



**US Army Corps  
of Engineers®**  
Nashville District

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# **BEAR CREEK STREAMBANK PROTECTION**

**Natchez Trace Parkway  
Colbert County, Alabama**

## **Construction Specifications**

**Nashville, Tennessee**

**June 2003**

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**SECTION 01000**  
**GENERAL REQUIREMENTS**

**PART 1 GENERAL**

**1.1 SCOPE OF WORK**

The Contractor shall furnish all necessary technical expertise, planning, management, supervision, inspection, personnel, parts, tools, fuel, equipment, vehicles and transportation, materials and supplies, except as otherwise provided for herein, required for construction of Bear Creek Streambank Protection as specified, and in strict accordance with all Terms, Conditions, General, Specific and Technical Provisions, contained herein or incorporated by reference. Incorporation by reference shall include any and all mandatory provisions required by the Federal Acquisition Regulation (FAR) whether it is referenced or not, current at time of award.

**1.2 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designations only.

**1.2.1 US Army Corps of Engineers Engineering Manuals (EM)**

EM 385-1-1 (1996) Safety and Health Requirements Manual

**1.2.2 Federal Highway Administration (FHWA)**

MUTCD (2000) Manual on Uniform Traffic Control Devices

**1.3 PROJECT SIGNS**

The Special Contract Requirement entitled PROJECT SIGNS requires the erection of project signs at the jobsite. Attached at the end of this section are sketches showing the basic characteristics for the required signs.

**1.4 ACCIDENT PREVENTION**

The Special Contract Requirement entitled ACCIDENT PREVENTION addresses the contract requirement to comply with the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM-385-1-1, including the requirement for the submission of the Safety Plan and the Activity Hazard Analysis. Attached at the end of this section is ORNP-385-1-2 CONTRACTOR GUIDELINES for the preparation of the Safety Plan and the Activity Hazard Analysis.

The Contractor is required to comply with all interim changes to EM-385-1-1 that are posted in the Safety and Occupational Health Website prior to the date of the solicitation. The webpage

location where the interim changes are found is under the button entitled “Changes to EM”, located at: [http://www.hq.usace.army.mil/soh/hqusace\\_soh.htm](http://www.hq.usace.army.mil/soh/hqusace_soh.htm).

### 1.5 COORDINATION WITH PARKWAY PERSONNEL

The contractor shall coordinate his site work with the following Natchez Trace Parkway Point of Contact:

Stennis Young                      Maintenance Director                      Phone (662) 680-4021

### 1.6 TEMPORARY ACCESS RAMP

The Contractor shall design and construct his own temporary ramp from the parkway to allow access to the site to perform the work. However, the Contractor will not be allowed to cut or bench into the existing parkway embankment to construct the ramp. Fill material used to construct the access ramp may consist of gravel or rock. At the completion of the project the Contractor will be required to remove all fill material brought in to construct the temporary access and to grade, seed, mulch, and restore the entire disturbed area to its original condition.

### 1.7 LOAD RESTRICTIONS

When hauling on the Natchez Trace Parkway, do not exceed the following load restrictions:

<u>Single Units</u>	<u>Gross Vehicle Weight-Lbs.</u>
2 axles	40,000
3 axles	48,000
4 or more axles	52,000
<u>Combination Units</u>	
3 axles	57,000
4 axles	62,000
5 or more axles	66,000

Where the ground is saturated with water or during periods of freezing and thawing, the Contracting Officer may impose further load restrictions or suspend hauling.

Operate loaded vehicles hauling material at speeds not exceeding 40 MPH and spaced at 500 foot minimum intervals. On bridges, speeds shall not exceed 25 MPH and not more than one loaded hauling vehicle will be allowed on any bridge at one time. Contractor’s use of park roadway to haul materials, supplies, and equipment shall be limited to use for this project only.

## **1.8 TRAFFIC CONTROL**

The Contractor shall maintain traffic control during the entire duration of site activities required by this project. Any temporary traffic control items, devices, materials, and incidentals shall remain the property of the Contractor, unless otherwise addressed, when no longer needed.

### **1.8.1 Traffic Control Plan**

The Contractor shall submit, for approval, a written Traffic Control Plan. The traffic control plan shall comply with the requirements of MUTCD, Part 6 Temporary Traffic Control.

### **1.8.2 Deviation from the Traffic Control Plan**

If the Contractor desires to deviate from any portion of the approved traffic control plan, he shall prepare an alternate plan and present it in writing to the Contracting Officer. The alternate plan can be used only after review and approval by the Contracting Officer.

### **1.8.3 Maintenance of Two Way Traffic**

The Contractor shall have on site and in operating order, adequate equipment to keep the parkway, parking areas, and all other related paved areas free of debris, mud, dirt, or any other obstruction which may result from construction traffic using the roadway. If any mud, debris, or obstructing object is tracked onto the pavement by the Contractor's vehicles, the Contractor shall immediately remove the obstructing object and restore traffic flow. Before beginning any operation where the Contractor will be halting traffic (or interfering with its normal flow,) the Contractor shall post sufficient warning signs of the type and at intervals as required by MUTCD, Part 6 Temporary Traffic Control, and shall have flaggers present and working to provide for the safe passage of vehicles. The traffic control plan to be used by the Contractor must be approved by the Contracting Officer prior to being activated. The Contractor shall provide adequate signing and flaggers which shall be in place and functioning at the location before the plan begins operation.

### **1.8.4 Covering of Signs**

The Contractor shall completely cover any signs, either existing, permanent, or temporary which do not properly apply to the current traffic pattern and phasing, and shall maintain the covering until the signs are applicable or are removed.

### **1.8.5 Sign Placement and Removal**

In general, all traffic control devices shall be placed starting and proceeding in the direction of the flow of traffic and removed starting and proceeding in the direction opposite to the flow of traffic.

### **1.8.6 Passage of Emergency Vehicles**

If traffic should be stopped due to construction operations and an emergency vehicle on an official emergency run arrives on the scene, the Contractor shall make immediate provision for the passage of that vehicle.

### **1.8.7 Repair of Damaged Pavement**

The Contractor shall immediately temporarily repair and return to serviceable condition, any pavement damaged by construction traffic. In addition to the temporary repair the Contractor shall make permanent repairs as soon as the damaged area is no longer subject to further damage by the Contractor's construction or hauling equipment. If any pavement is damaged by the Contractor's vehicles or equipment during construction, the Contractor shall stabilize soft spots, repair existing base in kind, and overlay the repaired area with a one and one-half inch course of surface at the end of the construction project. Any such repaired area shall be striped in accordance with instructions in the Manual on Uniform Traffic Control Devices.

### **1.8.8 Contractors Vehicles**

The Contractors vehicles shall always move with and not against the flow of traffic. Vehicles shall enter and leave work areas in a manner which will not be hazardous to or interfere with normal traffic. Vehicles shall not park or stop along the parkway, except within work areas and at locations designated by the Contracting Officer.

## **1.9 MEASUREMENT AND PAYMENT**

No separate payment will be made for the work covered under this section.

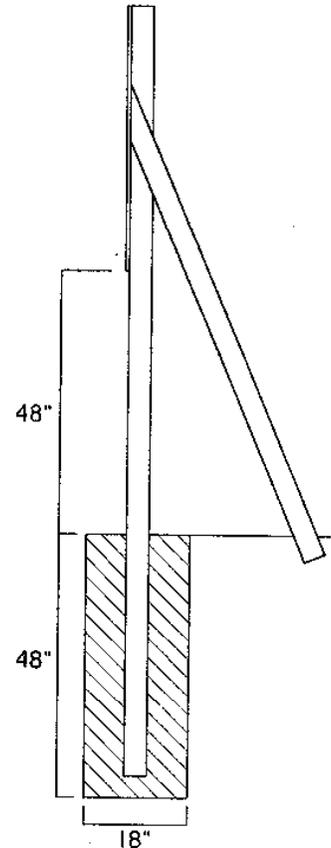
**PART 2 PRODUCTS** (Not Applicable)

**PART 3 EXECUTION** (Not Applicable)

**END OF SECTION 01000**

# PROJECT IDENTIFICATION SIGN

Construction Supervised by:		<b>Project Title</b>	
 <p><b>US Army Corps of Engineers</b> Nashville District</p> <p>(WHITE LETTERS- RED BACKGROUND)</p>			
3"	21"	3"	45"



LEGEND GROUP 1: ONE- TO TWO-LINE DESCRIPTION OF CORPS RELATIONSHIP TO PROJECT. COLOR: WHITE. TYPEFACE: 1.25" HELVETICA REGULAR MAXIMUM LINE LENGTH: 19".

LEGEND GROUP 2: DISTRICT NAME PLACED BELOW 10.5" REVERSE SIGNATURE (6" CASTLE). COLOR: WHITE. TYPEFACE: 1.25" HELVETICA REGULAR.

LEGEND GROUP 3: ONE- TO THREE-LINE PROJECT TITLE LEGEND DESCRIBES THE WORK BEING DONE UNDER THIS CONTRACT. COLOR: BLACK. TYPEFACE: 3" HELVETICA BOLD MAXIMUM LINE LENGTH: 42".

LEGEND GROUP 4: ONE- TO TWO-LINE IDENTIFICATION OF PROJECT OR FACILITY (CIVIL WORKS). TYPEFACE: 1.5" HELVETICA REGULAR MAXIMUM LINE LENGTH: 42".

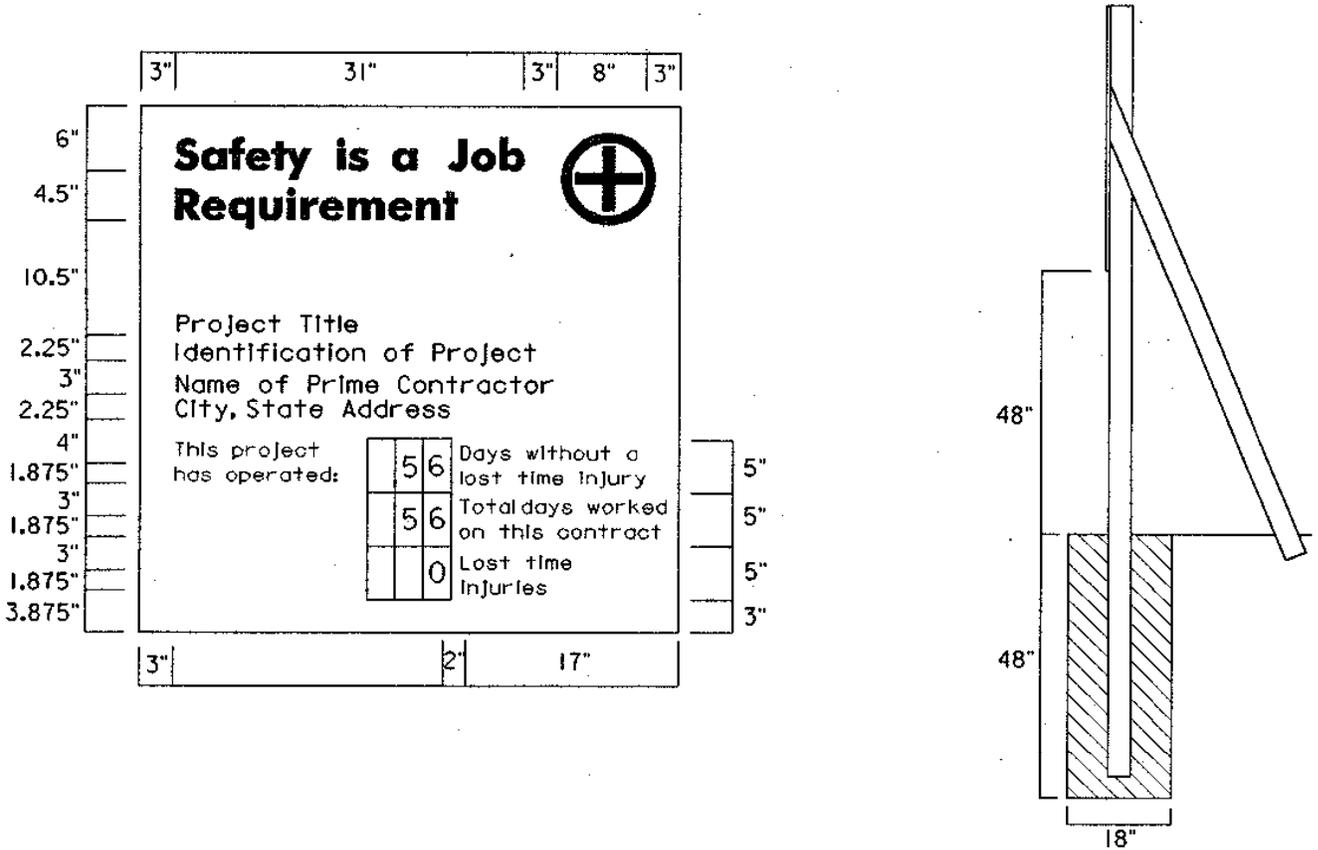
CROSS-ALIGN THE FIRST LINE OF LEGEND GROUP 4 WITH THE FIRST LINE OF THE CORPS SIGNATURE (US ARMY CORPS) AS SHOWN.

LEGEND GROUPS 5: ONE- TO FIVE-LINE IDENTIFICATION OF PRIME CONTRACTORS INCLUDING: TYPE (GENERAL CONTRACTOR, ETC.), CORPORATE OR FIRM NAME, CITY, STATE. COLOR: BLACK. TYPEFACE: 1.25" HELVETICA REGULAR MAXIMUM LINE LENGTH: 21".

ALL TYPOGRAPHY IS FLUSH LEFT AND RAG RIGHT, UPPER AND LOWER CASE WITH INITIAL CAPITALS ONLY AS SHOWN.

PANEL SIZE 4' X 6', POST SIZE 4" X 4", MOUNTING HEIGHT 48", COLOR BKG/LGD WH-RD/BK.

# SAFETY PERFORMANCE SIGN



LEGEND GROUP 1: STANDARD TWO-LINE TITLE "SAFETY IS A JOB REQUIREMENT", WITH (8" OD.) SAFETY GREEN FIRST AID LOGO. TYPEFACE: 3" HELVETICA BOLD COLOR: BLACK.

LEGEND GROUP 2: ONE- TO TWO-LINE PROJECT TITLE LEGEND DESCRIBES THE WORK BEING DONE UNDER THIS CONTRACT AND NAME OF HOST PROJECT. COLOR: BLACK. TYPEFACE: 1.5" HELVETICA REGULAR MAXIMUM LINE LENGTH: 42".

LEGEND GROUP 3: ONE- TO TWO-LINE IDENTIFICATION: NAME OF PRIME CONTRACTOR AND CITY, STATE ADDRESS. COLOR: BLACK. TYPEFACE: 1.5" HELVETICA REGULAR MAXIMUM LINE LENGTH: 42".

LEGEND GROUP 4: STANDARD SAFETY RECORD CAPTIONS AS SHOWN. COLOR: BLACK. TYPEFACE: 1.25" HELVETICA REGULAR.

REPLACEABLE NUMBERS ARE TO BE MOUNTED ON WHITE .060 ALUMINUM PLATES AND SCREW-MOUNTED TO BACKGROUND. COLOR: BLACK. TYPEFACE: 3" HELVETICA REGULAR PLATE SIZE: 2.5" X 5.0".

ALL TYPOGRAPHY IS FLUSH LEFT AND RAG RIGHT. UPPER AND LOWER CASE WITH INITIAL CAPITALS ONLY AS SHOWN.

PANEL SIZE 4' X 4', POST SIZE 4" X 4", MOUNTING HEIGHT 48", COLOR BKG/LDG WH/BK-GR.



**US Army Corps  
of Engineers®**  
Nashville District

ORNP 385-1-2  
May 1986

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## **Contractor Guidelines For:**

- 1. The Preparation of the  
Accident Prevention  
Proposal (Safety Plan)**
- 2. The Preparation of the  
Activity Hazard Analysis**

APPENDIX A  
HELPFUL HINTS FOR THE PREPARATION OF THE  
CONTRACTOR'S  
ACCIDENT PREVENTION PROPOSAL

1. The following are minimum considerations for developing the Contractor's Accident Prevention Proposal. These helpful hints raise a number of basic questions that need to be answered for the Contractor's safety plan to be an effective management tool for use by on-site supervision. This plan shall be specific for this job.

a. Time Of Submittal. The safety plan and the activity hazard analysis for the first phases of the job shall be acceptable prior to start of work. The plan and analysis shall be submitted for review within ten (10) calendar days after notice of award so that discussion can take place at the pre-construction conference. Job hazard analysis for later phases of work shall be acceptable prior to the start of that phase. It is recommended that the activity hazard analysis for the next phase of work be submitted twenty days before scheduled phase start in order to give ample time for review. The safety plan shall contain a list of the phases to complete the works. Each phase shall have an anticipated start date. On short jobs one submittal covering the total job will be sufficient.

b. Responsible Individual(s). Who will be responsible for enforcing the safety program and what are the basic duties? How will this person be held accountable? Include a statement that there will be compliance with pertinent provisions of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.

c. Subcontractor Supervision. What procedures will be followed to assure that Subcontractor activities are fully integrated into the project safety plan and activity hazards analysis?

d. Indoctrination of New Employees Before Start of Work. Every employee is required to receive an initial safety briefing prior to starting work. The safety plan shall establish the procedure for ensuring the following items are covered:

- (1) General safety policy and pertinent provisions of EM-385-1-1.
- (2) Requirements for employee and project safety.
- (3) Employee's responsibilities for property and safety of others.
- (4) Employee's responsibilities for reporting all accidents.
- (5) Medical facilities and required treatment.
- (6) Procedures for reporting or correcting unsafe conditions or practices.

- (7) Safe clearance procedures.
- (8) Fire fighting and other emergency procedures.
- (9) Activity hazard analysis.
- (10) Personal protective equipment.

e. On-the Job Safety Meetings.

- (1) When and where will monthly safety meetings for all supervisors be held? Who will conduct the meetings and what will be covered?
- (2) How will the weekly "tool box" meetings be conducted?

f. Accident Reporting. The contract requires prompt reporting of injuries, fire, and property damage. Initial reports must be made immediately to the on-site Government representative and written reports shall be submitted within one to four working days. How does the safety plan reflect responsibilities assigned for immediate oral reporting, accident investigation, determining proper corrective action, and preparation of reports?

g. Sanitary Facilities. What toilet facilities will be provided considering the number and distribution of employees? What other considerations are planned for drinking water and washing facilities?

h. First Aid and Medical. Describe first aid facilities and qualifications of attendant. List telephone numbers of physician, ambulance, and hospital.

i. Housekeeping. How will access ways to work areas be maintained during work hours? What procedures will be followed to assure daily cleanup?

j. Fire Protection. Considering the availability of existing fire protection, what general types and size of extinguishers and fire barrels will be required to protect buildings, shops, and storage areas as well as to deal with special hazards such as welding and flammable liquids? Name the local professional fire fighters. List their telephone number.

k. Machinery and Mechanized Equipment. How will inspection of cranes, trucks, and other mechanical equipment be accomplished? Frequency, by whom, what type of records will be kept?

2. Posters, contests, safety awards help develop positive attitudes toward safety rules. What methods, if any, will be used on this project? Most accidents are preventable by well thought out and executed safety plans.

APPENDIX B  
GUIDELINES FOR THE PREPARATION OF  
ACTIVITY HAZARDS ANALYSIS

1. Activity Hazards Analysis Development. Before starting any major phase of work an activity hazards analysis shall be developed and reviewed with the Government representative. This analysis will evaluate anticipated hazards and outline the proposed methods and techniques which will be utilized to accomplish the work in a safe manner.

2. Phases of Work. Listed are examples of major phases of work, but this list is not all inclusive. Phases of work shall be tailored to the specific characteristics of the contract.

- Clearing and Grubbing
- Earthwork
- Trench Excavation
- Blasting
- Concrete Placement
- Steel Erection
- Masonry
- Electrical Work, Exterior
- Mechanical Work
- Carpentry

3. Sample Activity Hazards Analysis. The enclosed sample shows a possible format for a phase safety plan that might be submitted on a representative project. This sample incorporates a phase of work, the safety hazards that may be encountered, and precautionary actions that will be taken to overcome these hazards. Each safety hazard identified in the third vertical column must be accompanied by the appropriate paragraph reference number from EM 385-1-1. If none exists in EM 385-1-1, so state in the third vertical column of the Activity Hazard Analysis.

4. Indoctrination. Employees performing the work must be made aware of the activity hazard analysis. For this reason, an important part of any phase plan is the indoctrination of all employees who will be performing the work.

SAMPLE

<b>ACTIVITY HAZARD ANALYSIS</b>		
<b>Contract No.</b> DACW62-96-C-0000	<b>Project</b> Install Water and Sewer Lines	<b>Facility</b> Blue Heron Recreational Area
<b>Date</b> 1 October 1996	<b>Location</b> Big South Fork	<b>Estimated Start Date</b> 19 November 1996
<b>Item</b> 1	<b>Phase of Work</b> Trench Excavation	<b>Precautionary Actions to be taken</b>
	<p>Hitting Existing Utilities (par. 25.A.10)</p> <p>Safety Hazard</p>	<ol style="list-style-type: none"> <li>1. Find and mark existing utilities before excavating.</li> <li>2. Use care while excavating.</li> <li>3. Shore existing utilities crossing trench.</li> <li>4. Instruct operator.</li> <li>5. Watch for overhead electrical lines.</li> </ol>
	<p>Cave-Ins (pars. 25.B.03, 25.C.01 and 25.D.05)</p>	<ol style="list-style-type: none"> <li>1. Slope sides, depending on depth and soil type.</li> <li>2. Shoring when necessary.</li> <li>3. Lay back material at least 2 ft. from edge depending on depth &amp; soil type.</li> <li>4. Have access ladder or steps in other than shallow trenches.</li> <li>5. Backfill as soon as possible.</li> <li>6. Instruct workmen as to cave-ins hazards and precautions.</li> </ol>
	<p>Head injuries from falling rocks or clods (par. 25.A.07)</p>	<ol style="list-style-type: none"> <li>1. Wear hardhats.</li> <li>2. Scale potential fuels from sides.</li> </ol>
	<p>Backing over workmen (par. 16.B.01 and 25.A.09)</p>	<ol style="list-style-type: none"> <li>1. Back-up alarms on equipment.</li> <li>2. Have helper to guide operator while backing.</li> <li>3. Instruct workmen not to stand or walk behind equipment.</li> </ol>
	<p>Pedestrian Accidents (pars. 25.B.01 and 25.B.03)</p>	<ol style="list-style-type: none"> <li>1. Rope off or fence trench.</li> <li>2. Mark clearly.</li> <li>3. Backfill as soon as possible.</li> </ol>
	<p>Back Injuries (par. 14.A.01)</p>	<ol style="list-style-type: none"> <li>1. Instruct workmen how to lift materials.</li> <li>2. Instruct workmen to get help and/or to use lifting equipment.</li> </ol>
	<p>Falling "(pars. 25.B.01 and 25.B.03)</p>	<ol style="list-style-type: none"> <li>1. Maintain employee alertness in and around trenches.</li> </ol>

**SECTION 01330**  
**SUBMITTAL PROCEDURES**  
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**ATTACHED FORMS**

ENG Form 4025	Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance (Submittal Form)	2 pages
ENG Form 4288	Submittal Register	2 pages

## **SECTION 01330**

### **SUBMITTAL PROCEDURES**

#### **PART 1 GENERAL**

##### **1.1 SCOPE**

This section covers procedures to be used in making submittals called for in other sections of the specifications.

##### **1.2 SUBMITTAL CLASSIFICATION**

Submittals are classified as follows:

###### **1.2.1 Government Approved**

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

###### **1.2.2 Information Only**

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

##### **1.3 APPROVED SUBMITTALS**

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the CQC requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

##### **1.4 DISAPPROVED SUBMITTALS**

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to

the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

## **1.5 WITHHOLDING OF PAYMENT**

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

## **1.6 PAYMENT**

No separate payment will be made for the work covered under this section. The costs thereof shall be included in the item to which the work pertains.

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

## **PART 3 EXECUTION**

### **3.1 GENERAL**

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

### **3.2 SUBMITTAL REGISTER (ENG FORM 4288)**

At the end of this section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. Columns "d" thru "q" have been completed by the Government. The Contractor shall complete columns "a," "b," "c," and "r" thru "x" and return 2

completed copies to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated. The Contractor shall submit updates of the submittal register every 90 days.

### **3.3 SCHEDULING**

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals. An additional 15 calendar days shall be allowed and shown on the register for review and approval of submittals for refrigeration and HVAC control systems.

### **3.4 TRANSMITTAL FORM (ENG FORM 4025)**

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

### **3.5 SUBMITTAL PROCEDURE**

Submittals shall be made as follows:

#### **3.5.1 Shop Drawings**

**3.5.1.1 General.** Definitions of "Shop Drawings," and general requirements for submission and approval, are covered in Contract Clause entitled "Specifications and Drawings for Construction". The following are supplemental requirements for submission, approval, and use.

**3.5.1.2 Submission.** The Contractor shall submit to the Contracting Officer seven copies of all shop drawings of items requiring shop inspection and five copies of all other shop drawings as called for under the various headings of these specifications. The drawings shall be submitted using transmittal forms (ENG Form 4025) sample attached. A supply of these forms will be furnished the Contractor without cost, upon request. These drawings shall be complete and detailed. The Contractor shall certify by signature on the ENG Form 4025 that he has reviewed the shop drawings in detail and that they are correct and in strict conformance with the contract drawings and specifications except as may be otherwise explicitly stated. All proposed

deviations or departures from the contract documents shall be noted on the transmittal ENG Form 4025 and the reasons for the deviations set forth in writing and such deviation annotated on the shop drawing. Each transmitted drawing or item shall be identified as having been reviewed and certified by being so stamped, signed and dated by the Contractor.

**3.5.1.3 Approval.** Submittals requiring Contracting Officer approval action are so designated in the contract documents and if approved, each copy of the drawings will be identified as having received such approval by being so stamped and dated. The Contractor shall make any corrections required by the Contracting Officer. If the Contractor considers any correction indicated on the drawings to constitute a change to the contract drawings or specifications, notice as required by under Contract Clause entitled CHANGES shall be given to the Contracting Officer. Six copies of all shop drawings of items requiring shop inspection and four copies of all other shop drawings will be retained by the Contracting Officer and one set will be returned to the Contractor. The approval of the drawings by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory.

**3.5.1.4 Information Purposes Only Submittals.** All other submittals are considered to be for information purposes only and shall be subject to review action by the Contracting Officer. Any such, for information purposes only submittals found to contain errors or omissions shall be resubmitted as one requiring "approval" action. No adjustment for time or money will be allowed for corrections required as a result of noncompliance with plans and specifications.

**3.5.1.5 Samples.** All samples of materials submitted as required by these specifications shall be properly identified and labeled for ready identification.

### **3.5.2 Certificates of Compliance**

Any Certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in two copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if after tests are performed on selected samples, the material is found not to meet the specific requirements.

### **3.5.3 Deviations**

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

### **3.6 CONTROL OF SUBMITTALS**

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

### **3.7 GOVERNMENT APPROVED SUBMITTALS**

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four copies of the submittal will be retained by the Contracting Officer and one copy of the submittal will be returned to the Contractor. If the Contractor needs more than one copy, additional copies shall be submitted.

### **3.8 INFORMATION ONLY SUBMITTALS**

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

### 3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR (Firm Name)	
_____	Approved
_____	Approved with corrections as noted on submittal data and/or attached sheets(s).
SIGNATURE	_____
TITLE	_____
DATE	_____

**END OF SECTION 01330**



## INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

### THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- |      |  |       |   |
|------|--|-------|---|
| A -- | Approved as submitted.   | E --  | Disapproved (See attached).   |
| B -- | Approved, except as noted on drawings.   | F --  | Receipt acknowledged.   |
| C -- | Approved, except as noted on drawings.<br>Refer to attached sheet resubmission required. | FX -- | Receipt acknowledged, does not comply<br>as noted with contract requirements. |
| D -- | Will be returned by separate correspondence.   | G --  | Other (Specify)   |
10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.





**SECTION 01354**  
**ENVIRONMENTAL PROTECTION**  
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**SECTION 01354**  
**ENVIRONMENTAL PROTECTION**

**PART 1 GENERAL**

**1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

**1.1.1 Code of Federal Regulations (CFR)**

40 CFR 261 Identification and Listing of Hazardous Waste

**1.1.2 Engineering Manuals (EM)**

EM 385-1-1 (1992) U.S. Army Corps of Engineers Safety and Health Requirements Manual

**1.2 DEFINITIONS**

Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of plant or animal communities; or degrade the environment from an aesthetic, cultural or historic perspective. Environmental protection is the prevention/control of pollution and habitat disruption that may occur during construction. The control of environmental pollution and damage requires consideration of air, water, land, biological and cultural resources; and includes management of visual aesthetics, noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive materials; and other pollutants.

**1.3 SUBMITTALS**

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Environmental Protection Plan -- GA  
Activity Environmental Analysis - GA

## **1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS**

The Contractor shall comply with all applicable Federal, State, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction.

### **1.4.1 Protection of Features**

This section supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. The Contractor shall prepare a list of features requiring protection under the provisions of the contract clause that are not specially identified on the drawings as environmental features requiring protection. The Contractor shall protect those environmental features, indicated specially on the drawings, in spite of interference that their preservation may cause to the Contractor's work under the contract.

### **1.4.2 Permits**

This section supplements the Contractor's responsibility under the contract clause PERMITS AND RESPONSIBILITIES to the extent that the Government has already obtained environmental permits. The Government is responsible for compliance with Section 404 of the Clean Water Act and Water Quality Certification pursuant to Section 401 of the Act from the State of Alabama.

**1.4.2.1** A National Pollutant Discharge Elimination System (NPDES) construction activity general permit for stormwater discharges must be obtained. Under Alabama regulations, the developer/contractor (**Corps of Engineers**) must apply for coverage under the general permit by filing a Notice of Intent (NOI) form at least fifteen days prior to the date when site disturbance will begin. The Contractor is required to meet the requirements of the general permit and is encouraged to become familiar with its requirements.

**1.4.2.2** The construction activity general permit requires that a construction site erosion control plan be prepared prior to beginning site disturbance. The Contractor is required to prepare this plan and submit a copy as an addendum to the

Environmental Protection Plan, also known as Best Management Plan (BMP). The erosion control plan must have all the information and erosion control measures as required by the general permit, including a site map showing all areas to be disturbed by this project. This includes ancillary areas such as staging areas or off-site borrow and/or disposal areas. The erosion control plan shall also contain a signed (by Contractor) certification statement stating that the contractor understands the conditions of the general permit and that they are responsible for compliance with the permit conditions. Any delays caused by submitting an erosion control plan with inadequate information or detail are not the fault of the Government. After review, the Contracting Officer will also sign the certification statement for the plan.

**1.4.2.3** A TVA 26A Permit will be obtained by the National Park Service. The contractor shall comply with the terms and conditions of this permit. The contractor shall also comply with other environmental commitments made by the Government. Copies of permit terms and conditions, as well as those other commitments made by the Government, are included at the end of this Section.

#### **1.4.3 Special Environmental Requirements**

The Contractor shall comply with the special environmental requirements included at the end of this section. These special environmental requirements are an outgrowth of environmental commitments made by the Government during the project development.

#### **1.4.4 Water Quality Certifications**

The Contractor shall comply with all the conditions laid forth in the Water Quality Certification for the State of Alabama. (Copies of conditions from the Water Quality Certifications will be provided.)

#### **1.4.5 Environmental Assessment of Contract Deviations**

The Contract specifications have been prepared to comply with the special conditions and mitigation measures of an environmental nature which were established during the planning and development of this project. The Contractor is advised that deviations from the drawings or specifications (e.g., proposed alternate borrow areas, disposal areas, staging areas, alternate

access routes, etc.) could result in the requirement for the Government to reanalyze the project from an environmental standpoint. Deviations from the construction methods and procedures indicated by the plans and specifications which may have an environmental impact will require an extended review, processing, and approval time by the Government. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

## **1.5 ENVIRONMENTAL PROTECTION PLAN**

Within 30 calendar days after contract Award, the Contractor shall submit an Environmental Protection Plan for review and approval and no physical work at any site shall begin prior to its approval. The Government will consider an interim plan for the first 30 days of operations, acceptance of the interim plan is conditional and predicated upon satisfactory performance during construction. The Contractor's Environmental Protection Plan shall detail the actions which the Contractor shall take to comply with all applicable Federal, State, and local laws and regulations concerning environmental protection and pollution control and abatement, as well as the additional specific requirements of this contract. The Contractor shall amend the approved Environmental Protection Plan if the Contracting Officer determines that environmental protection requirements are not being met. The Environmental Protection Plan shall include, but not be limited to, the following:

### **1.5.1 Environmental Certification Statement**

The Contractor shall provide a statement certifying that he is aware of the requirements of the project Environmental Assessment (EA), and Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, and abatement that are applicable to his proposed operations. Any discrepancies found between the contract requirements and the EA(s) or these laws, regulations and permits shall be brought to the attention of the Contracting Officer.

### **1.5.2 Erosion Control Plan**

This project will require an NPDES stormwater permit. A certification statement will be included with the erosion control plan. By signing the statement, the Contractor will become a co-permittee with the Corps for this project, confirms that they understand and will comply with the terms and requirements of the NPDES stormwater permit and associated site-specific erosion control plan. Subcontractors whose activities may impact storm water quality shall also sign a certification statement. The Contractor shall retain all records related to the NPDES stormwater permit for a period of three years. This includes inspection reports and certification statements. Copies of these records shall be provided to the Contracting Officer. The Quality Control Report form included in these specifications can be used for routing or storm related inspections. The Corps is to file a Notice of Termination for the project once all storm water discharges associated with the construction activities are eliminated and final stabilization is achieved.

### **1.5.3 Spill Control Plan**

The Contractor shall include as part of the environmental protection plan, a Spill Control Plan. The plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under State or local laws or regulations. The Spill Control Plan supplements the requirements of EM 385-1-1. This plan shall include as a minimum:

- a. The name of the individual who will be responsible for implementing and supervising the containment and cleanup.
- b. Training requirements for Contractor's personnel and methods of accomplishing the training.
- c. A list of Hazardous materials, including but not limited to, fuels, solvents, fertilizers, and lubricants, that will be stored on-site. In the event the material is released into the environment, include in the previous list the applicable reportable quantities. A list of cleanup or containment materials and equipment to be immediately

available at the job site, tailored to clean up work of the potential hazard(s) identified.

d. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.

e. The methods and procedures to be used for expeditious contaminant cleanup.

f. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity spill occurs. The plan shall contain a list of the required reporting channels and telephone numbers.

#### **1.5.4 Recycling and Waste Minimization Plan**

The Contractor shall submit a Recycling and Waste Minimization Plan as a part of the Environmental Protection Plan. The plan shall detail the Contractor's actions to comply with the following recycling and waste minimization requirements:

a. The Contractor shall participate in State and local government sponsored recycling programs to reduce the volume of solid waste materials at the source.

#### **1.5.5 Contaminant Prevention Plan**

As a part of the Environmental Protection Plan, the Contractor shall prepare a contaminant prevention statement identifying potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, water, or ground. The Contractor shall detail provisions to be taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials.

### **1.5.6 Environmental Monitoring**

The Contractor shall include in the plan the details of environmental monitoring requirements under the laws and regulations and a description of how this monitoring will be accomplished. The Contractor shall have qualified personnel to inspect disturbed areas of the construction site which have not been stabilized, structural control measures, drainage channels, discharge locations, and points where vehicles exit the site. The applicant shall visually monitor or measure background turbidity. The applicant must suspend operations should turbidity resulting from project implementation exceed background turbidity by more than 50 NTU's. Operations may resume when the turbidity decreases to within acceptable levels. Inspections are required at least once every seven calendar days and within 24 hours of the end of a storm event that is 0.5 inches or greater. The Contractor shall install a precipitation gage on-site to monitor local precipitation and keep a daily log of precipitation amounts. Based on the inspections, all erosion control measures shall be revised or upgraded as appropriate to provide required protection and to remain in compliance with permits. A report summarizing the scope of the inspection, name(s) and qualifications of the personnel making the inspection, date, major observation relating to implementation of the BMP plan and actions taken to repair or upgrade the controls shall be prepared by the Contractor.

### **1.5.7 Work Area Plan/Site Drawings**

The Contractor's Environmental Protection Plan shall include a work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The work area plan should include traffic control and measures for marking the limits of use areas. Site drawings showing locations of any proposed marked material storage areas, staging areas, structures, or sanitary facilities shall be included.

### **1.5.8 List of Features to be Protected**

The Contractor shall include in the Environmental Protection Plan lists of environmental features requiring protection which are developed under paragraphs 1.4.1 and 3.4 of this Section. The Contractor shall also discuss methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish

and wildlife, soil, historical, archeological and cultural resources.

### **1.6 ACTIVITY ENVIRONMENTAL ANALYSIS**

Before starting any major phase of the work, an Activity Environmental Analysis shall be developed by the Contractor and reviewed for approval with the Government Representative at the Preparatory Phase meeting as described in Section 01451, Paragraph 3.6.1 of these specifications. A major phase of the work is defined as an operation involving a type of work not previously experienced which represents possible sources of adverse environmental effects. This analysis will evaluate potential environmental consequences of the activity and the techniques which will be utilized, to accomplish the work in an acceptable manner. This analysis includes: (1) the phase or activity of the work; (2) the potential environmental consequences of the activity; (3) precautionary actions to prevent adverse environmental impacts; (4) actions in the event of an environmental incident; and (5) the appropriate reference to Federal, State or local standards, regulations or laws.

### **1.7 PAYMENT**

No separate payment or direct payment will be made for the cost of the work covered under this section. The costs therefore will be included in the bid items to which the work pertains.

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

## **PART 3 EXECUTION**

### **3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS**

The Contractor shall be responsible for the preservation from injury or damage, resulting directly or indirectly from the execution of the work, of all public and private property along and adjacent to the parkway. He shall use every precaution necessary to prevent damage to pipes, conduits, and other underground structures; also, all overhead structures such as wires and cables; and poles, trees, shrubbery, and crops. within or outside of the right-of-way. Any utility lines damaged by the Contractor shall be repaired at once at his expense. All

trails and roads adjacent to or intersecting the project shall be protected from damage. Contractor must protect curbs and sidewalks from damage.

### **3.1.1 Tree Protection**

No ropes, cables, or guys shall be fastened to or attached to any tree(s) for anchorage unless specifically authorized by the Contracting Officer. Where such special use is permitted, the Contractor shall provide effective protection to prevent damage to the tree and other land and vegetative resources. **Prior to clearing for construction, National Park Service personnel will be consulted regarding trees to be removed.** Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the dripline of trees shown on the drawings to be saved. No excavation or fill shall be permitted within the dripline of trees to be saved except as shown on the drawings.

### **3.1.2 U.S. Department of Agriculture (USDA) Quarantined Considerations**

The Contractor shall thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that egg deposits from plant pests are not present. The Contractor shall consult with the USDA Plant Protection and Quarantine (USDA - PPQ) jurisdictional office for additional cleaning requirements that may be necessary.

### **3.1.3 Commercial Borrow**

Prior to bringing commercially obtained borrow material onsite, the Contractor shall provide the Contracting Officer with the location of the pit or pits, the names of the owners and operators, and the types and estimated quantities of materials to be obtained from each source.

### **3.1.4 Disposal of Solid Wastes**

Solid waste is rubbish, debris, waste materials, garbage, and other discarded solid materials (excluding clearing debris and hazardous waste as defined in following paragraphs). Solid waste shall be placed in containers and disposed on a regular schedule. All handling and disposal shall be conducted in such a way as to prevent spillage and contamination. The Contractor

shall transport all solid waste off Government property and dispose in compliance with Federal, State, and local requirements, or shall transport waste materials to the Government landfill site shown on the contract drawings. The Contractor shall comply with site procedures, Federal, State, and local laws and regulations pertaining to the use of the landfill area.

### **3.1.5 Clearing Debris**

Clearing debris is trees, tree stumps, tree trimmings, and shrubs, and leaves, vegetative matter, excavated natural materials (e.g., dirt, sand, and rock), and demolition products (e.g., brick, concrete, glass, and metals).

a. The Contractor shall collect trees, tree stumps, tree trimmings, shrubs, leaves, and other vegetative matter; and shall transport from Government property for proper disposal in compliance with Federal, State, and local requirements. The Contractor shall segregate the matter where appropriate for proper disposal. Untreated and unpainted scrap lumber may be disposed of with this debris where appropriate.

b. Excavated natural materials shall be transported from Government property for proper disposal in compliance with Federal, State, and local requirements.

c. Demolition products shall be transported from Government property for proper disposal in compliance with Federal, State, and local requirements.

### **3.1.6 Disposal of Contractor Generated Hazardous Wastes**

Hazardous wastes are hazardous substances as defined in 40 CFR 261, or as defined by applicable State and local regulations. Hazardous waste generated by construction activities shall be removed from the work area and be disposed in compliance with Federal, State, and local requirements. The Contractor shall segregate hazardous waste from other materials and wastes, and shall protect it from the weather by placing it in a safe covered location, precautionary measures against accidental spillage such as berming or other appropriate measures shall be taken. Hazardous waste shall be removed from Government property within 60 days. Hazardous waste shall not be dumped

onto the ground, into storm sewers or open water courses, or into the sanitary sewer system.

### **3.1.7 Fuels and Lubricants**

Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants and waste oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with Federal, State, and local laws and regulations.

## **3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES**

### **3.2.1 Known Historic, Archaeological, and Cultural Resources**

Known archaeological sites within the Contractor's work area, if present, will be indicated or identified. The Contractor shall install protection for these resources as shown on the drawings, or otherwise presented, and shall be responsible for maintaining their condition and preservation of the site during the work.

### **3.2.2 Discovered Historic, Archaeological, and Cultural Resources**

If during construction activities, items are observed that may have potential historic, archaeological, or cultural value, they shall be reported immediately to the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Items are defined as follows:

- a. Material remains of past human life such as pottery, basketry, bottles, weapon projectiles (including arrowheads, bullets, and shell casings), tools (metal, stone, bone, or shell), structures or portions of structures including foundations/piers, pit houses, rock paintings, rock carvings, intaglios (engraved or incised figures in stone), graves, human skeletal materials, bones of any type, or any portion or piece of any of the foregoing items.
- b. Unexpected objects, materials, or substances that are not a normal, routine component of the subsurface environment. For example, the normal subsurface consists of soil, sand,

stone, rock, boulders, etc., but not bones or bone fragments of any type, bottles, bottle fragments, or other evidence of past human presence.

c. Unexpected evidence of past fill operations, dumping, or waste disposal activities including materials such as metal, wooden objects, glass, ceramics, etc., of an undetermined age.

In the event that any of the foregoing items are encountered, the Contractor shall cease all activities that may result in impact to or the destruction of these resources and a sufficient buffer established to protect the resources. The Contractor shall prevent his employees from trespassing on, removing, or otherwise disturbing such resources.

### **3.3 PROTECTION OF WATER RESOURCES**

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters.

#### **3.3.1 Monitoring of Water Areas Affected by Construction Activities**

The Contractor shall perform discharge monitoring, inspections, sampling and testing, reporting, and record keeping as set forth in the permit conditions that are attached to this section.

#### **3.3.2 Wastewater**

Wastewater directly derived from construction activities shall not be discharged before being treated to remove pollutants. All dewatering discharges must be adequately treated, by filtering and/or settling, before being released from the site.

#### **3.3.3 Work Below Ordinary High Water**

Compliance with Section 404 of the Clean Water Act has been completed for all applicable work below ordinary high water elevation, as designed and set forth in these specifications. Significant deviations from the work described and the associated Environmental Assessment/Finding of No Significant Impact may require additional approval pursuant to Section 404.

### **3.3.4 Reduction of Exposure of Unprotected Erodible Soils.**

Disturbed areas shall be protected from erosion as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. A NPDES stormwater permit will be required as noted in paragraph 1.4.2.1.

### **3.3.5 Stabilization Practices.**

Vegetative stabilization practices (Seeding and Mulching) are to be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after construction activity has ceased on all disturbed portions which will be inactive for more than 21 days. The exception to this requirement is the period from 1 December to 1 February, when seeding is not to be performed. Alternative protection methods such as mulching and/or structural control practices shall be provided during this period. Additional details on seeding specifications are listed in Section 02112, entitled CLEARING, GRUBBING, EXCAVATION, AND SEEDING.

### **3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES**

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection will be listed by the Contractor in the Environmental Protection Plan prior to beginning construction operations.

### **3.5 PROTECTION OF AIR RESOURCES**

Special management techniques as set out below shall be implemented to control air pollution by the construction activities. These techniques supplement the requirements of Federal, State, and local laws and regulations; and the safety requirements under this Contract. If any of the following techniques conflict with the requirements of Federal, State, or local laws or regulations, or safety requirements under this contract, then those requirements shall be followed in lieu of the following.

### **3.5.1 Particulates**

Airborne particulates, including dust particles, from construction activities and processing and preparation of materials shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, disposal sites, borrow areas, and all other work areas free from airborne dust which would cause a hazard or nuisance.

### **3.6 INSPECTION**

If the Contracting Officer notifies the Contractor in writing of any observed noncompliance with contract requirements or Federal, State, or local laws, regulations, or permits, the Contractor shall inform the Contracting Officer of proposed corrective action and take such action to correct the noncompliance. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action is taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

### **3.7 MAINTENANCE OF POLLUTION CONTROL FACILITIES**

The Contractor shall maintain all constructed pollution control facilities and portable pollution control devices for the duration of the Contract or for the length of time construction activities create the particular pollutant. Refer to Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas, June 1992, for best management practices, installation, and maintenance details. Additional guidance documents are listed on the ADEM website (<http://www.adem.state.al.us/>.)

### **3.8 TRAINING OF CONTRACTOR PERSONNEL**

Contractor personnel shall be trained in environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel monthly. The training and meeting agenda shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, installation and care of facilities (vegetative

covers, etc.), and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed. Other items to be discussed shall include recognition and protection of archaeological sites and artifacts.

**END OF SECTION 01354**



US Army Corps  
of Engineers.

Nashville District

# Nationwide Permit

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## No. 13, Bank Stabilization

Bank stabilization activities necessary for erosion prevention provided the activity meets all of the following criteria:

- a. No material is placed more than the minimum needed for erosion protection;
- b. The bank stabilization activity is less than 500 feet in length;
- c. The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line;
- d. No material is placed in any special aquatic site, including wetlands;
- e. No material is of the type, or is placed in any location, or in any manner, to impair surface water flow into or out of any wetland area;
- f. No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and,
- g. The activity is part of a single and complete project.

Bank stabilization activities in excess of 500 feet in length or greater than an average of one cubic yard per running foot may be authorized if the District Engineer determines the activity complies with the other terms and conditions of the NWP and the adverse environmental effects are minimal both individually and cumulatively. This NWP may not be used for the channelization of waters of the US. (Sections 10 and 404)



US Army Corps  
of Engineers.

Nashville District

# Nationwide Permit Conditions

FILE NO. 2002

The following General Conditions must be followed in order for any authorization by an NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.
2. Proper Maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
3. 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.
4. 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. Culverts placed in streams must be installed to maintain low flow conditions.
5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.
6. 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 or tribe in its Section 401 Water Quality Certification and Coastal Zone Management Act consistency determination.
7. Wild and Scenic Rivers. No 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. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).
8. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
9. Water Quality. (a) In certain states and tribal lands an individual 401 Water Quality Certification must be obtained or waived (See 33 CFR 330.4(c)). (b) For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the state or tribal 401 certification (either generically or individually) does not require or approve water quality management measures, the permittee must provide water quality management measures that will ensure that the authorized work does not result in more than minimal degradation of water quality (or the Corps determines that compliance with state or local standards, where applicable, will ensure no more than minimal adverse effect on water quality). An important component of water quality management includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality (refer to General Condition 21 for stormwater management requirements). Another important component of water quality management is the establishment and maintenance of vegetated buffers next to open waters, including streams (refer to General

Condition 19 for vegetated buffer requirements for the NWPs). This condition is only applicable to projects that have the potential to affect water quality. While appropriate measures must be taken, in most cases it is not necessary to conduct detailed studies to identify such measures or to require monitoring.

11. Endangered Species. (a) No activity is authorized under any NWP which is likely to 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 destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the 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 may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS the District Engineer may add species-specific regional endangered species conditions to the NWPs.

(b) Authorization of an activity by a 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 USFWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS or their World Wide Web pages at <http://www.fws.gov/r9endspp/endspp.html> and [http://www.nfms.noaa.gov/prof\\_res/overview/es.html](http://www.nfms.noaa.gov/prof_res/overview/es.html) respectively.

12. Historic Properties. No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the District Engineer has complied with the provisions of 33 CFR part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

14. Compliance Certification. Every permittee who has received NWP verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter and will include:

- (a) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;
- (b) A statement that any required mitigation was completed in accordance with the permit conditions; and
- (c) The signature of the permittee certifying the completion of the work and mitigation.

15. 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 US authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit (e.g. 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 US for the total project cannot exceed 1/3-acre).

16. Water Supply Intakes. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

17. Shellfish Beds. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

18. Suitable Material. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the CWA).

20. Spawning Areas. Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

21. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions. Stream channelizing will be reduced to the minimal amount necessary, and the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to conduct detailed studies and monitoring of water flow. This condition is only applicable to projects that have the potential to affect water flows. While appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures or require monitoring to ensure their effectiveness. Normally, the Corps will defer to state and local authorities regarding management of water flow.

22. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to the acceleration of the passage of water, and/or the restricting its flow shall be minimized to the maximum extent practicable. This includes structures and work in navigable waters of the US, or discharges of dredged or fill material.

23. Waterfowl Breeding Areas. Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

24. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

25. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Except as noted below, discharges of dredged or fill material into waters of the US are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the US may be authorized by the above NWPs in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the USFWS or the NMFS has concurred in a determination of compliance with this condition.

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

26. Fills Within 100-Year Floodplains. For purposes of this General Condition, 100-year floodplains will be identified through the existing Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.

(a) Discharges in Floodplain; Below Headwaters. Discharges of dredged or fill material into waters of the US within the mapped 100-year floodplain, below headwaters (i.e. five cfs), resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, 43, and 44.

(b) Discharges in Floodway; Above Headwaters. Discharges of dredged or fill material into waters of the US within the FEMA or locally mapped floodway, resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, and 44.

(c) The permittee must comply with any applicable FEMA-approved state or local floodplain management requirements.

27. Construction Period. For activities that have not been verified by the Corps and the project was commenced or under contract to commence by the expiration date of the NWP (or modification or revocation date), the work must be completed within 12-months after such date (including any modification that affects the project).

For activities that have been verified and the project was commenced or under contract to commence within the verification period, the work must be completed by the date determined by the Corps. For projects that have been verified by the Corps, an extension of a Corps approved completion date maybe requested. This request must be submitted at least one month before the previously approved completion date.

#### 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.

**\* Some NWP conditions that are not applicable for this verification were omitted from above list. If you are interested in a complete list, you should contact the Corps of Engineers office that handled your request.**



## ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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MONTGOMERY, ALABAMA

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**JAMES W. WARR**

DIRECTOR

**DON SIEGELMAN**

GOVERNOR

March 15, 2002

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DISTRICT ENGINEER  
MOBILE DISTRICT  
US ARMY CORPS OF ENGINEERS  
PO BOX 2288  
MOBILE AL 36628-0001

LT COLONEL STEVEN W GAY  
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Air: 279-3044  
Land: 279-3050  
Water: 279-3051  
Groundwater: 270-5631  
Field Operations: 272-8131  
Laboratory: 277-6718  
Mining: 394-4326  
Education/Outreach: 394-4383

RE: Proposed Nationwide Permits (NWP) 3, 7, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25, 27, 30, 31, 32, 36, 37, 39, 40, 42, & 43, and NWP General Conditions 1-27 for the State of Alabama, Public Notice PN01-02701-K

Dear Col. Keyser and Lt. Col. Gay:

This office has completed a review of the above-referenced joint public notice listed, and all associated materials submitted related to the proposed Nationwide Permits and General Conditions for use within the State of Alabama. Comments made during the public notice period have also been forwarded to us for review.

Please be advised that the Department is providing to the Corps additional conditions regarding Coastal Consistency Review by separate correspondence.

In addition, please be advised that certification provided by this letter, for any nationwide permit that is modified, is suspended and/or voided until such time as the Department has considered final certification once the public comment period has ended, all relevant environmental comments have been forwarded to the Department, and the Corps has requested final water quality certification.

Because action pertinent to water quality certification is required by Section 401(a)(1) of the Clean Water Act, 33 U.S.C. Section 1251, et seq., we hereby issue certification, for a period not to exceed five (5) years from the date of issuance, that there is reasonable assurance that the discharge resulting from the proposed activities as submitted will not violate applicable water quality standards established under Section 303 of the Clean Water Act and Title 22, Section 22-22-9(g), Code of Alabama 1975, provided the applicant acts in accordance with the following conditions as specified. We further certify that there are no applicable effluent limitations under Section 301 and 302 nor applicable standards under Section 306 and 307 of the Clean Water Act in regard to the activities specified.

Please be advised that this certification shall expire eighteen (18) months after issuance if construction or implementation of the proposed project has not begun, unless an extension is approved by the Department.

To minimize adverse impacts to State waters, by copy of this letter we are requesting the Mobile and Nashville Districts of the U.S. Army Corps of Engineers to incorporate the following as special conditions of the Corps Nationwide Permits:

1. The applicant shall comply with all terms, conditions, and requirements of a National Pollutant Discharge Elimination System (NPDES) individual or general permit authorization, and any other NPDES permit coverage issued to the facility. Failure to comply with the referenced NPDES permit may constitute a violation of this certification.
2. Please be advised that pursuant to Phase I of Federal Stormwater Rules and ADEM administrative rules, the operator/owner or applicant is required to apply for and obtain valid NPDES permit coverage for stormwater discharges prior to beginning construction or land disturbance above the Ordinary High Water Mark or for any non-dredge/fill operations below the Ordinary High Water Mark and construction of associated upland dredge disposal sites that will

Birmingham Branch  
110 Vulcan Road  
Birmingham, Alabama 35209-4702  
(205) 942-6168  
(205) 941-1603 [Fax]

Decatur Branch  
2715 Sandlin Road, S.W.  
Decatur, Alabama 35603-1333  
(256) 353-1713  
(256) 340-9359 [Fax]

Mobile Branch  
2204 Perimeter Road  
Mobile, Alabama 36615-1131  
(251) 450-3400  
(251) 479-2593 [Fax]

Mobile - Coastal  
4171 Commanders Drive  
Mobile, Alabama 36615-1421  
(251) 432-6533  
(251) 432-6599 [Fax]



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exceed 5 acres or is part of a larger common plan of development or sale in which disturbed acreage will eventually exceed 5 acres. The regulated construction disturbance also includes, but is not limited to associated areas utilized for support activities such as vehicle parking, equipment or supply storage areas, material stockpiles, temporary office areas, access roads, etc. and pre-construction activities performed in advance or in support of construction such as logging, clearing, dewatering, etc. The regulations also require permit coverage for disturbance activities less than five acres that are part of, adjacent to, or associated with a larger common plan of development or sale that may eventually exceed five acres. Please be advised that a registrant, permittee, operator/owner, contractor, or other responsible entity, separately or collectively, must retain general permit coverage for phased developments until all disturbance activity, including phased construction, is substantially complete. Failure to apply for and obtain NPDES permit coverage if required as described in this paragraph, or failure to comply with all terms, conditions, and requirements of any NPDES permit coverage issued for activities related to this certification constitute a violation of this certification. Effective March 10, 2003, construction disturbance equal to or greater than 1 acre requires NPDES permit coverage as described in this paragraph.

3. Until the project is complete, the applicant shall retain regular, detailed records regarding the status of implementation/construction of the proposed project, prepared by the design engineer and providing a schedule of remaining construction for the proposed project as well as certification that pollution control measures specified in the Corps permit and any special conditions specified by ADEM have been and are being properly implemented.
4. The applicant shall retain records adequate to document activities authorized by this certification including but not limited to, inspection reports, monitoring information, copies of any reports and all data used to complete the above reports or the application for this certification, for a period of at least three years after completion of work/activity authorized by the certification. Upon written request, the applicant shall provide the Department with a copy of any record/information required to be retained by this paragraph.
5. Upon the loss or failure of any treatment facility, best management practice (BMP) etc., the applicant shall, where necessary to maintain compliance with this certification, suspend, cease, reduce or otherwise control work/activity and all discharges until effective treatment is restored. It shall not be a defense for the applicant in a compliance action that it would have been necessary to halt or reduce work or other activities in order to maintain compliance with the conditions of this certification.
6. After completion of construction of the proposed project the applicant is required to retain certification by a qualified credentialed professional (QCP) that all aspects of the project have in fact been implemented according to the requirements of this certification, and that the pollution control measures specified in the Corps permit and any special conditions specified by ADEM have been properly implemented.
7. The applicant shall implement and maintain a Best Management Practices (BMP) Plan for prevention and control of nonpoint sources of pollutants, including measures that will be taken to ensure permanent revegetation or cover of all disturbed areas, during and after project implementation.
8. The applicant shall implement a Spill Prevention Control and Counter Measures (SPCC) Plan for all temporary or permanent onsite fuel or chemical storage tanks or facilities. The applicant shall maintain onsite or have readily available sufficient oil & grease absorbing material and flotation booms to contain and clean-up fuel or chemical spills and leaks. The applicant shall immediately notify the Department after becoming aware of a significant, visible oil sheen in the vicinity of the proposed activity. In the event of a spill with the potential to impact groundwater or other waters of the State, the applicant should immediately call the National Response Center at 1-800-424-8802 and the Alabama Emergency Management Agency at 1-800-843-0699. The caller should be prepared to report the name, address and telephone number of person reporting spill, the exact location of the spill, the company name and location, the material spilled, the estimated quantity, the source of spill, the cause of the spill, the nearest downstream water with the potential to receive the spill, and the actions taken for containment and cleanup.
9. The applicant shall implement an approved system for the collection, storage, treatment, and disposal of sewage and other putrescible wastes.

10. All construction and worker debris (e.g. trash, garbage, etc.) must be immediately removed and disposed of in an approved manner. If acceptable offsite options are unavailable, effective onsite provisions for collection and control of onsite worker toilet wastes or gray waste waters (i.e. port-o-let, shower washdown, etc.) must be implemented and maintained. Also, soil contaminated by paint or chemical spills, oil spills, etc. must be immediately cleaned up or be removed and disposed of in an approved manner.
11. Appropriate measures must be taken to prevent the deposition of airborne pollutants such as sand blasting particles, spray paint, herbicides, excessive road dust, etc. from entering the waterbody.
12. Appropriate measures must be taken to prevent the deposition/disposal of, and removal as necessary, material, debris, or liquids resulting from bridge/culvert construction and/or maintenance such as waste concrete/cement, wash water, surfactants, sand blasting particles, paint, etc. from falling into the waterbody.
13. Diversion structures (berms, ditches, etc.) created in order to re-route upgradient stormwater runoff from the proposed project location shall be constructed, stabilized, and vegetated as necessary, prior to commencement of disturbance activities.
14. The applicant shall implement appropriate, effective BMPs, including installation of floating turbidity screens as necessary, to minimize downstream turbidity to the maximum extent practicable. The applicant shall visually monitor or measure background turbidity. The applicant must suspend operations should turbidity resulting from project implementation exceed background turbidity by more than 50 NTUs. Operations may resume when the turbidity decreases to within acceptable levels.
15. The applicant shall implement appropriate measures as necessary to ensure that the activities authorized by this certification do not significantly contribute to or cause instream dissolved oxygen concentrations to decrease below 5 mg/l.
16. All materials used as fill or for construction purposes must be non-toxic, non-leaching, non-acid forming and free of solid waste or other debris.
17. Permanent or temporary raised waterbody crossings must be constructed with pipe(s) to safely pass expected mean water flow of the waterbody for the time of year and length of time that they are installed, unless a properly constructed low-water crossing is installed that provides for unobstructed stream flow over the low-water structure. The crossing must be inspected on a regular basis and any significant debris or blockage removed and properly disposed of to ensure unobstructed flow of water. Placement of rock-fill without pipe(s) for passage of water is not acceptable. Each raised waterbody crossing must be designed and maintained to ensure structure integrity and stability for safe passage of water flow generated by expected precipitation events while the structure is in place.
18. Bilge or ballast water pumped from ships or boats (e.g. dredge or construction barges, tugboats, fishing boats, pleasure craft, etc.) shall not be discharged to waters of the State of Alabama without removal of solids, oils, fuel, petroleum by-products and toxic compounds.
19. No rubbish, trash, garbage, or other such materials shall be discharged overboard into waters of the State of Alabama. Litter and refuse from vessels or a marina shall be disposed in a manner consistent with State and local regulations (e.g. trash receptacles, receptacles for fish offal and carcasses).
20. Toilet wastes, domestic wastewater and other domestic wastes must be pumped out to an approved onsite sewage system or municipal sewer, or must be treated by an approved marine sanitation device prior to discharge to waters of the State of Alabama.
21. Dredged or fill material may be temporarily sidecast or otherwise temporarily placed in adjacent waters or wetlands provided the sidecast or placed material is not permanently placed in adjacent waters or wetlands outside the permitted project area.

22. Disposal of fill material into waters of the State from dredging/excavating activities on upland areas above the normal low water of the waterbody outside of the permitted disposal area is prohibited.
23. If upland disposal areas are utilized, the applicant shall be responsible for the condition of the spoil disposal area for the life of the dredging and disposal activity and until the disposal area is reclaimed or adequately stabilized, and for pumping and discharge rates, to ensure settling of suspended solids within the confines of the spoil disposal area sufficient to ensure that turbidity in the return water will not cause substantial visible contrast with the receiving waters, or result in an increase of 50 NTUs above background turbidity levels in the receiving waters.
24. The applicant shall contact the Department's Air Division at (334) 271-7861 to determine the need for an air permit prior to commencement of loading/unloading operations.
25. Waterbodies should be no deeper than the depth of the adjacent receiving waters. Waterbody designs that are shallower at the margins with depths deepening as one approaches the receiving waters should be implemented to the extent practicable and are preferable because circulation and reaeration is enhanced. Slopes of waterbody banks which are 1:3 or flatter provide bank stabilization, enhance water quality by improving water circulation, and promote colonization by littoral vegetation which provides better habitat. Vertical bulk-heading is discouraged. Rounded corners in the waterbody interior optimize internal circulation.
26. Surface drainage patterns should be designed, constructed, and maintained to the extent practicable with swales or other methods to minimize direct runoff into the waterbody and to minimize the introduction of pollutants.
27. Any proposed new or modified waterbody channel should duplicate the old waterbody channel in regard to pools, riffle areas, riparian vegetation, depth, gradient, and length to the maximum extent practicable so that the new/modified waterbody channel maintains its dimension, pattern, and profile while neither degrading nor aggrading to ensure that water temperature, pH, turbidity, and dissolved oxygen are not adversely impacted after the project is completed.
28. The bottom of any proposed new or modified waterbody channel should be V-notched, concave in shape, or otherwise constructed with a base flow channel to ensure adequate concentrated and unobstructed flow of water during periods of low flow.
29. Design features, such as protection of existing watercourse trees or planting of new shade trees or other appropriate measures, should be implemented to the maximum extent practicable in order to minimize temperature extremes in any modified waterbody channel.
30. Modified or impacted waterbody bottoms and banks shall be returned to original contours to the extent possible and all disturbed areas stabilized and fully reclaimed.
31. The applicant shall conduct, at a minimum, weekly comprehensive site inspections to ensure that effective Best Management Practices (BMPs) are properly designed, implemented, and regularly maintained (i.e. repair, replace, add to, improve, implement more effective practice, etc.) utilizing good engineering practices to prevent/minimize to the maximum extent practicable discharges of pollutants in order to provide for the protection of water quality. The inspections shall be conducted by a qualified credentialed professional (QCP), qualified personnel under the direct supervision of a QCP, or an ADEM approved qualified credentialed inspection professional (QCIP), until completion of the proposed activity.
32. The applicant shall conduct the proposed operation in a timely manner and with all due diligence utilizing good engineering practices in order to reduce potential environmental impacts created by the project to the maximum extent practicable.
33. To ensure the protection of water quality, the applicant shall evaluate, characterize, and as necessary, conduct regular analysis of the dredged material in order to ensure that potential pollutants are not present in concentrations that could cause or contribute to a violation of applicable water quality standards. Information regarding the evaluation, characterization, or detailed results of any analyses shall be made available to ADEM upon request.

March 15, 2002

34. For those NWP's that require written notification to the Corps, the applicant shall: 1) submit a written statement that the applicant is aware of ADEM regulations and that NPDES permit coverage from ADEM is not required; or 2) submit proof of coordination with ADEM that all appropriate NPDES or other permits have either been applied for and/or obtained.

Please be advised that valid NPDES General Permit coverage for stormwater discharges resulting from the operation of a service dock, commercial/private marina, transportation/transloading facility, port/docks facility, landfills, or industrial/manufacturing facilities may be required. If you have any questions regarding the need for stormwater permit coverage, please contact the Department's Water Division, Industrial Section at (334) 271-7700 to determine if General Permit coverage is required.

In recognition that projects are site specific in nature and conditions can change during project implementation, the Department reserves the right to require the submission of additional information or require additional management measures to be implemented, as necessary on a case by case basis, in order to ensure the protection of water quality.

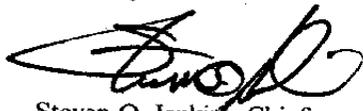
Please be advised that liability and responsibility for compliance with this certification are not delegable by contract or otherwise. The applicant shall ensure that any agent, contractor, subcontractor, or other person employed by, under contract, or paid a salary by the applicant complies with this certification. Any violations resulting from the actions of such person shall be considered violations of this certification and may subject the applicant to enforcement action.

ADEM certification decisions are predicated on current regulatory requirements, established engineering standards and technical considerations, best management practices information, and formal administrative procedures in conformance with Departmental regulations and applicable Alabama law. Issuance of a certification by ADEM neither precludes nor negates an operator/owner's responsibility or liability to apply for, obtain, or comply with other ADEM, federal, state, or local government permits, certifications, licenses, or other approvals.

Finally, this certification in no way purports to vest in the applicant title to lands now owned by the State of Alabama nor shall it be construed as acquiescence by the State of Alabama of lands owned by the State of Alabama that may be in the applicant's possession.

Should you have any questions on this or related matters, please do not hesitate to contact Mr. Shane Brown, Mining & Nonpoint Source Section, by e-mail at [bsm@adem.state.al.us](mailto:bsm@adem.state.al.us) or by phone at (334) 394-4321.

Sincerely,



Steven O. Jenkins, Chief  
Field Operations Division

SOJ/sb

pc: Mobile COE  
Nashville COE  
Permits & Services Division, ADEM  
Wetlands Section, EPA Region IV

## ENVIRONMENTAL COMMITMENTS

A BMP Plan would be prepared and implemented in accordance with State of Alabama regulations and list the BMPs to be followed during all construction and other project activities. An NPDES Storm Water Permit would be obtained as appropriate. Disturbed soil would be stabilized as quickly as practicable.

Disturbance to or removal of vegetation would be avoided to the greatest extent possible. NPS personnel will mark trees that are not to be disturbed prior to starting work.

Disturbed areas will be reseeded and planted with native species when practical.

If cultural resources are encountered during project activities, work will cease and the SHPO will be contacted. During construction, steps would be implemented to minimize fugitive dust emissions, to remove mud and soil tracked onto adjacent roadways, and to control runoff contamination.

**SECTION 01451**  
**CONTRACTOR QUALITY CONTROL**  
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**ATTACHED FORMS**

CONTRACTOR'S QUALITY CONTROL REPORT FORM  
DEFICIENCY LIST FORM

## SECTION 01451

### CONTRACTOR QUALITY CONTROL

#### PART 1 GENERAL

##### 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

##### 1.1.1 American Society for Testing and Materials (ASTM)

ASTM D 3740	(1994a) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1995b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

##### 1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

#### PART 2 PRODUCTS (Not Applicable)

#### PART 3 EXECUTION

##### 3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause entitled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

## **3.2 QUALITY CONTROL PLAN**

### **3.2.1 General**

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

### **3.2.2 Content of the CQC Plan**

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks and has separate control requirements. It could be identified by different trades or disciplines, or it could be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

### **3.2.3 Acceptance of Plan**

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

### **3.2.4 Notification of Changes**

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

## **3.3 COORDINATION MEETING**

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

### 3.4 QUALITY CONTROL ORGANIZATION

#### 3.4.1 General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

#### 3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, or a graduate of construction management, with a minimum of 3 years construction experience on construction similar to this contract, or a technician with 5 yrs. construction quality management experience. This CQC System Manager shall be on the site at all times during construction and will be employed by the prime Contractor. The CQC System Manager may also have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC System Manager.

#### 3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization, **as needed**, specialized personnel to assist the CQC System Manager for the following areas: civil, environmental, materials technician, and submittals clerk. These individuals shall: be employed by the prime contractor, unless waived in writing by the contracting officer; be responsible only to the CQC system manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan..

#### Experience Matrix

<u>Area</u>	<u>Qualifications</u>
a. Civil	Graduate Civil Engineer with 2 years experience in the type of work being performed on this project or technician with 5 yrs.. related experience
b. Environmental	Graduate Environmental Engineer with 3 yrs.. experience
c. Submittals	Submittal Clerk with 1 yr. experience
d. Concrete and Soils	Materials Technician with 2 yrs experience for the appropriate area

#### **3.4.4 Additional Requirement**

In addition to the above experience and education requirements, and within ninety (90) days of his appointment, the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors" or shall have a certificate of this training within the last 5 years.

#### **3.4.5 Organizational Changes**

The Contractor shall maintain his CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

### **3.5 SUBMITTALS**

Submittals shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

### **3.6 CONTROL**

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

#### **3.6.1 Preparatory Phase**

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning any of the required actions of the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the project superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

### **3.6.2 Initial Phase**

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

### **3.6.3 Follow-up Phase**

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work..

### **3.6.4 Additional Preparatory and Initial Phases**

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop..

## **3.7 TESTS**

### **3.7.1 Testing Procedure**

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility will be provided directly to the Contracting

Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

### **3.7.2 Testing Laboratories**

#### **3.7.2.1 Capability Check**

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

#### **3.7.2.2 Capability Recheck**

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$1,000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

### **3.7.3 On-Site Laboratory**

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

### **3.7.4 Furnishing or Transportation of Samples for Testing**

Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Waterways Experiment Station, f.o.b., at the following address:

Waterways Experiment Station  
CE WES-GS  
3909 Halls Ferry Road  
Vicksburg, MS 39180

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

## **3.8 COMPLETION INSPECTION**

### **3.8.1 Punch-Out Inspection**

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated

elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection..

### **3.8.2 Pre-Final Inspection**

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

### **3.8.3 Final Acceptance Inspection**

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

## **3.9 DOCUMENTATION**

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.

- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

### **3.10 PROGRESS AND WORK PHOTOGRAPHS**

The Contractor shall, during the progress of the project, furnish the Government progress photographs to depict progress and work conditions of the site construction. The work photographs shall be taken at project initiation, at monthly intervals thereafter, and after completion of work.

### **3.10.1 Photographs**

Photographs depicting progress shall be delivered to the Government along with each request for payment. Photographs depicting specific work, as specified above, shall be submitted with the monthly request for payment in the month which the work took place. The progress photographs shall be taken from not less than two positions for each work area. They shall show, inasmuch as practical, work accomplished since the previous photographs. Project initiation photographs shall be taken from the same location and angle as the project completion photographs. The photographs shall be high resolution digital images saved as JPEG (Joint Photographic Experts Group) files, or other acceptable compressed format. The resolution shall be no less than 1024 x 768 pixels. Each photograph shall be identified by the date and number of exposure, plus a brief description of the work photographed. The photographs shall be furnished to the Government in a 3-1/2" HD floppy diskette, or other acceptable media, by the time stipulated above. No separate payment shall be made for these services and all costs in connection thereto shall be considered incidental to costs of the representative work area.

### **3.10.2 Delinquent Photographs**

For each month the Contractor fails to submit progress and work photographs, the Contracting Officer may retain \$200.00 or 10 percent of the progress payment, whichever is greater, in accordance with Contract Clause PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS. Also, in accordance with Clause INSPECTION OF CONSTRUCTION, the Contracting Officer may, by contract or otherwise, have the progress and work photographs taken and modify the contract amount to reflect the charges for these photographs.

### **3.11 SAMPLE FORMS**

Sample forms are enclosed at the end of this section.

### **3.12 NOTIFICATION OF NONCOMPLIANCE**

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

### **3.13 DEFICIENCY TRACKING SYSTEM**

The Contractor shall maintain a cumulative list of deficiencies identified for the duration of the project. Deficiencies to be listed include those identified by the Contractor's Quality Control observations, test failures, Government oral observations and Notifications of Noncompliance. As a minimum, the list shall include the information contained in the Deficiency List attached at the end of this section. A current copy of the list shall be maintained at the project site at all

times and shall be made available for review by Government personnel. Copies of updated listings shall be submitted to the CO at least every 30 days. Payment will be withheld for deficient work until it has been corrected.

### **3.14 QUALITY ASSURANCE**

During the course of the contract, the Contractor will receive various Quality Assurance comments from the Government that will reflect corrections needed to Contractor activities, or that will reflect outstanding or future items needing the attention of the Contractor. The Contractor will acknowledge receipt of these comments by specific number reference on his Daily CQC Report, and will also reflect on his Daily CQC Report when these items are specifically completed or corrected to permit Government verification.

**END OF SECTION 01451**

<b>CONTRACTOR'S QUALITY CONTROL REPORT (QCR)</b> (ER 1180-1-6)	<b>DATE:</b>	<b>REPORT NO.</b>
<b>CONTRACT NUMBER AND NAME OF CONTRACTOR:</b>	<b>DESCRIPTION AND LOCATION OF THE WORK:</b>	
<b>WEATHER CLASSIFICATION:</b> CLASS A No interruptions of any kind from weather conditions occurring on this or previous shifts. CLASS B Weather occurred during this shift that caused a complete stoppage of all work. CLASS C Weather occurred during this shift that caused a partial stoppage of work. CLASS D Weather overhead excellent or suitable during shift. Work completely stopped due to previous adverse weather. CLASS E Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse weather. OTHER Explain.		<b>CLASSIFICATION:</b> CLASS _____ TEMPERATURE: MAX _____ MIN _____ PRECIPITATION: INCHES _____
<b>CONTRACTOR/SUBCONTRACTORS AND AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY:</b> (Attach list of items of equipment either idle or working as appropriate.)		
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____		
<b>1. WORK PERFORMED TODAY:</b> (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in Table above.)		
<b>2. TYPE AND RESULTS OF INSPECTION:</b> (Indicate wether: P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)		
<b>3. TESTS REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:</b>		

4. VERBAL INSTRUCTIONS RECEIVED:(List any instruction given by the Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

5. REMARKS: Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, causes and extent thereof; days of no work with reasons for same.)

6. SAFETY: Include any infractions of approved safety plan, safety manual or instruction from Government personnel. Specify corrective action taken.)

SAFETY INSPECTOR

7. CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

CONTRACTOR QUALITY CONTROL SYSTEM MANAGER



**SECTION 01785  
AS-BUILT DRAWINGS**

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**SECTION 01785**  
**AS-BUILT DRAWINGS**

**PART 1 GENERAL**

**1.1 SUBMITTALS**

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

**1.1.1 As-Built Drawings; [GA]**

Drawings showing final as-built conditions of the project shall be submitted. The final CADD as-built drawings shall consist of one set of electronic CADD drawing files in the specified format.

**1.2 PROJECT RECORD DOCUMENTS**

**1.2.1 As-Built Drawings**

This paragraph covers as-built drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for final as-built drawings.

**1.2.1.1 Government Furnished Materials**

One set of electronic CADD files in the specified software and format revised to reflect all bid amendments will be provided by the Government at the preconstruction conference.

**1.2.1.2 Working As-Built and Final As-Built Drawings**

The Contractor shall revise 1 sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked drawings shall be kept current on a weekly basis and shall be available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Final as-built drawings shall be prepared after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). The working as-built marked prints and final as-built drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final as-built

drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. The working and final as-built drawings shall show, but shall not be limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

b. The location and dimensions of any changes within the building structure.

c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

f. Changes or modifications which result from the final inspection.

g. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final as-built prints.

h. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations.

i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

j. Modifications (change order price shall include the Contractor's cost to change working and final as-built drawings to reflect modifications) and compliance with the following procedures.

(1) Directions in the modification for posting descriptive changes shall be followed.

- (2) A Modification Circle shall be placed at the location of each deletion.
- (3) For new details or sections which are added to a drawing, a Modification Circle shall be placed by the detail or section title.
- (4) For minor changes, a Modification Circle shall be placed by the area changed on the drawing (each location).
- (5) For major changes to a drawing, a Modification Circle shall be placed by the title of the affected plan, section, or detail at each location.
- (6) For changes to schedules or drawings, a Modification Circle shall be placed either by the schedule heading or by the change in the schedule.
- (7) The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

### **1.2.1.3 Drawing Preparation**

The as-built drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

Color code for changes shall be as follows:

- (1) Deletions (red) - Deleted graphic items (lines) shall be colored red with red lettering in notes and leaders.
- (2) Additions (Green) - Added items shall be drawn in green with green lettering in notes and leaders.
- (3) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes shall be in blue.

### **1.2.1.4 Computer Aided Design and Drafting (CADD) Drawings**

Only personnel proficient in the preparation of CADD drawings shall be employed to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings shall be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols shall be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are

required, they shall be prepared using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings. Additions and corrections to the contract drawings shall be accomplished using CADD files. The Contractor will be furnished Microstation (.dgn) electronic vector files. The electronic files will be supplied on compact disc, read-only memory (CD-ROM). The Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings. The Contracting Officer will review final as-built drawings for accuracy and the Contractor shall make required corrections, changes, additions, and deletions.

a. The Contract Drawing files shall be renamed in a manner related to the contract number (i.e., 98-C-10.DGN) as instructed in the Pre-Construction conference. Marked-up changes shall be made only to those renamed files. All changes shall be made on the layer/level as the original item. Special notes shall be on layer #63.

b. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "AS-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. Original contract drawings shall be dated in the revision block.

c. Within 20 days after Government approval of all of the working as-built drawings for a phase of work, the Contractor shall prepare the final CADD as-built drawings for that phase of work and submit two sets of blue-lined prints of these drawings for Government review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 10 days the Contractor shall revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within 20 days of substantial completion of all phases of work, the Contractor shall submit the final as-built drawing package for the entire project. The submittal shall consist of one set of Microstation (.dgn) electronic vector files on compact disc, read-only memory (CD-ROM), and one set of the approved working as-built drawings. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final as-built drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

#### **1.2.1.5 Payment**

No separate payment will be made for as-built drawings required under this contract, and all costs accrued in connection with such drawings shall be considered a subsidiary obligation of the Contractor.

### **1.2.3 Final Approved Shop Drawings**

The Contractor shall furnish final approved project shop drawings 30 days after transfer of the completed facility.

### **1.2.4 Construction Contract Specifications**

The Contractor shall furnish final as-built construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION (NOT USED)**

**END OF SECTION 01785**

**SECTION 02230**  
**CLEARING, GRUBBING AND EXCAVATION**  
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## SECTION 02230

### CLEARING, GRUBBING AND EXCAVATION

#### PART 1 GENERAL

##### 1.1 DEFINITIONS

###### 1.1.1 Clearing

Clearing shall consist of the felling, trimming and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush and rubbish occurring in the areas to be cleared. Reference shall be made to the contract drawings for the limits of clearing and grubbing. All vegetation to remain undisturbed shall be designated by the Government during the pre-bid site visit.

###### 1.1.2 Grubbing

Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter and matted roots from the designated grubbing areas.

###### 1.1.3 Excavation

Excavation shall consist of the removal and disposal of all materials as shown on the drawings. Included in this are excavations along the stream banks, in the area of the box culvert (Detail "A", shown on Drawing O2-L206-64/5) and at the outfall of the pipe, near Station 8+30. Materials to excavate include topsoil, silts, sands, clays, gravels, and stone riprap.

##### 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designations only.

###### 1.2.1 US Army Corps of Engineers Engineering Manuals (EM)

EM 385-1-1 (1996) Safety and Health Requirements Manual

###### 1.2.2 Federal Highway Administration (FHWA)

MUTCD (2000) Manual on Uniform Traffic Control Devices

### **1.3 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals not having a “GA” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### **1.3.1 Disposal Permit**

Written permission to dispose of such products on private property shall be filed with the Contracting Officer.

#### **1.3.2 Work Plan; GA**

The Contractor shall submit, for approval, a written Work Plan containing procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary support, lateral bracing and shoring when required, careful removal and disposition of materials, protection of vegetation and property which are to remain undisturbed, coordination with other work in progress. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations. The work plan shall comply with the requirements of the Safety and Health Requirements Manual (EM 385-1-1,) and the Manual on Uniform Traffic Control Devices (MUTCD), Part 6 Temporary Traffic Control.

### **1.4 MEASUREMENT**

#### **1.4.1 Clearing and Grubbing**

Clearing and grubbing shall be measured by the acre of satisfactorily cleared areas.

#### **1.4.2 Excavation**

Excavation shall be measured by the cubic yard based on the Contractor’s survey. The initial survey shall be performed after clearing and grubbing have been completed.

### **1.5 PAYMENT**

#### **1.5.1 Clearing and Grubbing**

Payment for clearing and grubbing will be made at the contract unit price per acre (AC), and this price shall constitute full compensation for all labor, equipment, tools and incidentals necessary to complete the work specified herein, including clearing rock and debris from the culvert drainage ditch, as indicated in the contract drawings.

## **1.5.2 Excavation**

Payment will be made at the contract unit price per cubic yard, and this price shall constitute full compensation for all labor, equipment, tools and incidentals necessary to complete the work specified herein. Payment shall not be made for excavation within the 4-inch tolerance below the lines and grades shown on the contract drawings.

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

## **PART 3 EXECUTION**

### **3.1 CLEARING**

Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing and construction operations by the erection of barriers or by such other means as the circumstances require. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon or otherwise obstruct the work.

### **3.2 GRUBBING**

Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 18 inches below the original surface level of the ground in areas indicated to be grubbed and in areas indicated as construction areas under this contract. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

### **3.3 EXCAVATION**

#### **3.3.1 General**

Excavation shall consist of the removal and disposal of all materials, regardless of character, whether in the wet or dry, to the lines, grades and elevations indicated and as specified and to render the slopes suitable for placement of geotextile and stone protection. Excavation shall be accomplished by the Contractor to remove all unstable or loose materials and for leveling the finished surface where needed. The Contractor shall survey the area for determination of the original ground location prior to the beginning of any stripping or excavation. The initial survey will constitute the original cross-sections from which all measurements and subsequent surveys will be based to calculate the quantity of work accomplished without regard to any changes in the surface that may occur during the prosecution of the work. Cross-sections along Bear Creek shall be taken on at least 50-foot centers, shall be at the same control station, and shall be at the same stations as shown in the contract drawings. Cross-sections of the two drainage areas shall be taken throughout at 10-foot intervals. The Contractor shall perform final surveys as necessary

for the Contracting Officer to verify that the excavation has been performed to the lines and grades as indicated on the contract drawings (plus or minus 4”). Initial and final surveys shall be performed along the same lines. The Contractor shall calculate and provide volumes of excavated material using the average end area method.

### **3.3.2 Classification of Excavation**

All excavation shall be classified as unclassified.

### **3.3.3 Surface Preparation**

All disturbed and unstable material shall be excavated as directed by the Contracting Officer. The finished surfaces on which geotextile and stone protection is to be placed shall be reasonably smooth and free from irregular surface changes. Additional excavation needed to achieve a desirable surface shall be determined in the field by the Contracting Officer.

### **3.3.4 Final Surveys**

Quantity surveys and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed in place. The Contractor shall conduct the final surveys and survey for any period from which progress payments are requested. All these surveys shall be conducted under the direction of the Contracting Officer. The Contractor shall make computations based on the surveys from any periods for which progress is made. Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or to the layout of the work to the Contracting officer, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the Contracting Officer. The Contractor shall furnish the following data to substantiate the quantities of work performed during each progress payment period: field notes, quantity computations, and plotted cross sections showing the current work status. The plotted sections shall show and distinguish between the surfaces shown on the contract drawings (excavation and fill templates & existing ground,) the pre-work surface (existing ground,) and the as-excavated surface. The Contracting Officer must agree to any deviations from the template section prior to payment. Progress payments on partially completed work will not be made without the above data. The results of the final surveys shall be incorporated into the As-Built drawings required by Section 01785 AS-BUILT DRAWINGS.

### **3.3.5 Excavation Final Acceptance**

The Contracting Officer must verify and approve that excavation has been performed to the lines and grades as indicated on the contract drawings prior to final acceptance. This verification shall be determined from review of the post-excavation survey results provided by the Contractor. These results shall be coordinated by the Contractor such to minimize the amount of time that the open excavation is exposed to possible erosion. The Government shall not be responsible to compensate the Contractor for regrading required onsite due to prolonged coordination of final

surveys by the Contractor. To fulfill this requirement the Contractor may consider performing post-excavation surveys in segments as the excavation progresses.

### **3.4 DISPOSAL**

Disposal of the cleared and grubbed materials, excavated soils, or any other materials shall be the responsibility of the Contractor and in accordance with the environmental requirements specified in the Section entitled ENVIRONMENTAL PROTECTION. No material shall be disposed of within the project area, rivers or streams and the final disposition of materials shall be clearly described in the Environmental Protection Plan, required in the Section entitled ENVIRONMENTAL PROTECTION. Cleared and grubbed materials and materials from excavations shall be carried offsite. Burning within the project area shall not be permitted. All disposal of materials shall be in compliance with local, State, and Federal regulation. The Contractor shall obtain the approval and acceptance of the Contracting Officer on the disposal locations(s) proposed for use.

**END OF SECTION 02230**

**SECTION 02378**  
**NONWOVEN GEOTEXTILE**  
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## SECTION 02378

### NONWOVEN GEOTEXTILE

#### PART 1 GENERAL

##### 1.1 SCOPE

The work provided under this section consists of providing all plant, labor, equipment, materials and performing all operations required for the installation of nonwoven geotextiles.

##### 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designations only.

#### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 123	(1996a) Standard Terminology Relating to Textiles
ASTM D 3776	(1985; R 1990) Mass Per Unit Area (Wt) of Woven Fabric
ASTM D 4354	(1996) Sampling of Geosynthetics for Testing
ASTM D 4355	(1992) Deterioration of Geotextiles form Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
ASTM D 4491	(1999) Water Permeability of Geotextiles By Permittivity
ASTM D 4533	(1991; R 1996) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 1996) Grab Breaking Load and Elongation of Geotextiles'
ASTM D 4751	(1999) Determining Apparent Opening Size of a Geotextile
ASTM D 4833	(1988; R 1996) Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
ASTM D 4873	(1997) Identification, Storage, and Handling of Geosynthetic Rolls
ASTM D 4884	(1996) Strength of Sewn or Thermally Bonded Seams of Geotextiles

## **ENGINEERING MANUALS (EM)**

EM 1110-2-1601 (1991; Change 1-1994) Hydraulic Design of Flood Control Channels

### **1.3 MEASUREMENT AND PAYMENT**

#### **1.3.1 Measurement**

Installed geotextiles will be measured for payment in place to the nearest square yard of protected area as delineated in the drawings.

#### **1.3.2 Payment**

Payment will be made at the contract unit price and will constitute full compensation to the contractor for providing all plant, labor, material, and equipment and performing all operations necessary for the complete and satisfactory installation of the geotextile. The following items are included in the contract unit price for Geotextiles and will not be counted a second time in the process of determining the extent of geotextile placed: Material and associated equipment and operation used in laps, seams, or extra length; securing pins and associated material, equipment and operations. No payment will be made for geotextiles replaced because of waste, contamination, damage, repair, or due to contractor fault or negligence.

### **1.4 SUBMITTALS**

Government approval is required for submittals with a "GA" designation; submittals not having a "GA" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### **1.4.1 Geotextile Certificate; GA**

The Contractor shall submit the manufacturer's certification of the geotextile material. All brands of geotextile and all seams to be used will be accepted on the basis of mill certificates or affidavits. The Contractor shall submit duplicate copies of the mill certificate or affidavit signed by a legally authorized official from the company manufacturing the geotextile. The certificate shall state that the geotextile meets the chemical requirements and exceeds the minimum requirements listed in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR GEOTEXTILE. For needle-punched geotextile, the manufacturer shall certify that the geotextile has been inspected using permanent on-line metal detectors and does not contain any needles.

#### **1.4.2 Geotextile Sample**

If requested by the Contracting Officer, the Contractor shall submit geotextile samples for testing to determine compliance with the requirements of this specification. When required, the Contractor shall submit samples to the Contracting Officer prior to the beginning of installation

of the same geotextile. Upon request, the Contractor shall supply quality control and quality assurance tests for the geotextile to the Contracting Officer. All samples provided shall be from the same production lot as will be supplied for the contract, and shall be the full manufactured width of the geotextile by at least 10 feet long, except for samples for seam strength may be a full width sample folded over and the edges stitched for a length of at least 5 feet. Samples submitted for testing shall be identified by manufacturers lot designation.

## **1.5 SHIPMENT, HANDING AND STORAGE**

### **1.5.1 Shipment and Storage**

Only approved geotextile rolls shall be delivered to the project site. All geotextile shall be labeled, shipped, stored and handled in accordance with ASTM D 4873. No hooks, tongs, or other sharp instruments shall be used for handling geotextile.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

#### **2.1.1 Geotextile**

##### **2.1.1.1 General**

The geotextile shall be a nonwoven pervious sheet of plastic yarn as defined by ASTM D 123. The geotextile shall equal or exceed the minimum average roll values listed in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR GEOTEXTILE. Strength values indicated in the table are for the weaker principal direction.

**TABLE 1**  
**MINIMUM PHYSICAL REQUIREMENT FOR GEOTEXTILE**

PROPERTY	UNITS	MINIMUM REQUIREMENT	TEST PROCEDURE
Fabric Weight	oz/sy	10	ASTM D 3776
Grab Strength	lb	275	ASTM D 4632
Puncture	lb	170	ASTM D 4833
Burst Strength	psi	550	ASTM D 3786
Trapezoidal Tear	lb	110	ASTM D 4533
Permeability	cm/sec	0.25	ASTM D 4491
Apparent Opening Size	U.S. Sieve	100	ASTM D 4751
Permittivity	Sec -1	1.0	ASTM D 4491
Ultraviolet	Percent	50 at 500 Hrs	ASTM D 4355

#### 2.1.1.2 Geotextile Fiber

Fibers used in the manufacturing of the geotextile shall consist of a long-chain synthetic polymer composed of a least 85 percent by weight of polyolefins, polyesters, or polyamides. Stabilizers and/or inhibitors shall be added to the base polymer if necessary to make the filaments resistant to deterioration caused by ultraviolet light and heat exposure. Reclaimed or recycled fibers or polymer shall not be added to the formulation. Geotextile shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including the edges. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile.

#### 2.1.2 Seams

The seams of the geotextile shall be sewn with thread of a material meeting the chemical requirements given above for geotextile yarn or shall be bonded by cementing or by heat. The sheets of geotextile shall be attached at the factory or another approved location, if necessary, to form sections not less than 10 feet wide. Seams shall be tested in accordance with method ASTM D 4884. The strength of the seam shall be not less than 90 percent of the required grab tensile strength of the unaged geotextile in any principal direction.

#### 2.1.3 Securing Pins

The geotextile shall be secured to the embankment or foundation soil by pins to prevent movement prior to placement of the riprap. Other appropriate means to prevent movement such as staples, sand bags and stone could also be used. Securing pins shall be inserted through both strips of overlapped geotextile along the line passing through midpoints of the overlap. Securing pins shall be removed as placement of riprap is placed to prevent tearing of geotextile or enlarging holes. Maximum spacing between securing pins depends on the steepness of the

stream bank. The maximum pin spacing shall be equal to or less than the values listed in TABLE 2, MAXIMUM SPACING FOR SECURING PINS. When windy conditions prevail at the construction site, the number of pins should be increased upon the direction of the Contracting Officer. Terminal ends of the geotextile shall be anchored with key trench or apron at crest, toe of the slope and downstream limits of installation.

**TABLE 2  
MAXIMUM SPACING FOR SECURING PINS**

RIVER BANK	SPACING, FEET
Steeper than 1V on 3H	2
1V on 3 H to 1V on 4H	3
Flatter than 1V on 4H	5

**PART 3 EXECUTION**

**3.1 SURFACE PREPARATION**

The surface on which the geotextile will be placed shall be prepared to a relatively smooth surface condition, in accordance with the applicable portion of the specification and shall be free for obstructions, debris, depressions, erosion features or vegetation. Any irregularities shall be removed so as to insure continuous, intimate contact of the geotextile with all the surface. Any loose material, soft or low density pockets of material shall be removed and erosion features such as rill, gullies, and etc. shall be graded out of the surface before the geotextile is placed.

**3.2 INSTALLATION OF THE GEOTEXTILE**

**3.2.1 General**

The geotextile shall be placed in the manner and at locations shown. At the time of installation, the geotextile shall be rejected if it has defects, rips, hole, flaws, deterioration or damage incurred during manufacture, transportation or storage.

**3.2.2 Placement**

The geotextile shall be placed with the long dimension perpendicular to the centerline of the channel (or parallel to the direction of the slope) and laid smooth and free of tension, stress, folds, wrinkles, or creases. The strips shall be placed to provide a minimum width of 12 inches overlap at each joint. The placement procedure requires that the length of the geotextile be approximately 15 percent greater than the slope length. The Contractor shall adjust the actual length of the geotextile used based on initial installation experience. Temporary pinning of the geotextile to help hold it in place until the riprap is placed shall be allowed. The temporary pins

shall be removed as the riprap is placed to relieve the high tensile stress, which may occur during placement of material on the geotextile. Trimming shall be performed in such a manner that the geotextile shall not be damaged in any way.

### **3.3 PROTECTION**

The geotextile shall be protected at all times during construction from contamination by surface runoff and any geotextile so contaminated shall be removed and replaced with uncontaminated geotextile. Any damage to the geotextile during its installation or during placement of riprap shall be replaced by the Contractor at no cost to the Government. The work shall be scheduled so that the covering of the geotextile with riprap is accomplished within 7 calendar days after placement of the geotextile. The geotextile shall be protected from damage prior to and during the placement of riprap. This may be accomplished by limiting the height of drop to less than 1 foot, by placing a cushioning layer of sand or gravel on top of the geotextile before placing the riprap or other methods deemed acceptable to the Contracting Officer. Before placement of riprap, the Contractor shall demonstrate that the placement technique will not cause damage to the geotextile. In no case shall any type of equipment be allowed on the unprotected geotextile.

### **3.4 OVERLAPPING AND SEAMING**

#### **3.4.1 Overlapping**

The overlap of geotextile strips shall be 12 inches.

#### **3.4.2 Sewn Seams**

High strength thread shall be used such that seam tests conform to ASTM D 4884. The thread shall meet the chemical, ultraviolet, and physical requirements of the geotextile. The seam strength shall be equal to the strength required for the geotextile in the direction across the seam. Double sewing shall be used specially for field seams to provide a safety factor against undetected missed stitches.

**End of Section 02378**

**SECTION 02380**  
**RIPRAP PROTECTION**  
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## **SECTION 02380**

### **RIPRAP PROTECTION**

#### **PART 1 GENERAL**

##### **1.1 SCOPE**

The work covered by this section will consist of furnishing all plant, labor, equipment, supplies and materials for the placement of riprap protection in the areas designated on the drawings and as specified hereafter.

##### **1.2 SUBMITTALS**

Weigh Scale Certification

Submit a copy of the certification from the regulation agency attesting to the scale's accuracy.

Certified Weight Scale Tickets

Submit a copy of each certified weight scale ticket within one working day after weighing.

##### **1.3 SURVEYS**

###### **1.3.1 Final Surveys**

The Contractor shall be required to perform and submit the results of final surveys at the number of times necessary for the Contracting Officer to verify that riprap has been placed to the lines and grades as indicated on the contract drawings. Upon this verification, the results of the final surveys shall be incorporated into the As-Built drawings required by Section 01785 AS-BUILT DRAWINGS.

##### **1.4 PROTECTION OF EXISTING FACILITIES**

Drainage pipes, headwalls, parking areas, trees and shrubs to be protected, and other facilities that are adjacent to the area to receive riprap protection shall be protected at all times during construction. Pre-construction photographs of the above features contained in the project area are required. These photographs shall meet the requirements of Section 01451, Paragraph 3.10 PROGRESS AND WORK PHOTOGRAPHS. Any structure that is damaged and it is felt that the damage was caused by Contractor negligence will be repaired to the original condition at no expense to the Government. The photographs required by this paragraph shall be the basis of decisions made concerning the damage and repair of items impacted by construction.

## 1.5 STREAM CONDITIONS

Hydrographs showing water levels of Bear Creek are not available. The Contractor is to make his own investigation as to how the water level in Bear Creek fluctuates throughout the year.

## 1.6 MEASUREMENT

The quantity of riprap materials will be measured in tons complete and accepted in the final work.

## 1.7 PAYMENT

Payment will be made at the contract unit price per ton for “Stone Protection”, which price will be full compensation for materials, supplies, equipment, labor and all necessary incidentals for placing riprap materials as specified.

## PART 2 PRODUCTS

### 2.1 RIPRAP MATERIALS

#### 2.1.1 Streambank Protection Stone

Stone for riprap shall be durable and of suitable quality to ensure permanence in the structure and in the climate in which it is to be used. It shall be free from cracks, seams, and other defects that would tend to increase unduly its deterioration from natural causes. The inclusion of objectionable quantities of dirt, sand and clay shall not be permitted. All stone for the riprap protection areas shall be quarried with neither the breadth nor the thickness of any piece being less than one third its length. Stone shall be nearly rectangular in section as much as practicable. All stone shall be reasonably well graded in the sizes listed from a maximum size of 400 pounds to an average size of 100 pounds. The gradation of stone required is as follows:

<b>STONE WEIGHT (LBS)</b>	<b>CUMMULATIVE % FINER BY WEIGHT</b>
400	100
250	70 – 100
100	50 – 80
30	32 – 58
5	15 – 34
1	2 – 20
Less than ½” max. dimension	5

### **2.1.2 Gradation Tolerances**

Tolerances on the gradation specified shall conform to the requirements above. Submission of materials not meeting this gradation shall be approved by the Contracting Officer.

### **2.1.3 Rejection of Materials**

Listing of the sources is not to be construed as approval of all material from that source. The right is reserved to reject riprap materials from certain localized areas, zones, strata or channels, when such materials are unsuitable as determined by the Contracting Officer. Source of riprap shall be submitted to the Contracting Officer for approval well in advance of the time when the material will be required in the work.

## **PART 3 EXECUTION**

### **3.1 SLOPE PREPARATION AND PLACEMENT OF GEOTEXTILE**

Slopes on which riprap is to be placed shall be prepared in accordance with Section 02230 CLEARING, GRUBBING AND EXCAVATION, Paragraph 3.3. Prior to placement of riprap geotextile shall be installed in accordance with Section 02378 NONWOVEN GEOTEXTILE, Paragraph 3.2.

### **3.2 RIPRAP PLACEMENT**

#### **3.2.1 General**

Riprap shall be placed on the geotextile specified in Section 02378 NONWOVEN GEOTEXTILE and within the limits shown on the contract drawings.

#### **3.2.2 Placement**

Riprap shall be placed in a manner which will produce a well-graded mass of rock with the minimum practicable percentage of voids, and shall be constructed, within the specified tolerances, to the lines and grades shown on the contract drawings. A tolerance of plus 6 inches and minus 3 inches from the slope lines and grades shown on the contract drawings will be allowed in the finished surface of the riprap, except that the extreme of this tolerance shall not be continuous over an area greater than 200 square feet. No stone shall be dropped through the air from a height greater than 1 foot. Placing riprap by dumping into chutes or by similar methods likely to cause segregation of the various sizes shall not be permitted. No equipment shall be operated directly on the completed riprap. Riprap shall be placed to its full thickness in one operation and in such manner as to avoid displacing the geotextile. Placement shall begin at the bottom of the area to be covered and continue upslope. Subsequent loads of material shall be placed against previously placed material in such a manner as to ensure a relatively homogenous mass. The finished riprap shall be free from objectionable pockets of small stones and clusters of larger stones. Placing riprap in layers will not be permitted. The desired distribution of the

various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source; by controlled dumping of successive loads during final placing, or by other means of placement that will produce the specified results. Rearranging of individual stones shall be required to the extent necessary to obtain a well-graded distribution of stones sizes as specified in paragraph 2.1.1, Streambank Protection Stone; and paragraph 2.1.2, Gradation Tolerances.

**END OF SECTION 02380**

## APPROVED STONE SOURCES

Rogers Group  
Tuscumbia Quarry  
520 Three Mile Lane  
Tuscumbia, AL 35674  
Phone: 256-383-1645

Vulcan Materials Company  
Cherokee Limestone Quarry  
5475 Old Lee Highway  
Cherokee, AL 35616  
Phone: 601-844-1595

Vulcan Materials Company  
Tuscumbia Limestone Quarry  
Highway 72 West  
Tuscumbia, AL 35674  
Phone: 256-353-4730

Vulcan Materials Company  
Trinity Limestone Quarry  
Highway 20 West  
Trinity, AL 35673  
Phone: 256-353-4730

Vulcan Materials Company  
Russellville Limestone Quarry  
14460 Highway 243  
Russellville, AL 35654  
Phone: 256-353-4730

Hoover Inc.  
96 Stateline Rd.  
Cherokee, AL  
Phone: 256-360-2400

Northeast Mississippi Limestone Inc.  
US Highway 25 & Providence Road  
Iuka, MS  
Phone: 662-423-3889

## SECTION 02953

### SEEDING

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**SECTION 02953**

**SEEDING**

**PART 1 GENERAL**

**1.1 SCOPE OF WORK**

The work covered by this section consists of furnishing all plant, equipment, labor, materials, and supplies necessary to install topsoil to the specified depth and establish a satisfactory grass cover in accordance with these specifications.

**1.2 APPLICABLE PUBLICATIONS**

**1.2.1 Standard Specifications**

All materials, equipment, and workmanship shall be in accordance with the applicable portions of the Alabama Department of Transportation Standard Specifications for Highway Construction, 2002 Edition, herein referred to as "Standard Specifications," except as otherwise specified. Copies of the Standard Specifications may be obtained from the Proposals Engineer, Alabama Department of Transportation, 1409 Coliseum Boulevard Montgomery, Alabama 36130-3050. In the Standard Specifications, change the words as listed below and substitute the words indicated.

State	to	Government
Department	to	Corps of Engineers
Bureau	to	Corps of Engineers
Commissioner	to	Contracting Officer
Engineer	to	Contracting Officer

**1.3 AREAS TO BE SEEDED**

Areas to be seeded shall include the following:

- All constructed embankments;
- Borrow and disposal areas that are used by the Contractor;
- Topsoil stockpiled more than 21 days;
- All other unpaved areas disturbed by construction; and
- Areas outside the specified work areas where vegetation has been injured, disturbed, or destroyed by the Contractor shall be restored and reseeded by the Contractor at no additional expense to the Government.

## **1.4 INSPECTION AND TESTS**

### **1.4.1 Seed**

The Contracting Officer shall be furnished triplicate signed copies of statement from the vendor, certifying that each container of seed delivered is labeled in accordance with the Federal Seed Act. This certification shall be obtained from the vendor and shall be furnished on or with all copies of seed invoices. Each lot of seed will be sampled and tested, in accordance with latest Rules and Regulations under the Federal Seed Act, at the discretion of the Contracting Officer.

## **1.5 MEASUREMENT**

### **1.5.1 Seeding**

The unit of measurement for seeding will be per thousand square foot (MSF.)

## **1.6 PAYMENT**

### **1.6.1 Seeding**

Payment for the complete seeding operation will be made at the contract unit price per thousand square foot (MSF) for "Seeding"; which price shall include all costs of labor and materials in connection with topsoiling, fertilizing, liming, tilling, seeding, mulching, and maintenance. Measurement and payment will include areas that are required to be reseeded by the Contracting Officer, if such reseeding is necessitated through no fault of the Contractor.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

#### **2.1.1 Seed Mixture**

Any and all seed used shall meet the requirements of these specifications, Section 860 of the Standard Specifications, and comply with the Alabama Seed Law, Act No. 424, General Acts, 1963, Vol. 2, Page 931, and rules and regulations promulgated thereunder, and any revisions of the Act. They shall be tested within nine months prior to use, in accordance with "Rules for Seed Testing" approved by the Association of Official Seed Analysts in July, 1960, and as subsequently amended. Each kind of seed for use either pure, or as a part of mixed seedings, shall be separately packed and delivered to the project in standard seed-tight shipping bags, all prominently identified. Each bag shall bear a tag or label certifying to contents, tests, and analysis. Seed mixture and percentages of types shall be as follows:

<b>Seed</b>	<b>Quantity-Percent by Weight</b>
Bermuda Grass, common (unhulled)	15
White Clover	21
Kentucky 31 Tall Fescue	43
Perennial Ryegrass	21

Seed shall be uniformly mixed. All seed shall be a minimum of 95 percent pure with a minimum germination of 75 percent. No seed shall contain more than one percent weed seeds by weight. No seed shall contain more than 18 noxious weed seeds or bulblets per ounce. At the discretion of the Contracting Officer, samples of seed may be taken for compliance with these specifications.

### **2.1.2 Topsoil**

Topsoil shall be obtained from the stripped areas, including excavation/spoil areas, and, if necessary, any outside sources and shall consist of loose, friable topsoil free of subsoil, refuse, stumps, rocks, roots, brush, weeds, and other material which may prevent the formation of a suitable seed bed. No topsoil which has been used to support Johnson Grass, Canada Thistle, or Nodding Thistle shall be used. Topsoil shall not contain an excessive amount of noxious weeds or rhizomes of other noxious weeds. Topsoil shall be free of stones two or more inches in diameter.

### **2.1.3 Fertilizer**

Fertilizer shall meet the pertinent requirements of Paragraph 860.12 of the Standard Specifications. Fertilizer shall be commercial grade fertilizer, uniform in composition, granular, free flowing, and suitable for application with approved equipment. The fertilizer shall be contained in bags fully labeled stating the net weight, brand and grade, guaranteed analysis, and name and address of the manufacturer. Fertilizer shall comply with local, state and Federal fertilizer laws. Composition percentages by weight shall be as follows:

Nitrogen	10 percent
Available Phosphoric Acid	10 percent
Soluble Potash	10 percent

### **2.1.4 Lime**

Limestone shall meet the pertinent requirements of Paragraph 860.12 of the Standard Specifications. Lime shall be ground agricultural limestone containing a total neutralizing power of not less than 90 and shall be of such fineness that at least 50 percent will pass through a 60-mesh sieve and at least 90 percent will pass through a 10-mesh sieve. Coarser materials will be acceptable provided that specified rates or application are increased proportionately, on the basis of quantities passing the 60-mesh sieve, at no additional cost to the Government.

### **2.1.5 Class A Mulch**

Material for mulching shall meet the requirements Paragraph 860.03 of the Standard Specifications for Class A mulch and shall be threshed straw reasonably free of noxious weeds and seeds or other materials detrimental to plant growth. Straw shall be stalks of rye, oats, wheat, or other approved grain crops. Mulch materials shall be bright in color and shall not be musty, moldy, or in an advanced stage of decomposition.

### **2.1.6 Water**

Water shall be fresh and free for injurious amounts of oil, acid, alkali, salts, or other materials harmful to the growth of grass. It shall be subject to the approval of the Contracting Officer prior to use.

## **PART 3 EXECUTION**

### **3.1 GENERAL**

It is the intent of these specifications that topsoiling, fertilizing, liming, seeding, and mulching shall constitute continuous construction. As soon as work is completed in an area and there is no danger of damage from construction operations, the area shall be stabilized and protected as specified herein.

### **3.2 SPREADING OF STOCKPILED TOPSOIL**

All areas to be topsoiled shall be graded to conform to the general contour of the finished surface and left in a loose, roughened condition immediately prior to placing topsoil. Stones larger than 2 inches in diameter, roots, cables, wire, and other material that might hinder the work or subsequent maintenance shall be removed prior to topsoil placement. New levee slopes, roadway embankments, disturbed stream/river banks, borrow areas, disposal areas, and all other areas disturbed by construction operations which are to be seeded shall be covered with stock-piled topsoil to a uniform depth of not less than 6 inches. The Contractor shall, at his expense, preserve, protect, replace or do such work as is necessary to maintain the topsoil in a satisfactory and acceptable condition from the time of placing until final acceptance.

### **3.3 APPLICATION OF LIME AND FERTILIZER**

#### **3.3.1 Liming**

The first material to be applied shall be agricultural-grade lime. The lime shall be evenly and uniformly distributed over the entire area to be seeded or sodded at a rate of 125 pounds per thousand square feet and incorporated to a depth of not less than 4 inches.

### **3.3.2 Fertilizer**

Commercial fertilizer shall be applied next and shall be evenly and uniformly distributed over the entire area. The rate of application shall be 12 pounds per thousand square feet. The fertilizer shall be worked into the soil to a depth of not less than 4 inches. The fertilizer and the lime shall be applied separately but may be incorporated into the soil in one operation. Seed shall be planted within 48 hours after application of fertilizer.

## **3.4 SEEDING**

### **3.4.1 Permanent Seeding**

Seeding shall not be performed between 1 December and 1 February or 1 June and 15 August. Seeding may be postponed if current conditions indicate that satisfactory results are not likely to be obtained. Other than as stated above, seeding shall immediately follow seedbed preparation. No seeding shall be done in windy weather nor when the ground surface is frozen, wet, or otherwise nontillable. Seed shall be sown by approved mechanical seeders in a uniform manner at the rate specified below. Half the seed shall be sown with the sower moving in one direction, and the remainder shall be sown with the sower moving at right angles to the first sowing. The seed shall be hand raked into the soil an average depth of 1/4".

### **3.4.2 Seeding Rate**

The seeding rate shall be 5 pounds per thousand square feet.

### **3.4.3 Seed Mixtures**

The seeding mix shall be as set forth in Paragraph 2.1.1 of this section.

## **3.5 MULCHING**

All seeded areas shall be protected with Class A straw mulch no later than 48 hours after seeding. The mulch shall be placed uniformly over the entire seeded area at a rate of 78 pounds per thousand square feet.

## **3.6 ESTABLISHMENT AND MAINTENANCE**

### **3.6.1 Establishment and Maintenance of Turf Areas**

The Contractor shall be responsible for proper care of seeded areas while grass is becoming established. Seeded areas shall be maintained until all work or designated portions thereof have been completed and accepted. Where seeding is done after the acceptance of other work, the grass will be considered established and ready for acceptance when it reaches an average height of 4 inches over all seeded areas and has covered 95% of the seeded areas. After initial establishment, areas of failure shall be reseeded using the original seed mix and fertilized with 12 pounds of 10-10-10 per thousand square feet. Mulch material removed by wind or other

causes shall be replaced. If any portion of the surface becomes eroded or otherwise damaged, the affected portion shall be repaired to reestablish condition, grade of soil, and treatment prior to the damage. This repair work shall be completed within 5 days after it occurs. Repair work required because of faulty operations or negligence on the part of the Contractor shall be performed without additional cost to the Government.

**END OF SECTION 02953**