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SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

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 within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A10.32	Personal Fall Protection - Safety Requirements for Construction and Demolition Operations
ANSI Z359.1	(1992; R 1999) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ANSI/ASSE A10.34	(2001) Protection of the Public on or Adjacent to Construction Sites

ASME INTERNATIONAL (ASME)

ASME B30.22	(2005) Articulating Boom Cranes
ASME B30.3	(1996) Construction Tower Cranes
ASME B30.5	(2004) Mobile and Locomotive Cranes
ASME B30.8	(2004) Floating Cranes and Floating Derricks

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2002) Portable Fire Extinguishers
NFPA 241	(2004) Safeguarding Construction,Alteration, and Demolition Operations
NFPA 51B	(2003) Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2005) National Electrical Code
NFPA 70E	(2004) Electrical Safety in the Workplace

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2003) Safety -- Safety and Health Requirements

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.500	Fall Protection

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Government acceptance is required for submittals with a "G" designation.

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G-AOF

Activity Hazard Analysis (AHA); G-AOF

Crane Critical Lift Plan; G-AOF

Proof of qualification for Crane Operators; G-AOF

SD-06 Test Reports

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports

Monthly Exposure Reports

Crane Reports

Regulatory Citations and Violations

SD-07 Certificates

Confined Space Entry Permit

Hot work permit

Contractor Safety Self-Evaluation Checklist; G-AOF

Certificate of Compliance (Crane)

1.3 DEFINITIONS

a. Competent Person for Fall Protection. A person who is capable of identifying hazardous or dangerous conditions in the personal fall

arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.

b. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.

c. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

d. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

(1) Death, regardless of the time between the injury and death, or the length of the illness;

(2) Days away from work (any time lost after day of injury/illness onset);

(3) Restricted work;

(4) Transfer to another job;

(5) Medical treatment beyond first aid;

(6) Loss of consciousness; or

(7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

e. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with USACE EM 385-1-1, and the following federal laws, ordinances, criteria, rules and 29.CFR 1910 and 29. CFR 1926. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

1.5 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.5.1 Personnel Qualifications

1.5.1.1 Site Safety and Health Officer (SSHO)

Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The Contractor Quality Control (QC) person can be the SSHO on this project. The SSHO shall meet the following requirements:

Level 3:
A minimum of 5 years safety work on similar projects.
30-hour OSHA construction safety class or equivalent within the last 5 years.
An average of at least 24 hours of formal safety training each year for the past 5 years.
Competent person training as needed.

1.5.1.2 Competent Person for Confined Space Entry

Provide a competent person for confined space meeting the definition and requirements of EM 385-1-1.

1.5.1.3 Crane Operators

Crane operators shall meet the requirements in USACE EM 385-1-1, Section 16 and Appendix G. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacitates of 50,000 pounds or greater, crane operators shall be designated as qualified by a source that qualifies crane operators (i.e., union, a government agency, or and organization that tests and qualifies crane operators, qualified consultant (can be an in-house resource). Proof of current qualification shall be provided.

1.5.2 Personnel Duties

1.5.2.1 Site Safety and Health Officer (SSHO)/Superintendent

a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report.

b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.

c. Maintain applicable safety reference material on the job site.

d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.

e. Implement and enforce accepted APPS and AHAs.

f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.

g. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

1.5.3 Meetings

1.5.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.

c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

d. The functions of a Preconstruction conference may take place at the Post-Award Kickoff meeting for Design Build Contracts.

1.5.3.2 Safety Meetings

Shall be conducted and documented as required by EM 385-1-1. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

1.6 ACCIDENT PREVENTION PLAN (APP)

The Contractor shall use a qualified person to prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan". Specific requirements for some of the APP elements are described below. The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the

on-site superintendent, the designated site safety and health officer and any designated CSP and/or CIH.

Submit the APP to the Contracting Officer 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and quality control manager. Should any hazard become evident, stop work in the area, secure the area, and develop a plan to remove the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, all necessary action shall be taken to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ANSI/ASSE A10.34,) and the environment.

Copies of the accepted plan will be maintained at the resident engineer's office and at the job site.
The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

1.6.1 EM 385-1-1 Contents

In addition to the requirements outlines in Appendix A of USACE EM 385-1-1, the following is required:

a. Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of the capacity of the crane or hoist (or lifts over 50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane or hoist; lifts of personnel; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. The plan shall be submitted 15 calendar days prior to on-site work and include the requirements of USACE EM 385-1-1, paragraph 16.C.18. and the following:

(1) For lifts of personnel, the plan shall demonstrate compliance with the requirements of 29 CFR 1926.550(g).

(2) For barge mounted mobile cranes, barge stability calculations identifying barge list and trim based on anticipated loading; and load charts based on calculated list and trim. The amount of list and trim shall be within the crane manufacturer's requirements.

1.7 ACTIVITY HAZARD ANALYSIS (AHA)

The Activity Hazard Analysis (AHA) format shall be in accordance with USACE EM 385-1-1. Submit the AHA for review at least 15 calendar days prior to the start of each phase. Format subsequent AHAs as amendments to the APP. The analysis should be used during daily inspections to ensure the

implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

The activity hazard analyses shall be developed using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier or subcontractor and provided to the prime contractor for submittal to the Contracting Officer.

1.8 DISPLAY OF SAFETY INFORMATION

Within 1 calendar days after commencement of work, erect a safety bulletin board at the job site. The safety bulletin board shall include information and be maintained as required by EM 385-1-1, section 01.A.06. Additional items required to be posted include:

a. Confined space entry permit.

b. Hot work permit.

1.9 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.10 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.11 REPORTS

1.11.1 Accident Reports

a. For recordable injuries and illnesses, and property damage accidents resulting in at least $2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the USACE Accident Report Form 3394 and provide the report to the Contracting Officer within 5 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

1.11.2 Accident Notification

Notify the Contracting Officer as soon as practical, but not later than four (4) hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than $2,000, or any weight handling equipment accident. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the

Government investigation team arrives on-site and Government investigation is conducted.

1.11.3 Monthly Exposure Reports

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

1.11.4 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix H and as specified herein with Daily Reports of Inspections.

1.11.5 Certificate of Compliance

The Contractor shall provide a Certificate of Compliance for each crane entering an activity under this contract (see Contracting Officer for a blank certificate). Certificate shall state that the crane and rigging gear meet applicable OSHA regulations (with the Contractor citing which OSHA regulations are applicable, e.g., cranes used in construction, demolition, or maintenance shall comply with 29 CFR 1926 and USACE EM 385-1-1 section 16 and Appendix H. Certify on the Certificate of Compliance that the crane operator(s) is qualified and trained in the operation of the crane to be used. The Contractor shall also certify that all of its crane operators working on the DOD activity have been trained in the proper use of all safety devices (e.g., anti-two block devices). These certifications shall be posted on the crane.

1.12 HOT WORK

Prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, a written permit shall be requested from the Contractor. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with NFPA 51B and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit.

When starting work in the facility, Contractors shall require their personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency response phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE SAFETY OFFICER IMMEDIATELY.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with USACE EM 385-1-1, NFPA 241, the APP, the AHA, Federal and/or State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard shall prevail.

3.1.1 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocynates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

3.1.2 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos. If additional material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 60 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the Contracting Officer Public Utilities representative to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

The Contractor shall establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. The program shall include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures.

3.3.1 Training

The Contractor shall institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, the Contractor shall provide training for each employee who might be exposed to fall hazards. A competent person for fall protection shall provide the training. Training requirements shall be in accordance with USACE EM 385-1-1, section 21.A.16.

3.3.2 Fall Protection Equipment and Systems

The Contractor shall enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to a fall hazard. Employees shall be protected from fall hazards as specified in EM 385-1-1, section 21. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, paragraphs 05.H. and 05.I. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M, USACE EM 385-1-1 and ANSI A10.32.

3.3.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

3.3.3 Fall Protection for Roofing Work

Fall protection controls shall be implemented based on the type of roof being constructed and work being performed. The roof area to be accessed shall be evaluated for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 1.8 m (6 feet) of an edge, on low-slope roofs, personnel shall be protected from falling by use of personal fall arrest systems, guardrails, or safety nets.

(2) For work greater than 1.8 m (6 feet) from an edge, warning lines shall be erected and installed in accordance with

29 CFR 1926.500 and USACE EM 385-1-1.

b. Steep-Sloped Roofs: Work on steep-sloped roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

3.3.4 Existing Anchorage

Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person for fall protection in accordance with ANSI Z359.1. Exiting horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

3.3.5 Horizontal Lifelines

Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

3.3.6 Guardrails and Safety Nets

Guardrails and safety nets shall be designed, installed and used in accordance with EM 385-1-1 and 29 CFR 1926 Subpart M.

3.3.7 Rescue and Evacuation Procedures

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A Rescue and Evacuation Plan shall be prepared by the contractor and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. The Rescue and Evacuation Plan shall be included in the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.4 SCAFFOLDING

Employees shall be provided with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access to scaffold platforms greater than 6 m (20 feet) in height shall be accessed by use of a scaffold stair system. Vertical ladders commonly provided by scaffold system manufacturers shall not be used for accessing scaffold platforms greater than 6 m (20 feet) in height. The use of an adequate gate is required. Contractor shall ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of

the scaffold base. Work platforms shall be placed on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.5 EQUIPMENT

3.5.1 Material Handling Equipment

a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.

c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.5.2 Weight Handling Equipment

a. Cranes and derricks shall be equipped as specified in EM 385-1-1, section 16.

b. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.

c. The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, and ASME B30.8 for floating cranes and floating derricks.

d. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.

e. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE EM 385-1-1 section 11 and ASME B30.5 or ASME B30.22 as applicable.

f. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.

g. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

h. All employees shall be kept clear of loads about to be lifted and of suspended loads.

i. The Contractor shall use cribbing when performing lifts on outriggers.

j. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

k. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

l. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.

m. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.

n. Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

3.6 EXCAVATIONS

The competent person shall perform soil classification in accordance with 29 CFR 1926.

3.6.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

3.6.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within 0.061 m (2 feet) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

3.6.3 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

3.6.4 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

3.7 UTILITIES WITHIN CONCRETE SLABS

Utilities located within concrete slabs or pier structures, bridges, and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with station utility departments in addition to a private locating service. Outages to isolate utility systems shall be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

3.8 ELECTRICAL

3.8.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

3.8.2 Portable Extension Cords

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered and protected from damage. All damaged extension cords shall be immediately removed from service. Portable extension cords shall meet the requirements of NFPA 70.

3.9 WORK IN CONFINED SPACES

The Contractor shall comply with the requirements in Section 06.I of USACE EM 385-1-1, OSHA 29 CFR 1910.146 and OSHA 29 CFR 1926.21(b)(6). Any potential for a hazard in the confined space requires a permit system to be used.

a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.06 of USACE EM 385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.

b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.

c. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

-- End of Section --

U. S. Army Corps of Engineers Great Lakes Districts
Safety and Occupational Health Office

CONTRACTOR ACCIDENT PREVENTION PLAN (APP) CHECKLIST (EM 385-1-1, Appendix - A, dated; 3 Nov. 03)

Minimum Basic Outline for Accident Prevention Plan

The APP is the Contractor Safety and Health Program Document. The following Site Specific Areas will be addressed:

NOTE: 1. Contractor will complete Checklist and Submitt with their APP.
NOTE: 2. Contractor APP WILL be submitted in format below.
NOTE: 2. Safety Office will review Contractor APP and return to PM / COR.
NOTE: 3. Contractor APP's ARE NOT APPROVED by the USACE, only found as Acceptable or Non-Acceptable.

Safety Office Review Status: ACCEPTED BY-DATE:_____ NOT ACCEPTED BY/DATE:_____

Contractor Name: **Contract No:**

Project Title & Location:	Included ?			
	Yes	No	N/A	Page(s)
***ALL CHECKLIST ITEMS WILL BE COMPLETED*!**				
1. SIGNATURE SHEET. Title, signature, and phone number of the following:				
a. *Plan Preparer* (qualified person such as corporate safety staff person, QC)				
b. *Plan Approval* by company/corporate officers authorized to obligate the company (e.g. owner company president, regional vice president etc.				
c. *Plan Concurrence* (e.g. Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC) . (provide concurrence of other applicable corporate and project personnel (Contractor)				
2. BACKGROUND INFORMATION. List the following:				
a. Contractor;				
b. Contract number;				
c. Project name;				
d. Brief project description, description of work to be performed, and location map				
e. Contractor accident experience (provide OSHA 300 Log, EMR, etc.				
f. Listing of phases of work and hazardous activities requiring AHA's -Activity Hazards Analyses				
3. STATEMENT OF SAFETY AND HEALTH POLICY. Provide a copy of your current corporate/company Safety & Health Policy Statement.				
4. RESPONSIBILITIES AND LINES OF AUTHORITIES.				
a. Identification and accountability of personnel responsible for safety - at both corporate and project level (contracts specifically requiring safety or industrial hygiene personnel should include a copy of their resume - the District Safety and Occupational Health Office will review the qualifications for acceptance).				
b. Lines of authority				
5. SUBCONTRACTORS AND SUPPLIERS. Provide the following:				
a. Identification of subcontractors and suppliers (if known);				
b. Means for controlling and coordinating subcontractors and suppliers; and				
c. Safety responsibilities of subcontractors and suppliers				
6. TRAINING.				
a. List subjects to be discussed with employees in safety indoctrination				
b. List mandatory training and certifications which are applicable to this project (e. g., explosive actuated tools, confined space entry, crane operator, diver, vehicle operator, HAZWOPER training and certification, personal protective equipment) and any requirements for periodic retraining/recertification				
c. Identify requirements for emergency response training.> See paragraph 12.b. below for operations that may require emergency response training..				
d. Outline requirements (who attends, when given, who will conduct etc.) for supervisory and employee safety meetings.				
7. SAFETY AND HEALTH INSPECTIONS. Provide details on:				
a. Who will conduct safety inspections (e.g., project manager, safety professional, QC, supervisors, employees, etc.), proof of inspector's training/qualifications, when inspections will be conducted, how the inspections will be recorded, deficiency tracking system, follow-up procedures, etc. The names of competent and/or qualified person(s) and proof of competency/qualification to meet specific OSHA requirements must be attached.				

U. S. Army Corps of Engineers Great Lakes Districts
Safety and Occupational Health Office

CONTRACTOR ACCIDENT PREVENTION PLAN (APP) CHECKLIST (EM 385-1-1, Appendix - A, dated; 3 Nov. 03)

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Safety Office Review Status: ACCEPTED BY-DATE:_____ NOT ACCEPTED BY/DATE:_____

Contractor Name: **Contract No:**

Project Title & Location:	Included ?			
	Yes	No	N/A	Page(s)
b. Any external inspections/certifications that may be required (e.g., Coast Guard)				
8. SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE.				
a. The company's written safety program goals, objectives, and accident experience goals for this contract should be provided				
b. A brief description of the company's safety incentive programs (if any) should be provided				
c. Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified				
d. Provide written company procedures for holding managers and supervisors accountable for safety				
9. ACCIDENT REPORTING. The contractor shall identify who, how, and when the following will be completed:				
a. Exposure data (man-hours worked)				
b. Accident investigations, reports and logs				
c. Immediate notification of major accidents.				
10. MEDICAL SUPPORT. Outline on-site medical support and off-site medical arrangements including rescue and medical duties for those employees who are to perform them, and the name(s) of on-site Contractor personnel trained in First Aid and CPR.				
11. PERSONAL PROTECTIVE EQUIPMENT (PPE). Outline procedures (who, when, how) for conducting hazard assessments and written certifications for use of PPE. Outline procedures to be followed to to asure the proper use, selection, and maintenance of PPE and life saving equipment (e.g. protective footwear-gloves-hard hats-glasses-hearing protection-harnesses-lanyards, etc.				
12. PLANS (PROGRAMS, PROCEDURES) REQUIRED BY THE SAFETY MANUAL (as applicable).				
a. Layout Plans (04.A.01)				
b. Emergency Response Plans that include:				
(1) Procedures & Test (01.E.01)				
(2) Spill Plans (01.E.01, 06.A.02)				
(3) Firefighting Plan (01.E.01, 19.A.04)				
(4) Posting of Emergency Telephone Numbers (01.E.05)				
(5) Wild-Land Fire Prevention Plan (09.K.01)				
(6) Man overboard/abandon ship (19.A.04)				
c. Hazard Communication (HAZCOMM) Program (01.B.06)				
d. Respiratory Protection Plan (05.E.03)				
e. Health Hazard Control Program (06.A.02)				
f. Lead Abatement Plan (06.B.05 & specifications)				
g. Asbestos Abatement Plan (06.B.05 & specifications)				
h. Abrasive Blasting (06.H.01)				
I. Confined Space (06.I)				
j. Hazardous Energy Control Plan/Lockout-Tagout (12.A.07				
k. Critical Lift Procedures (16.C.18)				
l. Contingency Plan for Severe Weather (19.A.03)				

U. S. Army Corps of Engineers Great Lakes Districts
Safety and Occupational Health Office

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Safety Office Review Status: ACCEPTED BY-DATE:_____ NOT ACCEPTED BY/DATE:_____

Contractor Name: **Contract No:**

Project Title & Location:	Included ?			
	Yes	No	N/A	Page(s)
m. Access and haul road plan (8.D.1)				
n. Demolition Plan (engineering and asbestos surveys) (23.A.01				
o. Emergency Rescue (tunneling) (26.A.05)				
p. Underground Construction Fire Prevention-Protection Plan (26.D.01)				
q. Compressed Air Plan (26.I.01)				
r. Formwork and Shoring Erection and Removal Plans (27.B.02)				
s. Jacking (lift) Slab Plans (27.D.01)				
t. For HTRW work, a Site Specific Safety & Health Plan must be submitted and shall contain all information required by the APP-Accident Prevention Plan - two documents are **not** required (28.A.02)				
u. Blasting Plan (29.A.01)				
v. Diving Plan (30.A.13)				
w. Plan for prevention of alcohol and drug abuse (Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 252.223-7004)				
x Fall Protection Plan (Section 21)				
y. Steel Erection Plan (27.E.01)				
z. Night Operations Lighting Plan (16.C.19.d)				
aa. Site Sanitation Plan (Section 02)				
bb. Fire Prevention Plan (09.A.01)				
13. The contractor shall provide information on **how** they will meet the requirements of applicable Sections of this Manual in the APP. As a minimum, excavations, scaffolding, medical and first aid requirements, sanitation, PPE, fire prevention, machinery and mechanized equipment, electrical safety, public safety requirements, and chemical, physical agent, and biological occupational exposure prevention requirements shall be addressed as applicable				
14. SITE-SPECIFIC HAZARDS & CONTROLS. Detailed site-specific hazards and controls shall be provided in the AHA for each acitivity of the operation.				

CERTIFICATE OF COMPLIANCE

This certificate shall be signed by an official of the company that provides cranes for any application under this contract. Post a completed certificate on each crane utilized during this contract.

CONTRACTING OFFICER'S POINT OF CONTACT	PHONE
PRIME CONTRACTOR/PHONE	CONTRACT NUMBER
CRANE SUPPLIER/PHONE (if different from prime contractor)	CRANE(S) NUMBER (i.e., ID number)
CRANE MANUFACTURER/TYPE/CAPACITY	
CRANE OPERATOR'S NAME(S)	

I certify that

1. The above noted crane and associated rigging gear conform to applicable OSHA regulations and applicable ASME B30 standards. The following OSHA regulations and ASME standards apply: 29 CFR 1910.180 & B30.8-2004
2. The operators noted above have been trained and are qualified for the operation of the above noted crane(s).
3. The operators noted above have been trained not to bypass safety devices during lifting operations.

COMPANY OFFICIAL SIGNATURE	DATE
COMPANY OFFICIAL NAME/TITLE	

POST ON CRANE

(IN CAB OR VEHICLE)

USACE Great Lakes Districts - Monthy Man Hour
Contractor Exposure Report
(Ref. EM 385-1, page-10, para 01.D.04d)

MONTH:_____ YEAR:_____

PROJECT NAME	TYPE OF OPERATION	LOCATION (City & State)	CONTRACTOR NAME	CONTRACT NUMBER	MANHOURS WORKED	# OF LOST WORK-DAYS DUE TO INJURY	# OF DAYS SINCE LAST LOST WORK-DAY(since start of contract)
TOTALS >>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>			

GreatLakesDistricts-ContractorMonthlyManhourExposureForm.xls

(For Safety Staff only)	REPORT NO.	EROC CODE	UNITED STATES ARMY CORPS OF ENGINEERS ACCIDENT INVESTIGATION REPORT (For Use of this Form See Help Menu and USACE Suppl to AR 385-40)	REQUIREMENT CONTROL SYMBOL: CEEC-S-8(R2)

1. ACCIDENT CLASSIFICATION

PERSONNEL CLASSIFICATION	INJURY/ILLNESS/FATAL	PROPERTY DAMAGE	MOTOR VEHICLE INVOLVED	DIVING
GOVERNMENT ☐ CIVILIAN ☐ MILITARY	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ CONTRACTOR	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ PUBLIC	☐ FATAL ☐ OTHER		☐	

2. PERSONAL DATA

a. Name (Last, First, MI)	b. AGE	c. SEX ☐ MALE ☐ FEMALE	d. SOCIAL SECURITY NUMBER	e. GRADE

f. JOB SERIES/TITLE	g. DUTY STATUS AT TIME OF ACCIDENT	h. EMPLOYMENT STATUS AT TIME OF ACCIDENT
	☐ ON DUTY ☐ TDY ☐ OFF DUTY	☐ ARMY ACTIVE ☐ ARMY RESERVE ☐ VOLUNTEER ☐ PERMANENT ☐ FOREIGN NATIONAL ☐ SEASONAL ☐ TEMPORARY ☐ STUDENT ☐ OTHER (Specify)

3. GENERAL INFORMATION

a. DATE OF ACCIDENT (month/day/year)	b. TIME OF ACCIDENT (Military time) hrs	c. EXACT LOCATION OF ACCIDENT	d. CONTRACTOR'S NAME (1) PRIME: (2) SUBCONTRACTOR:

e. CONTRACT NUMBER	f. TYPE OF CONTRACT	g. HAZARDOUS/TOXIC WASTE ACTIVITY
☐ CIVIL WORKS ☐ MILITARY ☐ OTHER (Specify)	☐ CONSTRUCTION ☐ SERVICE ☐ A/E ☐ DREDGE ☐ OTHER (Specify)	☐ SUPERFUND ☐ DERP ☐ IRP ☐ OTHER (Specify)

4. CONSTRUCTION ACTIVITIES ONLY (Fill in line and corresponding code number in box from list - see help menu)

a. CONSTRUCTION ACTIVITY	(CODE) #	b. TYPE OF CONSTRUCTION EQUIPMENT	(CODE) #

5. INJURY/ILLNESS INFORMATION (Include name on line and corresponding code number in box for items e, f & g - see help menu)

a. SEVERITY OF ILLNESS/INJURY	(CODE) #	B. ESTIMATED DAYS LOST	C. ESTIMATED DAYS HOSPITALIZED	D. ESTIMATED DAYS RESTRICTED DUTY

e. BODY PART AFFECTED	(CODE)	g. TYPE AND SOURCE OF INJURY/ILLNESS	(CODE)
PRIMARY	#	TYPE	#
SECONDARY	#	SOURCE	#
f. NATURE OF ILLNESS / INJURY	#		

6. PUBLIC FATALITY (Fill in line and correspondence code number in box - see help menu)

a. ACTIVITY AT TIME OF ACCIDENT	(CODE) #	b. PERSONAL FLOATATION DEVICE USED? ☐ YES ☐ NO ☐ N/A

7. MOTOR VEHICLE ACCIDENT

a. TYPE OF VEHICLE	b. TYPE OF COLLISION	c. SEAT BELTS	USED	NOT USED	NOT AVAILABLE
☐ PICKUP/VAN ☐ AUTOMOBILE ☐ TRUCK ☐ OTHER (Specify)	☐ SIDE SWIPE ☐ HEAD ON ☐ REAR END ☐ BROADSIDE ☐ ROLL OVER ☐ BACKING ☐ OTHER (Specify)	(1) FRONT SEAT			
		(2) REAR SEAT			

8. PROPERTY/MATERIAL INVOLVED

a. NAME OF ITEM	B. OWNERSHIP	C. $ AMOUNT OF DAMAGE
(1)		
(2)		
(3)		

9. VESSEL/FLOATING PLANT ACCIDENT (Fill in line and correspondence code number in box from list - see help menu)

a. TYPE OF VESSEI/FLOATING PLANT	(CODE) #	b. TYPE OF COLLISION/MISHAP	(CODE) #

10. ACCIDENT DESCRIPTION (Use additional paper, if necessary)

See attached page.

11. **CAUSAL FACTOR(S)** *(Read Instruction Before Completing)*

a. (Explain YES answers in item 13)

	YES	NO
DESIGN: Was design of facility, workplace or equipment a factor?	☐	☐
INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor?	☐	☐
PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor?	☐	☐
OPERATING PROCEDURES: Were operating procedures a factor?	☐	☐
JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred?	☐	☐
HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident?	☐	☐
ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident?	☐	☐

a. *(CONTINUED)*

	YES	NO
CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident?	☐	☐
OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident?	☐	☐
SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task?	☐	☐
PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident?	☐	☐
DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident	☐	☐

b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?

☐ YES *(If yes, attach a copy.)* ☐ NO

12. **TRAINING**

a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK? ☐ YES ☐ NO

b. TYPE OF TRAINING. ☐ CLASSROOM ☐ ON JOB

c. DATE OF MOST RECENT FORMAL TRAINING. (Month) (Day) (Year)

13. **FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES** *(See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)*

a. DIRECT CAUSE

See attached page.

b. INDIRECT CAUSE(S)

See attached page.

14. **ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).**

DESCRIBE FULLY:

See attached page.

15. **DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.**

a. BEGINNING (Month/Day/Year)

b. ANTICIPATED COMPLETION (Month/Day/Year)

c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT

CORPS _____

CONTRACTOR _____

d. DATE *(Mo/Da/Yr)*

e. ORGANIZATION IDENTIFIER *(Div, Br, Sect)*

f. OFFICE SYMBOL

16. **MANAGEMENT REVIEW** *(1st)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE | TITLE | DATE

17. **MANAGEMENT REVIEW** *(2nd - Chief Operations, Construction, Engineering, etc.)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE | TITLE | DATE

18. **SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW**

a. ☐ CONCUR b. ☐ NON CONCUR c. ADDITIONAL ACTIONS/COMMENTS

SIGNATURE | TITLE | DATE

19. **COMMAND APPROVAL**

COMMENTS

COMMANDER SIGNATURE | DATE

*U.S. GOVERNMENT PRINTING OFFICE: 1993-0-791-757

10. **ACCIDENT DESCRIPTION** *(Continuation)*

13a. **DIRECT CAUSE** *(Continuation)*

13b. INDIRECT CAUSES *(Continuation)*

14. ACTION(S) TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE(S) *(Continuation)*

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SECTION 01100

SPECIAL PROJECT PROCEDURES

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 within the text by the basic designation only.

U.S. GOVERNMENT CODE OF FEDERAL REGULATIONS (CFR)

33 CFR 320-330	General Regulatory Policies, Permits, Enforcement and Definitions

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Accident Prevention Plan

Contractor shall provide an accident prevention plan including an activity hazard analysis to the Contracting Officer within 15 calendar days after receipt of award. Plan shall be in accordance with Contract Clause concerning Safety Management System (SMS) (NOV 1991) - ALTERNATE 1.

Payrolls and Basic Records

Contractor shall submit payrolls and basic records in accordance with the CLAUSE entitled "PAYROLLS AND BASIC RECORDS (FEB 1988)".

Progress Chart; G-AOF

Contractor shall submit progress chart in accordance with the Contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS (APR 1984)".

Non-listed, Non-Commercially Active Stone or Material Source; G-EDC.

If after award of a contract, the Contractor proposes to furnish stone, soil, granular or aggregate materials from non-listed, or non-commercially active sources, the following information and data for each non-listed or non-commercially active source of stone, soil, granular or aggregate material shall be furnished forty-five (45) or more calendar days prior to the date the Contractor is scheduled to obtain materials from such source(s).

a. Name and address (Property Owner).

b. Location, site map, and legal description (or appropriate substitute) of the area.

c. Previous land use information.

d. A topographic map of the area.

e. Photographs showing the area proposed for use.

f. Written permission of the owners of the proposed non-listed or non-commercially active sources(s).

g. Written permission of the owners of the access properties involved.

h. All data required to assess potential environmental impacts. This information is required in order to determine the necessity for environmental documentation for any non-commercially active, non-listed source(s).

i. Documentation of coordination of the use of proposed non-commercially active, non-listed source(s) with Federal, State and local agencies having an interest and furnish written approval of these agencies for use of such source(s).

(1) Supervisor, Green Bay Field Office, U.S. Fish and Wildlife Service, 1015 Challenger Court, 43 Business Center, Green Bay, Wisconsin 54311.

(2) Chief, Planning and Assessment Branch (ME-J19), U.S. Environmental Protection Agency, 77 West Jackson Blvd., Chicago, Illinois 60604-3590.

(3) Chief, Compliance Section, Historic Preservation Division, State Historical Society of Wisconsin, 816 State Street, Madison, Wisconsin 53706.

(4) Chief, Lake Michigan District, Wisconsin Department of Natural Resources, P.O. Box 10448, Green Bay, Wisconsin 54307-0448.

(5) Chief, Southeast District, Wisconsin Department of Natural Resources, P.O. Box 12436, Milwaukee, Wisconsin 53213.

(6) Chief, Northwest District, Wisconsin Department of Natural Resources, P.O. Box 309, Spooner, Wisconsin 54801.

j. The proposed reduction, if any, in the applicable unit or lump-sum prices in the BIDDING SCHEDULE if the request were to be approved by the Government.

Notice to Mariners

A copy of the completed "NOTICE TO MARINERS" form and a copy of the U.S. Coast Guard's official notice shall be provided prior to the commencement of work.

Utility Locating Plan; G-AOF.

Submit a plan of the proposed procedure for locating existing utilities prior to commencing work at the project site. The plan shall include the local telephone number of MISS DIG, if work includes upland excavation.

Utility Location Findings; G-AOF.

Submit a copy of the utility location findings prior to commencing work on the site.

Traffic Control Plan; G-AOF.

At least fifteen (15) calendar days prior to commencing work at the site, submit a detailed, site specific plan for the control of traffic on the public roadways adjacent to the work area. Coordination of construction traffic with public use of the roadways shall be fully described, including all safety related characteristics.

Survey Note Format; G-AOF.

Submit the proposed survey note format prior to performing any survey work at the work site.

SD-07 Certificates

As-Built Technician's Qualifications

Submit the identity and qualifications of the persons assigned to prepare the as-built information at least 10 calendar days in advance of preparing the drawings.

As-built Drawings; G-AOF.

Within ten (10) calendar days after the substantial completion date as established by the Contracting Officer, submit the as-built details of the work performed under this contract on a set of blue-line prints of the contract drawings marked in red. Following review and approval by the Government, the Contractor shall prepare electronic and mylar copies of as-built drawings for submittal within 15 calendar days following receipt of comments from the Government. Electronic files shall be submitted in Ustation V8, CADD file format, suitable for plotting with Intergraph IPLOT Software. The electronic medium for file transfers shall be agreed to prior to the time of submittal and shall be compatible with current industry standards and hardware configurations.

Survey Information

Upon completion of the contract work, the originals of all field notes, sketches, recordings and computations made by the Contractor in performing the layout work shall be submitted in ring binders.

1.3 REGULATORY REQUIREMENTS

1.3.1 Additional Work Proposed and Not Authorized

1.3.1.1 Work Subject to 33 CFR 320-330

Any additional work (not specifically shown on the plans or delineated in the specifications) proposed by the Contractor in or affecting navigable waters, including wetlands (as defined in 33 CFR 320-330, published in the Federal Register Vol.51, No. 219, Thursday, November 13, 1986) shall not be performed without a Department of the Army Permit. This requirement shall be applicable to all work, permanent or temporary, and/or fill(s). The Department of the Army Permit shall be approved by the District Engineer or Deputy District Engineer in accordance with the laws of the United States and the regulations promulgated thereunder, including, but not limited to, the River and Harbor Act of 1899, the Clean Water Act and the National Environmental Policy Act of 1969, as amended. Corps employees (Contracting Officer's Representatives (COR) or inspectors) are not delegated authority to authorize such work. Information on making application for such permit(s) may be obtained by contacting one of the offices as listed hereinafter. When applying for information or a permit, a copy of any correspondence should be directed to the Contracting Officer of this contract. If a permit is not obtained, the additional work cannot be accomplished. Any delay in processing the permit will not constitute the basis of a claim under this contract. The fact that the Contractor is performing work under a Department of the Army Contract will give the Contractor no greater rights than any other applicant for a Department of the Army Permit.

WISCONSIN-MINNESOTA

Regulatory Functions Branch
Construction-Operations Division
U.S. Army Engineer District, St. Paul
190 Fifth Street East
St. Paul, MN 55101
Telephone: 651-290-5376

1.4 PROJECT/SITE CONDITIONS

1.4.1 Condition and Use of Project Site

The drawings indicate soundings and elevations at the project site as found in condition surveys made as stated on the contract drawings. A notification of at least five (5) calendar days shall be given to the Contracting Officer prior to bringing any construction equipment or material upon the work site. The Contractor shall be responsible for damages that may be suffered due to its operations. The Contractor shall note CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS."

1.4.1.1 Physical Conditions

The physical conditions shown on the drawings are indicative of those that prevailed at the time of the site investigations and may be different than those at the time of construction. Significant variations that would require changes to the plans or specification shall be reported to the Contracting Officer immediately.

1.4.1.2 Work and Storage Areas

Work and storage areas shall be provided by the Contractor.

1.4.2 Prevailing Lake Levels

Rising water levels in the Kinnickinnic River may occur during periods of storms. Portions of the work which could be accomplished above water during average years may have to be accomplished under water if river levels are unusually high.

1.4.3 Existing Vegetation, Structures, Equipment, Utilities & Improvements

General locations of applicable existing utilities, vegetation, structures, equipment and improvements, based upon latest information available to the Government have been shown on the drawings. However, it is the Contractor's obligation to establish the exact horizontal and vertical location and size of all existing utility lines which are located within the required work area. The Contractor shall submit a utility locating plan for locating existing utilities and a copy of its utility location findings prior to commencing work on the site. Any utility lines which are not found by the Contractor, but which are known to exist at the project site, shall be reported to the Contracting Officer immediately. The Contracting Officer will have the option of directing commencement of work at the site or requiring the Contractor to submit further plans for locating the utility lines. Once the utilities have been located and marked, the Contractor shall be deemed to have the location made known to it pursuant to CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS." If the Contractor damages any existing utility line, vegetation, structure, equipment or improvement, a report thereof shall be made immediately to the Contracting Officer. In any event, existing utility lines, vegetation, structures, equipment or improvements shall be protected from damage, and if damaged, shall be repaired by the Contractor at its own expense.

1.4.4 Vehicular Access

Throughout the period of work on this contract, the Contractor shall maintain an all-weather roadway through or around its work area when work therein would otherwise block an existing roadway. Such permanent or temporary roadways shall be kept open for use by emergency vehicles, as well as residential and commercial traffic at all times.

1.4.5 Utility Services

1.4.5.1 Contractor-Furnished Utility Services

The Contractor shall furnish, all water, electric current and other utilities required for its use.

1.4.6 Protection and Maintenance of Traffic

1.4.6.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and

distinctive markings for safe movement of traffic. The method of dust control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads shall be removed unless otherwise approved by the Contracting Officer. Any dirt or mud which is tracked onto paved or surfaced roadways shall be promptly cleaned away.

1.4.6.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe and public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.4.7 Identification of Employees

The Contractor shall be responsible for requiring each employee engaged on the work to wear a hardhat with labeling as required to identify that the person is an employee of the Contractor or to display other identification as may be approved.

1.4.8 Security Requirements and Clearance of Personnel

1.4.8.1 Security Regulations

The work area is under civilian guard and is located in an area where security regulations are in effect. The Contractor shall acquaint itself with the prevailing security rules and regulations and comply therewith in conducting its operations.

1.4.8.2 Security Checks

All personnel employed by the Contractor in the performance of the services specified in this contract or any representative of the Contractor entering the work area shall conform to all security regulations and rules which may be in effect during the contract period and will be subject to such checks as may be deemed necessary to ensure that no violations occur. The Contractor shall furnish a list of all employees who will be on the site and their work hours. The Contractor shall keep this list current. Employees not on the list may be denied access to the facility. A list of Non-U.S. Citizens will be submitted to the Security Officer, Detroit District, (10) days prior to personnel working at Government Facility.

1.4.8.3 Loitering

Contractor personnel shall not loiter in or around the place of duty during off-duty hours. Upon completion of assigned duty, employees shall depart the grounds.

1.4.9 Contract Supervision and Representation

The Contractor's local representative shall be available to Government

representatives during duty hours, 8 a.m. to 4:30 p.m., on normal working days and shall be available by telephone at other times. The name of the Contractor's representative and the contact telephone number shall be furnished to the Government.

1.4.10 Quantity Surveys

The CLAUSE titled "QUANTITY SURVEYS" is applicable other than for measurement of quantities of work performed for stone construction utilizing new stone. Measurement and payment for stone construction is as specified in SECTION 01270A, "MEASUREMENT AND PAYMENT" and SECTION 02486, "STONE CONSTRUCTION".

1.4.11 Traffic Control Plan

The Contractor shall control traffic in accordance with its approved plan.

1.4.12 Layout of Work and Surveys

1.4.12.1 Layout of Work

The following requirements are in addition to the requirements of CLAUSE titled "LAYOUT OF WORD, (IGLD 1985)." The Government has established bench marks and horizontal control points at the site of the work. Horizontal control points and descriptions of bench marks are shown on the drawings. The elevations of bench marks are referred to NGVD 1929 Datum at.

1.4.12.2 Surveyor Requirements

From these control points and bench marks, the Contractor shall lay out the work by establishing all lines, grades, range markers and gauges at the site as necessary to control the work. All survey information shall be recorded in accordance with standard and approved methods and in the survey note format approved by the Contracting Officer. All field notes, sketches, recordings and computations made by the Contractor in performing the layout work shall be available at all times during the progress of the work for ready examination by the Contracting Officer or his or her duly authorized representative and upon completion of the contract work the originals shall be turned over to the Contracting Officer in ring binders.

1.4.12.3 Suspension

The Contracting Officer may require that work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking the work. Such suspension will be withdrawn upon satisfactory replacement of location and limit marks. Such suspension shall be at no additional cost to the Government and shall not entitle the Contractor to an extension of time for completing the work.

1.4.12.4 Verification

The Government may make checks as the work progresses to verify lines and grades established by the Contractor and to determine the conformance of the completed work as it progresses with the requirements of contract specifications and drawings. Such checking by the Contracting Officer or his or her representative shall not relieve the Contractor of its responsibility to perform all work in accordance with the contract drawings and specifications and the lines and grades given therein.

1.5 SEQUENCING AND SCHEDULING

1.5.1 Exclusion of Period in Computing Completion Schedules

No on-site work will be required during the period between 15 November and 15 April inclusive and the days in this period will not be counted when computing the required completion date. The Contractor may perform work, unless otherwise prohibited, during all or any part of this period upon giving prior written notice to the Contracting Officer.

1.5.2 Sunday, Holiday, Night, and Extended Hours of Operations

When the Contractor elects to work more than 8 hours per day, Monday through Friday and on Saturdays, Sundays, holidays or nights when not prohibited herein, notice of its intention to do so shall be given to the Contracting Officer not less than forty-eight (48) hours in advance thereof. Adequate lighting for thorough inspection of night operations shall be provided by the Contractor at its expense.

1.5.3 Start Work

Evidence that the Contractor has started mobilization and preparation of submittal register, and other preparatory work will satisfy the requirement that work commence within ten (10) calendar days after receipt of Notice to Proceed. (See Clause titled COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK, FAR 52.212-0003.)

1.6 ACCOMMODATIONS FOR INSPECTORS

The Contractor shall, prior to the start of work, furnish a temporary field office for Government personnel, physically and acoustically separated from the Contractor's offices, located near the site of the work, as approved by the Contracting Officer. The Contractor shall have the option of providing the field office facility in an existing or new building, or a trailer. All utilities as specified or required shall be hooked up and in working order prior to the start of work and shall be maintained during the entire contract period. The entire cost to the Contractor for furnishing, equipping and maintaining the accommodations shall be included in the contract price. If the Contractor fails to meet these requirements, the facilities will be secured by the Contracting Officer and the cost thereof will be deducted from payments to the Contractor. All facilities provided for the use of Government personnel under this Paragraph shall remain the property of the Contractor.

1.6.1 Field Office

The temporary field office shall have approximately 200 square feet of floor space and a minimum of seven (7) feet of headroom. An eight (8) foot by thirty (30) foot office trailer may be made available in lieu of the building. The field office or trailer shall be provided with a work table, two (2) lockable desks, and five (5) chairs. It shall be weatherproof and be supplied with heat in season, a minimum of one (1) door, electric lights, a telephone answering device with handset, a facsimile machine, a medium production rate plain paper copier with sorter and paper supplies, a sufficient number of adjustable windows for adequate light and ventilation, toilet facilities with a wash basin with unheated water, and water cooler with approved drinking water. Telephone service to the Government's field office will be provided by the Government. Exterior portable toilet facilities without wash basin may be provided in lieu of interior toilet

facilities. The windows shall be screened and provided with locking devices, arranged to open and be securely fastened from the inside. In warm weather, air conditioning shall be furnished which will maintain the office at 50 percent relative humidity and a room temperature of 75 degrees F, or 20 degrees below the outside temperature when the outside temperature is 95 degrees F or higher. In addition to the above requirements, the Government field office or trailer shall be provided with the following:

1.6.1.1 Door Locks

Each exterior door shall be provided with an approved deadbolt lock in the door, key operated from both sides and tamperproof heavy duty hasp bolted to the door. Each lock shall be provided with two (2) keys.

1.6.1.2 Security Window Guards

All exterior window openings and glazed panels of exterior doors shall be provided with security window guards. As a minimum, they shall be round frame stationary window guards consisting of 1-1/2 inch diamond mesh No. 10 W & M gage wire, clinched to 3/8 inch round rod frames, secured to the building or trailer with tamperproof fastenings and shall cover the entire glazed opening.

1.6.1.3 Lighting

A light shall be installed over each exterior door and shall be kept lighted at night, including Saturdays, Sundays and holidays.

1.6.1.4 Storage Closet

The field office building or trailer shall have a closet for storage of pilferable equipment. The closet shall be at least three (3) foot by three (3) foot, floor to ceiling height, and have one (1) upper shelf. The door to the closet shall have an approved deadbolt lock or a hasp with an approved padlock. The hasp shall be installed with tamperproof type fastenings. Two (2) keys shall be provided for the deadbolt lock or padlock. Leaves of door hinges shall be unexposed.

1.6.1.5 Cleaning

The Contractor shall clean the office facility once each work week, or as directed. Cleaning shall include, but not be limited to, sweeping the floor, dusting furniture, collecting trash, floor scrubbing, window washing and toilet facility cleaning.

1.7 PROTECTION OF WELLS

The Contractor shall take all precautions necessary to protect any existing wells on private property within the vicinity of the work. The Contractor shall protect against grout intruding into the wells and their underground water source. The wells shall not be physically damaged or have their production rate diminished as a result of the work required under this contract.

1.8 REPORT REQUIREMENTS

1.8.1 Accident Prevention Plan

Contractor shall provide an accident prevention plan including an activity

hazard analysis to the Contracting Officer within 15 calendar days after receipt of award. Plan shall be in accordance with Contract Clause entitled "ACCIDENT PREVENTION (NOV 1991) - ALTERNATE 1.

1.8.2 Payrolls and Basic Records

Contractor shall submit payrolls and basic records in accordance with the CLAUSE entitled "PAYROLLS AND BASIC RECORDS (FEB 1988)".

1.8.3 Progress Chart

Contractor shall submit progress chart in accordance with the Contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS (APR 1984)".

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Use of Materials from Non-Listed, Non-Commercially Active Sources

If after award of the contract, the Contractor proposes to use stone from a source or sources other than approved commercially active sources or the sources listed in SECTION 02486, "STONE CONSTRUCTION", Paragraph, "STONE MATERIALS", Subparagraph, "Sources" or to use soil, granular or aggregate materials for fill from a non-commercially active source or sources, the Contractor shall submit data as required in the Paragraph entitled "SUBMITTALS". The data shall be accompanied by a request for approval. Non-listed, non-commercially active stone or material sources shall not be used unless the proposal and use of the source(s) are approved by the Contracting Officer in accordance with applicable provisions of the contract. All expenses incurred by the Government and the Contractor in connection with the Contractor's request for approval for the use of materials from non-listed, non-commercially active sources shall be borne by the Contractor and all use of such materials and all operations in connection therewith shall be at the Contractor's risk. No extension of the time for completion of the work will be granted as the result of disapproval or approval of the Contractor's request to use a non-listed, non-commercially active source or sources. If not approved, the Contractor shall use materials from the applicable listed or commercially active source(s).

2.2 AS-BUILT DRAWINGS

The as-built drawing details shall be accurate and of professional quality prepared those with adequate as-built technician's qualifications.

PART 3 EXECUTION (NOT APPLICABLE)

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SECTION 01101

REAL ESTATE

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PART 3 EXECUTION (NOT APPLICABLE)

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SECTION 01101

REAL ESTATE

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Additional Property Agreements; G-REO.

Copies of any agreements for Contractor-acquired real estate rights for this project shall be furnished before entering thereon.

Certified Survey Results

Furnish a copy of certified results of surveys which verify areas and limits of Contractor-acquired real estate rights.

1.2 REGULATORY REQUIREMENTS

1.2.1 Real Estate Rights

Rights for the use of the Government-furnishe work and storage areas have been obtained and the general limits of the areas are shown on the drawings. Copies of instruments conveying rights for use of the work and storage areas shown on the drawings and specified herein are available for inspection in the Engineering & Construction Division Design Branch, U.S. Army Corps of Engineers, Detroit District, 477 Michigan Avenue, McNamara Building, Detroit, Michigan. Conformance to all applicable requirements of the instruments conveying rights is required. Two (2) copies of each instrument will be furnished to the Contractor. No other real estate rights have been obtained by the Government for this project.

1.2.2 Additional Real Estate Rights

Any additional property agreements and/or real estate rights desired by the Contractor shall be obtained by the Contractor at its own expense. Such agreements shall clearly relieve the Government of any responsibility for damages or liability resulting from the Contractor's use of such grounds.

1.3 PROJECT/SITE CONDITIONS

1.3.1 Location and Verification

It shall be the Contractor's responsibility to accurately locate the limits of all lands utilized under the contract and have said limits verified by a registered surveyor. The certified survey results shall be submitted. The corner and angle points of each area for which rights have been obtained shall be marked with semipermanent markers except where there is an approved existing property marker. Temporary markers shall be placed at points on alignment. The points on alignment shall be marked at stations so that intervals between points do not exceed 200 feet.

1.3.2 Survey Markers

All markers shall be installed in an area prior to its use and they shall be available for reference during and upon completion of use of the area. Where approved existing property markers are found, a witness stake, as specified in Subparagraph, "Semipermanent Markers" below, shall be provided. If the types of markers specified hereinafter cannot be used, other types, as approved by the Contracting Officer, shall be provided.

1.3.2.1 Semipermanent Markers

The markers shall be a steel rod one-half inch in diameter and four (4) feet long. The steel rod shall be driven vertically into the ground so that the top is flush with the finished ground surface. Each marker shall be witnessed by a 2" x 2" yellow stake extending two (2) feet above the ground surface and driven into the ground until stable, with not less than one (1) foot penetration.

1.3.2.2 Temporary Markers

Markers shall be 2" x 2", red-colored, wood hub stakes driven into the ground until stable (not less than one (1) foot penetration) with two (2) feet projecting above the ground surface. If the period in which temporary markers are to be in place exceeds one (1) construction season, a more permanent type of marker, as approved, shall be provided.

PART 2 PRODUCTS (NOT APPLICABLE)

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SECTION 01130

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SECTION 01130

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 within the text by the basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 261	Identification and listing of Hazardous Waste

ENGINEERING MANUALS (EM)

EM 385-1-1	(3 Nov. 2003) U.S. Army Corps of Engineers Safety and Health Requirements Manual

WISCONSIN DEPARTMENT OF TRANSPORTATION (WDOT)

WDOT 2004	(2004) Standard Specifications for Highway and Structure Construction

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 (archaeological and historic 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 submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan; G-AOF.

Submit in writing an Environmental Protection Plan within ten (10) calendar

days after receipt of Notice to Proceed. See Article titled ENVIRONMENTAL PROTECTION PLAN for details.

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor shall be knowledgeable of and comply with all applicable Federal, State, and local laws, regulations, permits and licenses concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations. Note any unique requirements for this contract in the environmental pollution control plan. Also see Clauses titled "CLEAN AIR AND WATER" and "PERMITS AND RESPONSIBILITIES." 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 which are not specially identified on the drawings as environmental features requiring protection. The Contractor shall confine its activities to areas defined by the drawings and specifications. The Contractor shall protect those environmental features, indicated specially on the drawings or in the specifications, in spite of interference which their preservation may cause to the Contractor's work under the contract.

1.4.2 Permits

The Contractor shall obtain any necessary permits and licenses that have not been obtained by the Government. A Chapter 30 Permit has been obtained by the Government and all requirements shall be meet by the Contractor. A copy of this permit will be made available upon request.

1.4.3 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 a 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

The Contractor shall submit an Environmental Protection Plan for review and acceptance by the Contracting Officer. The Government will consider an interim plan for the first 30 days of operations. However, the Contractor shall furnish an acceptable final plan not later than 30 calendar days

after receipt of the Notice to Proceed. Acceptance is conditional and is predicated upon satisfactory performance during construction. The Government reserves the right to require the Contractor to make changes in the Environmental Protection Plan or operations if the Contracting Officer determines that environmental protection requirements are not being met. The 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 refer to the applicable existing environmental documentation to ensure that the natural, historic, and cultural resources specific or unique to this project are protected. Any necessary coordination with and/or notices to all interested agencies and the public have been made by the Government for environmental documentation prepared by the Government. Copies of the documents are available for review at the offices of the Detroit District, Planning, Programs and Project Division, Environmental Analysis Branch, 7th Floor, 477 Michigan Avenue, Detroit, MI 48226. No physical work at the site shall begin prior to acceptance of the Contractor's plan or an interim plan covering the work to be performed. The environmental protection plan shall include, but not be limited to, the following:

1.5.1 Federal, State and Local Laws and Regulations

The Contractor shall be knowledgeable of all Federal, State and local environmental laws and regulations which apply to the construction operations under the Contract and shall list any unique requirements applicable to this contract as part of the Environmental Protection Plan.

1.5.2 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 materials and equipment to be immediately available at the job site, tailored to cleanup 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.

1.5.3 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.

1.5.4 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.

1.5.5 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, including, but not limited to, monitoring of land, air, and water resources, including noise, odors and vibrations.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas where the work is to be performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible during darkness. The Contractor shall convey to its personnel the purpose of marking and/or protection of all necessary objects.

3.1.2 Protection of Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features to be preserved, indicated and defined on the drawings submitted by the Contractor as a part of the Environmental Protection Plan shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. Vegetated soil surfaces disturbed by construction

activities shall be re-vegetated as soon as practicable after completing operations in the disturbed area.

3.1.2.1 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. Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the drip line of trees shown on the drawings to be saved. No excavation or fill shall be permitted within the drip line of trees to be saved except as shown on the drawings.

3.1.3 Reduction of Exposure of Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated and specified. Where stormwater/erosion control requirements of the drawings and specifications conflict with those of the NPDES Permit for Stormwater Discharges from Construction Sites (if such permit is required), the NPDES permit requirement will prevail. Side slopes and back slopes shall be protected 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. Except in instances where the constructed features obscures borrow areas, quarries and waste material areas, these areas shall not initially be cleared in total. Clearing of such areas shall progress in reasonably sized increments as needed to use the areas developed as approved by the Contracting Officer.

3.1.3.1 Temporary Protection of Disturbed Areas

Such methods as necessary shall be utilized to effectively prevent erosion and control sedimentation.

a. Retardation and Control of Runoff

Runoff from the construction site shall be controlled by construction of diversion ditches, benches, and berms to retard and divert runoff to protected drainage courses, and the Contractor shall also utilize any measure required by area-wide plans approved under Section 208 of the Clean Water Act.

3.1.3.2 Erosion and Sedimentation Control Devices

The Contractor shall construct or install all temporary erosion and sedimentation control features as may be required. Temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, plastic sheeting or geotextile over staked straw bales, grassing and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.

3.1.4 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 to prevent the spread of non-indigenous and/or pest species. The Contractor shall consult with the USDA Plant Protection and Quarantine (USDA - PPQ) jurisdictional office for

additional cleaning requirements that may be necessary.

3.1.5 Commercial Borrow

Prior to bringing commercially obtained borrow material on site, 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.

3.1.6 Soil Disposal Areas on Government Property

Material disposal on Government property shall be disposed only in those areas designated on the contract drawings. Hazardous, toxic, and radiological wastes (HTRW) shall not be disposed of on Government property. Disposal operations shall be managed and controlled to prevent erosion of soil or sediment from entering nearby waters or wetlands. Disposal operations shall be developed and managed in accordance with the grading plan shown on the drawings or as approved by the Contracting Officer.

3.1.7 Disposal of Waste Materials

Disposal of any materials, waste, effluents, trash, garbage, unsatisfactory excavated materials, oil, grease, chemicals, etc., in areas adjacent to streams, rivers, or lakes and in areas not authorized for waste disposal shall not be permitted. Uncontaminated soil materials may be placed in locations other than landfills, subject to Government approval. If any waste material is dumped or placed in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, ground which has become contaminated through the fault or negligence of the Contractor shall be excavated, disposed of as directed by the Contracting Officer, and replaced with suitable fill material compacted and finished with topsoil and planted as required to re-establish vegetation, all at the expense of the Contractor. Disposal of waste, trash and other materials off the project site shall be in accordance with all applicable Federal, State, and local laws, rules and regulations. Removed vegetation, including trees, shall be put to beneficial reuse and not placed into landfills.

3.1.7.1 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). 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.

3.1.7.2 Disposal of Chemical Waste

Chemical waste shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local laws, rules and regulations.

3.1.7.3 Spillages

Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, ashes, sawdust, waste washings, herbicides and insecticides, rubbish or sewage, and other pollutants from entering public

waters.

3.1.8 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.

3.1.9 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. A copy of the manifest shall be provided to the Contracting Officer for any hazardous waste disposed of under this contract.

3.1.10 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.

3.1.11 Hydrocarbons, Carbon Monoxide, and Oxides of Nitrogen and Sulfur

Vapor/gaseous emissions of hydrocarbons, carbon monoxide, oxides of nitrogen and sulfur oxides from equipment shall be controlled to Federal and State limits at all times.

3.1.12 Odors

Odors from all construction activities, processing and preparation of shall

be controlled at all times.

3.1.13 Ground Vibrations

Ground vibrations from construction activities shall be controlled at all times.

3.1.14 Protection from Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize damage to the environment by noise. Construction equipment shall be fitted with noise control devices.

3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

3.2.1 Discovered Historic, Archaeological, and Cultural Resources

If, during construction activities, items are observed that may have historic or archaeological value (e.g., human remains or associated objects, or artifacts are discovered), such items shall be protected in place and the observations shall be reported immediately to the Contracting Officer so that the District Archaeologist may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to, or the destruction of, these resources. The Contractor shall prevent its 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 Wastewater

Wastewater occurring as a result of any other construction activities shall not be discharged before being treated to remove pollutants. Wastewater shall not be allowed to enter streams, rivers, or lakes unless it meets Federal and State water quality criteria.

3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

3.4.1 Protection of Fish, Wildlife and Flora

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

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, aerosols, and gaseous by-products 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.

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 required to be discussed shall include recognition and protection of archaeological sites, artifacts, and historic structures.

3.9 POST CONSTRUCTION CLEANUP OR OBLITERATION

The Contractor shall obliterate all signs of temporary facilities such as haul roads, work area, structures, stock piles of excess or waste materials, fencing, buoys, stakes, or other vestiges of construction within the work, storage and access areas or as directed by the Contracting Officer. Except for surfaced areas, the areas shall be restored to near natural conditions which will permit the growth of vegetation thereon. In areas where restoration to near natural conditions is not required, surfaces shall be evenly and smoothly dressed, sloped to drain, and the edges of the restored area graded to be flush with the surrounding existing grade even if original contours are not restored. All damaged non-surfaced areas shall be restored by topsoiling, fertilizing, seeding and mulching,

unless otherwise specified or directed. The topsoiling, fertilizing, seeding, and mulching shall be in accordance with the applicable provisions of WDOT 2004, provisions of Sections 624 through 630."

3.10 RESTORATION OF LANDSCAPE

The Contractor shall restore all landscape features damaged of destroyed during construction operations outside the limits of the approve work areas. Such restoration shall be in accordance with the Contractor's submitted plan, as approved by the Contracting Officer. The work shall be accomplished at the Contractor's expense.

-- End of Section --

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Scott Hassett, Secretary
Gloria L. McCutcheon, Regional Director

Milwaukee Service Center
2300 N Dr Martin L King Jr. Drive
Milwaukee, Wisconsin 53212
Telephone 414-263-8500
FAX 414-263-8716

August 24, 2007 IP-SE-2007-41-0319MW

MMSD
C\O Dave Fowler
260 Seeboth Street
Milwaukee, WI 53204

Dear Mr. Fowler:

We have reviewed your application for a permit to construct shoreline stabilization along the Kinnickinnic River, located in the City of Milwaukee, Milwaukee County. You will be pleased to know your application is approved with a few limitations. **This permit will satisfy all requirements under NR 299, Wis. Ad. Code for Water Quality Certification.**

I am attaching a copy of your permit which lists the conditions which must be followed. A copy of the permit must be posted for reference at the project site. Please read your permit conditions carefully so that you are fully aware of what is expected of you. **Please notice condition number 14 and the required information, which must be submitted prior to construction.**

Please note you are required to submit photographs of the completed project within 7 days after you've finished construction. This helps both of us to document the completion of the project and compliance with the permit conditions.

Your next step will be to notify me of the date on which you plan to start construction and again after your project is complete.

If you have any questions about your permit, please call me at 414-263-8601.

Sincerely,

Rachel Sabre
Water Management Specialist

cc: City of Milwaukee
US Army Corps of Engineers- Detroit District
Rebecca Gruber Army Corps of Engineers
Milwaukee County Parks
Sharon Gayan: DNR Milwaukee River Basin Supervisor

STATE OF WISCONSIN **Infrastructure PERMIT**
DEPARTMENT OF NATURAL RESOURCES **IP-SE-2007-41-0319MW**

Milwaukee Metropolitan Sewerage District is hereby granted under Section 30.12(1), Wisconsin Statutes, a permit to construct shoreline stabilization along the Kinnickinnic River in the City of Milwaukee, Milwaukee County, also described as the Northeast ¼ of the Northwest ¼ of Section 11, Town 6 North, Range 21 East, subject to the following conditions:

General Permit Conditions

1. A series of photographs clearly showing all areas covered by the permit shall be submitted to the Department once construction is complete and equipment is removed from the site. The photographs shall be taken from different vantage points on the site.

2. MMSD and any involved contractor shall be jointly and severally liable for any violation of Chapter 30 State Statues or this permit.

3. You must notify Rachel Sabre at phone 414-263-8601 before starting construction and again not more than 5 days after the project is complete.

4. You must complete the project as described as described in US ACOE contacts or before November 1, 2008. You may not begin or continue construction after the original permit expiration date unless the Department grants a new permit or permit extension in writing. A permit extension can only be obtained by written request to the Department.

5. This permit does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of this permit. If you wish to alter the project or permit conditions, you must first obtain written approval of the Department.

6. Te project has been reviewed for compliance with NR 103 Wis. Adm. Code. The Department has determined that there is not a practicable alternative and no significant adverse impact to the functional values of the affected wetland would occur.

7. You are responsible for obtaining any permit or approval that may be required for your project by local zoning ordinances or by the U.S. Army Corps of Engineers before starting your project.

8. You shall allow free and unlimited access to your project site at any time to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.

9. The Department may modify or revoke this permit if the project is not completed according to the terms of the permit, or if the Department determines the activity is detrimental to the public interest.

10. You must post a copy of this permit at a conspicuous location on the project site, visible from the waterway, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of the permit and approved plan available at the project site at all times until the project is complete.

11. You shall keep a copy of this permit and an approval plan at the project site at all times until the project is complete.

12. Your acceptance of this permit and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of this permit.

13. This permit has been issued with the understanding that any construction equipment used is the right size to do the job, and can be brought in and removed from the project's site without unreasonable harm to vegetative cover or fish and wildlife habitat. This permit may be rescinded or revoked if the Department determines that the conditions of this permit have not been followed or if it finds the activity to be detrimental to the public interest.

Specific Permit Conditions

14. **An Erosion Control Plan, Materials Management Plan, Sequence of Construction Plan, Dewatering Plan and Spills response Plan shall be developed and submitted to the Department for written approval in the form of an amendment to this permit prior to starting construction.**

15. Any area where the woodland will be disturbed shall have orange safety/snow fence installed along the edge of disturbance. This orange safety/snow fence shall be maintained during construction. Disturbance of the woodland area shall not occur beyond the orange fence area in order to minimize the disturbance to the two State-designated Special Concern plant species identified on site.

16. Removal of vegetative cover and the amount of exposed earth shall be kept to the minimum possible consistent with good construction practice. Exposed areas shall be sodded or seeded and mulched as soon as possible to develop vegetative cover. If necessary, exposed areas shall be watered to prevent the generation of excessive dust.

17. You shall immediately seed and mulch or riprap any area where topsoil is exposed during construction to prevent soil from being eroded and washed into the waterway.

18. No portion of the bank or upland, which is altered or disturbed, and as a result unstable, may remain unprotected for more than 7 days.

19. Removal of vegetative cover shall follow US ACOE plans and specifications.

20. All erosion control measures must be installed and inspected prior to any soil disturbing activity at the project site. Prior to any rain event, or if the site is to remain unoccupied for longer that 24 hours, appropriate temporary measures such as straw bales and silt fences shall be put in place. All such measures must be inspected and maintained effectively at the end of each working day and after any precipitation event.

21. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters and as specified in the plans and procedures that are part of or approved pursuant to this permit. All erosion control measures must meet or exceed the approved Stormwater Construction Technical Standards found on the Department's Runoff Management Website

http://dnr.wi.gov/org/water/wm/nps/stormwater/techstds.htm#Construction developed by the Department under Wis. Admin. Code Ch. NR 151.31.

22. The permittee or agent of the permittee is not allowed to do construction during periods of high stream flow. For the purposes of this permit, high stream flow is defined as water levels during or after a 2 inch rain event in any 24 hour time period in the watershed as determined by the Mitchell Field Rain Gauge.

23. Final site stabilization requires the re-establishment of vegetation with non-aggressive, native species and shall not contain invasive species such as Reed Canary Grass (Phalaris arundinacea) or Purple Loosestrife (Lythrum salicaria). The site is considered stabilized when at least 90% of all disturbed areas have actively growing vegetation with a height of at least 3 inches. All non-vegetative methods of erosion control must remain in place and properly maintained until the following growing season if this standard is not meet.

24. All spoils or stockpiles must be protected with silt fence and separated from the Kinnickinnic River by an undisturbed stabilized are of land at least 30 feet wide.

25. You are hereby authorized to place clean fieldstone or quarry stone along 6 designated areas along a 2700 lineal feet reach of the Kinnickinnic River. The shore stabilization stone shall follow the natural contour of the shoreline. The final riprap slope shall not exceed 2 feet horizontal to 1 foot vertical.

26. The project shall be constructed in a manner that prevents upland soil losses and sedimentation of the waterway. Temporary erosion control measures such as mulch, silt fence, and/or straw bales shall be used as needed and shall be put in place prior to any precipitation or if work ceases for longer than 24 consecutive hours. Any upland areas disturbed during construction shall be properly stabilized immediately following project completion by seeding and mulching.

27. Inlet Protection shall be provided at all storm drains inlets along the haul route within two blocks of any construction exit, and at any other inlets that are observed to receive sediment loading from the project. All inlet filters shall be inspected after every rain event, and cleaned or replaced if visible sediment accumulation is observed.

    At a minimum, streets along the haul route where visible sediment accumulates shall be swept at the end of each working day. Additional or more frequent sweeping shall be conducted to remove and visible sediment that is tracked onto any street.

28. Construction equipment and related materials shall be removed from the channel work area when construction is not in progress and when precipitation is forecast. Equipment operated on the stream bed shall follow the US ACOE plans and specifications.

29. If possible construction shall take place from the bank of the waterway. In the event that construction equipment crosses the waterway or works form the bed of the waterway, a construction access road shall be constructed. The construction access road shall be no more that 3 feet high and shall be constructed with clean aggregate, with culverts which will be adequately sized to pass base flow and not cause any backup of water on to any other riparian property owner.

30. All equipment used for the project including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use. **Specific disinfection measures are required on infested waters and must be taken prior to moving to another waterbody**. **The most current de-contamination protocols and a list of infested waters can be found at the following website** http://dnr.wi.gov/ **under the Topic "VHSv".**

    If your project is on a non-infested water, the following steps should be taken *every time* you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters should not be used on other non-infested waters.

    1. **Inspect and remove** aquatic plants, animals, and mud from your equipment.
    2. **Drain all water** from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps
    3. **Dispose** of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
    4. **Wash your equipment** with hot (>104º F) and/or high pressure water OR allow your equipment to **Dry thoroughly for 5 days**.

FINDINGS OF FACT

1. The proposed project, if constructed in accordance with this permit will not adversely affect water quality, will not increase water pollution in surface waters and will not cause environmental pollution as defined in s. 283.01(6m), Wis. Stats.

2. MMSD has filed an application for a permit to construct shore stabilization along the Kinnickinnic River, located in the City of Milwaukee, Milwaukee County, also described as in the Northeast ¼ of the Northwest ¼ of Section 11, Township 6 North, Range 21 East. The project is located between S. 43rd Street and 60th Street on the Kinnickinnic River Parkway, Milwaukee County owns the property.

3. The project will consist of the placement of stone riprap reventment along the banks and the stabilization of 6 designated areas in a 2,700 linear feet reach of the Kinnickinnic River.

4. The Department has completed an investigation of the project site and has evaluated the project as described in the application and plans. Currently the banks of the river are very steep and have severe erosion problems. This erosion is threatening the stability of seven storm sewer outfalls and the Kinnickinnic River Parkway. In addition, there is 16.2 acres of floodplain forested wetlands along the parkway. These wetlands are experiencing massive erosion along the banks. Without shoreline protection these wetlands would continue o be degraded due to erosion of the banks and shoreline area. A wetland delineation was conducted by SEWRPC on October 3rd and 5th, 2000. During the wetland delineation, SEWRPC identified two State-designated Special Concern plant species, Red Trillium (Trillium recurvatum) and Broad-leaved puccoon (Lithopermum latifoilium).

5. The proposed project will not materially obstruct navigation and will not be detrimental to other public interests if constructed in accordance with this permit.

6. The proposed project conforms with the standards of Chapters NR 103, 116, 117 and 299 Wisconsin Administrative Code.

7. The Department has determined that granting or denying this permit does not constitute a major state action signifigantly affecting the quality of the human environment.

8. The Department of Natural Resources and the applicant have completed all procedural requirements and the project as permitted will comply with all applicable requirements of Sections 1.11, 30.12(1), Wisconsin Statutes and Chapters NR 102, 103, 115, 116, 117, 150, 299 and 328 of the Wisconsin Administrative Code.

CONCLUSIONS OF LAW

1. The Department has authority under the above indicated Statutes and Administrative Codes, to issue a permit for the construction and maintenance of this project.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions shall be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing of any individual permit decision pursuant to section 30.209, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources, P.O. Box 7921, Madison, WI, 53707-7921. The petition shall be in writing, shall be dated and signed by the petitioner, and shall include as an attachment a copy of the decision for which administrative review is sought. If you are not the applicant, you must simultaneously provide a copy of the petition to the applicant. If you wish to request a stay of the project, you must provide information, as outlined below, to show that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review. If you are not the permit applicant, you must provide a copy of the petition to the permit applicant at the same time that you serve the petition on the Department.

A request for contested case hearing must meet the requirements of section 30.209, Wis. Stats., and section NR 310.18, Wis. Adm. Code, and must include the following information:

1. A description of the Department’s action or inaction which is the basis for the request; and,

2. A description of the objection to the decision that is sufficiently specific to allow the department to determine which provisions of Chapter 30, Wis. Stats., may be violated; and
3. A description of the facts supporting the petition that is sufficiently specific to determine how you believe the project may result in a violation of Chapter 30, Wis. Stats.; and,
4. Your commitment to appear at the contested case hearing, if one is granted, and present information supporting your objection.
5. If the petition contains a request for a stay of the project, the petition must also include information showing that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment.

Dated at Milwaukee Service Center, Wisconsin on August 24, 2007.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By _____
Rachel Sabre
Water Management Specialist

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-- End of Section Table of Contents --

SECTION 01270A

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Weight Certificates

Submit certified weight certificates for R 200 Riprap.

1.2 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.2.1 "Site Preparation" (Payment Item No. 0001)

1.2.1.1 Payment

Payment will be made for costs associated with operations necessary for construction of the structure as specified in SECTION 02139, SITE PREPARATION and in SECTION 02630, STORM-DRAINAGE SYSTEM.

1.2.1.2 Unit of Measure

Unit of measure: lump sum.

1.3 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price

items.

1.3.1 "Fill Materials" from an Off-Site Source (Payment Item No. 0002)

1.3.1.1 Payment

Payment will be made for costs associated with furnishing, transporting, placing and constructing required fill with materials from an off-site source.

1.3.1.2 Measurement

Fill material from an off-site source, acceptably placed by the Contractor, will be measured for payment by the cubic yards in place. Determination of the quantity of satisfactory fill materials placed, other than placement of on-site excavated materials, will be made by making prior and after surveys of the placement areas. Surveys will be made in the same manner as for check surveys in SECTION 02139.

1.3.1.3 Unit of Measure

Unit of measure: Cubic Yards.

1.3.2 "Geotextile" (Payment Item No. 0003)

1.3.2.1 Payment

Payment will be made for costs associated with furnishing, transporting, placing and constructing required Geotextile. Payment for the following items is included in the contract unit price for "Geotextile" and shall 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; and Securing pins and associated material, equipment and operations. No payment shall be made for geotextiles replaced because of contamination of damage due to Contractor's fault or negligence.

1.3.2.2 Measurement

For purposes of payment, the installed geotextile shall be measured in place to the nearest square yard of area required to be covered as delineated on the drawings.

1.3.2.3 Unit of Measure

Unit of measure: Square Yards

1.3.3 "Riprap 70 - 500 lbs" (Payment Item No. 0004)

1.3.3.1 Payment

Payment will be made for costs associated with furnishing, transporting, stockpiling (if applicable), placing, and constructing the stone protection as specified. Riprap contaminated with soil, dirt or refuse will not be paid for.

1.3.3.2 Measurement

Riprap will be measured for payment by the short ton (2,000 pounds) by weighing each truckload to the nearest 0.1 ton, and the final quantity of

the whole sum will be rounded to the nearest whole ton. The riprap will be measured for payment by being weighed on approved scales before being placed in the work. Quarry weights will be accepted if the quarry scale is certified as accurate by a Government agency authorized to certify scales. Scales shall be of sufficient length to permit simultaneous weighing of all axle loads and shall be inspected, tested and sealed as directed by the Contracting Officer to assure accuracy within 0.5 percent throughout the range of the scales. Scales shall be checked and certified before riprap hauling and rechecked and recertified whenever a variance is suspected. Scales used shall conform to the requirements of NBS H44. The riprap shall be weighed in the presence of the Government representative unless otherwise approved.

1.3.3.3 Unit of Measure

Unit of measure: Short Tons (See SECTION 02486, STONE CONSTRUCTION for measurement requirements).

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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SECTION 01312A

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SECTION 01312A

QUALITY CONTROL SYSTEM (QCS)

1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. The Contractor module, user manuals, updates, and training information can be downloaded from the RMS web site.This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

Administration
Finances
Quality Control
Submittal Monitoring
Scheduling
Import/Export of Data

1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01330, SUBMITTAL PROCEDURES, and Section 01451A, ContractorR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2 inch high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

The following is the minimum system configuration that the Contractor shall have to run QCS:

QCS and QAS System

Hardware

IBM-compatible PC with 1000 MHz Pentium or higher processor

256+ MB RAM for workstation / 512+ MB RAM for server

1 GB hard drive disk space for sole use by the QCS system

3 1/2 inch high-density floppy drive

Compact Disk (CD) Reader 8x speed or higher

SVGA or higher resolution monitor (1024x768, 256 colors)

Mouse or other pointing device

Windows compatible printer. (Laser printer must have 4 MB+ of RAM)

Connection to the Internet, minimum 56k BPS

Software

MS Windows 2000 or higher

QAS-Word Processing software: MS Word 2000 or newer

Latest version of: Netscape Navigator, Microsoft Internet Explorer, or other browser that supports HTML 4.0 or higher

Electronic mail (E-mail) MAPI compatible

Virus protection software that is regularly upgraded with all issued manufacturer's updates

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.4.2 Contractor Quality Control(CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.6.1.2 SubContractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subContractors. A subContractor must be listed separately for each trade to be performed. Each subContractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subContractor administrative data in electronic format via E-mail.

1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.6.1.4 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.6.1.5 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective

of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.6.2 Finances

1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other Contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451A, ContractorR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451A, ContractorR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies

identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 300.

1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

The Government will provide the initial submittal register in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts". This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF). The updated schedule data shall be included with each pay request

submitted by the Contractor.

1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

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SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal

Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

1.1.2 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by SD numbers and titles as follows.

SD-01 Preconstruction Submittals

Certificates of insurance.
Surety bonds.
List of proposed subcontractors.
List of proposed products.
Construction Progress Schedule.
Submittal register.
Schedule of prices.
Health and safety plan.
Work plan.
Quality control plan.
Environmental protection plan.

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports.

Daily checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

Text of posted operating instructions.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

1.1.3 Approving Authority

Office authorized to approve submittal; such as Area office (AOF), Real Estate Division (RED), Engineering, Design and Construction Office (EDC).

1.1.4 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Submittal register; G-AOF

1.3 USE OF SUBMITTAL REGISTER DATABASE

Submittal register database and submittal management program will be delivered to the Contractor, by Contracting Officer on 3 1/2 inch disk. Register[database] will have the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD No. and type, e.g. SD-04 Drawings) required in each specification section.

Column (e): Lists one principal paragraph in specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting project requirements.

Column (f): Indicate approving authority for each submittal. A "G" indicates approval by Contracting Officer; a blank indicates approval by QC manager.

The database and submittal management program will be extractable from the disk furnished to Contractor, for operation on Contractor's IBM compatible personal computer with 640kb RAM, a hard drive, and 3 1/2 inch high density floppy disk drive.

Prepare and maintain submittal register, as the work progresses. Use electronic submittal register program furnished by the Government or any other format. Do not change data which is output in columns (c), (d), (e), and (f) as delivered by Government; retain data which is output in columns (a), (g), (h), and (i) as approved.

1.3.1 Submittal Register

Submit submittal register as an electronic database, using submittals management program furnished to Contractor. Submit with quality control plan and project schedule required by Section 01451A CONTRACTOR QUALITY CONTROL. Verify that all submittals required for project are listed and add missing submittals. Complete the following on the register database:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for approving authority to receive submittals.

Column (h) Contractor Approval Date: Date Contractor needs approval of submittal.

Column (i) Contractor Material: Date that Contractor needs material delivered to Contractor control.

1.3.2 Contractor Use of Submittal Register

Update the following fields in the Government-furnished submittal register program or equivalent fields in program utilized by Contractor.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) List date of submittal transmission.

Column (q) List date approval received.

1.3.3 Approving Authority Use of Submittal Register

Update the following fields in the Government-furnished submittal register program or equivalent fields in program utilized by Contractor.

Column (b).

Column (l) List date of submittal receipt.

Column (m) through (p).

Column (q) List date returned to Contractor.

1.3.4 Contractor Action Code and Action Code

Entries used shall be as follows (others may be prescribed by Transmittal Form):

NR - Not Received

AN - Approved as noted

A - Approved

RR - Disapproved, Revise, and Resubmit

1.3.5 Copies Delivered to the Government

Deliver one copy of submittal register updated by Contractor to Government with each invoice request. Deliver in electronic format, unless a paper copy is requested by Contracting Officer.

1.4 PROCEDURES FOR SUBMITTALS

1.4.1 Reviewing, Certifying, Approving Authority

QC organization shall be responsible for reviewing and certifying that submittals are in compliance with contract requirements. Approving authority on submittals is QC manager unless otherwise specified for specific submittal. At each "Submittal" paragraph in individual specification sections, a notation "G," following a submittal item, indicates Contracting Officer is approving authority for that submittal item.

1.4.2 Constraints

a. Submittals listed or specified in this contract shall conform to provisions of this section, unless explicitly stated otherwise.

b. Submittals shall be complete for each definable feature of work; components of definable feature interrelated as a system shall be submitted at same time.

c. When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, submittal will be returned without review.

d. Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

1.4.3 Scheduling

a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential requirements to resubmit.

b. Except as specified otherwise, allow review period, beginning with receipt by approving authority, that includes at least 15 working days for submittals for QC Manager approval and 20 working days for submittals for Contracting Officer approval. Period of review for submittals with Contracting Officer approval begins when Government receives submittal from QC organization. Period of review for each resubmittal is the same as for initial submittal.

c. For submittals requiring review by fire protection engineer, allow review period, beginning when Government receives submittal from QC organization, of 30 working days for return of submittal to the Contractor. Period of review for each resubmittal is the same as for initial submittal.

1.4.4 Variations

Variations from contract requirements require Government approval pursuant

to contract Clause entitled "FAR 52.236-21, Specifications and Drawings for Construction" and will be considered where advantageous to Government.

1.4.4.1 Considering Variations

Discussion with Contracting Officer prior to submission, will help ensure functional and quality requirements are met and minimize rejections and resubmittals. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

1.4.4.2 Proposing Variations

When proposing variation, deliver written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government. If lower cost is a benefit, also include an estimate of the cost saving. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.4.4.3 Warranting That Variations Are Compatible

When delivering a variation for approval, Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.4.4.4 Review Schedule Is Modified

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

1.4.5 Contractor's Responsibilities

a. Determine and verify field measurements, materials, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and contract documents.

b. Transmit submittals to QC organization in accordance with schedule on approved Submittal Register, and to prevent delays in the work, delays to Government, or delays to separate Contractors.

c. Advise Contracting Officer of variation, as required by paragraph entitled "Variations."

d. Correct and resubmit submittal as directed by approving authority. When resubmitting disapproved transmittals or transmittals noted for resubmittal, the Contractor shall provide copy of that previously submitted transmittal including all reviewer comments for use by approving authority. Direct specific attention in writing or on resubmitted submittal, to revisions not requested by approving authority on previous submissions.

e. Furnish additional copies of submittal when requested by Contracting Officer, to a limit of 20 copies per submittal.

f. Complete work which must be accomplished as basis of a submittal in time to allow submittal to occur as scheduled.

g. Ensure no work has begun until submittals for that work have been returned as "approved," or "approved as noted", except to the extent that a portion of work must be accomplished as basis of submittal.

1.4.6 QC Organization Responsibilities

a. Note date on which submittal was received from Contractor on each submittal.

b. Review each submittal; and check and coordinate each submittal with requirements of work and contract documents.

c. Review submittals for conformance with project design concepts and compliance with contract documents.

d. Act on submittals, determining appropriate action based on QC organization's review of submittal.

(1) When QC manager is approving authority, take appropriate action on submittal from the possible actions defined in paragraph entitled, "Actions Possible."

(2) When Contracting Officer is approving authority or when variation has been proposed, forward submittal to Government with certifying statement or return submittal marked "not reviewed" or "revise and resubmit" as appropriate. The QC organization's review of submittal determines appropriate action.

e. Ensure that material is clearly legible.

f. Stamp each sheet of each submittal with QC certifying statement or approving statement, except that data submitted in bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only.

(1) When approving authority is Contracting Officer, QC organization will certify submittals forwarded to Contracting Officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with contract Number [_____], is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is submitted for Government approval.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Certified by QC Manager _____, Date _____"
(Signature)

(2) When approving authority is QC Manager, QC Manager will use the following approval statement when returning submittals to Contractor as "Approved" or "Approved as Noted."

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with

contract Number [_____], is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is _____ approved for use.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Approved by QC Manager _____, Date _____"
(Signature)

g. Sign certifying statement or approval statement. The person signing certifying statements shall be QC organization member designated in the approved QC plan. The signatures shall be in original ink. Stamped signatures are not acceptable.

h. Update submittal register database as submittal actions occur and maintain the submittal register at project site until final acceptance of all work by Contracting Officer.

i. Retain a copy of approved submittals at project site, including Contractor's copy of approved samples.

1.4.7 Government's Responsibilities

When approving authority is Contracting Officer, the Government will:

a. Note date on which submittal was received from QC manager, on each submittal for which the Contracting Officer is approving authority.

b. Review submittals for approval within scheduling period specified and only for conformance with project design concepts and compliance with contract documents.

c. Identify returned submittals with one of the actions defined in paragraph entitled "Actions Possible" and with markings appropriate for action indicated.

1.4.8 Actions Possible

Submittals will be returned with one of the following notations:

a. Submittals marked "not reviewed" will indicate submittal has been previously reviewed and approved, is not required , does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

b. Submittals marked "approved" "approved as submitted" authorize Contractor to proceed with work covered.

c. Submittals marked "approved as noted" or "approval except as noted; resubmission not required" authorize Contractor to proceed with work as noted provided Contractor takes no exception to the notations.

d. Submittals marked "revise and resubmit" or "disapproved" indicate submittal is incomplete or does not comply with design concept or

requirements of the contract documents and shall be resubmitted with appropriate changes. No work shall proceed for this item until resubmittal is approved.

1.5 FORMAT OF SUBMITTALS

1.5.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels, to office of approving authority. Transmit submittals with transmittal form prescribed by Contracting Officer and standard for project. The transmittal form shall identify Contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled "Identifying Submittals." Process transmittal forms to record actions regarding sample panels and sample installations.

1.5.2 Identifying Submittals

Identify submittals, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

a. Project title and location.

b. Construction contract number.

c. Section number of the specification section by which submittal is required.

d. Submittal description (SD) number of each component of submittal.

e. When a resubmission, add alphabetic suffix on submittal description, for example, SD-10A, to indicate resubmission.

f. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other second tier Contractor associated with submittal.

g. Product identification and location in project.

1.5.3 Format for SD-02 Shop Drawings

a. Shop drawings shall not be less than 8 1/2 by 11 inches nor more than 30 by 42 inches.

b. Present 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.

c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled "Identifying Submittals."

d. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Shop drawing dimensions shall be the same unit of measure as indicated on the contract drawings. Identify materials and products for work shown.

e. Drawings shall include the nameplate data, size and capacity. Also include applicable federal, military, industry and technical society publication references.

1.5.4 Format of SD-03 Product Data and SD-08 Manufacturer's Instruction's

a. Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.

b. Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.

c. Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project, with information and format as required for submission of SD-07 Certificates..

e. Product data shall include the manufacturer's name, trade name, place of manufacture, and catalog model or number. Submittals shall also include applicable federal, military, industry and technical society publication references. Should manufacturer's data require supplemental information for clarification, the supplemental information shall be submitted as specified for SD-07 Certificates.

f. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), and Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Contracting Officer. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

g. Submit manufacturer's instruction prior to installation.

1.5.5 Format of SD-04 Samples

a. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:

(1) Sample of Equipment or Device: Full size.

(2) Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.

(3) Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and

material variations.

(4) Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.

(5) Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.

(6) Color Selection Samples: 2 by 4 inches.

(7) Sample Panel: 4 by 4 feet.

(8) Sample Installation: 100 square feet.

b. Samples Showing Range of Variation: Where variations are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range.

c. Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples shall be in undamaged condition at time of use.

d. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.

e. When color, texture or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.5.6 Format of SD-05 Design Data and SD-07 Certificates

a. Provide design data and certificates on 8 1/2 by 11 inches paper. Provide a bound volume for submittals containing numerous pages.

1.5.7 Format of SD-06 Test Reports and SD-09 Manufacturer's Field Reports

a. Provide reports on 8 1/2 by 11 inches paper in a complete bound volume.

b. Indicate by prominent notation, each report in the submittal. Indicate specification number and pararaph number to which it pertains.

1.5.8 Format of SD-10 Operation and Maintenance (O&M) Data

a. O&M Data format shall comply with the requirements specified in Section 01781, Operation and Maintenance Data"

1.5.9 Format of SD-01 Preconstruction Submittals and SD-11 Closeout Submittalss

a. When submittal includes a document which is to be used in project or become part of project record, other than as a submittal, do not apply Contractor's approval stamp to document, but to a separate sheet accompanying document.

1.6 QUANTITY OF SUBMITTALS

1.6.1 Number of Copies of SD-02 Shop Drawings

a. Submit six copies of submittals of shop drawings requiring review and approval only by QC organization and seven copies of shop drawings requiring review and approval by Contracting Officer.

1.6.2 Number of Copies of SD-03 Product Data and SD-08 Manufacturer's Instructions

Submit in compliance with quantity requirements specified for shop drawings.

1.6.3 SD-04 Number of Samples

a. Submit two samples, or two sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by approving authority and one will be returned to Contractor.

b. Submit one sample panel. Include components listed in technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of non-solid materials.

1.6.4 Number of Copies SD-05 Design Data and SD-07 Certificates

a. Submit in compliance with quantity requirements specified for shop drawings.

1.6.5 Number of Copies SD-06 Test Reports and SD-09 Manufacturer's Field Reportss

b. Submit in compliance with quantity with quality requirements specified for shop drawings.

1.6.6 Number of Copies of SD-10 Operation and Maintenance Data

Submit three copies of O&M Data to the Contracting Officer for review and approval

1.6.7 Number of Copies of SD-01 Preconstruction Submittals and SD-11 Closeout Submittalss

a. Unless otherwise specified, submit administrative submittals compliance with quantity requirements specified for shop drawings.

1.7 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.7.1 Government Approved

Government 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. Government approval is required for any deviations from the Solicitation or

Accepted Proposal 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."

1.7.2 Information Only

All submittals not requiring Government approval will be for information only.All submittals not requiring Designer of Record or 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. 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.

1.8 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 design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (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.

1.9 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.The Contractor shall make all corrections required by the Contracting Officer, obtain the Designer of Record's approval when applicable, and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. Any "information only" submittal found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal shall be resubmitted as one requiring "approval" action, requiring both Designer of Record and Government approval. 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.

1.10 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. No payment for materials incorporated in the work will be made if all required Designer of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.11 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) System ManagerQuality Control (CQC) System Manager and the Designer of Record, if applicable, and each item shall be stamped, signed, and dated by the CQC System Manager 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.

1.12 SUBMITTAL REGISTER

In Section 01999 a submittal register showing 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. The Contractor shall maintain a submittal register for the project in accordance with Section 01312A QUALITY CONTROL SYSTEM (QCS). The Government will provide the initial submittal register in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall track all submittals.

The Designer of Record shall develop a complete list of submittals during design. The Designer of Record shall identify required submittals in the specifications, and use the list to prepare the Submittal Register. The list may not be all inclusive and additional submittals may be required by other parts of the contract. The Contractor is required to complete the submittal register and submit it to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The approved submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period. The submit dates and need dates used in the submittal register shall be coordinated with dates in the Contractor prepared progress schedule. Updates to the submittal register showing the Contractor action codes and actual dates with Government action codes and actual dates shall be submitted monthly or until all submittals have been satisfactorily completed. When the progress schedule is revised, the submittal register shall also be revised and both submitted for approval.

1.13 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 10 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.

1.14 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 are included in the QCS software that the Contractor is required to use for this contract. 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.

1.15 SUBMITTAL PROCEDURES

Submittals shall be made as follows:

1.15.1 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.

1.16 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."

1.17 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. The distribution of approved copies will be as specified in the Clause titled "SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION".

1.18 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.

1.19 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: _____

For design-build construction, both the Contractor Quality Control System Manager and the Designer of Record shall stamp and sign to certify that the submittal meets contract requirements.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
FY08 Kinnickinnic River, Milwaukee, WI - Section 14

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 35 29	SD-01 Preconstruction Submittals															
			Accident Prevention Plan (APP)	1.6	G AOF													
			Activity Hazard Analysis (AHA)	1.7	G AOF													
			Crane Critical Lift Plan	1.6.1	G AOF													
			Crane Operators	1.5.1.3	G AOF													
			SD-06 Test Reports															
			Reports	1.11														
			Accident Reports	1.11.1														
			Monthly Exposure Reports	1.11.3														
			Crane Reports	1.11.4														
			Regulatory Citations and															
			Violations															
			SD-07 Certificates															
			Confined Space Entry Permit	1.8														
			Hot work permit	1.8														
			Contractor Safety Self-Evaluation		G AOF													
			Checklist															
			Certificate of Compliance	1.11.5														
		01100	SD-01 Preconstruction Submittals															
			Accident Prevention Plan	1.8.1														
			Payrolls and Basic Records	1.8.2														
			Progress Chart	1.8.3	G AOF													
			Non-listed, Non-Commercially	2.1.1	G EDC													
			Active Stone or Material Source															
			Notice to Mariners															
			Utility Locating Plan	1.4.3	G AOF													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
FY08 Kinnickinnic River, Milwaukee, WI - Section 14

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					REMARKS
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(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01100	Utility Location Findings	1.4.3	G	AOF												
			Traffic Control Plan	1.4.11	G	AOF												
			Survey Note Format	1.4.12.2	G	AOF												
			SD-07 Certificates															
			As-Built Technician's	2.2														
			Qualifications															
			As-built Drawings	2.2	G	AOF												
			Survey Information	1.4.12.2														
		01101	SD-01 Preconstruction Submittals															
			Additional Property Agreements	1.2.2	G	REO												
			Certified Survey Results	1.3.1														
		01130	SD-01 Preconstruction Submittals															
			Environmental Protection Plan	1.5	G	AOF												
		01270A	SD-03 Product Data															
			Weight Certificates															
		01330	SD-01 Preconstruction Submittals															
			Submittal register	1.3.1	G	AOF												
		01580	SD-02 Shop Drawings															
			Sign Layouts	2.1.2.1	G	AOF												
		02139	SD-01 Preconstruction Submittals															
			Work Plan		G	AOF												
			Construction Equipment															
			Fill Material Source		G	AOF												
			SD-11 Closeout Submittals															
			Check Survey Records															
		02486	SD-01 Preconstruction Submittals															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
FY08 Kinnickinnic River, Milwaukee, WI - Section 14

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02486	Equipment Data															
			Stone Source		G	AOF												
			Alternate Stone Source Data		G	ECD												
			Stone Production Testing Plan		G	AOF												
			Specific Gravity of Stone															
			SD-07 Certificates															
			Weigh Scale Certification		G	AOF												
			Weigh Bills															
			SD-11 Closeout Submittals															
			Check Survey Data															
		02630	SD-07 Certificates															
			Placing Pipe	3.3														
			Pipeline Testing															
			Hydrostatic Test on Watertight															
			Joints															
			Determination of Density															
		31 05 22	SD-04 Samples															
			Geotextile	2.1.1														
			SD-07 Certificates															
			Geotextile	2.1.1														

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

1.1 REFERENCES
1.2 ORDERING INFORMATION

-- End of Section Table of Contents --

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@aashto.org
Internet: http://www.aashto.org

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1819 L Street, NW, 6th Floor
Washington, DC 20036
Ph: 202-293-8020
Fax: 202-293-9287
E-mail: info@ansi.org
Internet: http://www.ansi.org/

Note --- ANSI documents beginning with the letter "S" can be ordered from:

Acoustical Society of America (ASA)
2 Huntington Quadrangle, Suite 1NO1
Melville, NY 11747-4502
Ph: 516-576-2360
Fax: 516-576-2377
E-mail: asa@aip.org
Internet: http://asa.aip.org

ASME INTERNATIONAL (ASME)
Three Park Avenue

New York, NY 10016-5990
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SECTION 01451A

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 within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 3740	(2001) 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	(2002) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1110-1-12	(1993) Quality Management

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 REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "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 constructiondesign and construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site 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 the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be

responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

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, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 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.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and constructionconstruction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect/engineers (AE), 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 shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agentssubcontractors, designers of record, consultants, architect engineers (AE), 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 approved by the Contracting Officer shall be used.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking constructiondesign and construction deficiencies from identification through acceptable corrective action. These procedures shall 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, has separate control requirements, and may be identified by different trades or disciplines, or it may 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 features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Additional Requirements for Design Quality Control (DQC) Plan

The followng additional requirements apply to the Design Quality Control (DQC) plan:

(1) The Contractor's QCP Plan shall provide and maintain a Design Quality Control (DQC) Plan as an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, all documents shall be technically reviewed by competent, independent reviewers identified in the DQC Plan. The same element that produced the product shall not perform the independent technical review (ITR). The Contractor shall correct errors and deficiencies in the design documents prior to submitting them to the Government.

(2) The Contractor shall include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific contract period. This should be at a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. The schedule shall include review and correction periods associated with each item. This should be a forward planning as well as a project monitoring tool. The schedule reflects calendar days and not dates for each activity. If the schedule is changed, the Contractor shall submit a revised schedule reflecting the change within 7 calendar days. The Contractor shall include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. These completed checklists shall be submitted at each design phase as part of the project documentation. Example checklists can be found in ER 1110-1-12.

(3) The DQC Plan shall be implemented by an Design Quality Control Manager who has the responsibility of being cognizant of

and assuring that all documents on the project have been coordinated. This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. The Contractor shall notify the Contracting Officer, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

The Contracting Officer will notify the Contractor in writing of the acceptance of the DQC Plan. After acceptance, any changes proposed by the Contractor are subject to the acceptance of the Contracting Officer.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of constructiondesign and construction. Acceptance is conditional and will be predicated on satisfactory performance during the constructiondesign and 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, Postaward Conference, before start of design or 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. The CQC Plan shall be submitted for review a minimum of 10 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operationsoperations, design activities, 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 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager, a Design Quality Manager, and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC

organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to 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 construction person with a minimum of 3 years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall 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 specialized personnel to assist the CQC System Manager. These individuals may be employees of the prime or subcontractor; be responsible 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.

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered at Grand Haven Area Office, Michigan, Telephone 616-842-5510.

3.4.5 Organizational Changes

The Contractor shall maintain the 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 AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for

certifying that all submittals and deliverables 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 the construction 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, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.

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 the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the 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 48 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 shall 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 shall 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.

3.7.3 Onsite 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.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies 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 the pre-final 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 of the work 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 the final acceptance 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 shall be identified (Preparatory, Initial, Follow-up). List of 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 and deliverables reviewed, with contract reference, by whom, and action taken.

g. Offsite 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 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 7 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 SAMPLE FORMS

Sample forms enclosed in Section 01999.

3.11 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 work site, 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.

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SECTION [01580]

CONSTRUCTION PROJECTS AND SAFETY PERFORMANCE SIGNS

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Sign Layouts; G-AOF.

Submit the proposed layouts before applying lettering.

1.2 QUALITY CONTROL

The Contractor shall establish and maintain a quality control system for all operations performed under this Section to assure compliance with contract requirements and maintain records of its quality control for all operations performed, including, but not limited to the following:

a. Quality - materials and workmanship.

b. Overall appearance of signs and site.

c. Observance of safety regulations.

PART 2 PRODUCTS

2.1 SIGN CONSTRUCTION

The materials to be used and the manner in which they are to be assembled and installed are shown on the sketches enclosed in SECTION 01999.

2.1.1 Government-Furnished Materials

The Government will furnish and deliver to the Contractor at the project site one (1) Construction Project sign panel, four (4) feet by six (6) feet by 3/4 inch thick and one (1) Safety Performance sign panel, four (4) feet by four (4) feet by 3/4 inch thick. Each sign panel will have affixed graphics and be lettered except for the project title and the name of the Contractor. Each sign panel will embody six (6) 1/4 inch diameter T-nuts appropriately placed. The Government will retain possession of the removable numbers for the Safety Performance sign and affix them at the appropriate times.

2.1.2 Contractor-Furnished Materials

All materials necessary for construction of the signs as described on the sketches except those furnished by the Government, shall be furnished by the Contractor. All wood members shall be of well seasoned, kiln dried, clear redwood, bald cypress, red cedar, Douglas fir, spruce, tulip poplar or white pine. The lumber materials shall be free of splits, wane and loose knots or pitch pockets. Wood materials for posts, braces and stakes shall be preservative treated. All members of the sign shall be fastened with screws or bolts of type, size, number and spacing to provide rigid construction and a neat appearance. The Contractor shall furnish twelve (12) each 1/4 inch diameter by four (4) inches long Allen head bolts, threaded to match the T-nuts.

2.1.2.1 Sign Lettering

In the location provided on each sign panel, the Contractor shall apply the applicable project title, Contractor name and architect/engineer name. Specific information for sign layouts will be provided by the Contracting Officer's Representative (COR) at the conference specified hereinbefore in clause titled "PRE-CONSTRUCTION CONFERENCE." Lettering shall be black. The materials used for lettering shall be of a type which will adhere to the high density overlay plywood panels under all weather conditions and shall be applied in accordance with the lettering manufacturer's recommendations. Letter size, typeface and maximum line lengths are as follows:

	Construction Project Sign	Safety Performance Sign
Project Title		
Typeface	Helvetica Bold	Helvetica Regular
Letter size (inches)	3	1.5
Maximum line length (inches)	42	42
Contractor's Name		
Typeface	Helvetica Regular	Helvetica Regular
Letter size (inches)	1.25	1.5
Maximum line length (inches)	21	42
Architect/Engineer's Name		
Typeface	Helvetica Regular	
Letter size (inches)	1.25	None
Maximum line length (inches)	21	

PART 3 EXECUTION

3.1 INSTALLATION

The Contractor shall affix the panels to the posts with the Allen head bolts prior to erection of the signs, including drilling counter-sunk 1/4 inch diameter holes in the posts to match the T-nut locations. The Contractor shall take all precautions necessary to protect the faces of the signs from damage during assembly and construction. The signs shall be installed upon commencement of the work under this contract. The location in which each sign is to be installed shall be as directed by the Contracting Officer. The site on which the signs are to be installed shall

be cleared and leveled to facilitate the installation of, and provide easy visual contact with, the signs. Installation and positioning of the posts, braces and stakes shall be as indicated on the referenced sketches. Excavation and backfilling of the holes for posts and installation of the posts, braces and stakes shall be such that signs are installed plumb and level.

3.2 MAINTENANCE

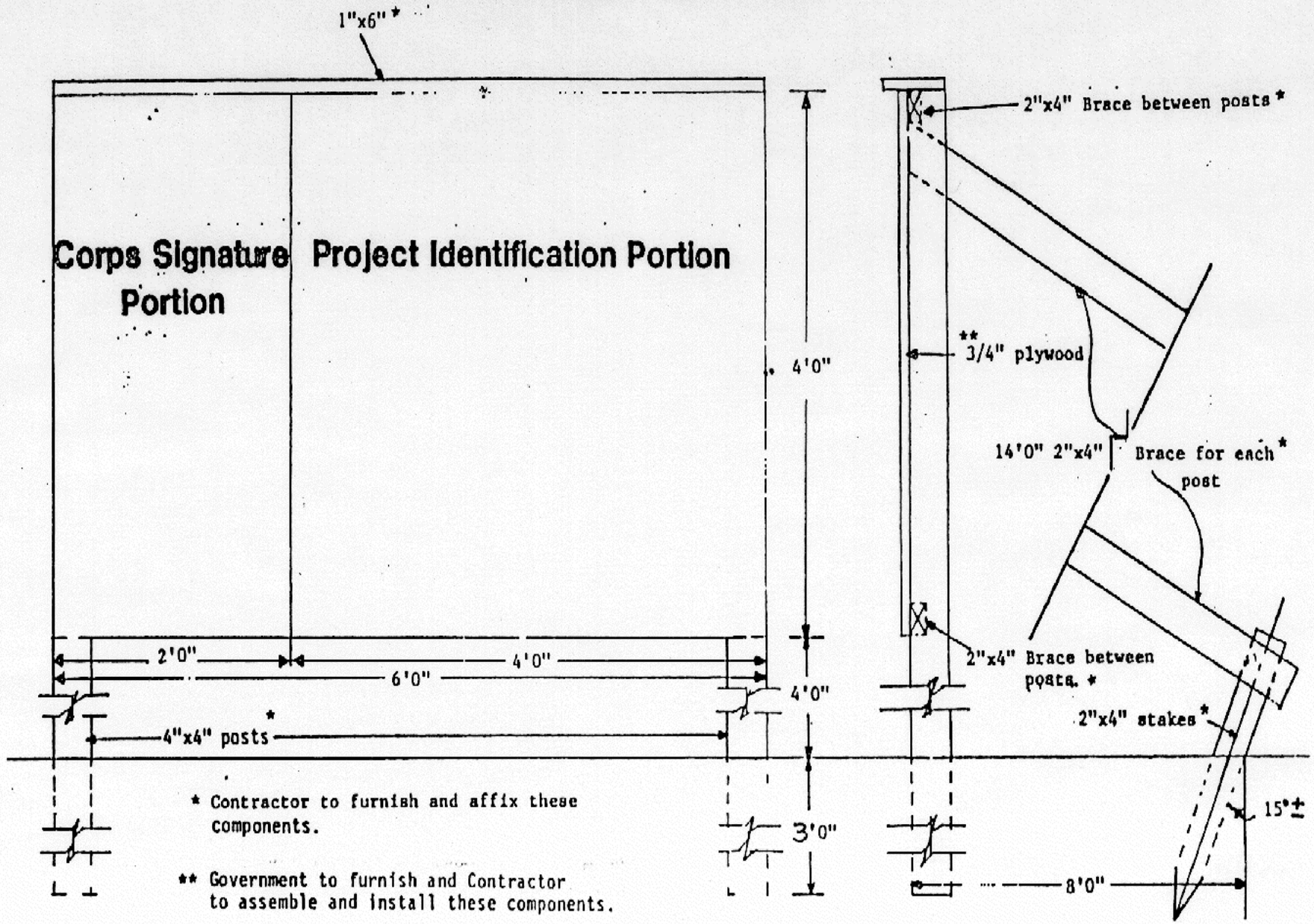
The Contractor shall maintain the signs in good condition and the sign site in a neat condition throughout the construction period.

3.3 REMOVAL

Upon completion of all contract work, the signs shall be removed by the Contractor and turned over to the Contracting Officer's Representative at the site.

-- End of Section --

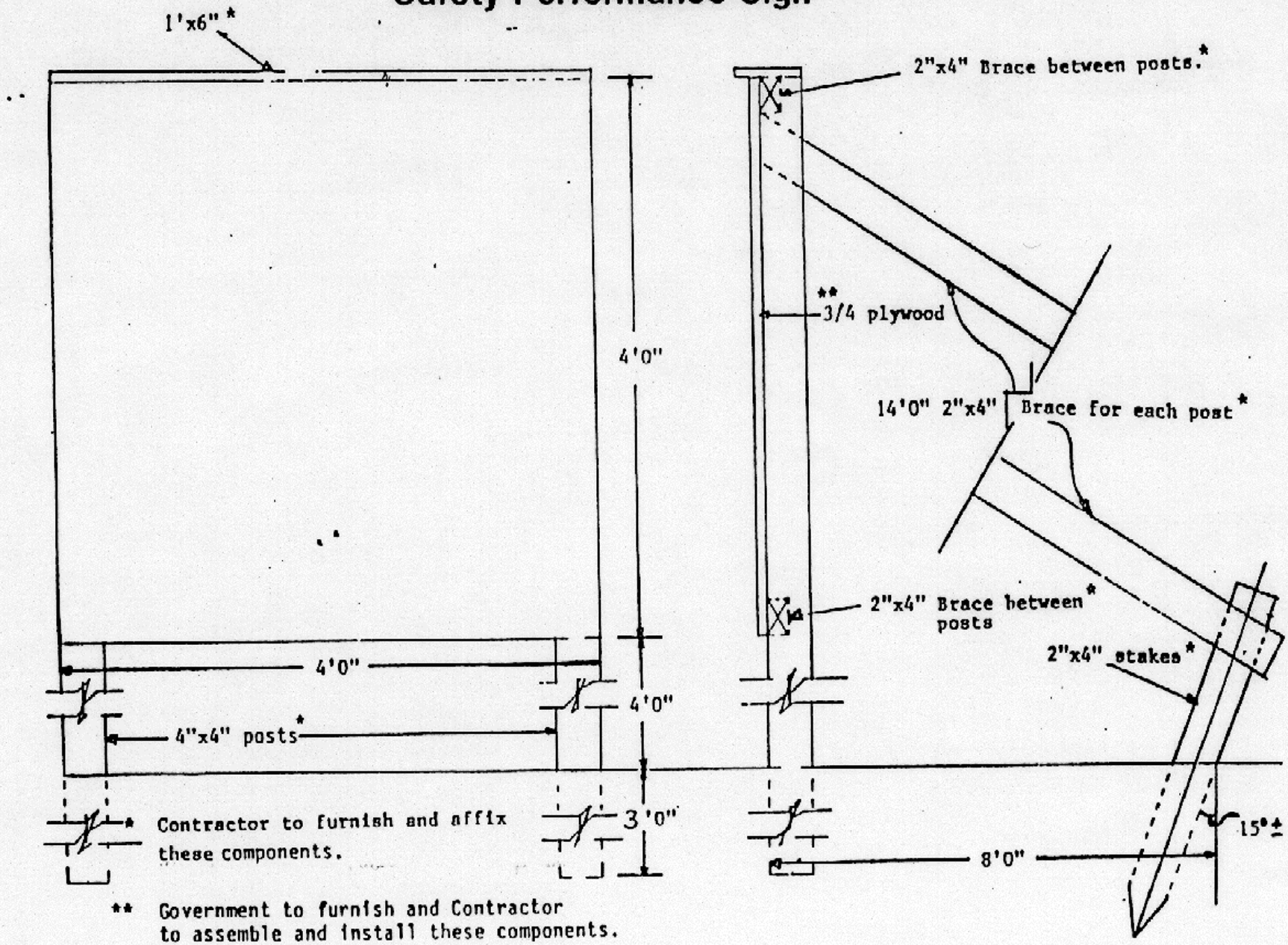
Construction Project Sign



* Contractor to furnish and affix these components.

** Government to furnish and Contractor to assemble and install these components.

Safety Performance Sign



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SECTION 02139

SITE PREPARATION

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

Measurement and payment for acceptably completed work will be as specified in SECTION 01025, MEASUREMENT AND PAYMENT. All work and materials required under this Section, except for furnishing and placing fill materials from an off-site source, will be paid for at the contract lump-sum price for the payment item "Site Work".

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Work Plan; G-AOF

At least ten (10) calendar days prior to proceeding with the work at the site, the Contractor shall submit a work plan for slope preparation. The work plan shall include, but not be limited to, protecting utilities, structures and roadway; coordinating work with local agency having jurisdiction over affected roadways, clearing the work site; excavating and placing fill, placing geotextile and riprap stone; restoration of the site; disposal of waste, excess and unsatisfactory materials; and performing quality control surveys.

Construction Equipment

Prior to starting work, a list of all equipment, tools and machines, including their make, model, age, sizes, capacities and operating speeds, to be used in the performance of the work, shall be submitted. All the plant shall be maintained in satisfactory working condition at all times.

Fill Material Source; G-AOF

At least five (5) calendar days prior to delivering fill materials to the site, submit the name and location of the commercially-active fill source.

SD-11 Closeout Submittals

Check Survey Records

A copy of the records of each check survey shall be provided on the next work day following the survey.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Fill Materials

To the extent available, satisfactory on-site excavated materials shall be used for fill. Materials classified in ASTM D 2487 as SM, SC, ML, CL, GW, GP, GC, SW, SP, or mixtures thereof, free from roots and other organic matter, trash, debris, frozen materials and stones larger than 3 inches in any dimension are satisfactory for fill. Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Materials classified in ASTM D 2487 as MH, PT, OH, CH, OL, and mixtures thereof are unsatisfactory. Unsatisfactory materials also include man-made fills or refuse. Excavated silt materials and saturated soil materials shall not be place for fill except below the water elevation. All existing concrete, bituminous, and stone rubble larger than 3 inches in size which becomes exposed during the site preparation operations and other unsatisfactory soil materials shall be removed from within the project limits and properly disposed of off the site.

PART 3 EXECUTION

3.1 TRAFFIC CONTROL AND SAFETY

The Contractor shall, in accordance with the Government-approved traffic control plan, provide, install, and later remove temporary traffic control devices. All equipment shall be maintained in proper working condition throughout the period of use under this contract.

3.1.1 Temporary Fencing

Temporary construction fence shall be provided around all construction areas, in accordance with EM 385-1-1. It shall be four feet high and provide an adequate physical barrier around the perimeter of each construction area. The temporary fence shall be well marked.

3.1.2 Tracking Pad

The Contractor shall place two lane tracking pads in accordance with information as shown on the contract drawings.

3.2 SLOPE PREPARATION

The Contractor shall prepare slopes to the lines and grades shown on the drawings. Operations shall be conducted with care to prevent damage or disturbance to existing structures, utilities, roadways, and land which are to remain. Existing property and improvements shall not be undermined.

3.3 Limitation

Slope preparation in advance of completed riprap stone construction shall be at the Contractor's risk. The Contractor shall keep the Contracting Officer advised of any situation that may result in a possible interruption of work.

3.4 Alignment

The alignment of the required top of slope shall be as shown on the

drawings unless site conditions at time of construction do not match drawings.The Government will establish the location of the construction baseline in the field. Immediately prior to commencement of work at the site, under the direction and observation of the Contracting Officer's Representative at the site, the Contractor shall place off-set stakes at fifty (50) foot intervals to establish the top of the slope alignment. Earthwork is required landward of the required placement of required riprap materials to create a smooth transition to the existing ground surface and to provide proper drainage.

3.5 Clearing and Grubbing

Except as otherwise specified and shown, the surface of the existing slope within the required construction limits for regrading the slope and for placing geotextile and riprap shall be cleared of surface vegetation and trees, both living and dead, and including trash and surface debris. Live trees outside the limits of required work shall in general be saved and protected. However, the Contractor may remove limited amounts of small trees and brush between the top of slope and required work area to accommodate its construction operations. Trees required to be removed shall be grubbed out by the roots (over 2 inches in diameter). The materials from the clearing operation shall be properly disposed of off the site.

3.6 Scraping

Following clearing operations, the Contractor shall scrape humus off of the surface of the slope in areas required to be excavated or filled and in areas upon which geotextile and riprap stone are to be placed. Eroded surfaces are not required to be scraped. The removed humus shall be stockpiled and following final grading of the slope, placed over soil materials prior to turf restoration. Humus shall not be used for fill material nor be co-mingled with fill materials.

3.7 Excavation, Fill and Grading

The existing embankment shall be reshaped to the slope shown on the drawings. Excavation consists of removal of whatever substance is encountered. Satisfactory excavated materials shall be used to fill areas requiring fill as shown on the drawings. The available quantity of satisfactory excavated materials is estimated to be less than needed for fill. The supplemental fill shall be obtained from an approved commercially active off-site source. Excavated soil materials to be placed as fill up-slope of the required riprap construction shall be stockpiled until the required geotextile and riprap stone are satisfactorily placed. Unsatisfactory excavated materials shall be disposed of off-site. Fill materials above the water elevation shall be compacted.

3.7.1 Compaction

Fill placed in submerged locations does not require compaction. Above-water granular fill shall be compacted to 90 percent of maximum density for cohesive material and 95 percent of maximum density for cohesionless material. Fill shall be compacted in layers not more than 12 inches loose thickness with power-driven hand tampers suitable for the material being compacted.

3.7.2 Determination of Density

Testing shall be the responsibility of the Contractor and performed at no additional cost to the Government. Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. Tests shall be performed in sufficient number to ensure that specified density is being obtained. Laboratory tests for moisture-density relations shall be made in accordance with ASTM D 1557 except that mechanical tampers may be used provided the results are correlated with those obtained with the specified hand tamper. Field density tests shall be determined in accordance with ASTM D 2167 or ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked and adjusted, if necessary, using the sand cone method as described in paragraph Calibration of the referenced publications. ASTM D 2922 results in a wet unit weight of soil and when using this method ASTM D 3017 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gauges shall be checked along with density calibration checks as described in ASTM D 3017 or ASTM D 2922. Test results shall be furnished the Contracting Officer. The calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed.

3.7.3 Stockpiles

Stockpiles shall be kept in a neat and well drained condition. Excavated satisfactory and unsatisfactory materials shall be separately located. Locations of stockpiles shall be satisfactory to the Government's on-site representative. All stockpiles shall be removed at the completion of the work.

3.8 Slides and Washouts

In the event of the sliding or washout of any part of the required slope prior to completion of riprap stone construction, the Contractor shall rebuild the failed portion of the embankment. If the slide or washout is caused through fault of the Contractor, as determined by the Contracting Officer, the foregoing operations shall be performed without cost to the Government.

3.9 Tolerances

The finished surface shall not deviate from the lines and grades shown on the drawings by more than the tolerances listed below. Tolerances are measured perpendicular to the indicated neatlines.

NEATLINE TOLERANCES

	Above Neatlines (Inches)	Below Neatline (Inches)
Slope Grading	6	6

The intention is that the work will be built generally to the required elevations, slope and grade and that the outer surface shall be even and present a neat appearance. Material not meeting these limits shall be removed or reworked as directed by the Contracting Officer.

3.10 TURF

3.10.1 Placement

Turf is required at the top of slope as shown on the drawings except where the top of slope is in contact with the pavement, as well as in all turfed areas disturbed by the Contractor's operations. Topsoil shall be placed to a thickness of not less than three (3) inches, including existing topsoil, in the areas requiring seeding. Application of the required seed, fertilizer and mulch shall be in accordance with the WDOT-1996 "Standard Specifications for Construction", Sections 625 through 630.

3.10.1.1 Protection, Maintenance and Repair

During construction activities, areas which are seeded shall be protected, maintained and repaired until completion of the work under this contract. In addition the Contractor shall warranty that the seeded areas for one (1) year to assure growth. See Clause titled WARRANTY OF CONSTRUCTION.

3.11 DISPOSAL

The materials required to be removed and disposed of, and all waste and unsatisfactory materials resulting from work required under this Section shall be removed from the site, unless otherwise specified or directed, and upon removal shall become the property of the Contractor. Open burning of materials is prohibited. All disposal shall conform to the requirements of SECTION 01130 "ENVIRONMENTAL PROTECTION", DIVISION 1, "GENERAL REQUIREMENTS" including any applicable local requirements. Disposal shall be at appropriate commercially-active disposal sites.

3.12 QUALITY CONTROL

The Contractor shall establish and maintain a quality control system for all operations performed under this Section to assure compliance with contract requirements and maintain records of its quality control for all operations performed including, but not limited to, the following:

(1) Protecting existing improvements.

(2) Clearing the site and removing obstructions.

(3) Excavating, filling,and grading.

(4) Performing check surveys.

(5) Traffic control and safety.

(6) Disposal and restoration of site.

(7) Observance of safety regulations.

3.12.1 Check Surveys

Surveys made by the Contractor are required on the graded surface for determining that the work is acceptably performed. The Contractor shall make checks as the work progresses to verify that the slope is within the lines established for completed work. At least one (1) check survey as specified below shall be made by the Contractor for each twenty-five (25) foot section as soon as practicable after completion of grading. Approval

of cross sections based on check surveys shall not constitute final acceptance of the work. Cross sections shall be taken by the Contractor on lines twenty-five feet apart, measured along the construction baseline, with readings at ten (10) foot intervals and at breaks along the lines. However, other cross section spacings and reading intervals may be used if determined appropriate by the Government's on-site representative. Additional elevations and soundings shall be taken as the Government's on-site representative may deem necessary or advisable. The surveys shall be conducted in the presence of the Government's on-site representative, unless waived by the Contracting Officer.

3.12.1.1 Above Water

The elevation of material above the water surface shall be determined by the use of a leveling instrument and a rod. Other means, if approved by the Contracting Officer, may also be used.

3.12.1.2 Below Water

For portions of the work that are under water, sounding surveys shall be performed either by means of a sounding pole or a sounding basket weighing about 8-1/2 pounds, each of which has a base measuring twelve (12) inches in diameter.

-- End of Section --

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SECTION 02486

STONE CONSTRUCTION

PART 1 GENERAL

1.1 REFERENCES

The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by reference thereto:

ASTM INTERNATIONAL (ASTM)

ASTM C 127	(2004) Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C 295	(2003) Petrographic Examination of Aggregates for Concrete
ASTM C 535	(2003e1) Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM D 4992	(1994; R 2001) Evaluation of Rock to be Used for Erosion Control
ASTM D 5312	(2004) Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
ASTM D 5313	(2004) Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions

U.S. Department of Commerce

NBS Handbook H-44	Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing and Measuring Devices

1.2 MEASUREMENT

New materials will be measured for payment by the ton (2,000 pounds) of material acceptably placed in the work as determined by carrier displacement of certified scale weight tickets, as approved by the Contracting Officer. Material placed beyond the tolerance limits will not be paid for. The method of determining the quantity of material placed beyond tolerance limits will be made in accordance with Subparagraph, "Determination of Excess Stone." Any material wasted or used by the Contractor for other purposes and any material not placed in the required work in accordance with the requirements of the specifications and drawings will not be measured or paid for.

1.2.1 Method of Determining Weight with Delivery by Truck

The method of measurement for determining the weight of stone materials delivered by truck shall be certified weigh bills provided by the Contractor. Weigh bills and the scales used for weighing of trucks and materials contained therein shall, unless otherwise approved by the Contracting Officer, conform to the following requirements:

a. Scales shall conform to the requirements of the NBS Handbook NBS Handbook H-44. The tolerance applications of the Handbook, as applicable to under registration and over registration and to tests involving digital indications or representations, shall apply. A scale shall not be used for weighing a load totaling more than the nominal capacity marked on the scale by the manufacturer. Any portion of the load in excess of the nominal scale capacity will not be considered for payment.

(1) The accuracy of the scale shall be checked. When a State scale inspector is not immediately available for checking the scale, the Contractor may, at its own expense, secure a check from a local official sealer of weights and measures, or the Contracting Officer may give tentative approval, based on check truckloads weighed on other scales which bear an official seal placed in the current calendar year.

b. The total weight of a single highway vehicle shall be weighed as a single draft and shall not be determined by adding together the results obtained by separately weighing each end of such vehicle except that weighing of a coupled combination may be determined without uncoupling under the following conditions:

(1) The brakes are released.

(2) There is no tension or compression on the drawbar.

(3) The approaches are straight and in the same level plane as the scale platform.

(4) The approaches are paved at least fifty (50) feet in each direction with a seal coat or higher type surfacing.

(5) The approaches are of sufficient width and length to ensure level positioning of vehicles during the weighing operation.

c. When a print-out system is employed on a platform or surge bin scale, it shall be equipped with a printer which shall print the following information on a triplicate ticket for each truckload:

(1) Time

(2) Date

(3) Sequential ticket number (may be preprinted on ticket)

(4) Gross Weight

(5) Tare Weight (trucks shall be tare weighed at least twice daily)

(6) Net Weight

(7) Net accumulated job daily total

(8) Truck identification number

d. The system shall be so interlocked as to allow printing only when the scale has come to a complete rest.

1.2.1.1 Scales

For scales not equipped with the print-out system, as stated above, weigh bills shall contain the same or equivalent data as specified for the print-out system. Weigh bills, including print-outs, shall be certified by the signature of the scale operator, which shall attest that the information shown on the weigh bill is correct and is the weight(s) observed on the scale at the time of weighing. Each weigh bill shall also be certified by the Contractor attesting that the entire load was properly placed in the work, and shall show the time and date of weighing and the time and date of unloading. Each truck shall be plainly marked by a distinctive number, letter, or name, which shall not be changed or given to any other truck during the contract period. The Government reserves the right to periodically inspect the weighing operations at the scales.

1.2.1.2 On-Site Scales

On-site scales shall be certified by the applicable local weights and measures regulating agency and shall be as approved by the Contracting Officer. Scales shall be of the recording type and of the size required to weigh the materials and containers or vehicles. The scale shall include a housing for the instruments and scale operator, with heat, lighting and ventilation.

1.2.2 Determination of Excess Stone

All stone outside the limits and tolerances of the cross sections of the structure, except minor variations as determined by the Contracting Officer, will be deducted from the quantity of new stone to be paid for. Weight of excess stone will be determined from the cross sections obtained by the method provided for in Subparagraph, "Final Surveys," on the basis that the cubic feet of volume (including voids) for each type of stone, as listed below, is equal to one (1) ton or 2,000 pounds for a specific gravity of stone furnished equal to 2.65. If the specific gravity of the stone furnished is other than 2.65, the cubic feet of volume equaling 2,000 pounds shall be recomputed. The recomputation shall be done by multiplying the indicated volume per ton by the ratio of 2.65 divided by the specific gravity of the stone furnished. Should any excess stone be disclosed above the tolerance line as defined in Subparagraph, "Tolerances," its volume will be computed by the average end area method, based on the cross sections in the following manner. The average end area of excess stone above the tolerance line for two (2) successive cross sections, multiplied by the distance between the cross sections will be accepted as the volume. The Contractor will not be required to remove such excess stone and deductions for the weights thereof will be made from contract payments for new stone. In addition to the above, stone which has been delivered to the site and has been lost or wasted or otherwise not properly incorporated into the final required work, shall be deducted from the quantity to be paid for.

Type of Stone	Cubic Feet of Volume Per Ton (for excess quantity calculations)
Riprap	19.51

1.2.3 Final Surveys

Survey work and measurements required for determination of excess volume computations for stone materials will be done by the Government. Volume computations will be done by the Government. Cross section surveys will be taken perpendicular to the construction baseline. Elevations and soundings will be taken on lines twenty-five (25) feet apart measuring along the construction baseline, with the readings at ten (10) foot intervals and at breaks in the grade along the line. Other survey intervals and readings may be used if deemed appropriate or advisable by the Contracting Officer. Additional cross sections, elevations and soundings may be taken if determined necessary by the Contracting Officer. Determination of quantities will be made by the Contracting Officer and having once been made, will not be reopened, except on evidence of collusion, fraud or obvious error. Prior to any work under this Section, the Contractor shall coordinate all operations with the Contracting Officer so that excess volume surveys will be made at the appropriate time. The surveys made under Subparagraph, "Check Surveys" may be used when deemed appropriate by the Contracting Officer, as part of the surveys required herein. Stone quantity computations shall be based entirely upon weights of new stone as determined from certified scale weight tickets.

1.3 CONVERSION FACTORS OF IN-PLACE VOLUME TO BID QUANTITIES

The following factors were used in converting the in-place volume to the quantities shown in the BIDDING SCHEDULE.

Stone Material	Specific Gravity	Percent Voids
Riprap	2.65	38%

If the specific gravity of any of the material proposed for use by the Contractor is different from that shown above, the Contracting Officer will recompute estimated quantity; this recomputed value will be the one on which overages or underruns are based. The allowable variations as defined in the CLAUSE titled "VARIATION IN ESTIMATED QUANTITY" will be calculated in accordance with Subparagraph, "Revised Quantities" below for stone within the specified design range of 2.50 to 2.90 (Specific Gravity).

1.3.1 Revised Quantities

The estimated quantities of stone listed in the BIDDING SCHEDULE were computed on the basis of stone having a specific gravity (saturated surface dry (SSD) basis) of 2.65 based on water having a unit weight of 62.4 pounds per cubic foot. When the specific gravity (SSD) of the stone to be used in the work is between and including 2.50 and 2.90, the estimated quantities will be revised by multiplying them by the fraction which results when the specific gravity (SSD) of the stone is divided by 2.65. The revised quantities will then be the quantities from which the allowable fifteen percent (15%) variation in quantity will be determined.

1.3.1.1 Modifications to Specific Gravity

If the specific gravity (SSD) of the stone to be used in the work is between 2.50 and 2.90, but is other than 2.65, the Contracting Officer will issue a modification in accordance with the CLAUSE titled "CHANGES" to adjust the estimated quantities.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Equipment Data

Prior to starting work, a list of all equipment, tools, machines, including their sizes, capacities and operating speeds, to be used in the performance of the work shall be submitted. All the plant shall be maintained in satisfactory working condition at all times.

Stone Source; G-AOF

The Contractor shall, at least 15 calendar days in advance of using such source, designate in writing the source or one (1) combination of sources from which it proposes to furnish each type of stone materials. The Government shall also at this time be given in writing the specific areas, lifts and geologic units in the quarry or pit to be utilized.

Alternate Stone Source Data; G-ECD

If a proposed source is disapproved, submit the required data for an alternate listed stone source.

Stone Production Testing Plan; G-AOF

Prior to starting production of any stone materials, submit in writing the detailed methods of production testing the Contractor plans to follow. The details shall include the Contractor's methods to be used in processing, loading, and handling each test sample.

Specific Gravity of Stone

At least fifteen (15) calendar days in advance of shipment of stone to the work site, submit a copy of specific gravity test results for the stone proposed to be furnished. The specific gravity test shall not be more than five (5) years old.

SD-07 Certificates

Weigh Scale Certification; G-AOF

Prior to the use of a weigh scale, submit details on the location and construction of the scale and a copy of the certification of the scale's accuracy from the local weights and measures regulating agency.

Weigh Bills

Certified weigh bills for each load of riprap stone materials delivered to the project site shall include certification of weight, the time of weighing, the truck identity, the time of delivery and certification of placement. The certified weigh bills shall be provided to the Contracting Officer's Representative upon delivery of the materials to the site.

SD-11 Closeout Submittals

Check Survey Data

A copy of the record of each check survey shall be submitted within one (1) work day after the survey.

PART 2 PRODUCTS

2.1 STONE MATERIALS

2.1.1 General

The materials to be furnished shall meet all requirements specified in this Section of the specifications. The Contracting Officer will, at any time during the contract, reject materials not meeting specified requirements at the source or job site. Inspection of materials at the quarry and job site by the Contracting Officer will be as specified in Paragraph, "QUALITY ASSURANCE." Inspection and testing of materials by the Contractor shall be as stated in Paragraph, "QUALITY CONTROL." Materials which have been delivered to the project site and are rejected, whether in stockpile or in place in the structure, shall be removed from the project site at the Contractor's expense.

2.1.2 Sources

2.1.2.1 Listed Stone Material Sources

The following listed sources have been tested and/or have previously furnished materials that meet the quality requirements specified. Information for each of the listed sources is available for inspection and use by the Contractor in the Office of the Design Branch, Engineering & Planning Division, U.S. Army Corps of Engineers, Detroit District, 477 Michigan Avenue, McNamara Building, Detroit, Michigan.

Stone Source List

Quarry Name	Contact Information
WATERLOO QUARRY Material: Quartzite	Michel's Materials P. O. Box 128 Brownsville, WI 53006 (920) 478-2084
TORK QUARRY Material: Granite	Edward Kraemer & Sons, Inc. 1 Plain View Rd. Plain, WI 53577 (608) 546-2311
COLD SPRING QUARRY	Cold Spring Granite

(WAUSAU, WISCONSIN) Material: Granite	202 S. 3rd St. Cold Spring, MN 56320 (715) 845-7666
RUBY RED, RIB MOUNTAIN, WISCONSIN AUBURN, AND SILVER GRAY QUARRIES Material: Granite	Anderson Bros. & Johnson Company P.O. BOX 26 Wausau, WI 54402-0026 (715) 842-4603
DEL RAPIDS QUARRY (2 Pits) Material: Quartzite	L.G. Everist Inc. 300 S. Phillips Ave. P.O. BOX 5829 Sioux Falls, SD 57117-5829 (605) 366-2829
ORTONVILLE QUARRY Material: Granite	L.G. Everist Inc. 300 S. Phillips Ave. P.O. BOX 5829 Sioux Falls, SD 57117-5829 (605) 366-2829
MERIDIAN QUARRY Material: Granite	Meridian Aggregates St. Cloud, MN 56302 (320) 251-7141
YELLOW MEDICINE QUARRY	Meridian Aggregates P.O. BOX 129, 200 14th Street Granite Falls, MN 56241 (320) 564-2125
GROVELAND MINES Material: Basalt/ Taconite	The Brutz Group Felch, MI Poc: Keith Levin (954) 764-3311
WISCONSIN ROSE (Amburg) RED AND SUNBURST QUARRIES Material: Granite	Lake Wausau Granite Company 110 DeVoe St. P.O. BOX 397 Wausau, WI 54402-0397 (800) 433-1050
MIDDLE INLET QUARRY Material: Rhyolite /Granite	Edward C. Gillen Company 218 West Beecher Street, Milwaukee, WI 53207-1190 (414)769-3120
SHAWNOO QUARRY Material: Rhyolite /Granite	Michel's Material P.O. BOX 128 Brownsville, WI 53006 (920) 478-2084

HAYTON QUARRY, GRIMS QUARRY Material: Dolomite /Limestone	Western Limestone & Cement P.O. Box 57 West Bend, WI 53095 (414) 334-3005
SYCAMORE QUARRY Material: Dolomite	Vulcan Materials Company 500 West Plainfield Rd. Countryside, IL 60525 (708) 261-8600
SUSSEX QUARRY Material: Dolomite	Vulcan Materials Company 500 West Plainfield Rd. Countryside, IL 60525 (708) 268-8600
LEMONT QUARRY Material: Dolomite	Vulcan Materials Company 500 West Plainfield Rd. Countryside, IL 60525 (708) 268-8600
MANTENO QUARRY Material: Dolomite	Vulcan Materials Company 500 West Plainfield Rd. Countryside, IL 60525 (708) 268-8600
SUSSEX HALQUIST QUARRY Material: Dolomite	Halquist Stone Company, Inc. Lisban Rd. Sussex, WI 53089 (414) 246-3561
NORTHERN INDIANA MATERIAL QUARRY Material: Dolomite	Northern Indiana Material Corp. P.O. BOX 839 Crown Point, IN 46307 (219) 663-0052
TOWER ROCK STONE QUARRY (in Ste. Genevieve, MO)	Luhr Brothers P.O. BOX 111 Columbia, IL (573) 883-7415
CEDARVILLE QUARRY Material: Dolomite	Michigan Limestone Operations Cedarville, MI 49719 (906) 484-2201
VALDERS STONE QUARRY Material: Dolomite	Valders Stone & Marble Inc. P.O. BOX 277, Valders, WI 54245 (920) 775-4151
ISP MINERALS QUARRY Material: Meta Andesite	Gillen Company Gary Jackson 218 W. Becher St.

Milwaukee, WI 53207
(414) 769 3120

2.1.2.2 Bidding Requirement

Bids shall be based on obtaining stone from any of the sources listed by company name in the above Subparagraph entitled "Listed Stone Material Sources". Bids shall not be based on non-listed sources.

2.1.2.3 Source Potential

The sites listed as potential sources of material have not been investigated with respect to the availability of specific quantities and sizes of the material required for the project. Listing of sources hereinbefore only indicates that there could be some material in the source, if selected zones and appropriate quarrying techniques are used, that meets all the requirements specified. The listing of sources does not guarantee that the quality or sufficient quantities of materials necessary for this contract are available in any of the sources listed nor does it guarantee that economical production can be obtained from that source.

2.1.2.4 Source Verification

Nothing herein is to be construed as implying that sources listed herein are actually interested in or capable of producing or offering stone in the size, gradation, weights or quantities required or that transportation from the source to the project is available. The Contractor shall verify each source selected for its capability to produce the quantity required of the quality, sizes, gradation or weights specified.

2.1.2.5 Material Suitability

The right is reserved to reject materials from certain localized areas, zones, strata, or channels of any source, when such materials are determined by the Contracting Officer to be unsuitable based upon quality requirements herein. Rejection of any or all material by the Contracting Officer shall not be grounds for a time extension under SECTION 00700 CLAUSE titled, "DEFAULT (FIXED-PRICE CONSTRUCTION)." Materials produced from a selected source(s) shall meet all requirements specified.

2.1.2.6 Non-Listed Sources

Stone materials may be furnished from sources other than the known sources indicated in Section 2.1.2.1, provided stone quality and quantity otherwise meet these specifications. If a stone source proposed by the Contractor is not listed in Section 2.1.2.1, the Government will make such investigations and evaluation as necessary to determine whether or not materials meeting the requirements of the project can be produced from the proposed source. The Contractor shall allow 120 days for review of a stone source not in Section 2.1.2.1. The tests listed in Table 1 shall be required to verify the suitability of the proposed stone source. All required tests shall be conducted on stone samples selected by the Government. Costs of all testing of a non-listed stone source shall be borne by the Contractor. The evaluation of the stone acceptability will be based on criteria of visual inspections, service record in the Great Lakes area, and laboratory test results, as stated in the specification. The Government will provide a determination of acceptance or rejection of non-listed source(s) proposed by the Contractor within 10 working days of the date of completed testing at a Government Laboratory or Government Validated Laboratory. No

additional time will be added to Contract milestones or delivery dates for the time required for the Government to make a determination of acceptance or rejection of a non-listed Contractor proposed source.

2.1.2.7 Notification

When stone materials are to be obtained from a listed source(s), the source(s) shall be selected and the Contracting Officer notified at least fifteen (15) calendar days in advance of the time the material will be used in the work.

2.1.2.8 Rejection

If the source(s) so designated by the Contractor is not allowed for use by the Contracting Officer, the Contractor may not submit for use non-listed sources, but shall furnish the materials from a source(s) listed hereinbefore subject to concurrence of Contracting Officer and compliance with contract specification requirements at no additional cost to the Government.

2.1.3 Specific Gravity

Since quantity determinations are contingent upon the range of specific gravity (saturated surface dry (SSD) basis) of stone to be supplied, the Contractor shall make an investigation to determine the lowest and highest specific gravity (SSD) of the stone available at the quarry or quarries it proposes to utilize and furnish a copy of the results to the Contracting Officer. Tests shall have been performed in accordance with ASTM C127.

2.1.4 Alternate Sources

If it is found during the contract that acceptable materials and quantities of materials cannot be obtained by the Contractor from the source(s) presently being used, the Contractor may request to be allowed to use alternate source(s). If the request is approved, the source(s) to be used shall be selected from the sources listed in Subparagraph, "Sources." Obtaining and furnishing materials from the alternate source(s) shall be at no additional cost to the Government.

2.1.5 Material Sampling and Shipping

When directed by the Contracting Officer, stone shall be shipped to a Government validated laboratory for testing for quality prior to the start of placement. Additionally, if before or during the course of the quarry operations conditions are such that, in the Contracting Officer's opinion, testing to ensure the quality of the production material is warranted, the following action shall be taken:

2.1.5.1 Test Samples

Test samples shall be obtained by the Contractor at its expense. Samples selected for testing shall be representative of material formations in the quarry to be used or being used on the project. The Contracting Officer's Representative must be present and approve the selection of all test samples before shipment. The Contracting Officer's Representative may elect to personally select all samples. One (1) to three (3) stones representative of each stone grouping, as determined by the Contracting Officer from each quarry to be used, shall be selected for testing. Samples of stone groupings with a maximum size less than 500 pounds shall

contain at least two (2) stones representative of the higher limit of the stone weights specified. In addition, the sample shall be representative of the gradation specified and the minimum weight of the total sample shall be not less than 500 pounds.

2.1.5.2 Shipping Samples

The samples shall be shipped or delivered by the Contractor, at its expense, to a Government validated laboratory for the test method(s) required. Tests performed will be as described in the Subparagraph, "Material Tests."

2.1.6 Acceptability of Stone Materials

Acceptability of stone material will be based on the criteria in this Section and as determined by the COR by visual inspections, evaluation of service records, and applicable laboratory test results. On-site stone will be selected from on-site stockpiles in coordination between the contractor and the COR. All off-site materials shall meet the minimum quality requirements listed in Table 1 below, based on field examination and applicable laboratory testing. Laboratory results shall be representative of the same lithologic unit as the corresponding stones or materials. Laboratory test results shall be from a Government or Government-approved laboratory capable of handling sample sizes described in the subscript of Table 1, and shall be less than 5 years old at the time of submittal, unless otherwise accepted by the COR. If test results are more than 5 years old, or are not representative of the material proposed under this Contract, the COR may select samples from the Pre-Production Reference Stones or materials designated by the Contractor as proposed sources, and direct the Contractor to have selected stones tested by a Government or Government-approved laboratory in accordance with the requirements of Table 1, below. Field and Laboratory tests to which the material may be subjected are listed in the paragraph titled REFERENCES. The COR may waive the requirement for laboratory testing of stone, based on the results of visual inspections and service records in projects similar to this project. Under no circumstances will the Contractor be allowed a Contract extension for the time necessary to evaluate materials for acceptability.

TABLE 1
Criteria for Stone Quality

Test	Test Method	Acceptance Criteria
Specific Gravity	ASTM C 127	2.5 - 2.9
Absorption	ASTM C 127	3 percent
Los Angeles Abrasion(2)	ASTM C 535	< 25 percent loss after 500 revs.
Freeze-Thaw(1),(2)	ASTM D 5312	< 3 percent loss after 35 cycles
Wetting-Drying(1),(2)	ASTM D 5313	< 3 percent loss after 80 cycles
Petrographic(2)	ASTM C 295	No deleterious

Examination		materials or features allowed
Field Examination(2)	ASTM D 4992	No deleterious materials or features allowed

1/ The minimum testing slab size dimension shall be 13 inches X 15 inches X 2 inches for designation ASTM D 5312 and ASTM D 5313, and shall be cut perpendicular to the bedding planes within the stone.

2/ See paragraph entitled STONE SAMPLING AND LABORATORY TESTING for applicability of the tests.

2.2 MATERIAL QUALITY

All stone materials shall be of a quality to insure permanence of the structure in the climate in which it is to be used. Regardless of source, the stone shall be durable, sound, and free of features, which may tend to increase deterioration from natural causes or breakage during handling, transportation, or placement. These features may include, but are not limited to fractures, seams, vugs, bedding, stylolites, planes of separation, weathering, argillaceous material, and micaceous minerals. Inclusions of any dirt, sand, clay, shale, chert, oil and oil-stained stones and rock fines and bituminous or any organic or other deleterious material will not be permitted. Stone exhibiting vugs totaling not more than five (5) percent of the total surface area of any face and less than 4-inches in maximum diameter, provided that they are not aligned along bedding planes or planes of weakness will be acceptable, other provisions of this specification withstanding. All stone shall be highly resistant to weathering and disintegration under freeze / thaw and wetting / drying conditions.

2.2.1 Specific Gravity Range

All stone shall have a minimum specific gravity of 2.50 and a maximum specific gravity of not more than 2.90 based on water having a unit weight of 62.4 pounds per cubic foot. Reference is made to Paragraph, "CONVERSION FACTORS OF IN-PLACE VOLUME TO BID QUANTITIES," for data on converting in-place volume to bid quantities and for information on variations in specific gravity.

2.2.2 Stone Dimensions

The least dimension of any piece of stone shall not be less than one third of its greatest dimension.

2.3 QUARRY OPERATIONS AND HANDLING

Quarry operations shall be conducted by the Contractor/Supplier in a manner that will produce stone conforming to the requirements specified and may involve handling, processing, blending, and loading as necessary. Blasting and handling of rock shall be controlled by the Contractor/Supplier to produce rock of the size ranges and quality specified. Techniques such as the use of proper hole diameter, hole depth, hole angle, burden and spacing distances, types and distribution of explosives, delay intervals and

sequence, removal of muck piles between each shot, and special handling techniques will be required as necessary to produce the specified materials. All aspects of blasting operations shall be specifically designed so that the end product is not damaged from the blasting technique and that the stone is suitable for the intended purpose. Stone in excess of 500 pounds each will not be accepted from material which was blasted from the face of the quarry during the period of 30 October to 1 May.

2.3.1 Temporary Storage

Storage of stone materials subsequent to shipment from the quarry and prior to permanent placement in the required work shall be subject to approval of the Contracting Officer. Underwater storage of stone materials is prohibited.

2.4 GRADATION

Material having the gradations listed below shall be placed in the work at locations shown on the drawings. Gradation limits are in-place requirements. Adjustments in production and placing methods shall be made as necessary to assure final placed materials are within specified ranges.

2.4.1 Riprap Stone

The stones furnished for riprap shoreline protection shall be rough angular in shape and shall be between 70 lbs and 500 lbs each, shall be free of fines and shall be well graded within the following limits:

Not more than 15 percent in excess of 500 lbs inches in size.
At least 50 percent greater than 150 lbs in size.
At least 85 percent greater than 100 lbs in size.
Not more than 5 percent shall be smaller than 70 lbs in size.

PART 3 EXECUTION

3.1 PLACEMENT

3.1.1 General

All materials shall be placed uniformly within the slope lines and grades indicated on the drawings or as directed by the Contracting Officer. Material shall be placed by equipment capable of handling materials of the size specified.

3.1.2 Debris

Any timbers, unsatisfactory material and debris within the reaches of construction shall be removed except as otherwise directed by the Contracting Officer, and upon removal shall become the property of the Contractor. All materials shall be properly disposed of in conformance with the requirements of SECTION 01130, "ENVIRONMENTAL PROTECTION" including any applicable local requirements.

3.1.3 Limitations of Placement Procedures

Stone construction in advance of completed permanent protection except as specified herein shall be at the Contractor's risk. The Contractor shall keep the Contracting Officer advised as to any and all situations that may result in a possible interruption of work.

3.1.3.1 Restrictions

Stones required to be placed over or adjacent to drains and subsurface pipes shall not be dropped, but gently lowered and placed in their final position by the material handling equipment.

3.1.4 Placement of Stone Protection on Geotextile

The stone shall be placed on the geotextile with care so as not to rupture the fabric and shall not be dropped from a height greater than one (1) foot. During placement of stone, any damage to the fabric shall be repaired or replaced in a manner satisfactory to the Contracting Officer and at no additional cost to the Government.

3.1.5 Riprap Stone

Stone shall be placed to a full zone thickness in one operation in a manner to avoid displacing the underlying material or placing undue impact force on underlying materials and supporting subsoils. The riprap shall be placed in a manner to produce a resultant graded mass of stone with minimum voids. Rearranging of individual stones may be required to achieve this result. Placement by any method which is likely to cause segregation of the various sizes will not be permitted. Unsegregated stone shall be lowered in a bucket or container and placed in a systematic manner directly on the underlying material. Placement shall begin at the bottom of the slope and proceed upward. Casting or dropping of stone over (1) foot or moving by drifting or manipulating down the slope will not be permitted. Final finish of slope shall be performed as the material is placed.

3.1.6 Slides

In the event of the sliding or failure of any part of the structure during its construction, or after its completion, but prior to its acceptance, the Contractor shall, upon written order of the Contracting Officer, cut out and remove the slide from the structure and then rebuild that portion of the structure with new materials or reuse the displaced materials for rebuilding if deemed appropriate. The Contracting Officer shall determine the nature and cause of the slide. In case the slide is caused through fault of the Contractor, the foregoing operations shall be performed without cost to the Government.

3.1.7 Tolerances

The finished surface and stone layer thickness shall not deviate from the lines and grades shown on the contract drawings by more than the tolerances listed below. Tolerances are measured perpendicular to the indicated neatlines. Extreme limits of the tolerances given shall not be continuous in any direction for more than five (5) times the nominal stone dimension nor for an area greater than 100 square feet of the structure surface.

	NEATLINE TOLERANCES	
Stone	Above Neatline (Inches)	Below Neatline (Inches)
Riprap	6	3

The intention is that the work will be built generally to the required elevations, slope and grade and that the outer surfaces shall be even and present a neat appearance. Placed material not meeting these limits shall be removed or reworked as directed by the Contracting Officer. Excess material permitted to remain in place by the Contracting Officer will not be paid for.

3.2 QUALITY CONTROL

3.2.1 General

The Contractor shall establish and maintain quality control for all work performed at the quarry or quarries and the job site under this Section to assure compliance with contract requirements. It shall maintain records of its quality control tests, inspections and corrective actions. Quality control measures shall cover all materials, equipment, tests and construction operations including but not limited to the following:

a. Testing and inspection during start up operations and during production of materials for rock quality, weights or sizes and gradations of stone materials. Adjustments shall be made in methods and/or procedures as necessary to provide "in-place" stone materials in sizes conforming with the contract requirements.

b. Placement of all materials to the slope and grade lines shown on the contract drawings and in accordance with this Section of the specifications.

c. Conducting all operations in compliance with the requirements of SECTION 01130, "ENVIRONMENTAL PROTECTION".

d. Observance of safety regulations.

3.2.2 Check Surveys

Surveys made by the Contractor are required on each material placed for determining that the materials are acceptably placed in the work. The Contractor shall make checks as the work progresses to verify lines, grades and thicknesses established for completed work. At least one (1) check survey as specified below shall be made by the Contractor for each twenty-five (25) foot section as soon as practicable after completion. Following placement of each type of material, the cross section of each step of the work shall be approved by the C.O.R. before proceeding with the next step of the work. Approval of cross sections based on check surveys shall not constitute final acceptance of the work. Cross sections shall be taken by the Contractor on lines twenty-five (25) feet apart, measured along the construction baseline, with readings at five (5) foot intervals and at breaks along the lines. However, other cross section spacings and reading intervals may be used if determined appropriate by the C.O.R. Additional elevations and soundings shall be taken as the C.O.R. may deem necessary or advisable. The surveys shall be conducted in the presence of an authorized representative of the Government, unless this requirement is waived by the Contracting Officer.

3.2.2.1 Above Water

The elevation of stone above the water surface shall be determined by the use of a leveling instrument and a rod having a base twelve (12) inches in diameter. Other means, if approved by the Contracting Officer, may also be

used.

3.2.2.2 Below Water

For portions of the work that are under water, sounding surveys shall be performed either by means of a sounding pole or a sounding basket weighing about 8-1/2 pounds, each of which has a base measuring twelve (12) inches in diameter.

3.2.3 Quarry Test, Inspection and Samples

3.2.3.1 General

All tests specified herein shall be performed by, and at the expense of, the Contractor as part of its "Quality Control Program". Samples for testing shall be selected by the Contractor with the concurrence of the Contracting Officer's Representative. Tests shall be made as specified below and any adjustments to the Contractor's operation necessary to provide material meeting contract requirements shall be at the Contractor's expense. Stone materials which do not meet these specification requirements shall be separated to assure they do not get mixed in with acceptable materials.

3.2.3.2 Pre-production Testing

Stone materials produced during start-up operations at the quarry shall be tested and evaluated for quality, weight and gradations as required to assure compliance with the specifications. Three (3) consecutive tests shall pass all requirements, and be witnessed by the Contracting Officer's Representative, prior to full production operations or shipment of any material to the project site.

3.2.3.3 Quarry Samples

Prior to delivery of any stone to the job site and after pre-production testing is complete, the Contractor's inspector and the Contracting Officer's Representative shall meet at each quarry designated to supply stone material and select stones, with required weight, to be set aside at the quarry as reference samples of the materials to be shipped to the project site. These samples shall be retained until completion of the project. Samples shall consist of at least one (1) stone representing the minimum, average and maximum weight of each size range in the gradation. Basic quarry material inspections shall be provided by the Contractor as part of its "Quality Control Program".

3.2.3.4 Production Testing

Production quality control tests shall be performed at the quarry prior to shipment of materials to the project site and shall be performed at regular intervals throughout the project construction. Tests which do not pass are not counted toward the number of tests required. Production testing may be increased as necessary to maintain quality control when directed by the Contracting Officer's Representative. Increased production testing shall also be at the Contractor's expense. Samples for production testing shall be taken from materials as they are produced. The following minimum tests are required.

Stone	Type of Test	Minimum Size of Sample/Test	Minimum Number of Tests

Riprap	Gradation Visual Measurement Weight	3 tons	1

3.2.3.5 Visual Inspections

A visual check of all stone designated above shall be made at the quarry or at the project site as required for size, gradation, elongation, cracks, deterioration and other defects visible to the naked eye on the entire surface area of the stone. Five percent (5%) of the stone checked for cracks shall be wetted and reinspected for minute cracks to determine if additional inspections are necessary on all stone. Stone with cracks or defects that are detrimental to a long lasting product shall not be shipped to the project site.

3.2.3.6 Gradation Test

Stone gradation determination shall be as recommended by the Contractor and approved by the Contracting Officer.

3.2.4 Project Site Inspection and Tests

At the project site, visual inspections shall be made of all materials for size, gradations, fractures, etc., to assure that handling during loading, transporting, unloading and placement does not cause damage to the materials and to assure they are placed in accordance with the requirements of this Section. Any material broken, cracked, out of gradation or weight limitation or improperly placed in the work shall be removed and replaced with new stones or corrected as directed by the Contracting Officer at no additional expense to the Government.

3.2.5 Retests

The Government reserves the right to test or retest any of the material produced from the sources listed or used on the project at Government expense.

3.3 QUALITY ASSURANCE

During the contract period, both prior to and after materials are delivered to the job site, visual inspections of the stone materials may be performed by the Contracting Officer. If the Contracting Officer, during the inspections, suspects that the stone quality, gradation or weights of stone being furnished are not as specified, supplemental sampling and testing by the Contractor shall be required. Samples of the delivered stone for testing and the manner in which the test is to be performed shall be as directed by the Contracting Officer. This additional sampling and testing shall be performed at the Contractor's expense when test results indicate that the materials do not meet specified requirements. When test results indicate that materials meet specified requirements, an equitable adjustment for the sampling and testing will be made in accordance with the CLAUSE titled "CHANGES." Any material rejected shall be removed from the job site at the Contractor's expense.

- End of Section -

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SECTION 02630

STORM-DRAINAGE SYSTEM

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.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO HB-16	(1996) Standard Specifications for Highway Bridges
AASHTO M 190	(1988) Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches
AASHTO M 198	(1994) Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets
AASHTO M 243	(1994) Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches
AASHTO M 294	(1994) Corrugated Polyethylene Pipe, 305- to 915- mm (12-to 36 in.) Diameter
AASHTO MP6	(1995) Corrugated Polyethylene Pipe 1050 and 1200 mm Diameter

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 760/A 760M	(1997) Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
ASTM A 798/A 798M	(1997) Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications
ASTM A 807	(1996) Installing Corrugated Steel Structural Plate Pipe for Sewers and Other Applications
ASTM A 929/A 929M	(1996) Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe
ASTM C 76	(1997) Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C 231	(1997) Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C 270	(1997a) Mortar for Unit Masonry
ASTM C 425	(1997) Compression Joints for Vitrified Clay Pipe and Fittings
ASTM C 443	(1994) Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
ASTM C 507	(1995a) Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe
ASTM C 877	(1994) External Sealing Bands for Noncircular Concrete Sewer, Storm Drain, and Culvert Pipe
ASTM D 1056	(1991) Flexible Cellular Materials - Sponge or Expanded Rubber
ASTM D 1171	(1994) Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens)
ASTM D 1751	(1983; R 1991) Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752	(1984; R 1996) Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D 2321	(1989; R 1995) Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D 3350	(1996) Polyethylene Plastics Pipe and Fittings Materials
ASTM F 477	(1995) Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F 714	(1994) Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter

1.2 MEASUREMENT AND PAYMENT

1.2.1 Pipe Culverts and Storm Drains

Pipe as shown on drawings will be paid for at the contract lump sum price under site preparation.

1.2.2 Flared End Sections

Flared end sections as shown on drawings will be paid for at the contract lump sum price under site preparation.

1.2.3 Backfill Replacing Unstable Material

Payment will be made for the number of cubic yards of select granular

material required to replace unstable material for foundations under pipes or drainage structures, which will constitute full compensation for this backfill material, including removal and disposal of unstable material and all excavating, hauling, placing, compacting, and all incidentals necessary to complete the construction of the foundation satisfactorily.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Placing Pipe.

Printed copies of the manufacturer's recommendations for installation procedures of the material being placed, prior to installation.

Pipeline Testing. Hydrostatic Test on Watertight Joints. Determination of Density.

Certified copies of test reports demonstrating conformance to applicable pipe specifications, before pipe is installed.

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. Before, during, and after installation, plastic pipe and fittings shall be protected from any environment that would result in damage or deterioration to the material. The Contractor shall have a copy of the manufacturer's instructions available at the construction site at all times and shall follow these instructions unless directed otherwise by the Contracting Officer. Solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials required to install plastic pipe shall be stored in accordance with the manufacturer's recommendations and shall be discarded if the storage period exceeds the recommended shelf life. Solvents in use shall be discarded when the recommended pot life is exceeded.

1.4.2 Handling

Materials shall be handled in a manner that ensures delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.

PART 2 PRODUCTS

2.1 PIPE FOR CULVERTS AND STORM DRAINS

Pipe for culverts and storm drains shall be of the sizes indicated and shall conform to the requirements specified.

2.1.1 Concrete Pipe

ASTM C 76, Class IV.

2.1.1.1 Reinforced Elliptical Culvert and Storm Drainpipe

ASTM C 507. Horizontal elliptical pipe shall be Class HE-IV.

2.1.2 Corrugated Steel Pipe

ASTM A 760/A 760M, zinc coated pipe of either:

a. Type II pipe with annular corrugations.

2.1.3 PE Pipe

The pipe manufacturer's resin certification indicating the cell classification of PE used to manufacture the pipe shall be submitted prior to installation of the pipe. The minimum cell classification for polyethylene plastic shall apply to each of the seven primary properties of the cell classification limits in accordance with ASTM D 3350.

2.1.3.1 Smooth Wall PE Pipe

ASTM F 714, maximum DR of 21 for pipes 3 to 24 inches in diameter and maximum DR of 26 for pipes 26 to 48 inches in diameter. Pipe shall be produced from PE certified by the resin producer as meeting the requirements of ASTM D 3350, minimum cell class 335434C.

2.1.3.2 Corrugated PE Pipe

AASHTO M 294, Type S, for pipes 12 to 36 inches and AASHTO MP6, Type S or D, for pipes 42 to 48 inches produced from PE certified by the resin producer as meeting the requirements of ASTM D 3350, minimum cell class 315412C or 324420C. Pipe walls shall have the following properties:

Nominal Size (in.)	Minimum Wall Area (square in/ft)	Minimum Moment of Inertia of Wall Section (in to the 4th/in)
12	1.50	0.024
15	1.91	0.053
18	2.34	0.062
24	3.14	0.116
30	3.92	0.163
36	4.50	0.222
42	4.69	0.543
48	5.15	0.543

2.2 DRAINAGE STRUCTURES

2.2.1 Flared End Sections

Sections shall be of a standard design fabricated from zinc coated steel sheets meeting requirements of ASTM A 929/A 929M.

2.3 MISCELLANEOUS MATERIALS

2.3.1 Concrete

Unless otherwise specified, concrete and reinforced concrete shall conform to the requirements for 4000 psi concrete. The concrete mixture shall have air content by volume of concrete, based on measurements made immediately after discharge from the mixer, of 5 to 7 percent when maximum size of coarse aggregate exceeds 1-1/2 inches. Air content shall be determined in accordance with ASTM C 231. The concrete covering over steel reinforcing shall not be less than 1 inch thick for covers and not less than 1-1/2 inches thick for walls and flooring. Concrete covering deposited directly against the ground shall have a thickness of at least 3 inches between steel and ground. Expansion-joint filler material shall conform to ASTM D 1751, or ASTM D 1752, or shall be resin-impregnated fiberboard conforming to the physical requirements of ASTM D 1752.

2.3.2 Mortar

Mortar for pipe joints, connections to other drainage structures, and brick or block construction shall conform to ASTM C 270, Type M, except that the maximum placement time shall be 1 hour. The quantity of water in the mixture shall be sufficient to produce a stiff workable mortar but in no case shall exceed 7 gallons of water per sack of cement. Water shall be clean and free of harmful acids, alkalies, and organic impurities. The mortar shall be used within 30 minutes after the ingredients are mixed with water. The inside of the joint shall be wiped clean and finished smooth. The mortar head on the outside shall be protected from air and sun with a proper covering until satisfactorily cured.

2.3.3 Joints

2.3.3.1 Flexible Watertight Joints

a. Materials: Flexible watertight joints shall be made with plastic or rubber-type gaskets for concrete pipe and with factory-fabricated resilient materials for clay pipe. The design of joints and the physical requirements for plastic gaskets shall conform to AASHTO M 198, and rubber-type gaskets shall conform to ASTM C 443. Factory-fabricated resilient joint materials shall conform to ASTM C 425. Gaskets shall have not more than one factory-fabricated splice, except that two factory-fabricated splices of the rubber-type gasket are permitted if the nominal diameter of the pipe being gasketed exceeds 54 inches.

b. Test Requirements: Watertight joints shall be tested and shall meet test requirements of paragraph HYDROSTATIC TEST ON WATERTIGHT JOINTS. Rubber gaskets shall comply with the oil resistant gasket requirements of ASTM C 443. Certified copies of test results shall be delivered to the Contracting Officer before gaskets or jointing materials are installed. Alternate types of watertight joint may be furnished, if specifically approved.

2.3.3.2 External Sealing Bands

Requirements for external sealing bands shall conform to ASTM C 877.

2.3.3.3 Flexible Watertight, Gasketed Joints

a. Gaskets: When infiltration or exfiltration is a concern for pipe lines, the couplings may be required to have gaskets. The closed-cell expanded rubber gaskets shall be a continuous band approximately 7 inches wide and approximately 3/8 inch thick, meeting the requirements of ASTM D 1056, Type 2 A1, and shall have a quality retention rating of not less than 70 percent when tested for weather resistance by ozone chamber exposure, Method B of ASTM D 1171. Rubber O-ring gaskets shall be 13/16 inch in diameter for pipe diameters of 36 inches or smaller and 7/8 inch in diameter for larger pipe having 1/2 inch deep end corrugation. Rubber O-ring gaskets shall be 1-3/8 inches in diameter for pipe having 1 inch deep end corrugations. O-rings shall meet the requirements of AASHTO M 198 or ASTM C 443. Flexible plastic gaskets shall conform to requirements of AASHTO M 198, Type B.

b. Connecting Bands: Connecting bands shall be of the type, size and sheet thickness of band, and the size of angles, bolts, rods and lugs as indicated or where not indicated as specified in the applicable standards or specifications for the pipe. Exterior rivet heads in the longitudinal seam under the connecting band shall be countersunk or the rivets shall be omitted and the seam welded. Watertight joints shall be tested and shall meet the test requirements of paragraph HYDROSTATIC TEST ON WATERTIGHT JOINTS.

2.3.3.4 Smooth Wall PE Plastic Pipe

Pipe shall be joined using butt fusion method as recommended by the pipe manufacturer.

2.3.3.5 Corrugated PE Plastic Pipe

Water tight joints shall be made using a PVC or PE coupling and rubber gaskets as recommended by the pipe manufacturer. Rubber gaskets shall conform to ASTM F 477. Soil tight joints shall conform to the requirements in AASHTO HB-16, Division II, Section 26.4.2.4. (e) for soil tightness and shall be as recommended by the pipe manufacturer.

PART 3 EXECUTION

3.1 EXCAVATION FOR PIPE CULVERTS, STORM DRAINS, AND DRAINAGE STRUCTURES

Excavation of trenches, and for appurtenances and backfilling for culverts and storm drains, shall be in accordance with the requirements specified below.

3.1.1 Trenching

The width of trenches at any point below the top of the pipe shall be not greater than the outside diameter of the pipe plus 12 inches nor less 6 inches to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Sheeting and bracing, where required, shall be placed within the trench width as specified. Contractor shall not overexcavate. Where trench widths are exceeded, redesign with a resultant increase in cost of stronger pipe or special installation procedures will be necessary. Cost of this redesign and increased cost of pipe or installation shall be borne by the Contractor without additional cost to the Government.

3.1.2 Removal of Unstable Material

Where wet or otherwise unstable soil incapable of properly supporting the pipe, as determined by the Contracting Officer, is unexpectedly encountered in the bottom of a trench, such material shall be removed to the depth required and replaced to the proper grade with select granular material, compacted as provided in paragraph BACKFILLING. When removal of unstable material is due to the fault or neglect of the Contractor in his performance of shoring and sheeting, water removal, or other specified requirements, such removal and replacement shall be performed at no additional cost to the government.

3.2 BEDDING

The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe.

3.2.1 Concrete Pipe Requirements

When no bedding class is specified or detailed on the drawings, concrete pipe shall be bedded in a soil foundation accurately shaped and rounded to conform to the lowest one-fourth of the outside portion of circular pipe or to the lower curved portion of pipe arch for the entire length of the pipe or pipe arch. When necessary, the bedding shall be tamped. Bell holes and depressions for joints shall be not more than the length, depth, and width required for properly making the particular type of joint.

3.2.2 Corrugated Metal Pipe

Bedding for corrugated metal pipe and pipe arch shall be in accordance with ASTM A 798/A 798M. It is not required to shape the bedding to the pipe geometry. However, for pipe arches, the Contractor shall either shape the bedding to the relatively flat bottom arc or fine grade the foundation to a shallow v-shape. Bedding for corrugated structural plate pipe shall meet requirements of ASTM A 807.

3.2.3 Plastic Pipe

Bedding for PVC and PE pipe shall meet the requirements of ASTM D 2321. Bedding, haunching, and initial backfill shall be either Class IB or II material.

3.3 PLACING PIPE

Each pipe shall be thoroughly examined before being laid; defective or damaged pipe shall not be used. Plastic pipe shall be protected from exposure to direct sunlight prior to laying, if necessary to maintain adequate pipe stiffness and meet installation deflection requirements. Pipelines shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe into trenches. Lifting lugs in vertically elongated metal pipe shall be placed in the same vertical plane as the major axis of the pipe. Pipe shall not be laid in water, and pipe shall not be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary. Deflection of installed flexible pipe shall not exceed the following limits:

TYPE OF PIPE	MAXIMUM ALLOWABLE DEFLECTION (%)
Corrugated Steel and Aluminum Alloy	5

Not less than 30 days after the completion of backfilling, the Government may perform a deflection test on the entire length of installed flexible pipe using a mandrel or other suitable device. Installed flexible pipe showing deflections greater than those indicated above shall be retested by a run from the opposite direction. If the retest also fails, the suspect pipe shall be replaced at no cost to the Government.

3.3.1 Concrete

Laying shall proceed upgrade with spigot ends of bell-and-spigot pipe and tongue ends of tongue-and-groove pipe pointing in the direction of the flow.

3.3.2 Elliptical and Elliptical Reinforced Concrete Pipe

The manufacturer's reference lines, designating the top of the pipe, shall be within 5 degrees of a vertical plane through the longitudinal axis of the pipe, during placement. Damage to or misalignment of the pipe shall be prevented in all backfilling operations.

3.3.3 Corrugated PE Pipe

Laying shall be with the separate sections joined firmly on a bed shaped to line and grade and shall follow manufacturer's recommendations.

3.3.4 Corrugated Metal Pipe

Laying shall be with the separate sections joined firmly together, with the outside laps of circumferential joints pointing upstream, and with longitudinal laps on the sides. Lifting lugs shall be used to facilitate moving pipe without damage to exterior or interior coatings. During installation, pipe shall be handled with care. Prior to placing backfill, damaged areas of coupling bands and pipe shall be given a coating of bituminous material, as specified in AASHTO M 190 or AASHTO M 243.

3.4 JOINTING

3.4.1 Concrete

3.4.1.1 Cement-Mortar Tongue-and-Groove Joint

The first pipe shall be bedded carefully to the established gradeline with the groove upstream. A shallow excavation shall be made underneath the pipe at the joint and filled with mortar to provide a bed for the pipe. The grooved end of the first pipe shall be thoroughly cleaned with a wet brush, and a layer of soft mortar applied to the lower half of the groove. The tongue of the second pipe shall be cleaned with a wet brush; while in horizontal position, a layer of soft mortar shall be applied to the upper half of the tongue. The tongue end of the second pipe shall be inserted in the grooved end of the first pipe until mortar is squeezed out on interior and exterior surfaces. Sufficient mortar shall be used to fill the joint completely and to form a bead on the outside.

3.4.1.2 Plastic Sealing Compound Joints for Tongue-and-Grooved Pipe

Sealing compounds shall follow the recommendation of the particular manufacturer in regard to special installation requirements. Surfaces to receive lubricants, primers, or adhesives shall be dry and clean. Sealing compounds shall be affixed to the pipe not more than 3 hours prior to installation of the pipe, and shall be protected from the sun, blowing dust, and other deleterious agents at all times. Sealing compounds shall be inspected before installation of the pipe, and any loose or improperly affixed sealing compound shall be removed and replaced. The pipe shall be aligned with the previously installed pipe, and the joint pulled together. If, while making the joint with mastic-type sealant, a slight protrusion of the material is not visible along the entire inner and outer circumference of the joint when the joint is pulled up, the pipe shall be removed and the joint remade. After the joint is made, all inner protrusions shall be cut off flush with the inner surface of the pipe. If nonmastic-type sealant material is used, the "Squeeze-Out" requirement above will be waived.

3.4.1.3 Flexible Watertight Joints

Gaskets and jointing materials shall be as recommended by the particular manufacturer in regard to use of lubricants, cements, adhesives, and other special installation requirements. Surfaces to receive lubricants, cements, or adhesives shall be clean and dry. Gaskets and jointing materials shall be affixed to the pipe not more than 24 hours prior to the installation of the pipe, and shall be protected from the sun, blowing dust, and other deleterious agents at all times. Gaskets and jointing materials shall be inspected before installing the pipe; any loose or improperly affixed gaskets and jointing materials shall be removed and replaced. The pipe shall be aligned with the previously installed pipe, and the joint pushed home. If, while the joint is being made the gasket becomes visibly dislocated the pipe shall be removed and the joint remade.

3.4.1.4 External Sealing Band Joint for Noncircular Pipe

Surfaces to receive sealing bands shall be dry and clean. Bands shall be installed in accordance with manufacturer's recommendations.

3.4.2 Corrugated Metal Pipe

3.4.2.1 Field Joints

Transverse field joints shall be designed so that the successive connection of pipe sections will form a continuous line free of appreciable irregularities in the flow line. In addition, the joints shall meet the general performance requirements described in ASTM A 798/A 798M. Suitable transverse field joints which satisfy the requirements for one or more of the joint performance categories can be obtained with the following types of connecting bands furnished with suitable band-end fastening devices: corrugated bands, bands with projections, flat bands, and bands of special design that engage factory reformed ends of corrugated pipe. The space between the pipe and connecting bands shall be kept free from dirt and grit so that corrugations fit snugly. The connecting band, while being tightened, shall be tapped with a soft-head mallet of wood, rubber or plastic, to take up slack and ensure a tight joint. Field joints for each type of corrugated metal pipe shall maintain pipe alignment during construction and prevent infiltration of fill material during the life of

the installations. The type, size, and sheet thickness of the band and the size of angles or lugs and bolts shall be as indicated or where not indicated, shall be as specified in the applicable standards or specifications for the pipe.

3.4.2.2 Flexible Watertight, Gasketed Joints

Installation shall be as recommended by the gasket manufacturer for use of lubricants and cements and other special installation requirements. The gasket shall be placed over one end of a section of pipe for half the width of the gasket. The other half shall be doubled over the end of the same pipe. When the adjoining section of pipe is in place, the doubled-over half of the gasket shall then be rolled over the adjoining section. Any unevenness in overlap shall be corrected so that the gasket covers the end of pipe sections equally. Connecting bands shall be centered over adjoining sections of pipe, and rods or bolts placed in position and nuts tightened. Band Tightening: The band shall be tightened evenly, even tension being kept on the rods or bolts, and the gasket; the gasket shall seat properly in the corrugations. Watertight joints shall remain uncovered for a period of time designated, and before being covered, tightness of the nuts shall be measured with a torque wrench. If the nut has tended to loosen its grip on the bolts or rods, the nut shall be retightened with a torque wrench and remain uncovered until a tight, permanent joint is assured.

3.5 BACKFILLING

3.5.1 Backfilling Pipe in Trenches

After the pipe has been properly bedded, selected material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along both sides of pipe in layers not exceeding 6 inches in compacted depth. The backfill shall be brought up evenly on both sides of pipe for the full length of pipe. The fill shall be thoroughly compacted under the haunches of the pipe. Each layer shall be thoroughly compacted with mechanical tampers or rammers. This method of filling and compacting shall continue until the fill has reached an elevation of at least 12 inches above the top of the pipe. The remainder of the trench shall be backfilled and compacted by spreading and rolling or compacted by mechanical rammers or tampers in layers not exceeding 12 inches. Tests for density shall be made as necessary to ensure conformance to the compaction requirements specified below. Where it is necessary, in the opinion of the Contracting Officer, that sheeting or portions of bracing used be left in place, the contract will be adjusted accordingly. Untreated sheeting shall not be left in place beneath structures or pavements.

3.5.2 Backfilling Pipe in Fill Sections

For pipe placed in fill sections, backfill material and the placement and compaction procedures shall be as specified below. The fill material shall be uniformly spread in layers longitudinally on both sides of the pipe, not exceeding 6 inches in compacted depth, and shall be compacted by rolling parallel with pipe or by mechanical tamping or ramming. Prior to commencing normal filling operations, the crown width of the fill at a height of 12 inches above the top of the pipe shall extend a distance of not less than twice the outside pipe diameter on each side of the pipe or 12 feet, whichever is less. After the backfill has reached at least 12 inches above the top of the pipe, the remainder of the fill shall be placed and thoroughly compacted in layers not exceeding 12 inches.

3.5.3 Movement of Construction Machinery

When compacting by rolling or operating heavy equipment parallel with the pipe, displacement of or injury to the pipe shall be avoided. Movement of construction machinery over a culvert or storm drain at any stage of construction shall be at the Contractor's risk. Any damaged pipe shall be repaired or replaced.

3.5.4 Compaction

3.5.4.1 General Requirements

Cohesionless materials include gravels, gravel-sand mixtures, sands, and gravelly sands. Cohesive materials include clayey and silty gravels, gravel-silt mixtures, clayey and silty sands, sand-clay mixtures, clays, silts, and very fine sands. When results of compaction tests for moisture-density relations are recorded on graphs, cohesionless soils will show straight lines or reverse-shaped moisture-density curves, and cohesive soils will show normal moisture-density curves.

3.5.4.2 Minimum Density

Backfill over and around the pipe and backfill around and adjacent to drainage structures shall be compacted at the approved moisture content to the following applicable minimum density, which will be determined as specified below.

a. Under all areas, density shall not be less than 90 percent of maximum density for cohesive material and 95 percent of maximum density for cohesionless material.

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DIVISION 31 - EARTHWORK

SECTION 31 05 22

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SECTION 31 05 22

GEOTEXTILES USED AS FILTERS

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 within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 123	(2007) Terminology Relating to Textiles
ASTM D 4355	(2007) Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus
ASTM D 4491	(1999a; R 2004e1) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(2004) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 2003) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(2004) Determining Apparent Opening Size of a Geotextile
ASTM D 4833	(2000e1) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(2002) Identification, Storage, and Handling of Geosynthetic Rolls and Samples
ASTM D 4884	(1996; R 2003) Strength of Sewn or Thermally Bonded Seams of Geotextiles

U.S. ARMY CORPS OF ENGINEERS (USACE)

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

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Samples

Geotextile

If requested,submit geotextile samples for testing to determine compliance with the requirements in this specification. When required, submit samples a minimum of 60 days prior to the beginning of installation of the same textile. Upon delivery of the geotextile, submit duplicate copies of the written certificate of compliance signed by a legally authorized official of the manufacturer. The certificate shall state that the geotextile shipped to the site meets the chemical requirements and exceeds the minimum average roll value listed in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Upon request, supply quality control and quality assurance tests for the geotextile. 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 that 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. 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.

SD-07 Certificates

Geotextile

Submit the manufacturer's certification of the geotextile material.

1.3 SHIPMENT, HANDLING, AND STORAGE

1.3.1 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 non-woven 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 DRAINAGE GEOTEXTILE. Strength values indicated in the table are for the weaker principal direction.

TABLE 1
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

TABLE 1
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

PROPERTY	UNITS	ACCEPTABLE VALUES		TEST METHOD
GRAB STRENGTH	lb	200		ASTM D 4632
SEAM STRENGTH	lb	180		ASTM D 4632
PUNCTURE	lb	80		ASTM D 4833
TRAPEZOID TEAR	lb	50		ASTM D 4533
APPARENT OPENING SIZE	U.S. SIEVE	50		ASTM D 4751
PERMITTIVITY	sec -1	0.1		ASTM D 4491
ULTRAVIOLET DEGRADATION	Percent	50 AT 500 Hrs	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 at least 85 percent by weight of polyolefins, polyesters, or polamides. 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 revetment materials. 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 revetment materials are placed to prevent tearing of geotextile or enlarging holes maximum spacing between securing pins depends on the steepness of the embankment slope. The maximum pins 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 demand of the Contracting Officer. Terminal

ends of the geotextile shall be anchored with key trench or apron at crest, toe of the slope and upstream and downstream limits of installation.

TABLE 2
MAXIMUM SPACING FOR SECURING PINS

EMBANKMENT	SPACING, feet
STEEPER THAN 1V ON 3H	2
1V ON 3H TO 1V ON 4H	3
FLATTER THAN 1V ON 4H	5

2.2 INSPECTIONS, VERIFICATIONS, AND TESTING

2.2.1 Manufacturing and Sampling

Geotextiles and factory seams shall meet the requirements specified in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Conformance testing shall be performed in accordance with the manufacturers approved quality control manual.

2.2.2 Site Verification and Testing

Samples shall be collected at approved locations upon delivery to the site at the request of the Contracting Officer. Samples shall be tested to verify that the geotextile meets the requirements specified in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Samples shall be identified by manufacturers name, type of geotextile, lot number, roll number, and machine direction. Testing shall be performed at an approved laboratory. Test results from the lot under review shall be submitted and approved prior to deployment of that lot of geotextile. Rolls which are sampled shall be immediately rewrapped in their protective covering.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

Surface on which the geotextile will be placed shall be prepared to a relatively smooth surface condition, in accordance with the applicable portion of this specification and shall be free from obstruction, debris, depressions, erosion feature, or vegetation. Any irregularities will 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, will be removed; erosion features such as rills, gullies etc. must be graded out of the surface before geotextile placement.

3.2 INSTALLATION OF THE GEOTEXTILE

3.2.1 General

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

3.2.2 Placement

The geotextile shall be placed with the long dimension parallel to the centerline of the channel 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 of overlap for each joint above the waterline, and 3 feet below the waterline. The overlaps at the end of strips shall be staggered at least 5 feet. The placement procedure requires that the length of the geotextile be 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 high tensile stress which may occur during placement of material on the geotextile. Design protection of riprap should be in compliance with EM 1110-2-1601. 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 a layer of the specified material is accomplished within 7 calendar days after placement of the geotextile. Failure to comply shall require replacement of geotextile. The geotextile shall be protected from damage prior to and during the placement of riprap or other materials. 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 material, or other methods deemed necessary. Care should be taken to ensure that the utilized cushioning materials shall not impede the flow of water. Before placement of riprap or other materials, 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 PLACEMENT OF CUSHIONING MATERIAL

Placing of cushioning material shall be performed in a manner to insure intimate contact of the geotextile with the prepared surface and with the cushioning material. The placement shall also be performed in a manner that shall not damage the geotextile including tear, puncture, or abrasion. On sloping surfaces the cushioning material shall be placed from the bottom of the slopes upward. During placement, the height of the drop of riprap material shall not be greater than 12 inches. Any geotextile damaged beneath the cushioning material shall be uncovered as necessary and replaced at no cost to the Government.

3.5 OVERLAPPING AND SEAMING

3.5.1 Overlapping

The overlap of geotextile rolls shall be 12 inches. Appropriate measures will be taken to insure required overlap exists after cushion placement.

3.5.2 Sewn Seams

High strength thread should be used such that seam test should conform to ASTM D 4884. The thread shall meet the chemical, ultraviolet, and physical requirements of the geotextile, and the color shall be different from that of the geotextile. The seam strength shall be equal to the strength required for the geotextile in the direction across the seam. Overlapping J-type seams are preferable over prayer-type seams as the overlapping geotextile reduces the chance of openings to occur at the seam. Double sewing shall be used specially for field seams to provide a safety factor against undetected missed stitches.

-- End of Section --