum width of 100 feet from the edge of the stream or river should be maintained along both sides of streams and rivers.

- > Limit clearing of vegetation, including both standing and downed timber, to that which is absolutely necessary for construction purposes.
- > Heavy equipment use within the riparian corridor should be restricted to minimize vegetation destruction and compaction of soils. Flagging or fencing areas that are not to be disturbed is helpful in alerting construction personnel.
- > General application of pesticides, herbicides, or fertilizers within the riparian corridor should be prohibited to avoid water contamination due to over-spray or runoff. Fertilizer use or spot application of pesticides and herbicides is acceptable if appropriate non-restricted chemicals are used.
- > Riparian areas located down slope of construction zones should be physically screened with sediment controls, such as silt fences or filter strips. Sediment controls should be monitored after rain and maintained for the duration of the project.
- > All riparian corridors disturbed by the project should be revegetated immediately following or concurrent with project implementation. Appropriate native bottomland or riparian trees, shrubs, and grasses should be planted to ensure long-term stability in areas where the soil erosion threat is not critical. Annual non-native grasses such as rye or wheat may be planted in conjunction with native species to provide short-term erosion control. Areas judged to be subject to immediate soil loss due to steep slopes or other factors causing critical erosion conditions may be planted with non-native mixtures to assure rapid establishment and erosion control.

→ Post-construction evaluation of vegetation establishment should be conducted at one month intervals for at least three months after completion of the project. Any recommended sediment controls should be inspected at these times. If determined beneficial to soil stability and not adversely impacting site function and/or aesthetics, recommended sediment controls should remain permanent.

→ All temporary erosion and sediment controls should be removed (unless removal would cause further disturbance) and properly disposed of within 30 days after final site stabilization is achieved or after temporary practices are no longer needed.

## **Bank and Channel Management Recommendations**

The structure of a bank is an important feature of a stream or river. It defines and provides stability for the channel.

→ Bank stability will vary depending on height, slope, and soil conditions. Project engineers and hydrologists should thoroughly investigate the physical properties and hydrologic record of the proposed site before construction begins.

→ Limit clearing of vegetation, including both standing and downed timber, to that which is absolutely necessary for construction purposes.

→ Projects in which bank alteration is necessary should employ, to the highest degree possible, erosion prevention measures before actual excavation activities begin. These preventative measures should be monitored regularly and maintained for the duration of the project.

→ Use of riprap for stream bank stabilization should be limited to those areas that could experience substantial erosion before adequate vegetation becomes established. The material for the rock blanket should consist of durable stone or broken concrete that is well graded. It is preferable that 40-60 percent of the material be as large as the thickness of the blanket, with enough smaller pieces of various sizes to fill the larger voids. It should not contain more than 10 percent of earth, sand, shale, and non-durable rock. Bank stabilization materials should allow for continuous passage of fish and other aquatic species.

→ No permanent fill materials, other than design-approved structures and related bank stabilization materials, should be placed in the stream channel. Avoid channelization. Excavated materials should not be stored or stockpiled below the high bank.

→ Work should be conducted during low flow periods when possible.

→ Care should be taken to keep machinery out of the waterway as much as possible.

→ Do not alter or remove natural stream features, such as riffles and pools.

→ Large woody debris is an important habitat component of a stream and should not be removed unless absolutely necessary for construction and maintenance purposes.

## **Information Contacts**

For further information regarding regulations for development near streams and rivers, contact:

Missouri Department of Conservation  
Policy Coordination Section  
P.O. Box 180  
2901 W. Truman Blvd.  
Jefferson City, MO 65102-0180  
Telephone: 573/751-4115

Missouri Department of Natural Resources  
Division of Environmental Quality  
P.O. Box 176  
Jefferson City, MO 65102-0176  
Telephone: 573/526-3315

U.S. Army Corps of Engineers  
Regulatory Branch  
700 Federal Building  
Kansas City, MO 64106-2896  
Telephone: 816/983-3990

U.S. Environmental Protection Agency  
Water, Wetlands, and Pesticides Division  
901 North 5th Street  
Kansas City, KS 66101  
Telephone: 913/551-7307

U.S. Fish and Wildlife Service  
Ecological Services Field Office  
101 Park DeVillie Drive, Suite A  
Columbia, MO 65203  
Telephone: 573-234-2132

## **Disclaimer**

These Best Management Practices were prepared by the Missouri Department of Conservation with assistance from other state agencies, contractors, and others to provide guidance to those people who wish to voluntarily act to protect wildlife and habitat. Compliance with Best Management Practices is not required by the Missouri wildlife and forestry law nor by any regulation of the Missouri Conservation Commission. Other federal, state or local laws may affect construction practices.

**APPENDIX 2F:**  
STATE OF MISSOURI FLOODPLAIN  
DEVELOPMENT PERMIT

STATE EMERGENCY MANAGEMENT AGENCY



DEPARTMENT OF PUBLIC SAFETY  
PO Box 116, Jefferson City, Missouri 65102  
Phone: (573) 526-9100 Fax: (573) 634-7966  
E-mail: mosema@sema.dps.mo.gov



March 25, 2020

Mr. Jonathan Fitch, P.E.  
Program Director  
Planning and Development  
Missouri State Parks  
P.O. Box 176  
Jefferson City, MO 65102

Re: Approved Floodplain Development Permit for State Owned Development

Dear Mr. Fitch, P.E.:

Enclosed is the approved floodplain development permit for the Missouri State Parks Project No. 175656162. This project involves stream bank stabilization on Kiefer Creek through Castlewood State Park in St. Louis County.

This development is located within the political boundary of St. Louis County, Community ID Number 290327 as shown on the Flood Insurance Rate Map (FIRM) panel number 29189C0295K, with an effective date of February 4, 2015. It has been determined that this project is located within the Special Flood Hazard Area (SFHA) Zone-AE of Kiefer Creek. This project is located within the regulatory floodway of Kiefer Creek.

If the project requires additional permits from other regulatory agencies it is Missouri State Parks' responsibility to obtain those permits prior to the beginning of construction.

If you have any other questions, please do not hesitate to me at 573-526-9129.

Sincerely,

A handwritten signature in black ink that reads "Karen McHugh".

Karen McHugh, CFM  
State NFIP Coordinator  
Floodplain Management Section Manager

*Enclosures*

cc: MoParks Permit File - MoParks 2020-001  
Jim Knoll, Floodplain Administrator, Jefferson City  
Community File - Jefferson City



A Nationally  
Accredited  
Agency

## STATE OF MISSOURI FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

Application No. MoParks 2020-001Date: March 22, 2020

TO THE ADMINISTRATOR: The undersigned hereby makes application for a permit to develop in the Special Flood Hazard Area (SFHA) or "floodplain." The work to be performed, including flood protection works, is as described below and in attachments hereto. The undersigned agrees that all such work shall be in accordance with the requirements of the Floodplain Management Ordinance and with all other applicable county/city ordinances, federal programs, and the laws and regulations of the State of Missouri.

<u>Missouri State Parks</u>	<u>2/21/2020</u>	<u>St. Louis</u>
State Agency	Date	County Development Located Within
<u>1401 Kiefer Creek Road Ballwin, MO</u>		<u>St. Louis County Unincorporated/Castlewood State Park</u>
Address		Community Development Located Within
<u>314-966-1105</u>		
Phone		Second Community Development Located Within (If Applicable)

## SITE DATA

1. Location: 38.550752 / -90.54518 / 14 Section            Township            Range             
Street Address: approx. 1518 Kiefer Creek Rd. Ballwin, MO 63021
2. Type of Development: Filling  Grading  Excavation  Minimum Improvement   
Routine Maintenance  Substantial Improvement  New Construction  Other
3. Description of Development: Stream Bank Stabilization on Kiefer Creek through Castlewood State Park
4. Premises: Structure Size 590 ft. By 66 ft. Area of Site 213,444 Sq. Ft.  
Principal Use: Stream Bank Stabilization Accessory Uses (storage, parking, etc.):
5. Value of Improvement (fair market): \$            Pre-Improvement Assessed Value of Structure: \$
6. Is the Property Located in a Designated FLOODWAY? Yes  No
- IF ANSWERED YES, CERTIFICATION MUST BE PROVIDED PRIOR TO THE ISSUANCE OF A PERMIT TO DEVELOP, THAT THE PROPOSED DEVELOPMENT WILL RESULT IN NO INCREASE IN THE BASE (1%) FLOOD ELEVATIONS.
7. Is the Property Located in a Designated Floodplain FRINGE or a Floodplain (SFHA) without a Designated FLOODWAY? Yes  No
8. Elevation of the 1% Base Flood (ID source): 434.7 Meramec River 1% (St. Louis County DFIRM 29189C0295K) NGVD NAVD
9. Elevation of the Proposed Development Site: between 426 and 420 NAVD NGVD NAVD
10. State of Missouri Ordinance Elevation/Floodproofing Requirement:            NGVD NAVD
11. Other Floodplain Elevation Information (ID and describe source):
12. Other Permits Required? Corps of Engineer 404 Permit Yes  No  Provided   
State Department of Natural Resources 501 Permit Yes  No  Provided   
Environmental Protection Agency NPDES Permit Yes  No  Provided

All Provisions of Executive Order 98-03, the "Floodplain Management Ordinance" shall be in Compliance.

## PERMIT APPROVAL/DENIAL

Plans and Specifications Approved/Noted this 25th Day of March, 2020

Signature of State Agency or Representative:

JONATHAN FITCH, ACTING PROGRAM

Print Name and Title

DIRECTOR

Authorized Official:

Karen McHugh  
Karen McHugh State NFIP Coordinator

Print Name and Title

IF APPLICABLE, THIS PERMIT IS ISSUED WITH THE CONDITION, THAT THE LOWEST FLOOR (INCLUDING BASEMENT FLOOR) OF ANY NEW OR SUBSTANTIALLY IMPROVED STATE OWNED OR LEASE BUILDING WILL BE ELEVATED TO OR ABOVE THE BASE FLOOD ELEVATION. IF THE PROPOSED NEW OR SUBSTANTIALLY IMPROVED DEVELOPMENT IS A NON-RESIDENTIAL BUILDING, THIS PERMIT IS ISSUED WITH THE CONDITION THAT THE LOWEST FLOOR (INCLUDING BASEMENT) WILL BE ELEVATED OR FLOODPROOFED TO OR ABOVE THE BASE FLOOD ELEVATION. AN ELEVATION OR FLOODPROOFING CERTIFICATE WILL BE REQUIRED UPON COMPLETION OF ALL STATE DEVELOPMENT THAT MEETS THE ELEVATION REQUIREMENTS OF THE NFIP INCLUDING ALLOWABLE ENCLOSURES BELOW THE BASE FLOOD ELEVATION.

## ENGINEERING "NO-RISE" CERTIFICATION

Community: St. Louis County County: St. Louis State: MOApplicant: Steve Herrington Date: 2/21/2020Engineer: Oakes Routt, PEAddress: P.O. Box 440400 St. Louis, MO 63144Address: 10509 Timberwood Circle Suite 100, Louisville, KY 40223Telephone: 314-968-1105Telephone: 502-212-5000

## SITE DATA

1. Location: 38.550752 1/4; 90.54516 1/4; Section \_\_\_\_\_; Range \_\_\_\_\_; Township \_\_\_\_\_Street Address: approx. 1518 Kiefer Creek Rd, Ballwin, MO 630212. Panel(s) No. of NFIP map(s) affected: 29189C0295K3. Type of Development: Filling  Grading  Excavation  Minor Improv.   
Substantial Improv.  New Construction  Other 4. Description of Development: Stream Bank Stabilization on Kiefer Creek through Castlewood State Park5. Name of Flooding Source: Meramec River

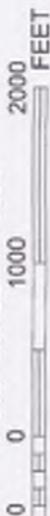
COMMENTS: To demonstrate a "no-rise" in base flood elevations, Stantec was unable to use the typical method of developing a duplicate effective HEC-RAS model from the original HEC-2 hydraulic model. Instead, Stantec developed sections comparing the historic, existing, and proposed bank conditions. These sections indicate the proposed stabilization techniques use less fill material than what was present in the historic (2002) channel conditions. Therefore, the proposed sections will not cause a rise in the base flood (1-percent-annual-chance) elevations.

This is to certify that I am a duly qualified engineer licensed to practice in the State of Missouri. It is to further certify that the attached technical data supports the fact that the proposed development described above will not create any increase to the 1% elevations on said flooding source above at published cross sections in the Flood Insurance Study for the above community dated February 4, 2015 and will not create any increase to the 1% flood elevations at unpublished cross-sections in the vicinity of the proposed development.

Name: Oakes Routt, PESignature: *Oakes Routt*Date: 2/28/2020Title: Project ManagerLicense No.: 2017026130



MAP SCALE 1" = 1000'



# NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0295K

## FIRM FLOOD INSURANCE RATE MAP

ST. LOUIS COUNTY, MISSOURI AND INCORPORATED AREAS

PANEL 285 OF 445  
SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT

COMMUNITY NUMBER: 285228  
COUNTY: ST. LOUIS COUNTY

DATUM: 1985  
SCALE: 1" = 1000'

Maple to Use: The Map Number shown below should be used when filing any map with the Community Number shown above for the rate of insurance premiums for the project community.

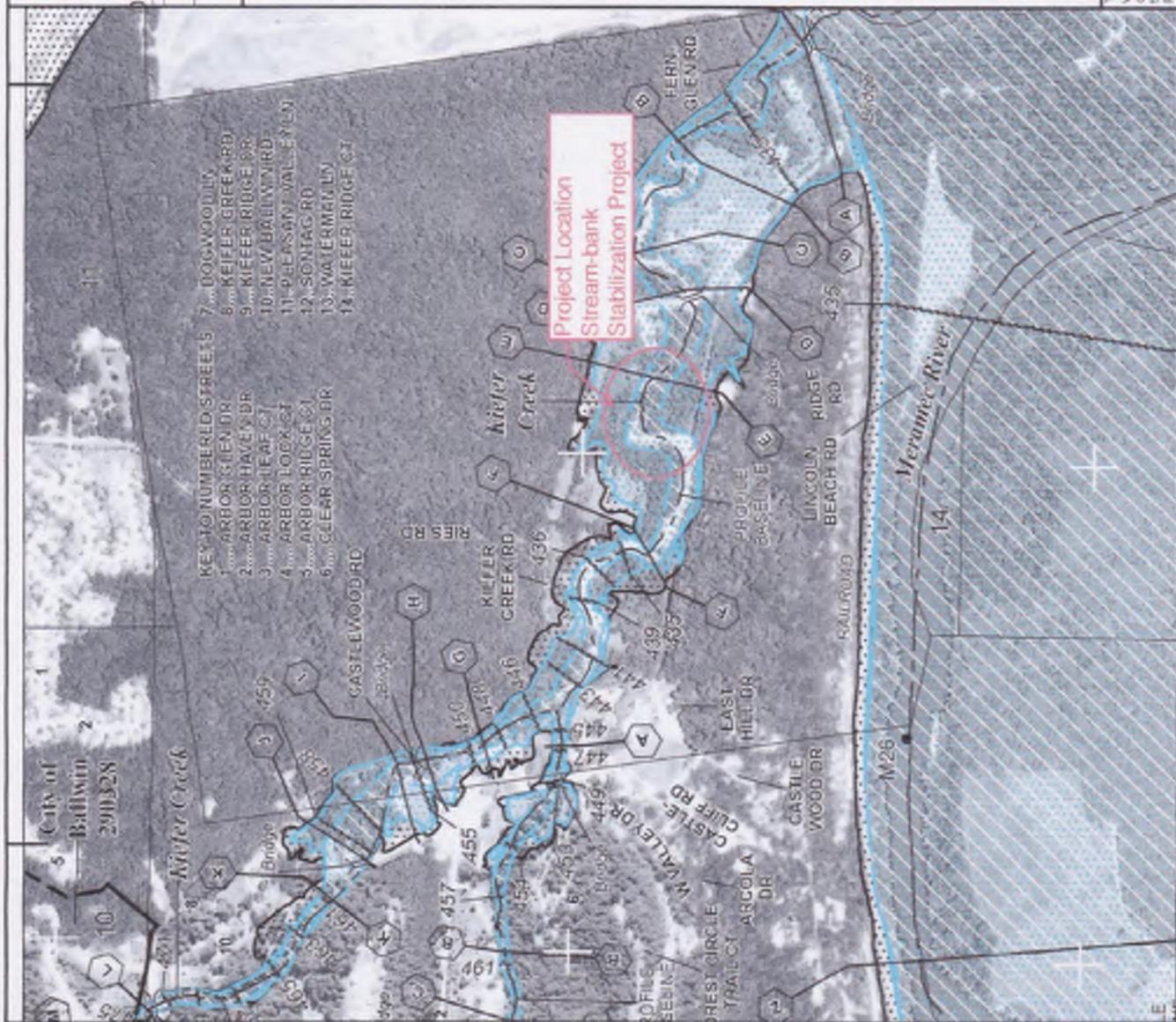


MAP NUMBER  
29188C0295K

MAP REVISED  
FEBRUARY 4, 2015

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was generated using FIRM On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps, check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

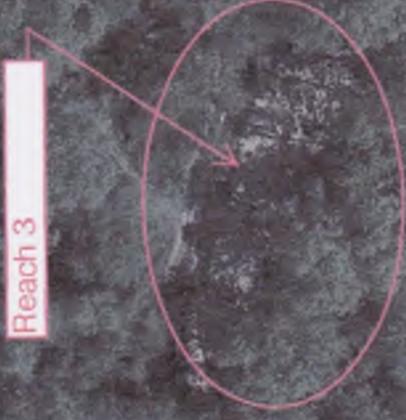


# State FPDP MoParks 2020-001

Job No. 175656162  
Stream Bank Stabilization Project  
Approx. Lat. = 38.551684  
Approx. Long. = -90.543121

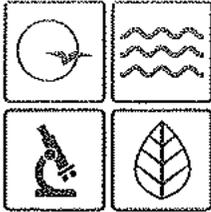
## Legend

Kiefer Creek Rd



300 ft

**APPENDIX 2G:**  
**STATE OF MISSOURI GENERAL OPERATING**  
**PERMIT – LAND DISTURBANCE PERMIT**



Missouri Department of dnr.mo.gov

# NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

JUL 11 2017

OA-Facilities Mgmt, Design, and Construction  
301 West High Street, Hst Rm 370  
Jefferson City, MO 65101

Dear OA-Facilities Mgmt,

Enclosed please find your Missouri State Operating Permit which authorizes land disturbance activities for Office of Administration. This permit has been issued at your request and is based upon information submitted in your application to the Missouri Department of Natural Resources.

Please note that prior to the beginning of land disturbance activities other permits may also be required. Especially note the requirements for a Missouri Department of Natural Resources 401 Water Quality Certification and the U.S. Army Corps of Engineers 404 permit. A 401 Certification is needed when placing material, or fill, into the jurisdictional waters of the United States. Examples are culverts under road crossings, riprap along stream banks and storm water outfall pipes. The term 'jurisdictional waters' refers to large lakes, rivers, streams and wetlands, including those that don't always contain water.

The permitting and certification process is shared between the department and the U.S. Army Corps of Engineers. More details can be found at the US Army Corps of Engineer's Website at <http://www.usace.army.mil/>. Some of these activities are also described on page 2, item 3 of the enclosed permit.

This permit contains several requirements and should be thoroughly read and understood by you. If your permit requires environmental monitoring, copies of the necessary forms have been enclosed. In all future correspondence regarding your permit please reference your permit number as shown on page 1 of the permit.

Please contact the Water Pollution Enforcement and Compliance Unit if you would like to schedule an Environmental Assistance Visit (EAV) at 573-751-1300. During the visit, staff will review the requirements of the permit and answer any questions that you may have. Staff will also be available to walk the site to advise on Best Management Practices required by the permit. The department's regional office staff may also contact you to schedule an EAV.

If you were adversely affected by this decision, you may be entitled to an appeal before the administrative hearing commission pursuant to 10 CSR 20-1.020 and Sections 644.051.6 and 621.250, RSMo. To appeal, you must file a petition with the administrative hearing commission 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 Administrative Hearing Commission. Contact information for the AHC is as follows: Administrative Hearing Commission, Third Floor, 131 West High Street, Jefferson City, MO 65101 (Mailing address: PO Box 1557, Jefferson City, MO 65102-1557), Phone: 573-751-2422, Fax: 573-751-5018, Website: [www.oe.mo.gov/ahc](http://www.oe.mo.gov/ahc).

Please be aware that this facility may also be subject to any applicable county or other local ordinances or restrictions.

Sincerely,

WATER PROTECTION PROGRAM

A handwritten signature in cursive script, appearing to read "David J. Lamb".

David J. Lamb  
Acting Director

DJL/sm

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 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 681, Cole County  
UTM Coordinates: 571840.000/4270368.000  
Receiving Stream: Various State Wide (U)  
First Classified Stream - ID#: Missouri R. (P) 701.00  
USGS# and Sub Watershed#: 10300102 - 1305

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)

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.

July 01, 2017

Issue Date

Handwritten signature of Edward B. Galbraith in black ink.

Edward B. Galbraith, Director  
Division of Environmental Quality

June 22, 2022

Expiration Date

Handwritten signature of David J. Lamb in black ink.

David J. Lamb, Acting Director  
Water Protection Program



## APPLICABILITY

1. This general 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. This general permit also authorizes the discharge of stormwater and certain non-stormwater discharges from smaller projects where the Missouri Department of Natural Resources (department) has exercised its discretion to require a permit [10 CSR 20-6.200(1)(B)].
2. This general permit is issued to a city, county, state or federal agency or other governmental jurisdiction for land disturbance projects performed by or under contract to the permittee.
3. A general stormwater control plan or stormwater pollution prevention plan (SWPPP) must be developed prior to issuance of this permit. These plans must include a narrative of the types and appropriate uses of Best Management Practices (BMPs) for erosion and sediment control and stormwater management. All water pollution controls on land disturbance sites shall conform to the storm water control program and/or SWPPP of the city, county or other governmental jurisdiction in which the land disturbance activity is occurring. The requirements of the stormwater control program and/or SWPPP must be at least as stringent as those described in this permit and 10 CSR 20-6.200.
4. 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 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 legal owner of the property, right-of-way or the holder of an easement on the property, and operator on which the site is located are responsible for compliance with this permit.
5. This permit authorizes discharges from construction support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided that appropriate stormwater controls are designed, installed, maintained and provided:
  - 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; and
  - c. The support activity does not continue to operate beyond the completion of the construction activity at the project it supports.The permittee is responsible for compliance with this permit for any construction support activities.
6. This permit authorizes non-stormwater discharges from the following activities provided that these discharges are addressed in the permittee's specific SWPPP required by this general permit:
  - a. Dewatering activities if there are no contaminants other than sediment present in the discharge, and the discharge is treated as specified in Requirements, Section 10.o. of this permit;
  - b. Flushing water hydrants and potable water lines;
  - c. Water only (i.e., without detergents or additives) rinsing of streets and buildings; and
  - d. Site watering to establish vegetation.
7. This general permit does not authorize the:
  - a. placement of fill materials in waters or floodplains
  - b. obstruction of stream flow,
  - c. redirection of stormwater across private property not owned or operated by the permittee, or

d. Changing the channel of a defined drainage course.

These actions may be regulated by other federal, state, or local entities, such as the U.S. Army Corps of Engineers or Federal Emergency Management Agency. This general permit addresses only the quality of the stormwater runoff and the minimization of off-site migration of sediments and other water contaminants.

8. This permit does not authorize land disturbance activity in jurisdictional waters of the United States, unless the permittee has obtained the required Clean Water Act Section 404 Department of the Army permit from the U.S. Army Corps of Engineers and its associated Section 401 Water Quality Certification from the department. Land disturbance activities may not begin in the affected waters of the United States until the required §404 permit and §401 water quality certification have been obtained.
9. This general permit prohibits any discharge of wastewater generated from air pollution control equipment or the containment of scrubber water in lined ponds to waters of the state.
10. This general permit prohibits any discharge of sewage or pollutants to waters of the state including but not limited to:
  - a. Any hazardous material, oil, lubricant, solid waste or other non-naturally occurring substance from the site, including fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
  - b. Soaps or solvents used in vehicle and equipment washing;
  - c. Hazardous substances or petroleum products from an on-site spill or handling and disposal practices;
  - d. Wash and/or rinse waters from concrete mixing equipment including ready mix concrete trucks, unless managed by an appropriate control. Any such pollutants must be adequately treated and addressed in the SWPPP, and cannot be discharged to waters of the state;
  - e. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
  - f. Domestic wastewaters, including gray waters; or
  - g. Industrial stormwater runoff.
11. The department reserves the right to revoke or deny coverage under this general permit to applicants for stormwater discharges from land disturbance activities at sites that have contaminated soils that will be disturbed by the land disturbance activity or where such materials are brought to the site to use as fill or borrow. A site-specific permit may be required to cover such activities.
12. If at any time the department determines that the quality of waters of the state may be better protected by requiring the owner/operator of the permitted site to apply for a site-specific or different general permit, the department may do so [10 CSR 20-6.010(13)(C)]. Examples of when this may occur:
  - a. The permittee is not in compliance with the conditions of this general permit;
  - b. The discharge no longer qualifies for this general permit due to changed site conditions and/or regulations; or
  - c. Information becomes available that indicates water quality standards have been or may be violated.The permittee will be notified in writing of the requirement to apply for a site-specific permit or a different general permit. When issued to the authorized permittee, the applicability of this general permit to the permittee is automatically terminated upon the effective date of the site-specific or different general permit.
13. Any owner/operator authorized by a general permit may request to be excluded from the coverage of the general permit and apply for a site-specific permit [10 CSR 20-6.010(13)(D)].

14. 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; or the Resource Conservation and Recovery Act. Determination of applicability for the above mentioned acts is the responsibility of the permittee.
15. This permit does not supersede any requirement for obtaining project approval under an established local authority.
16. This permit is not transferable to other owners or operators.

#### EXEMPTIONS FROM PERMIT REQUIREMENTS

1. Facilities that discharge all stormwater runoff directly to a combined sewer system are exempt from stormwater permit requirements.
2. Land disturbance activity as described in 10 CSR 20-6.010(1)(B) and 10 CSR 20-6.200(1)(B).
3. Oil and gas related activities as listed in 40 CFR 122.26(a)(2)(ii).

#### REQUIREMENTS

1. Electronic Discharge Monitoring Report (eDMR) Submission System.  
Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally-consistent set of data about the NPDES program. All general permit covered facilities under this master general permit shall comply with the department's requirements for electronic reporting.
  - a. Reporting Requirements.
    - (1) Application to participate in the department's eDMR system is required as part of the application for general permit coverage in order to constitute a complete permit application and may be accessed at [dnr.mo.gov/env/wpp/edmr.htm](http://dnr.mo.gov/env/wpp/edmr.htm).
    - (2) The permittee must electronically submit quarterly reports via the eDMR system.
  - b. Other actions. The following shall be submitted electronically after such a system has been made available by the department:
    - (1) General Permit Applications/Notices of Intent to discharge (NOIs);
    - (2) Notices of Termination (NOTs);
    - (3) No Exposure Certifications (NOEs); and
    - (4) Low Erosivity Waivers and Other Waivers from Stormwater Controls (LEWs).
  - c. Electronic Submissions. To access the eDMR system, use the following web link: <https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx>.
  - d. Waivers from Electronic Reporting.
    - (1) The permittee must electronically submit reports unless a waiver is granted by the department in compliance with 40 CFR Part 127.
    - (2) The permittee may obtain a temporary or permanent electronic reporting waiver by first submitting an eDMR Waiver Request Form (Form 780-2692: <http://dnr.mo.gov/forms/780-2692-f.pdf>), by contacting the appropriate permitting office or emailing [edmr@dnr.mo.gov](mailto:edmr@dnr.mo.gov)). The department will either approve or deny this electronic reporting waiver request within 120 calendar days of receipt.
    - (3) Only permittees with an approved waiver request may submit reports on paper to the Department for the period that the approved electronic reporting waiver is effective.
2. Quarterly Reports: 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;
- 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 to the department quarterly via the department's eDMR system. When a permittee terminates permit coverage, the permittee shall submit with the request for termination, the final quarterly report for the current calendar quarter. The permittee shall submit quarterly reports according to Table A.

<b>Table A Schedule for Quarterly Reporting</b>	
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

3. This permit is to ensure the design, installation and maintenance of effective erosion and sediment controls minimize the discharge of pollutants by:
  - a. Controlling stormwater volume and velocity within the site to minimize soil erosion;
  - b. Controlling 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 in the immediate vicinity of discharge points;
  - c. Minimizing the amount of soil exposed during construction activity;
  - d. Minimizing the disturbance of steep slopes;
  - e. Addressing factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle size expected to be present on the site to minimize sediment discharges from the site;
  - f. Providing and maintaining natural buffers around surface waters as detailed in 10.f,
  - g. Directing stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration and filtering, unless infeasible; and
  - h. Minimizing soil compaction and, unless infeasible, preserve topsoil. Minimizing soil compaction or preserving topsoil is not required where the intended function of a specific area of the site dictates that it be compacted or the topsoil be disturbed or removed.
4. Installation of Best Management Practices (BMPs) necessary to prevent soil erosion at the project boundary must be complete prior to the start of all phases of construction.
5. Install sediment controls along any perimeter areas of the site..
  - a. Remove any sediment per the manufacturer's instructions or before it has accumulated to one-half of the above-ground height of any perimeter control.
  - b. For sites where perimeter controls are infeasible, other practices shall be implemented to minimize discharges to perimeter areas of the site.
6. BMPs shall be maintained and remain in effective operating condition during the entire duration of the project, with repairs made within the timeframe specified in the Requirements Section 9 of this permit, until final stabilization has been achieved.
7. Minimize sediment track-out from the site.
  - a. Restrict vehicle traffic to properly designed exit points such as an aggregate stone with an underlying geotextile or non-woven filter fabric.

- b. Use appropriate stabilization techniques at all points that exit onto paved roads.
  - c. Remove any sediment that has been tracked out within the same business day or by the end of the next business day if track-out occurs on a non-business day.
8. **SWPPP Development and Implementation:** 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. The permittee shall fully implement the provisions of the SWPPP required under this part as a condition of this general permit throughout the term of the land disturbance project. **The SWPPP must be developed prior to issuance of the permit and must be updated with details specific to the land disturbance site prior to conducting any land disturbance activities at the site.** Either an electronic copy or a paper copy of the SWPPP must be accessible to anyone on-site at all times when land disturbance operations are in progress, or other operational activities that may affect the maintenance or integrity of the BMP structures and made available as specified under the Records Section of this permit.
9. The SWPPP must:
- a. List and describe all points of discharge to receiving water(s);
  - b. Incorporate required practices identified below;
  - c. Incorporate erosion control practices specific to site conditions;
  - d. Provide for maintenance and adherence to the plan;
  - e. Discuss whether or not additional authorizations, such as a Section 404 permit and associated Section 401 Water Quality Certification are required for the project; and
  - f. Name the person responsible for inspection, operation and maintenance of BMPs.

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; compliance with the Missouri Water Quality Standards; and compliance with the terms and conditions of this general permit.

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/npdes/developing-stormwater-pollution-prevention-plan-swppp>; and 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 is available on the department's internet site at <http://www.dnr.mo.gov/env/wpp/wpcp-guide.htm>.

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 should be described and justified in the SWPPP.

10. **SWPPP Requirements:** The following information and practices shall be provided for in the SWPPP:
- a. **Nature of the Construction Activity:** The SWPPP briefly must describe the nature of the construction activity, including:
    - (1) The function of the project (e.g., low density residential, shopping mall, highway, etc.);
    - (2) The intended sequence and timing of activities that disturb the soils at the site;
    - (3) Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities including off-site borrow and fill areas; and
    - (4) A general map (e.g., United States Geological Survey quadrangle map, a portion of a city or county map, or other map) with enough detail to identify the location of the construction site and waters of the state within one mile of the site.

- b. Site Map: The SWPPP must contain a legible site map showing the site boundaries and points of discharge to receiving water(s) and identifying:
- (1) Direction(s) of stormwater flow and approximate slopes for all phases of construction activities;
  - (2) 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);
  - (3) Location of permanent and temporary structural and non-structural BMPs identified in the SWPPP;
  - (4) Locations where stabilization practices are expected to occur;
  - (5) Locations of off-site material, waste, borrow or equipment storage areas;
  - (6) Locations of all waters of the state (including wetlands);
  - (7) Locations where stormwater discharges to a surface water; and
  - (8) Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.
- c. Site Description: In order to identify the site, the SWPPP shall include facility and points of discharge to receiving water(s) information. 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.
- d. Selection of Temporary and Permanent BMPs: The permittee shall select, install, use, operate and maintain appropriate BMPs for the permitted site and list them in the SWPPP.
- e. Preservation of trees and vegetation: The SWPPP shall require existing vegetation and trees to be preserved where practical.
- f. Surface Water Buffers: For surface waters of the state, defined 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, located on or adjacent to the site,” the permittee must comply with (1)-(3), except as noted in (4):
- (1) Provide and maintain a 50-foot undisturbed natural buffer;
  - (2) 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
  - (3) 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.
  - (4) The permittee is not required to comply with (1), (2) or (3) above if one of the following exceptions apply and documentation is provided in the SWPPP:
    - (a) As authorized per Clean Water Act Section 404 Department of the Army permit and its associated Section 401 Water Quality Certification from the department.
      1. The angle of any crossing shall be as perpendicular as feasible to the water course or natural stream buffer to minimize adverse impacts.
    - (b) 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 your site. This includes situations where you have implemented permanent control measures that will prevent such discharges, such as a berm or other barrier.
    - (c) 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.
      1. 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, you are required to comply with (1), (2), or (3) above.
    - (d) For linear projects where site constraints make it infeasible to implement a buffer or equivalent provided you limit disturbances within 50 feet of any waters of the state and/or you provide supplemental erosion and sediment controls to treat stormwater

discharges from earth disturbances within 50 feet of the water of state.

- (e) For small residential lot construction as defined as 'a lot being developed for residential purposes that will disturb less than 1 acre of land, but is part a larger common plan of development or sale,' one has the option of complying with (1), (2) or (3) above or one of the following alternatives:
  - 1. Tiered-technology approach where:
    - a. A 50-foot or larger buffer is retained, no additional requirements are needed,
    - b. The buffer is greater than 30 feet but less than 50 feet wide, implement double perimeter controls spaced a minimum of at least 5 feet apart between land disturbance and water of the state, or
    - c. A less than or equal to 30-foot buffer is maintained, implement double perimeter controls between land disturbance and water of the state and stabilization activities completed with 7 calendar days of temporary or permanent cessation of land disturbance; or
  - 2. Sediment discharge risk based on the site's slope, location and soil type when combined with buffer width.
  
- g. Measuring Buffer Width: 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.
  
- h. Description of BMPs: The SWPPP shall include a description of both structural and non-structural BMPs used one or more times at the site, providing the following general information for each:
  - (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 for the BMP.
  
- i. Specific Instance of BMPs: 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) Where, in relation to other site features, the BMP is to be located;
  - (3) When the BMP will be installed in relation to each phase of the land disturbance procedures to complete the project; and
  - (4) Site conditions that must be met before removal of the BMP if the BMP is not a permanent BMP.
  
- j. Disturbed Areas: Slopes for disturbed areas must be defined in the SWPPP. A site map or maps defining the sloped areas for all phases of the project must be included in the SWPPP.
  - (1) For soil disturbing activities that have 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.
  - (2) 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.
  - (3) Allowances to the 14 day completion period for temporary and final stabilization may be made due to weather and equipment malfunctions. In drought-stricken areas where initiating vegetative stabilization measures immediately are infeasible, alternative stabilization measures must be employed. The use of allowances shall be documented in the SWPPP.

- (4) Interim stabilization 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. These BMPs may include a combination of sediment basins, check dams, sediment fences and mulch. 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) or if the slope is greater than 3% and greater than 150 feet in length, then the permittee shall establish interim stabilization within seven days of ceasing operations on that part of the site.
  - (5) In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed.
- k. Installation: The permittee shall ensure the BMPs are properly installed at the locations and relative times specified in the SWPPP.
- (1) Peripheral or border BMPs to control runoff from disturbed areas shall be installed or marked for preservation before general site clearing is started. Note that this requirement does not apply to earth disturbances related to initial site clearing and establishing entry, exit and access of the site, which may require that stormwater controls be installed immediately after the earth disturbance.
  - (2) For phased projects, BMPs shall be properly installed as necessary prior to construction activities.
  - (3) Stormwater discharges from disturbed areas which leave the site shall pass through an appropriate impediment to sediment movement such as a sedimentation basin, sediment traps and/or silt fences prior to leaving the land disturbance site.
  - (4) A drainage course change shall be clearly marked on a site map and described in the SWPPP.
  - (5) If vegetative stabilization measures are being implemented, stabilization is considered "installed" when all activities necessary to seed or plant the area are completed.
- l. Sedimentation Basins: The SWPPP shall include a sedimentation basin for each drainage area with ten or more acres disturbed at one time.
- (1) The sedimentation basin shall be sized to a local 2-year, 24-hour storm. A 2-year, 24-hour storm event shall be determined for the project location using the National Oceanic and Atmospheric Administration's National Weather Service Atlas 14 which can be located at <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
  - (2) Basins designed and initiated under the 2012 Area-Wide Land Disturbance General Permit MO-R100038 or prior authorizations shall comply with the requirements held in those authorizations. Any construction activities designed and initiated under this authorization shall comply with the local 2-year, 24-hour storm event by January 1, 2018.
  - (3) Accumulated sediment shall be removed from the basin when basin is 50% full.
  - (4) Utilize outlet structures that withdraw water from the surface when discharging from basins and impoundments unless infeasible.
  - (5) Discharges from the basin shall not cause scouring of the banks or bottom of the receiving stream.
  - (6) The SWPPP shall require the basin be maintained until final stabilization of the disturbed area served by the basin.
  - (7) 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.
  - (8) 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 delivery. 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.

- m. Pollution Prevention Measures: The SWPPP shall include BMPs for pollution prevention measures. At minimum such measures must be designed, installed, implemented and maintained to:
  - (1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
  - (2) 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. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk or stormwater contamination (such as final products and material intended for outdoor use);
  - (3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures. Included but not limited to the installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers; and
  
- n. Roadways: Where applicable, upon installation of or connection to roadways, all efforts should be made to prevent the deposition of earth and sediment onto roadways through the use of proper BMPs.
  - (1) Stormwater inlets susceptible to receiving sediment from the permitted land disturbance site shall have curb inlet protection.
  - (2) Where stormwater will flow off the end of where a roadway terminates, a sediment catching BMP such as gravel berm or silt fence shall be provided.
  - (3) Curb inlets shall be cleaned weekly or following a precipitation event that generates a run-off.
  
- o. Dewatering: Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. The SWPPP shall include a description of any anticipated dewatering methods.
  - (1) The SWPPP shall call for specific BMPs designed to treat water pumped from trenches and excavations and in no case shall this water be pumped off-site without being treated by the specified BMPs.
  
- 11. Good housekeeping practices shall be maintained at all times to keep waste from entering waters of the state. Solid and hazardous waste management include providing trash containers and regular site cleanup for proper disposal of solid waste such as scrap building material, product/material shipping waste, and food containers and cups, and providing containers and proper disposal of waste paints, solvents and cleaning compounds. The provision of portable toilets for proper disposal of sanitary sewage and the storage of construction materials should be kept away from drainage courses and low areas.
  
- 12. All fueling facilities present shall at all times adhere to applicable federal and state regulations concerning underground storage, above ground storage and dispensers.
  
- 13. Hazardous substances that are transported, stored, or used for maintenance, cleaning, or repair shall be managed according to the provisions of the Missouri Hazardous Waste Laws and Regulations.
  
- 14. Containers: All paint, solvents, petroleum products, petroleum waste products and storage containers such as drums, cans, or cartons shall be stored according to BMPs. The materials exposed to precipitation shall be stored in watertight, structurally sound, closed containers. All containers shall be inspected for leaks or spillage during the inspection of BMPs.

15. Amending/Updating the SWPPP: The permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. The permittee shall amend the SWPPP at a minimum whenever the:
  - a. 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;
  - 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 excessive sediment deposits in streams or lakes); and/or
  - f. Department determines violations of water quality standards may occur or have occurred.
  
16. An individual shall be designated by the permittee as the lead for environmental matters. The lead individual for environmental matters shall have a thorough and demonstrable knowledge of the site's SWPPP and sediment and erosion control practices in general. The lead individual for environmental matters or a designated inspector knowledgeable in erosion, sediment and stormwater control principles shall inspect all structures that function to prevent pollution of waters of the state
  
17. Site Inspections: The permittee (or a representative of the permittee) shall conduct regularly scheduled inspections.
  - a. 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.
  - b. Inspections are only required during the project's normal working hours.
  - c. For disturbed areas that have not been finally stabilized, all installed BMPs and other pollution control measures shall be inspected for proper installation, operation and maintenance.
  - d. Areas on-site that have been stabilized must be inspected at least once per month.
    - (1) For areas where disturbed portions have undergone temporary stabilization at the same time active construction continues on other areas, inspections shall occur at least once a month while stabilized and when re-disturbed shall follow either frequency outlined in subsection h. below.
    - (2) For areas where disturbed portions have undergone final stabilization at the same time active construction continues on other areas, inspection frequency may be cease on the finally stabilized areas according to the following:
      - (a) After the first monthly inspection, inspect once more within 24 hours of a storm event of 0.25 inches or greater.
      - (b) If there are no issues or evidence of stabilization problems, further inspections may cease.
      - (c) If unstable site conditions or sediment movement are observed, the site must be re-stabilized and monthly inspections shall occur until final stabilization is confirmed following a storm event of 0.25 inches or greater.
  - e. All stormwater outfalls shall be inspected for evidence of erosion or sediment deposition.
  - f. When practicable the receiving stream shall also be inspected for 50 feet downstream of the outfall.
  - g. Any structural or maintenance problems shall be noted in an inspection report and corrected as soon as possible but no more than seven calendar days after the inspection.
    - (1) If weather conditions 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.
    - (2) The documentation must be filed with the regular inspection reports.
    - (3) The permittee shall correct the problem as soon as weather conditions allow.
  - h. All BMPs must be inspected in accordance to one of the two schedules listed below, and any

- changes to the frequency of inspections, including switching between the options listed below, must be documented in the SWPPP:
- (1) At least once every seven 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 and within 72 hours if the event ceases during a non-work day such as a weekend or holiday; or
  - (2) Once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches or greater or the occurrence of runoff from snowmelt. To determine if a storm event of 0.25 inches or greater has occurred on-site, the permittee must either keep a properly maintained precipitation gauge on site, or obtain the storm event information from a weather station near the site.
    - (a) Inspections shall be conducted within 24 hours once a storm event has produced 0.25 inches within a 24 hour period, even if the storm event is still continuing.
    - (b) If the permittee has 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 is required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the end of the storm.
18. The SWPPP must explain how the person responsible for erosion control will be notified when stormwater runoff occurs
19. Site Inspections Reports: A log of each inspection and copy of the inspection report shall be kept readily accessible and must be available upon request by the department. Electronic logs are acceptable as long as reports can be provided in a timely manner. If inspection reports are kept off-site, the SWPPP must indicate where they are stored. The inspection report shall be signed by the permittee or by the person performing the inspection if duly authorized to do so. The inspection report is to include the following minimum information:
- a. Inspector's name;
  - b. Date of inspection;
  - c. Observations relative to the effectiveness of the BMPs;
  - d. Actions taken or necessary to correct the observed problem; and
  - e. Listing of areas where land disturbance operations have permanently or temporarily stopped.
20. Notification to All Contractors: The permittee shall be responsible for notifying 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 action or precautions shall be taken while on-site to minimize the potential for erosion and the potential for damaging any BMP. The SWPPP shall contain a record of notification; for example, a list of contractors or entities given a copy of the SWPPP or education session sign-in sheet. The permittee is responsible for any damage a subcontractor may do to established BMPs and any subsequent water quality violation resulting from the damage.
21. Public Notification: The permittee shall post a copy of the public notification sign on page 15 of this permit at the main entrance to the site. 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 permit has been terminated.

## OTHER DISCHARGES

A record of each reportable release of hazardous substance shall be retained with the SWPPP and made available to the department upon request. The department may also require the submittal of a written or electronic report detailing measures taken to clean up the spill within five (5) days of the spill. Such a report must include the type of material spilled, volume, date of spill, date clean-up was completed, clean-up method, and final disposal method.

## SAMPLING REQUIREMENTS AND EFFLUENT LIMITATIONS

The department may require sampling and reporting as a result of illegal discharges, compliance issues, complaint investigations, or other such evidence of contamination from activities at the site. If such an action is needed, the department will specify in writing any sampling requirements, including such information as location, extent and parameters.

## RECORDS

1. The permittee shall retain copies of this general permit, the SWPPP and all amendments for the site, results of any monitoring and analysis, and all site inspection records. The records shall be accessible during normal business hours. The records shall be retained for a period of at least three years from the date of the Letter of Termination.
2. The permittee shall provide a copy 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.
3. 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.

## LAND PURCHASE AND CHANGE OF OWNERSHIP

1. If the permittee sells any portion of the 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.
2. Property of any size which is part of a larger common plan of development where the property has been stabilized and the original permit terminated will require application of a new land disturbance permit for any future land disturbance activity unless exempted per 10 CSR 20-6.010(1)(B), 10 CSR 20-6.200(1)(B), and 40 CFR 122.26(a)(2)(ii).
3. If the entire tract is sold to a single entity, then this permit shall be terminated when the new owner obtains a new land disturbance permit for the site.
4. 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 while no permit is required for less than one acre of land sold.

## TERMINATION

This permit may be terminated when all projects are stabilized. The project is considered to be finally stabilized when perennial vegetation, pavement, buildings, or structures using permanent materials cover all areas that have been disturbed. With respect to areas that have been vegetated, vegetation cover shall be at least 70% over 100% of the site. In order to terminate the permit, the permittee shall notify the department by submitting *Form H- Request for Termination of a General Permit* (<http://dnr.mo.gov/forms/780-1409-f.pdf>).

## DUTY TO REAPPLY

Unless terminated, the permittee shall submit an application for the renewal of this permit by submitting *Form E-Application for General Permit* (<http://dnr.mo.gov/forms/780-0795-f.pdf>) and

*Form G – Application for Stormwater Permit Under the General Permit: Land Disturbance* (<http://dnr.mo.gov/forms/780-1408-f.pdf>) no later than thirty (30) days prior to the permit's expiration date. If a facility submits a timely and complete application in accordance with 10 CSR 20-6.010(5)(B), (5)(C), and (10)(E)1, as well as § 644.051.10, RSMo 2015, if the department is unable, through no fault of the permittee, to issue a renewal prior to expiration of the previous permit, the terms and conditions of the expired permit are administratively continued and will remain fully effective and enforceable until such time when a permit action is taken. Failure to submit a renewal application for a facility that is still in operation is a violation of the Missouri Clean Water Law. As part of the complete application and as required by the federal NPDES eReporting rule, participation in the department's Electronic Discharge Monitoring Report Submission System (eDMR) will be required. Facilities already participating in eDMR need not re-apply upon renewal. More information can be found at: <http://dnr.mo.gov/env/wpp/edmr.htm>. Failure to apply for renewal of a permit may result in termination of this permit and enforcement action to compel compliance with this condition and the Missouri Clean Water Law. This permit may be applied for and issued electronically once made available by the director in accordance with Section 644.051.10, RSMo.

#### MODIFICATION, REVOCATION, AND REOPENING

1. The full implementation of this operating permit shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the CWA section 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 Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
  - a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
  - b. controls any pollutant not limited in the permit.
2. 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.

#### STANDARD CONDITIONS

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

1. 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.
2. 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.
3. Duty to Provide Information: The permittee shall furnish to the department, within a reasonable time, 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.

4. 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.
  
5. 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.



Missouri  
Department of  
Natural Resources

STORMWATER DISCHARGES  
FROM THIS LAND DISTURBANCE  
SITE ARE AUTHORIZED BY THE  
MISSOURI STATE OPERATING  
PERMIT NUMBER:

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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**  
**MO-R100038**

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 (permit) 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 a permit.

This Fact Sheet is for a:

- Major
- Minor
- Industrial Facility
- Variance
- Master General Permit
- Permit with widespread public interest

**Definitions**

**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.

**Immediately:** For the purposes of this permit, immediately should be defined as within 24 hours.

**Infeasible:** Infeasible means not technologically possible, or not economically practicable and achievable in light of best industry practices.

**Larger Common Plan of Development or Sale:** A contiguous area where multiple separate and distinct construction activities are occurring under one plan.

**Non-structural Best Management Practice:** Institutional, educational or pollution prevention practices designed to limit the amount of stormwater runoff or pollutants that are generated in the landscape. An example includes ordinance development.

**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 should be defined as any activity that has been

ceased without any intentions of future disturbance.

Structural Best Management Practice: Physical controls working individually or as a group, appropriate to the source, location, and area climate for the pollutant to be controlled. Examples include moving earth for sedimentation basin and planting vegetation.

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 – Facility Information**

Facility Type: Industrial Stormwater  
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 SWPPP requirement to minimize pollutants of concern from this type of facility or for all facilities covered under this permit. 10 CSR 20-6.200(6)(A)7. specifies that "general permits shall contain BMP requirements and/or monitoring and reporting requirements to keep the stormwater from becoming contaminated." 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 local conditions.

While drafting this permit for renewal, the department hosted four public meetings on January 27, February 24, April 18, and May 19, 2016, which allowed stakeholders to voice concerns about conditions within the permit and submit comments during the period of initial involvement. These concerns were taken into consideration when drafting the permit.

### **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:

Please mark all appropriate designated waters of the state categories of the receiving stream.

- 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 1<sup>st</sup> classified receiving stream's beneficial water uses shall be maintained in accordance with 10 CSR 20-7.031(4). The BMP requirement established by this permit are intended to be protective of all streams that fall within the categories of receiving water bodies indicated above. A general permit does not take into consideration site-specific conditions.

### **Part III – Applicability**

Condition number 5 includes support activities. Those support activities are to become part of the land disturbance permitted area and included in the acreage calculations, whether the support activities are located adjacent to, on-site or off-site from the main land disturbance construction area. For example, if the main land disturbance site is 0.6 acres and the project needs fills that is gathered from a borrow site specific to this project which equals 0.5 acres, then the total acreage for this project is an acre or more and the conditions of this permit apply to both the main construction area and the borrow area.

Condition number 14 was expanded to include a more comprehensive list of state and federal requirements that must be taken into consideration.

If the proposed project encounters and will potentially affect a species of concern, please report it to the Missouri Department of Conservation and the United States Fish and Wildlife Service. For more information about requirements of the Endangered Species Act, please visit the following links:

1. To determine the potential for species of concern within or near a project, please visit the United States Fish and Wildlife Services' "Information, Planning and Conservation" website at <http://ecos.fws.gov/ipac/>.
2. If there are listed species in the county or township, check to see if critical habitat has been designated and if that area overlaps or is near the project area. Critical habitat designations and associated requirements may also be found at 50 CFR Parts 17 and 226. For additional information, use the map view tool at <http://criticalhabitat.fws.gov/crithab/> to find data specific to the state and county.

The Missouri Department of Conservation's internet site for the Natural Heritage Review may be very helpful and can be found at the following link, <https://naturalheritagereview.mdc.mo.gov/>.

### **Part IV – Exemptions**

Condition Number 2 was added to cite all state exemptions from permitting requirements, combining several previous cited exemptions into one condition and reference. This includes an exemption for linear construction where the entire disturbance, including clearing of land to access the linear disturbance, is less than two feet in width.

Condition Number 3 was added to cite federal regulations that exclude land disturbance projects related to the installation or maintenance work for oil and gas related activities.

### **Part V – Rationale of Technology Based Limitations & Permit Conditions**

#### **303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):**

Section 303(d) of the Federal CWA requires that each state identify waters that are 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 that are impaired but not addressed by normal water pollution control programs.

#### **ANTI-BACKSLIDING:**

A provision in the Federal Regulations [CWA Section 303(d) (4); CWA Section 402(c); 40 CFR Part 122.44(1)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- Applicable: Backsliding proposed in this permit conforms to the anti-backsliding provisions of Section 402(o) of the CWA and 40 CFR 122.44. The department has determined that technical mistakes were made in the previous permit [CWA 402(o)(2)(B)(ii)]. The Department has determined that technical mistakes or mistaken interpretations of law were made in issuing the

permit under section 402(a)(1)(b).

**Settleable Solids:** The Settleable Solids limitation was removed since has been determined to not be a statewide technology or water quality based limitation given a variability of soil type in the state. Increased technology based best management practices have been included and are a more appropriate technology based requirement.

**Water Quality Standard Narrative Prohibitions.** The previous permit contained language which referenced narrative compliance with the water quality standards found in 10 CSR 20-7.031. In order to comply with 40 CFR 122.44(d)(1), the permit writer has conducted reasonable potential determinations for each general and applicable specific criterion and established numeric effluent limitations where reasonable potential exists. While the removal of the previous permit language creates the appearance of backsliding, the permit writer has evaluated discharges associated with this general permit as to whether reasonable potential to cause excursions of specific or general criteria on a statewide level and found that no reasonable potential exists given the proper implementation of a Stormwater Pollution Prevention Plan and associated best management practices and that the requirements of this permit are equally protective as compared to the previous permit. Therefore, given this new information, and the fact that the previous permit special condition was not consistent with 40 CFR 122.44(d)(1), an error occurred in the establishment of the general criteria as a special condition of the previous permit.

**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 that the best avenue forward for implementing the Antidegradation requirements into general permits is by requiring the appropriate development and maintenance of a SWPPP. The SWPPP must identify all Best Management Practices (BMPs) that are reasonable and effective, 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 new BMPs that are reasonable and cost effective. New facilities seeking coverage under this permit are required to develop a SWPPP that includes this analysis and documentation of appropriate BMPs. Renewal of coverage for a facility requires a review of the SWPPP to assure that the selected BMPs continue to be appropriate.

- Applicable:** The main pollutant of concern in this permit is sediment. Compliance with the technology-based limitations established in this permit for the protection of General Criteria, along with the evaluation and implementation of BMPs as documented in the SWPPP, meets the requirements of Missouri's Antidegradation Review [10 CSR 20-7.031(3), 10 CSR 20-7.031 Table A, and 10 CSR 20-7.015(9)(A)5].

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP):**

In accordance with 40 CFR 122.44(3)(k) Best Management Practices (BMPs), BMPs are implemented 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 Developing Your Stormwater Pollution Prevention Plan, a Guide for Construction Sites (EPA 833-R-06-004; [https://www3.epa.gov/npdes/pubs/sw\\_swppp\\_guide.pdf](https://www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf)) published by the United States Environmental Protection Agency (EPA) in May 2007, BMPs are measures or practices used to reduce the amount of pollution entering waters of the state. BMPs may take the form of a process, activity, or physical structure. EPA developed resources and tools related to construction stormwater along with the BMPs to control and minimize stormwater ( <https://www.epa.gov/npdes/stormwater-discharges-construction-activities>). Along with EPA's resources and tools, the International Stormwater BMP database ([www.bmpdatabase.org/index.htm](http://www.bmpdatabase.org/index.htm)) may provide guidance on BMPs appropriate for specific industries.

Additionally in accordance with 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 stormwater discharges.

- Applicable: A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

The new permit has been revised to allow permittees to store SWPPP documents electronically as long as they can be provided in an expedient manner.

Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. If the spill occurs outside of normal business hours, or if the permit holder cannot reach regional office staff for any reason, the permit holder is instructed to report the spill to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. Leaving a message on a department staff member voice-mail does not satisfy this reporting requirement.

#### **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.

#### **SPECIFIC CRITERIA CONSIDERATIONS:**

An evaluation of discharges associated with land disturbance activities has been conducted to determine if any pollutants discharged under this general permit would have reasonable potential to cause or contribute toward an excursion of specific water quality criterion. Pollutants discharged from land disturbance activities are not commonly associated with pollutants listed as specific criteria in the Missouri Water Quality Standards; therefore, reasonable potential to cause an excursion of a specific criterion does not exist.

#### **GENERAL CRITERIA CONSIDERATIONS:**

In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. In order to comply with this regulation, the permit writer will complete reasonable potential determinations on whether the discharge will violate any of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion [the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)]. It should also be noted that Section 644.076.1, RSMo states that it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is 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.

- (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. The SWPPP requires implementation of best management practices to store, prevent, or minimize stormwater and/or any related land disturbance activity discharges (namely sediment). If one follows their SWPPP and other permit conditions including timely inspections, no reasonable potential to cause an excursion of this narrative exists. Additionally, there had been no indication to the Department that a stream has had issues maintaining beneficial uses as a result of the controlled and managed stormwater discharges per the SWPPP. Therefore, based on the information reviewed during the drafting of this permit, no reasonable potential to cause or contribute to an excursion of this criterion exists.
- (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses. Please see (a) above as justification is the same.
- (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses. Please see (a) above as justification is the same.
- (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life. This permit addresses discharges from land disturbance activities and it not expected to include an toxic pollutants. Best management practices are to be addressed in the SWPPP should any toxic pollutant of concern be on-site.
- (e) There shall be no significant human health hazard from incidental contact with the water. Please see (a) above as justification is the same.
- (f) There shall be no acute toxicity to livestock or wildlife watering. Please see (d) above as justification is the same.
- (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community. Please see (a) above as justification is the same.
- (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247. Please see (a) above. Additionally, any solid wastes received or produced at this facility are wholly contained in appropriate storage facilities, are not discharged, and are disposed of offsite. Therefore, this discharge does not have reasonable potential to cause or contribute to an excursion of this criterion.

The settleable solids requirement was removed from this permit and was replaced with additional, more specific BMP requirements. The settleable solids limit was determined not to be protective of all waters across the state, therefore, it was removed. Examples of these BMPs include requirements to:

- Install and maintain perimeter controls along areas of the site that will receive pollutant discharges;
- Minimize sediment track-out from the site;
- Provide storage for runoff up to and including a 2-year, 24-hour storm event when designing sedimentation basins; and
- Direct stormwater to vegetated areas.

The minimum buffer width was increased from 25 feet to 50 feet. Studies have shown that a 50 foot vegetative buffer more adequately treats sediment from stormwater discharges. This appears to be standard in EPA's permit as well as in many other states. A literature review was conducted to assess the effectiveness of buffer widths in relation to sediment removal. In an early literature review on grass buffers in agricultural settings, Dosskey (2001) concluded that 40 -100% of sediment entering from cultivated fields was removed using buffer strips 0.5 to 20 meters. Liu *et al.* (2008) conducted an analysis of 85 estimates of sediment removal by vegetated buffers. They found that sediment removal efficiency ( $E_s$ , the percentage of inflowing sediment trapped within a buffer) increased with buffer width according to the relationship:  $E_s = 13.4 \log_e (w) + 56.9$  in

which  $w$  (m) is buffer width. This equation predicts that  $E_s$  increases from 78% for a 5 meter wide buffer to 88% and 97% at widths of 10 meters and 20 meters, respectively. Yaun *et al.* (2009; 93 estimates) and Zhang *et al.* (2010; 81 estimates) garnered similar results to Liu *et al.*

In order to design controls that match the sediment removal efficiency of a 50-foot buffer, first the permittee must know what this efficiency is for the 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 sediment controls used to reduce the discharge of sediment prior to the buffer.

Sediment removal efficiencies are based on the U.S. Department of Agriculture's RUSLE2 (Revised Universal Soil Loss Equation 2) model for slope profiles using a 100-foot long exposed slopes.

Sediment removal is defined as the annual sediment delivered at the downstream end of the 50-foot natural buffer (tons/yr/acre) divided by the annual yield from cleared area (tons/yr/acre).

Sediment removal is in part a function of (1) a perimeter control (i.e., silt fence) located between the disturbed portion of the site and the upland edge of the natural buffer and (2) stormwater flows traveling through a 50-foot buffer of undisturbed natural vegetation.

Additional guidance may be found at [https://www.epa.gov/sites/production/files/2017-02/documents/2017\\_cgp\\_final\\_appendix\\_g\\_-\\_buffer\\_reqs\\_508.pdf](https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_g_-_buffer_reqs_508.pdf).

Inspection frequencies: Site inspection frequencies have been changed from the previous permit based upon guidance from the USEPA and from stakeholder discussions. These frequencies will allow flexibility but will still allow for frequent enough inspections to ensure that all BMPs are adequately functioning.

## **Part VI – Effluent Limitations Determination**

In this general permit, Technology-Based Effluent Limitations are established through the SWPPP and BMP requirements. Effective BMPs may have to be designed on a site-specific basis. The implementation of monitoring provides a tool for each facility to evaluate the effectiveness of BMPs to ensure protection of water quality.

## **Part VII – Land Purchase and Change of Ownership**

A “larger common plan of development or sale” is a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan. This term is used in conjunction with common promotional plan, as defined in §644, RSMo.

Any portion of a project that is sold to a developer is still considered part of a larger common plan of development or sale and will require a permit.

If a portion of a site is sold to an individual for the purpose of building his or her private residence:

- A permit is required if the portion of land sold is equal to or greater than one acre.
- A permit is not required if the portion of land sold is less than one acre.

## **Part VIII – Termination**

The word ‘plant density’ was removed from the first paragraph since the department determined that percent of vegetative cover more accurately describes the vegetative requirements of this permit. This decision was made after discussion within the department and with stakeholders.

It is preferable that temporary BMPs such as sediment fence be removed prior to permit termination to

eliminate potential solid waste issues that may occur as a result of unnecessary and unmaintained BMPs.

Additional options for winter site stabilization as part of the vegetation requirement may exist, such as using a seeded erosion control blanket.

### **Part IX – Duty to Reapply**

This section has been revised to reflect the current applicable statutes which require applicants to submit an application for coverage 30 days prior to expiration of this permit. Currently, a paper application is required; however, applicants are to submit an application for coverage electronically as soon as they are made available by the director. The department will announce the availability status of the new permit and the process to reapply at least 60 days prior to the expiration of the existing permit.

### **Part X – Standard Conditions**

This section was revised to only include the standard conditions that specifically apply to this permit. All other conditions have been removed.

### **Part XI – 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 NOTICE:**

The department shall give public notice that 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 seeking comments on this permit occurred from March 31 to May 1, 2017.

**DATE OF FACT SHEET: 06/16/2017**

**COMPLETED BY:**  
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