IFB W912BU21B00XX

US Army Corps
of Engineers
Baltimore District

Fishing Creek
South Jetty Rehabilitation and Maintenance Dredging
Calvert County, Chesapeake Beach, Maryland

Construction Solicitation and Specifications

100% Review Backcheck
26 March 2021

PROJECT TABLE OF CONTENTS

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.1 SCOPE OF SECTION

This section presents a general description of the work to be accomplished under this contract.

1.2 DESCRIPTION OF WORK

The contract work consists of repairs to the jetty of approximately 975 lineal feet, between Stations 0+25 and 9+00, (Area 1, 2, and 3) in front of Fishing Creek, in Chesapeake Beach, Maryland.

The major items of work to be performed under the Base Bid of this contract includes, but is not limited to, the following:

a. Structures monitoring.

b. Access dredging.

c. Placement of a geotextile fabric.

d. Placement of capstones.

e. Placement of grout.

1.3 LIFESAVING SKIFF

A lifesaving skiff shall be immediately available during all contract operations.

1.4 RESTRICTIONS ON ACCESS

All repair work shall be conducted from the water. No land access is available. Water access to the site is from the limits shown on the drawings.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

SECTION 01 33 00

SUBMITTAL PROCEDURES
08/18, CHG 4: 02/21

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Submittal Information

The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.

1.1.2 Project Type

The Contractor's Quality Control (CQC) System Manager are to check and approve all items before submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals 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.

The Contractor and the Designer of Record (DOR), if applicable, are to check and approve all items before submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals 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.

1.1.3 Submission of Submittals

Schedule and provide submittals requiring Government approval before acquiring the material or equipment covered thereby. Pick up and dispose of samples not incorporated into the work in accordance with manufacturer's Safety Data Sheets (SDS) and in compliance with existing laws and regulations.

1.2 DEFINITIONS

1.2.1 Submittal Descriptions (SD)

Submittal requirements are specified in the technical sections. Examples and descriptions of submittals identified by the Submittal Description (SD) numbers and titles follow:

SD-01 Preconstruction Submittals

Submittals that are required prior to or at the start of construction (work) or the next major phase of the construction on a multiphase contract.

For Government approved division 01 preconstruction submittals that are required prior to or commencing with the start of work shall be submitted within 30 calendar days of contract award unless specified elsewhere in the specifications. For contractor approved division 01 submittals that are required prior to or commencing with the start of work shall be submitted within 45 calendar days of contract award unless specified elsewhere in the specifications.

Preconstruction Submittals include schedules and a tabular list of locations, features, and other pertinent information regarding products, materials, equipment, or components to be used in the work.

Certificates Of Insurance

Surety Bonds

List Of Proposed Subcontractors

List Of Proposed Products

Baseline Network Analysis Schedule (NAS)

Submittal Register

Schedule Of Prices Or Earned Value Report

Accident Prevention Plan

Work Plan

Quality Control (QC) plan

Environmental Protection Plan Explosive Safety Submission ESS Work 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, systems or equipment for some portion of the work.

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

SD-04 Samples

Fabricated or unfabricated 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 ensuring work can be judged. Includes assemblies or portions of assemblies that are to be incorporated into the project and those that will be removed at conclusion of the work.

SD-05 Design Data

Design calculations, mix designs, analyses or other data pertaining to a part of work.

Design submittals, design substantiation submittals and extensions of design submittals.

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. Unless specified in another section, testing must have been within three years of date of contract award for the project.

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

Report that 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 logs and 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 the 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 manufacturer, supplier,

installer or Subcontractor through Contractor. The document purpose is to further promote the 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-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and (SDS)concerning impedances, hazards and safety precautions.

1.2.2 Approving Authority

Office or designated person authorized to approve the submittal.

1.2.3 Work

As used in this section, on-site 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. In exception, excludes work to produce SD-01 submittals.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or “S” classification are for Contractor Quality Control approval.for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Submittal Register; G

1.4 SUBMITTAL CLASSIFICATION

1.4.1 Government Approved (G)

Government approval is required for extensions of design, critical materials, variations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Government.

Government approval is required for any variations from the Solicitation or the Accepted Proposal and for other items as designated by the Government.

Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, submittals are considered to be "shop drawings."

1.4.2 Design-Build Submittal Classifications

1.4.2.1 Designer of Record Approved (DA)

Designer of Record (DOR) approval is required for extensions of design; critical materials; any variations from the Solicitation, the Accepted Proposal, or the completed design; equipment whose compatibility with the entire system must be checked; and other items as designated by the Contracting Officer. Provide the Government with the number of copies designated hereinafter of all DOR approved submittals. The Government may review any or all Designer of Record approved submittals for conformance with the Solicitation, the Accepted Proposal, and the completed design. The Government will review all submittals designated as varying from the Solicitation or Accepted Proposal, as described below. Provide design submittals in accordance with Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD). Generally, list design submittals under SD-05 Design Data.

1.4.2.2 Government Conformance Review of Design (CR)

The Government will review all intermediate and final design submittals for conformance with the technical requirements of the Solicitation. Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD) covers the design submittal and review process in detail. Review will be only for conformance with the applicable codes, standards, and contract requirements. Design data includes the design documents described in Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD).

1.4.2.3 Designer of Record Approved/Government Conformance Review (DA/CR)

1.4.2.3.1 Variations from the Accepted Design

DOR approval and the Government's concurrence are required for any proposed variation from the accepted design that still complies with the contract before the Contractor is authorized to proceed with material acquisition or installation. If necessary to facilitate the project schedule, before official submission to the Government, the Contractor and the DOR may discuss with the Contracting Officer's Representative a submittal proposing a variation. However, the Government reserves the right to review the submittal before providing an opinion. In any case, the Government will not formally agree to or provide a preliminary opinion on any variation without the DOR's approval or recommended approval. The Government reserves the right to reject any design, variation that may affect furniture, furnishings, equipment selections, or operational decisions that were made, based on the reviewed and concurred design.

1.4.2.3.2 Substitutions

Unless prohibited or otherwise provided for elsewhere in the contract, where the Accepted Proposal named products, systems, materials or equipment by manufacturer, brand name, model number, or other specific identification, and the Contractor desires to substitute a manufacturer or model after award, submit a requested substitution for Government concurrence. Include substantiation, through identifying information and the DOR's approval, that the substitute meets the contract requirements and that it is equal in function, performance, quality, and salient features to that in the accepted contract proposal. If the contract otherwise prohibits substitutions of equal named products, systems, materials or equipment by manufacturer, brand name, model number or other specific identification, the request is considered a "variation" to the

contract. Variations are discussed below in paragraphs: "DESIGNER OF RECORD APPROVED/GOVERNMENT APPROVED" and VARIATIONS.

1.4.2.4 Designer of Record Approved/Government Approved (DA/GA)

In addition to the above-stated requirements for proposed variations to the accepted design, both DOR and Government Approval and, where applicable, a contract modification are required before the Contractor is authorized to proceed with material acquisition or installation for any proposed variation to the contract (the Solicitation or the Accepted Proposal), that constitutes a change to the contract terms. The Government reserves the right to accept or reject any such proposed variation.

1.4.3 For Information Only

Submittals not requiring Government approval will be for information only. For Design-build construction all submittals not requiring DOR or Government approval will be for information only. Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, they are not considered to be "shop drawings."

1.4.4 Sustainability Reporting Submittals (S)

Submittals for Guiding Principle Validation (GPV) or Third Party Certification (TPC) are indicated with an "S" designation. These submittals are for information only and for use as specified in Section 01 33 29 SUSTAINABILITY REPORTING.

Schedule submittals for these items throughout the course of construction as provided; do not wait until closeout.

1.5 PREPARATION

1.5.1 Transmittal Form

Use the ENG Form 4025-R transmittal form for submitting both Government-approved and information-only submittals. Submit in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractorare included in the RMS CM software that the Contractor is required to use for this contract. Properly complete this form by filling out all the heading blank spaces and identifying each item submitted. Exercise special care to ensure proper listing of the specification paragraph and sheet number of the contract drawings pertinent to the data submitted for each item.

1.5.2 Submittal Format

1.5.2.1 Format of SD-01 Preconstruction Submittals

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

Provide data in the unit of measure used in the contract documents.

1.5.2.2 Format for SD-02 Shop Drawings

Provide shop drawings not less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full-size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless another form is required. Ensure drawings are suitable for reproduction and of a quality to produce clear, distinct lines and letters, with dark lines on a white background.

a. Include the nameplate data, size, and capacity on drawings. Also include applicable federal, military, industry, and technical society publication references.

b. Dimension drawings, except diagrams and schematic drawings. Prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.

Present shop drawings sized 8 1/2 by 11 inches as part of the bound volume for submittals. Present larger drawings in sets. Submit an electronic copy of drawings in PDF format.

1.5.2.2.1 Drawing Identification

Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph IDENTIFYING SUBMITTALS.

Number drawings in a logical sequence. Each drawing is to bear the number of the submittal in a uniform location next to the title block. Place the Government contract number in the margin, immediately below the title block, for each drawing.

Reserve a blank space, no smaller than inches on the right-hand side of each sheet for the Government disposition stamp.

1.5.2.3 Format of SD-03 Product Data

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

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

1.5.2.3.1 Product Information

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

Provide product data in units used in the Contract documents. Where product data are included in preprinted catalogs with another unit, submit the dimensions in contract document units, on a separate sheet.

1.5.2.3.2 Standards

Where equipment or materials are specified to conform to industry or

technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or 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. State on the certificate 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.

1.5.2.3.3 Data Submission

Collect required data submittals for each specific material, product, unit of work, or system into a single submittal that is marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will not be accepted for expedition of the construction effort.

Submit the manufacturer's instructions before installation.

1.5.2.4 Format of SD-04 Samples

1.5.2.4.1 Sample Characteristics

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

a. Sample of Equipment or Device: Full size.

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

c. 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.

d. 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.

e. Sample Volume of Nonsolid Materials: Pint. Examples of nonsolid materials are sand and paint.

f. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.

g. Sample Panel: 4 by 4 feet.

h. Sample Installation: 100 square feet.

1.5.2.4.2 Sample Incorporation

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

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

1.5.2.4.3 Comparison Sample

Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

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

1.5.2.5 Format of SD-05 Design Data

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

1.5.2.6 Format of SD-06 Test Reports

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

By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.5.2.7 Format of SD-07 Certificates

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

1.5.2.8 Format of SD-08 Manufacturer's Instructions

Present manufacturer's instructions submittals for each section as a complete, bound volume. Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. Also include applicable federal, military, industry, and technical-society publication references. If supplemental information is needed to clarify the manufacturer's data, submit it as specified for SD-07 Certificates.

Submit the manufacturer's instructions before installation.

1.5.2.8.1 Standards

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or 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. State on the certificate 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.

1.5.2.9 Format of SD-09 Manufacturer's Field Reports

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

By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

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

Comply with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA for O&M Data format.

1.5.2.11 Format of SD-11 Closeout Submittals

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

Provide data in the unit of measure used in the contract documents.

1.5.3 Source Drawings for Shop Drawings

1.5.3.1 Source Drawings

The entire set of source drawing files (DWG) will not be provided to the Contractor. Request the specific Drawing Number for the preparation of shop drawings. Only those drawings requested to prepare shop drawings will be provided. These drawings are provided only after award.

1.5.3.2 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse is at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor must make no claim, and waives to the fullest extent permitted by law any claim or cause of action of any nature against the Government, its agents, or its subconsultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities, or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic source drawing files are not construction documents. Differences may exist between the source drawing files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic source drawing files, nor does it make representation to the compatibility

of these files with the Contractor hardware or software. The Contractor is responsible for determining if any conflict exists. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished source drawing files, the signed and sealed construction documents govern. Use of these source drawing files does not relieve the Contractor of the duty to fully comply with the contract documents, including and without limitation the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction data related to this contract, remove all previous indication of ownership (seals, logos, signatures, initials and dates).

1.5.4 Electronic File Format

Provide submittals in electronic format, with the exception of material samples required for SD-04 Samples items. In addition to the electronic submittal, provide three hard copies of the submittals. Compile the submittal file as a single, complete document, to include the Transmittal Form described within. Name the electronic submittal file specifically according to its contents, and coordinate the file naming convention with the Contracting Officer. Electronic files must be of sufficient quality that all information is legible. Use PDF as the electronic format, unless otherwise specified or directed by the Contracting Officer. Generate PDF files from original documents with bookmarks so that the text included in the PDF file is searchable and can be copied. If documents are scanned, optical character resolution (OCR) routines are required. Index and bookmark files exceeding 30 pages to allow efficient navigation of the file. When required, the electronic file must include a valid electronic signature or a scan of a signature.

E-mail electronic submittal documents smaller than 10MB to an e-mail address as directed by the Contracting Officer. Provide electronic documents over 10 MB on an optical disc or through an electronic file sharing system such as the AMRDEC SAFE Web Application located at the following website: https://safe.amrdec.army.mil/safe/.

1.6 QUANTITY OF SUBMITTALS

1.6.1 Number of SD-01 Preconstruction Submittal Copies

Unless otherwise specified, submit twothree sets of administrative submittals.

1.6.2 Number of SD-02 Shop Drawing Copies

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

1.6.3 Number of SD-03 Product Data Copies

Submit in compliance with quantity requirements specified for shop drawings.

1.6.4 Number of SD-04 Samples

a. Submit two samples, or two sets of samples showing the range of variation, of each required item. One approved sample or set of

samples will be retained by the approving authority and one will be returned to the Contractor.

b. Submit one sample panel or provide one sample installation where directed. Include components listed in the technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of nonsolid materials.

1.6.5 Number of SD-05 Design Data Copies

Submit in compliance with quantity requirements specified for shop drawings.

1.6.6 Number of SD-06 Test Report Copies

Submit in compliance with quantity and quality requirements specified for shop drawings, other than field test results that will be submitted with QC reports.

1.6.7 Number of SD-07 Certificate Copies

Submit in compliance with quantity requirements specified for shop drawings.

1.6.8 Number of SD-08 Manufacturer's Instructions Copies

Submit in compliance with quantity requirements specified for shop drawings.

1.6.9 Number of SD-09 Manufacturer's Field Report Copies

Submit in compliance with quantity and quality requirements specified for shop drawings other than field test results that will be submitted with QC reports.

1.6.10 Number of SD-10 Operation and Maintenance Data Copies

Submit fivethree copies of O&M data to the Contracting Officer for review and approval.

1.6.11 Number of SD-11 Closeout Submittals Copies

Unless otherwise specified, submit twothree sets of administrative submittals.

1.7 INFORMATION ONLY SUBMITTALS

Submittals without a "G" designation must be certified by the QC manager and submitted to the Contracting Officer for information-only. Provide information-only submittals to the Contracting Officer a minimum of 14 calendar days prior to the Preparatory Meeting for the associated Definable Feature of Work (DFOW). Approval of the Contracting Officer is not required on information only submittals. The Contracting Officer will mark "receipt acknowledged" on submittals for information and will return only the transmittal cover sheet to the Contractor. Normally, submittals for information only will not be returned. However, the Government

reserves the right to return unsatisfactory submittals and 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. For Design-Build construction, the Government will retain copies of information-only submittals.

1.8 PROJECT SUBMITTAL REGISTER

A sample Project Submittal Register showing items of equipment and materials for when submittals are required by the specifications is provided as "Appendix A - Submittal Register."

1.8.1 Submittal Management

Prepare and maintain a submittal register, as the work progresses. Do not change data that is output in columns (c), (d), (e), and (f) as delivered by Government; retain data that is output in columns (a), (g), (h), and (i) as approved. As an attachment, provide 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. Maintain a submittal register for the project in accordance with Section 01 45 00.15 10 RESIDENT MANAGEMENT SYSTEM CONTRACTOR MODE(RMS CM). The Government will provide the initial submittal register in electronic format with 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 Number. and type, e.g., SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in each 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 the project requirements.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns and all dates on which submittals are received by and returned by the Government.

1.8.2 Design-Build Submittal Register

The Designer of Record develops a complete list of submittals during design and 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. 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. Coordinate the submit dates and need dates with dates in the Contractor prepared progress schedule. Submit monthly or until all submittals have been satisfactorily completed, updates to the submittal register showing the Contractor action codes and actual dates with Government action codes. Revise the submittal register when the progress schedule is revised and submit both for approval.

1.8.3 Preconstruction Use of Submittal Register

Submit the submittal register. Include the QC plan and the project schedule. Verify that all submittals required for the project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

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

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

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

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

1.8.4 Contractor Use of Submittal Register

Update the following fields in the Government-furnished submittal register program or equivalent fields in the program used by the Contractor with each submittal throughout the contract.

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

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

Column (l) Date submittal transmitted.

Column (q) Date approval was received.

1.8.5 Approving Authority Use of Submittal Register

Update the following fields:

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (l) Date submittal was received.

Column (m) through (p) Dates of review actions.

Column (q) Date of return to Contractor.

1.8.6 Action Codes

1.8.6.1 Contractor Action Codes

DESIGN BID BUILD SUBMITTALS			
Submittal Classifications shown in UFGS Sections	Submittal Classification	Corresponding SpecsIntact Submittal Register Code which is populated in the SI Submittal Register. Software Limitations: (The software shows one character delineation in the SpecsIntact Submittal Register)	RMS – The following Submittal Classifications are populated in RMS when the SpecsIntact Submittal Data File is pulled into RMS)
G	Submittal requires Government Approval	G	GA
BLANK	Submittal is For Information Only (FIO)	BLANK	FIO
S	Submittal is for documentation of Sustainable requirements	S	S/FIO

1.8.6.2 Contractor Action Codes

DESIGN BUILD SUBMITTALS			
Submittal Classifications shown in UFGS Sections	Submittal Classification	Corresponding SpecsIntact Submittal Register Code which is populated in the SI Submittal Register. Software Limitations: (The software shows one character delineation in the SpecsIntact Submittal Register)	RMS – The following Submittal Classifications are populated in RMS when the SpecsIntact Submittal Data File is pulled into RMS)

DESIGN BUILD SUBMITTALS			
G	Submittal requires Government Approval	G	GA
BLANK	Submittal is For Information Only(FIO)	BLANK	FIO
DA	Submittal requires Designer of Record Approval	D	DA
CR	Submittal requires Government Conformance Review	C	CR
DA/CR	Submittal requires Designer of Record Approval and Government Conformance Review	R	DA/CR
DA/GA	Submittal requires Designer of Record Approval and Government Approval	A	DA/GA

1.8.7 Delivery of Copies

Submit an updated electronic copy of the submittal register to the Contracting Officer with each invoice request. Provide an updated Submittal Register monthly regardless of whether an invoice is submitted.

1.9 VARIATIONS

Variations from contract requirements require Contracting Officer approval pursuant to contract Clause FAR 52.236-21 Specifications and Drawings for Construction, and will be considered where advantageous to the Government.

1.9.1 Considering Variations

Discussion of variations with the Contracting Officer before submission of a variation submittal will help ensure that functional and quality requirements are met and minimize rejections and resubmittals. For variations that include design changes or some material or product substitutions, the Government may require an evaluation and analysis by a licensed professional engineer hired by the contractor.

Specifically point out variations from contract requirements in a transmittal lettervariation submittal. Failure to point out variations may cause the Government to require rejection and removal of such work at no additional cost to the Government.

1.9.2 Proposing Variations

When proposing variation, deliver a submittal, clearly marked as a

"VARIATION" to the Contracting Officer, with documentation illustrating the nature and features of the variation including any necessary technical submittals and why the variation is desirable and beneficial to Government. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

The Contracting Officer will indicate an approval or disapproval of the variation request; and if not approved as submitted, will indicate the Government's reasons therefore. Any work done before such approval is received is performed at the Contractor's risk.

Specifically point out variations from contract requirements in a transmittal lettervariation submittal. Failure to point out variations may cause the Government to require rejection and removal of such work at no additional cost to the Government.

Check the column "variation" of ENG Form 4025 for submittals that include variations proposed by the Contractor. Set forth in writing the reason for any variations and note such variations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted variations.

1.9.3 Warranting that Variations are Compatible

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

1.9.4 Review Schedule Extension

In addition to the normal submittal review period, a period of 14 calendar days will be allowed for the Government to consider submittals with variations.

1.10 SCHEDULING

Schedule and submit concurrently product data and shop drawings covering component items forming a system or items that are interrelated. Submit pertinent certifications at the same time. No delay damages or time extensions will be allowed for time lost in late submittals. Allow an additional calendar days for review and approval of submittals for food service equipment and refrigeration and HVAC control systems.

a. Coordinate scheduling, sequencing, preparing, and processing of submittals with performance of work so that work will not be delayed by submittal processing. The Contractor is responsible for additional time required for Government reviews resulting from required resubmittals. The review period for each resubmittal is the same as for the initial submittal.

b. Submittals required by the contract documents are listed on the submittal register. If a submittal is listed in the submittal register but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the Contracting Officer does not relieve the Contractor of supplying submittals required by the

contract documents but that have been omitted from the register or marked "N/A."

c. Resubmit the submittal register and annotate it monthly with actual submission and approval dates. When all items on the register have been fully approved, no further resubmittal is required.

Contracting Officer review will be completed within calendar days after the date of submission.

1.10.1 Government Reviewed Design

The Government will review design submittals for conformance with the technical requirements of the Solicitation. Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD) covers the design submittal and review process in detail. Government review is required for variations from the completed design. Review will be only for conformance with the contract requirements. Included are only those construction submittals for which the DOR's design documents do not include enough detail to ascertain contract compliance. The Government may, but is not required to, review extensions of design such as structural steel or reinforcement shop drawings.

1.11 GOVERNMENT APPROVING AUTHORITY

When the approving authority is the Contracting Officer, the Government will:

a. Note the date on which the submittal was received.

b. Review submittals for approval within the 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 REVIEW NOTATIONS and with comments and markings appropriate for the action indicated.

Upon completion of review of submittals requiring Government approval, stamp and date submittals. copies of the submittal will be retained by the Contracting Officer and copies of the submittal will be returned to the Contractor.If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be identified and returned, as described above.

1.11.1 Review Notations

Submittals will be returned to the Contractor with the following notations:

a. Submittals marked "approved" or "accepted" authorize proceeding with the work covered.

b. Submittals marked "approved as noted" or "approved, except as noted, resubmittal not required," authorize proceeding with the work covered provided that the Contractor takes no exception to the corrections.

c. Submittals marked "not approved," "disapproved," or "revise and resubmit" indicate incomplete submittal or noncompliance with the contract requirements or design concept. Resubmit with appropriate changes. Do not proceed with work for this item until the resubmittal

is approved.

d. Submittals marked "not reviewed" indicate that the 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.

e. Submittals marked "receipt acknowledged" indicate that submittals have been received by the Government. This applies only to "information-only submittals" as previously defined.

1.12 DISAPPROVED SUBMITTALS

Make corrections required by the Contracting Officer. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications, give notice to the Contracting Officer as required under the FAR clause titled CHANGES. The Contractor is responsible for the dimensions and design of connection details and the construction of work. Failure to point out variations may cause the Government to require rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, make such revisions and resubmit in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.13 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals is not to be construed as a complete check, and indicates only thatthe general method of construction, materials, detailing, and other information are satisfactory. the design, general method of construction, materials, detailing, and other information appear to meet the Solicitation and Accepted Proposal.

Approval or acceptance by the Government for a submittal does not relieve the Contractor of the responsibility for meeting the contract requirements or for any error that may exist, because under the Quality Control (QC) requirements of this contract, the Contractor is responsible for ensuring information contained with in each submittal accurately conforms with the requirements of the contract documents.

After submittals have been approved or accepted 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.

1.14 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, provide assurance that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those that may be damaged in testing, will be returned to the Contractor, at its expense, upon completion of the contract. Unapproved samples will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make as that material. The Government reserves the right to disapprove any material or equipment that has previously proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer for testing. Samples failing to meet contract requirements will automatically void previous approvals. Replace such materials or equipment to meet contract requirements.

1.15 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 unless all required DOR approvals or required Government approvals have 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.

1.16 CERTIFICATION OF SUBMITTAL DATA

Certify the submittal data as follows on Form ENG 4025: "I certify that the above submitted items had been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

_____NAME OF CONTRACTOR _____ SIGNATURE OF CONTRACTOR

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS
11/20, CHG 3: 02/22

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 SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B30.3	(2020) Tower Cranes
ASME B30.5	(2021) Mobile and Locomotive Cranes
ASME B30.7	(2021) Winches
ASME B30.8	(2020) Floating Cranes and Floating Derricks
ASME B30.9	(2018) Slings
ASME B30.20	(2018) Below-the-Hook Lifting Devices
ASME B30.22	(2016) Articulating Boom Cranes
ASME B30.23	(2016) Personnel Lifting Systems Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings
ASME B30.26	(2015; R 2020) Rigging Hardware

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ASSP A10.22	(2007; R 2017) Safety Requirements for Rope-Guided and Non-Guided Workers’ Hoists
ASSP A10.34	(2021) Protection of the Public on or Adjacent to Construction Sites
ASSP A10.44	(2020) Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations
ASSP Z244.1	(2016) The Control of Hazardous Energy Lockout, Tagout and Alternative Methods
ASSP Z359.0	(2018) Definitions and Nomenclature Used for Fall Protection and Fall Arrest
ASSP Z359.1	(2020) The Fall Protection Code
ASSP Z359.2	(2017) Minimum Requirements for a Comprehensive Managed Fall Protection

	Program
ASSP Z359.3	(2019) Safety Requirements for Lanyards and Positioning Lanyards
ASSP Z359.4	(2013) Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components
ASSP Z359.6	(2016) Specifications and Design Requirements for Active Fall Protection Systems
ASSP Z359.7	(2019) Qualification and Verification Testing of Fall Protection Products
ASSP Z359.11	(2014) Safety Requirements for Full Body Harnesses
ASSP Z359.12	(2019) Connecting Components for Personal Fall Arrest Systems
ASSP Z359.13	(2013) Personal Energy Absorbers and Energy Absorbing Lanyards
ASSP Z359.14	(2014) Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems
ASSP Z359.15	(2014) Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems
ASSP Z359.16	(2016) Safety Requirements for Climbing Ladder Fall Arrest Systems
ASSP Z359.18	(2017) Safety Requirements for Anchorage Connectors for Active Fall Protection Systems

ASTM INTERNATIONAL (ASTM)

ASTM F855	(2019) Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1048	(2016) Guide for Protective Grounding of Power Lines
IEEE C2	(2017; Errata 1-2 2017; INT 1 2017) National Electrical Safety Code

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2022) Standard for Portable Fire Extinguishers

NFPA 51B	(2019; TIA 20-1) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2020; ERTA 20-1 2020; ERTA 20-2 2020; TIA 20-1; TIA 20-2; TIA 20-3; TIA 20-4) National Electrical Code
NFPA 70E	(2021) Standard for Electrical Safety in the Workplace
NFPA 241	(2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 306	(2019) Standard for the Control of Gas Hazards on Vessels

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)

TIA-222	(2018H; Add 1 2019) Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures
TIA-1019	(2012; R 2016) Standard for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety -- Safety and Health Requirements Manual

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

10 CFR 20	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910.147	The Control of Hazardous Energy (Lock Out/Tag Out)
29 CFR 1910.333	Selection and Use of Work Practices
29 CFR 1915	Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1915.89	Control of Hazardous Energy (Lockout/Tags-Plus)
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.16	Rules of Construction

29 CFR 1926.450	Scaffolds
29 CFR 1926.500	Fall Protection
29 CFR 1926.552	Material Hoists, Personal Hoists, and Elevators
29 CFR 1926.553	Base-Mounted Drum Hoists
29 CFR 1926.1400	Cranes and Derricks in Construction
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
CPL 02-01-056	(2014) Inspection Procedures for Accessing Communication Towers by Hoist
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

1.2 DEFINITIONS

1.2.1 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are dangerous to personnel, and who has authorization to take prompt corrective measures with regards to such hazards.

1.2.2 Competent Person, Confined Space

The CP, Confined Space, is a person meeting the competent person requirements as defined EM 385-1-1 Appendix Q, with thorough knowledge of OSHA’s Confined Space Standard, 29 CFR 1910.146, and designated in writing to be responsible for the immediate supervision, implementation and monitoring of the confined space program, who through training, knowledge and experience in confined space entry is capable of identifying, evaluating and addressing existing and potential confined space hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.3 Competent Person, Cranes and Rigging

The CP, Cranes and Rigging, as defined in EM 385-1-1 Appendix Q, is a person meeting the competent person requirements, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the Crane and Rigging Program, who through training, knowledge and experience in crane and rigging is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.4 Competent Person, Excavation/Trenching

A CP, Excavation/Trenching, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and 29 CFR 1926, who has been designated in writing to be responsible for the immediate

supervision, implementation and monitoring of the excavation/trenching program, who through training, knowledge and experience in excavation/trenching is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.5 Competent Person, Fall Protection

The CP, Fall Protection, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and in accordance with ASSP Z359.0, who has been designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the fall protection program, who through training, knowledge and experience in fall protection and rescue systems and equipment, is capable of identifying, evaluating and addressing existing and potential fall hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.6 Competent Person, Scaffolding

The CP, Scaffolding is a person meeting the competent person requirements in EM 385-1-1 Appendix Q, and designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the scaffolding program. The CP for Scaffolding has enough training, knowledge and experience in scaffolding to correctly identify, evaluate and address existing and potential hazards and also has the authority to take prompt corrective measures with regard to these hazards. CP qualifications must be documented including experience on the specific scaffolding systems/types being used, assessment of the base material that the scaffold will be erected upon, load calculations for materials and personnel, and erection and dismantling. The CP for scaffolding must have a documented minimum of 8-hours of scaffold training to include training on the specific type of scaffold being used (e.g. mast-climbing, adjustable, tubular frame), in accordance with EM 385-1-1 Section 22.B.02.

1.2.7 Competent Person (CP) Trainer

A competent person trainer as defined in EM 385-1-1 Appendix Q, who is qualified in the training material presented, and who possesses a working knowledge of applicable technical regulations, standards, equipment and systems related to the subject matter on which they are training Competent Persons. A competent person trainer must be familiar with the typical hazards and the equipment used in the industry they are instructing. The training provided by the competent person trainer must be appropriate to that specific industry. The competent person trainer must evaluate the knowledge and skills of the competent persons as part of the training process.

1.2.8 High Risk Activities

High Risk Activities are activities that involve work at heights, crane and rigging, excavations and trenching, scaffolding, electrical work, and confined space entry.

1.2.9 High Visibility Accident

A High Visibility Accident is any mishap which may generate publicity or high visibility.

1.2.10 Load Handling Equipment (LHE)

LHE is a term used to describe cranes, hoists and all other hoisting equipment (hoisting equipment means equipment, including crane, derricks, hoists and power operated equipment used with rigging to raise, lower or horizontally move a load).

1.2.11 Medical Treatment

Medical Treatment is 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 when provided by a physician or registered personnel.

1.2.12 Near Miss

A Near Miss is a mishap resulting in no personal injury and zero property damage, but given a shift in time or position, damage or injury may have occurred (e.g., a worker falls off a scaffold and is not injured; a crane swings around to move the load and narrowly misses a parked vehicle).

1.2.13 Operating Envelope

The Operating Envelope is the area surrounding any crane or load handling equipment. Inside this "envelope" is the crane, the operator, riggers and crane walkers, other personnel involved in the operation, rigging gear between the hook, the load, the crane's supporting structure (i.e. ground or rail), the load's rigging path, the lift and rigging procedure.

1.2.14 Qualified Person (QP)

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work, or the project.

1.2.15 Qualified Person, Fall Protection (QP for FP)

A QP for FP is a person meeting the definition requirements of EM 385-1-1 Appendix Q, and ASSP Z359.2 standard, having a recognized degree or professional certificate and with extensive knowledge, training and experience in the fall protection and rescue field who is capable of designing, analyzing, and evaluating and specifying fall protection and rescue systems.

1.2.16 Recordable Injuries or Illnesses

Recordable Injuries or Illnesses are any work-related injury or illness that results in:

a. Death, regardless of the time between the injury and death, or the length of the illness;

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

c. Restricted work;

d. Transfer to another job;

e. Medical treatment beyond first aid;

f. Loss of consciousness; or

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

1.2.17 Government Property and Equipment

Interpret "USACE" property and equipment specified in USACE EM 385-1-1 as Government property and equipment.

1.2.18 Load Handling Equipment (LHE) Accident or Load Handling Equipment Mishap

A LHE accident occurs when any one or more of the eight elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; or collision, including unplanned contact between the load, crane, or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents, even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, or roll over). Document an LHE mishap using the Crane High Hazard working group mishap reporting form.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval.for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G

APP - Construction; G,

Dive Operations Plan; G,

Accident Prevention Plan (APP); G,

SD-06 Test Reports

Monthly Exposure Reports

Notifications and Reports

Accident Reports; G,

LHE Inspection Reports

SD-07 Certificates

Crane Operators/Riggers

Standard Lift Plan; G,

Critical Lift Plan ; G,

Naval Architecture Analysis; G,

Activity Hazard Analysis (AHA)

Confined Space Entry Permit

Hot Work Permit

Certificate of Compliance

License Certificates

Radiography Operation Planning Work Sheet; G,

Portable Gauge Operations Planning Worksheet; G,

1.4 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report and attach to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both Prime and subcontractor. Failure to submit the report may result in retention of up to 10 percent of the voucher.

1.5 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this Contract, comply with the most recent edition of USACE EM 385-1-1, and the following federal, state, and local host nation laws, ordinances, criteria, rules and regulations. 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 govern.

1.6 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.6.1 Personnel Qualifications

1.6.1.1 Site Safety and Health Officer (SSHO)

Provide an SSHO that meets the requirements of EM 385-1-1 Section 1. The SSHO must ensure that the requirements of 29 CFR 1926.16 are met for the project. Provide a Safety oversight team that includes a minimum of one person at each project site to function as the Site Safety and Health Officer (SSHO). The SSHO or an equally-qualified Alternate SSHO must be at the work site at all times to implement and administer the Contractor's safety program and Government-accepted Accident Prevention Plan. The SSHO and Alternate SSHO must have the required training, experience, and qualifications in accordance with EM 385-1-1 Section 01.A.17, and all associated sub-paragraphs.

If the SSHO is off-site for a period longer than 24 hours, an equally-qualified alternate SSHO must be provided and must fulfill the same roles and responsibilities as the primary SSHO. When the SSHO is temporarily (up to 24 hours) off-site, a Designated Representative (DR), as identified in the AHA may be used in lieu of an Alternate SSHO, and must be on the project site at all times when work is being performed. Note that the DR is a collateral duty safety position, with safety duties in addition to their full time occupation.

1.6.1.1.1 Additional Site Safety and Health Officer (SSHO) Requirements and Duties

The SSHO may also may not serve as the Quality Control Manager. The SSHO may also may not serve as the Superintendent.

1.6.1.2 Competent Person Qualifications

Provide Competent Persons in accordance with EM 385-1-1, Appendix Q and herein. Competent Persons for high risk activities include confined space, cranes and rigging, excavation/trenching, fall protection, and electrical work. The CP for these activities must be designated in writing, and meet the requirements for the specific activity (i.e. competent person, fall protection).

The Competent Person identified in the Contractor's Safety and Health Program and accepted Accident Prevention Plan, must be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the Contracting Officer for information in consultation with the Safety Office.

1.6.1.2.1 Competent Person for Confined Space Entry

Provide a Confined Space (CP) Competent Person who meets the requirements of EM 385-1-1, Appendix Q, and herein. The CP for Confined Space Entry must supervise the entry into each confined space in accordance with EM 385-1-1, Section 34.

Since this work involves operations that handle combustible or hazardous materials, this person must have the ability to understand and follow through on the air sampling, Personal Protective Equipment (PPE), and instructions of a Marine Chemist, Coast Guard authorized persons, or Certified Industrial Hygienist. Confined space and enclosed space work must comply with NFPA 306, OSHA 29 CFR 1915, Subpart B, "Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment," or as applicable, 29 CFR 1910.146 for general industry.

1.6.1.2.2 Competent Person for Scaffolding

Provide a Competent Person for Scaffolding who meets the requirements of EM 385-1-1, Section 22.B.02 and herein.

1.6.1.2.3 Competent Person for Fall Protection

Provide a Competent Person for Fall Protection who meets the requirements of EM 385-1-1, Section 21.C.04, 21.B.03, and herein.

1.6.1.3 Qualified Trainer Requirements

Individuals qualified to instruct the 40 hour contract safety awareness course, or portions thereof, must meet the definition of a Competent Person Trainer, and, at a minimum, possess a working knowledge of the following subject areas: EM 385-1-1, Electrical Standards, Lockout/Tagout, Fall Protection, Confined Space Entry for Construction; Excavation, Trenching and Soil Mechanics, and Scaffolds in accordance with 29 CFR 1926.450, Subpart L.

Instructors are required to:

a. Prepare class presentations that cover construction-related safety requirements.

b. Ensure that all attendees attend all sessions by using a class roster signed daily by each attendee. Maintain copies of the roster for at least five years. This is a certification class and must be attended 100 percent. In cases of emergency where an attendee cannot make it to a session, the attendee can make it up in another class session for the same subject.

c. Update training course materials whenever an update of the EM 385-1-1 becomes available.

d. Provide a written exam of at least 50 questions. Students are required to answer 80 percent correctly to pass.

e. Request, review and incorporate student feedback into a continuous course improvement program.

1.6.1.4 Dredging Contract Requirements

1.6.1.4.1 Dredging Safety Personnel Requirements

a. Provide a minimum of one full time collateral duty SSHO assigned per project site for the primary working shift.

b. For a project involving multiple work shifts, provide one full-time or collateral duty SSHO for each additional shift. provide one Collateral Duty Safety Officer (CDSO) on a dredge and one at the dredged material placement site. During these shifts, the SSHO must be available at all times to assist with emergency situations.

c. For individual dredging projects or sites with a dredge crew and fill crew on watch of eight employees or less, a CDSO must be appointed, instead of an SSHO. The CDSO assumes the same responsibilities as a full-time SSHO.

d. An example of one dredging project site is reflected in each of the following:

(1) a mechanical dredge, tug(s) and scow(s), scow route, and material placement site; or

(2) a hydraulic pipeline dredge, attendant plant, and material placement site; or,

(3) a hopper dredge (include land-based material placement site - if

applicable.)

e. For Hopper Dredges with the U.S. Coast Guard, documented crews may designate an officer as a Collateral Duty Safety Officer (CDSO) instead of having a full-time SSHO onboard if the officer meets the SSHO training and experience requirements.

1.6.1.4.2 SSHO Requirements for Dredging

a. In addition to requirements stated elsewhere in this specification, an individual serving as a SSHO must be present at the project site, located so that they have full mobility and reasonable access to all major work operations, for at least one shift in each 24 hour period when work is being performed. The SSHO must be available during their shift for immediate verbal consultation and notification, either by phone or radio.

b. The SSHO is a full-time, dedicated position, except as noted above, who must report to a senior project (or corporate) official. When the SSHO is permitted to be a collateral duty, the SSHO is not permitted to be in another position requiring continuous mechanical or equipment operations, such as equipment operators.

c. The SSHO must inspect all work areas and operations during initial set-up and at least monthly observe and provide personal oversight on each shift during dredging operations for projects with many work sites, more often for those with less work sites.

1.6.1.4.3 Collateral Duty Safety Officer (CDSO) Requirements for Dredging

a. A CDSO is an individual who is assigned collateral duty safety responsibilities in addition to their full-time occupation, and who supports and supplements the SSHO efforts in managing, implementing and enforcing the Contractor's Safety and Health Program. The assigned CDSO must be an individual(s) with work oversight responsibilities, such as master, mate, fill foreman, or superintendent. A CDSO must not be an employee responsible for continuous mechanical or equipment operations, such as an equipment operator.

b. A CDSO performs safety program tasks as assigned by the SSHO and must report safety findings to the SSHO. The SSHO must document results of safety findings and provide information for inclusion in the CQC reports to the Contracting Officer.

1.6.1.4.4 Safety Personnel Training Requirements for Dredging

A SSHO and a CDSO for dredging Contracts must take either a formal classroom or online OSHA 30-hour Construction Safety Course, or an equivalent 30 hours of formal classroom or online safety and health training covering the subjects of the OSHA 30-hour Course in accordance with EM 385-1-1 Appendix A, paragraph 3.d.(3), applicable to dredging work, and given by qualified instructors. In exception to EM 385-1-1, Section 01.A.17, comply with the following:

a. The SSHO must maintain competency through having taken 8 hours of formal classroom or online safety and health related coursework every year. Hours spent as an instructor in such courses will be considered the same as attending them, but each course only gets credit once (for

example, instructing a 1-hour asbestos awareness course five times in a year provides one hour credit for training).

b. The SSHO and a CDSO must have a minimum of three years of experience within the past five years in one of the following:

(1) Supervising/managing dredging activities

(2) Supervising/managing marine construction activities

(3) Supervising/managing land-based construction activities

(4) Work managing safety programs or processes

(5) Conducting hazard analyses and developing controls in activities or environments with similar hazards

1.6.1.5 Crane Operators/Riggers

Provide Operators, Signal Persons, and Riggers meeting the requirements in EM 385-1-1, Section 15.B for Riggers and Section 16.B for Crane Operators and Signal Persons. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacities of 50,000 pounds or greater, designate crane operators qualified by a source that qualifies crane operators (i.e., union, a Government agency, or an organization that tests and qualifies crane operators). Provide proof of current qualification.

1.6.2 Personnel Duties

1.6.2.1 Duties of the Site Safety and Health Officer (SSHO)

The SSHO must:

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. Attach safety inspection logs to the Contractors' daily production report.

b. Conduct mishap investigations and complete required accident reports. Report mishaps and near misses.

c. Use and maintain OSHA's Form 300 to log work-related injuries and illnesses occurring on the project site for Prime Contractors and subcontractors, and make available to the Contracting Officer upon request. Post and maintain the Form 300A on the site Safety Bulletin Board.

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

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

f. Review the APP and AHAs for compliance with EM 385-1-1, and approve, sign, implement and enforce them.

g. Establish a Safety and Occupational Health (SOH) Deficiency Tracking System that lists and monitors outstanding deficiencies until resolution.

h. Ensure subcontractor compliance with safety and health requirements.

i. Maintain a list of hazardous chemicals on site and their material Safety Data Sheets (SDS).

j. Maintain a weekly list of high hazard activities involving energy, equipment, excavation, entry into confined space, and elevation, and be prepared to discuss details during QC Meetings.

k. Provide and keep a record of site safety orientation and indoctrination for Contractor employees, subcontractor employees, and site visitors.

Superintendent, QC Manager, and SSHO are subject to dismissal if the above or any other required duties are not being effectively carried out. If either the Superintendent, QC Manager, or SSHO are dismissed, project work will be stopped and will not be allowed to resume until a suitable replacement is approved and the above duties are again being effectively carried out.

1.6.3 Meetings

1.6.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction conference. This includes the project superintendent, Site Safety and Occupational Health Officer, quality control manager, 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. 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 and an agreement will be reached between the Contractor and the Contracting Officer as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and Government review of AHAs to preclude project delays.

c. Deficiencies in the submitted APP, identified during the Contracting Officer's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to begin until an APP is established that is acceptable to the Contracting Officer.

1.6.3.2 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation. Conduct meetings at least once a month for all supervisors at the project location. The SSHO, supervisors, foremen, or CDSOs must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site

and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance.

1.7 ACCIDENT PREVENTION PLAN (APP)

Provide a site-specific Accident Prevention Plan (APP), including Activity Hazard Analyses (AHA), in accordance with EM 385-1-1 Appendix A, for the design team to follow during site visits and investigations. For subsequent visits, update the plan if there are changes in the personnel who will be attending, or the tasks to be performed. Submit the APP for review and acceptance by the Government at least 15 calendar days prior to the start of the design field work. Field work may not begin until the design APP is accepted by the Contracting Officer.

If the design scope includes borings or other subsurface investigations, include in the APP the type of field investigation and verification techniques, such as visual, local utility locating service scanning and third party/subcontractor scanning, potholing, or hand digging within two feet of a known utility that will be required. Mark underground utilities before starting any ground-disturbing actions. Notify the Contracting Officer 15 days prior to the start of soil borings or sub-surface investigations.

Prior to the start of construction incorporate the Design APP into the Construction APP so that one site specific APP exists for the project and submit to the Contracting Officer for acceptance.

1.7.1 APP - Construction

A qualified person must prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of EM 385-1-1, Appendix A, and as supplemented herein. Cover all paragraph and subparagraph elements in EM 385-1-1, Appendix A. The APP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP must interface with the Contractor's overall safety and health program referenced in the APP in the applicable APP element, and made site-specific. Describe the methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods used to ensure and monitor safe work practices of subcontractors. 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 must be signed by an officer of the firm (Prime Contractor senior person), the individual preparing the APP, the on-site superintendent, the designated SSHO, the Contractor Quality Control Manager, and any designated Certified Safety Professional (CSP) or Certified Health Physicist (CIH). The SSHO must provide and maintain the APP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP, and make the APP and log available on-site to the Contracting Officer. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

Submit the APP to the Contracting Officer 15 calendar days prior to the

date of the preconstruction conference for acceptance. Submit the APP to the Contracting Officer within 30 calendar days of Contract award and not less than 10 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. Once reviewed and 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 is cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified. Continuously review and amend the APP, as necessary, throughout the life of the Contract. Changes to the accepted APP must be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and Quality Control Manager. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered. Should any severe hazard exposure (i.e. imminent danger) become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSP A10.34), and the environment.

1.7.2 Names and Qualifications

Provide plans in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. Qualifications of competent and of qualified persons. As a minimum, designate and submit qualifications of competent persons for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance.

1.7.3 Plans

Provide plans in the APP in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

1.7.3.1 Confined Space Entry Plan

Develop a confined or enclosed space entry plan in accordance with EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, OSHA Directive CPL 2.100, and any other federal, state and local regulatory requirements identified in this Contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by Contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

1.7.3.2 Standard Lift Plan (SLP)

Plan lifts to avoid situations where the operator cannot maintain safe control of the lift. Prepare a written SLP in accordance with EM 385-1-1, Section 16.A.03, using Form 16-2 for every lift or series of lifts (if duty cycle or routine lifts are being performed). The SLP must be developed, reviewed and accepted by all personnel involved in the lift in conjunction with the associated AHA. Signature on the AHA constitutes acceptance of the plan. Maintain the SLP on the LHE for the current lift(s) being made. Maintain historical SLPs for a minimum of three months.

1.7.3.3 Critical Lift Plan - Crane or Load Handling Equipment

Provide a Critical Lift Plan as required by EM 385-1-1, Section 16.H.01, using Form 16-3. In addition, Critical Lift Plans are required for the following:

a. Lifts over 50 percent of the capacity of barge mounted mobile crane's hoist.

b. When working around energized power lines where the work will get closer than the minimum clearance distance in EM 385-1-1 Table 16-1.

c. For lifts with anticipated binding conditions.

d. When erecting cranes.

1.7.3.3.1 Critical Lift Plan Planning and Schedule

Critical lifts require detailed planning and additional or unusual safety precautions. Develop and submit a critical lift plan to the Contracting Officer 30 calendar days prior to critical lift. Comply with load testing requirements in accordance with EM 385-1-1, Section 16.F.03.

1.7.3.3.2 Lifts of Personnel

In addition to the requirements of EM 385-1-1, Section 16.H.02, for lifts of personnel, demonstrate compliance with the requirements of 29 CFR 1926.1400 and EM 385-1-1, Section 16.T.

1.7.3.4 Barge Mounted Mobile Crane Lift Plan

Provide a Naval Architecture Analysis and include an LHE Manufacturer's Floating Service Load Chart in accordance with EM 385-1-1, Section 16.L.03.

1.7.3.5 Multi-Purpose Machines, Material Handling Equipment, and Construction Equipment Lift Plan

Multi-purpose machines, material handling equipment, and construction equipment used to lift loads that are suspended by rigging gear, require proof of authorization from the machine OEM that the machine is capable of making lifts of loads suspended by rigging equipment. Written approval from a qualified registered professional engineer, after a safety analysis is performed, is allowed in lieu of the OEM's approval. Demonstrate that the operator is properly trained and that the equipment is properly configured to make such lifts and is equipped with a load chart.

1.7.3.6 Fall Protection and Prevention (FP&P) Plan

The plan must be in accordance with the requirements of EM 385-1-1, Section 21.D and ASSP Z359.2, be site specific, and address all fall hazards in the work place and during different phases of construction. Address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A competent person or qualified person for fall protection must prepare and sign the plan documentation. Include fall protection and prevention systems, equipment and methods employed for every phase of work, roles and responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Review and revise, as necessary, the Fall Protection and Prevention Plan documentation as conditions change, but at a minimum every six months, for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. Keep and maintain the accepted Fall Protection and Prevention Plan documentation at the job site for the duration of the project. Include the Fall Protection and Prevention Plan documentation in the Accident Prevention Plan (APP).

1.7.3.7 Rescue and Evacuation Plan

Provide a Rescue and Evacuation Plan in accordance with EM 385-1-1 Section 21.N and ASSP Z359.2, and include in the FP&P Plan and as part of the APP. 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.

1.7.3.8 Hazardous Energy Control Program (HECP)

Develop a HECP in accordance with EM 385-1-1 Section 12, 29 CFR 1910.147, 29 CFR 1910.333, 29 CFR 1915.89, ASSP Z244.1, and ASSP A10.44. Submit this HECP as part of the Accident Prevention Plan (APP). Conduct a preparatory meeting and inspection with all effected personnel to coordinate all HECP activities. Document this meeting and inspection in accordance with EM 385-1-1, Section 12.A.02. Ensure that each employee is familiar with and complies with these procedures.

1.7.3.9 Excavation Plan

Identify the safety and health aspects of excavation, and provide and prepare the plan in accordance with EM 385-1-1, Section 25.A and Section 31 00 00 EARTHWORK.

1.7.3.10 Lead, Cadmium, and Chromium Compliance Plan

Identify the safety and health aspects of work involving lead, cadmium and chromium, and prepare in accordance with Section 02 83 00 LEAD REMEDIATION.

1.7.3.11 Asbestos Hazard Abatement Plan

Identify the safety and health aspects of asbestos work, and prepare in accordance with Section 02 82 00 ASBESTOS REMEDIATION.

1.7.3.12 Site Safety and Health Plan

Identify the safety and health aspects, and prepare in accordance with Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR

CONTAMINATED SITES.

1.7.3.13 Polychlorinated Biphenyls (PCB) Plan

Identify the safety and health aspects of Polychlorinated Biphenyls work, and prepare in accordance with Sections 02 84 33 REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBs) and 02 61 23 REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS.

1.7.3.14 Site Demolition Plan

Identify the safety and health aspects, and prepare in accordance with Section 02 41 00 DEMOLITION AND DECONSTRUCTION and referenced sources.

1.8 ACTIVITY HAZARD ANALYSIS (AHA)

Before beginning each activity, task or Definable Feature of Work (DFOW) involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the work, the Contractor(s) performing that work activity must prepare an AHA. AHAs must be developed by the Prime Contractor, subcontractor, or supplier performing the work, and provided for Prime Contractor review and approval before submitting to the Contracting Officer. AHAs must be signed by the SSHO, Superintendent, QC Manager and the subcontractor Foreman performing the work. Format the AHA in accordance with EM 385-1-1, Section 1 or as directed by the Contracting Officer. Submit the AHA for review at least 15 working days prior to the start of each activity task, or DFOW. The Government reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

AHAs must identify competent persons required for phases involving high risk activities, including confined entry, crane and rigging, excavations, trenching, electrical work, fall protection, and scaffolding.

1.8.1 AHA Management

Review the AHA list periodically (at least monthly) at the Contractor supervisory safety meeting, and update as necessary when procedures, scheduling, or hazards change. Use the AHA during daily inspections by the SSHO to ensure the implementation and effectiveness of the required safety and health controls for that work activity.

1.8.2 AHA Signature Log

Each employee performing work as part of an activity, task or DFOW must review the AHA for that work and sign a signature log specifically maintained for that AHA prior to starting work on that activity. The SSHO must maintain a signature log on site for every AHA. Provide employees whose primary language is other than English, with an interpreter to ensure a clear understanding of the AHA and its contents.

1.9 DISPLAY OF SAFETY INFORMATION

1.9.1 Safety Bulletin Board

Prior to commencement of work, erect a safety bulletin board at the job

site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the Contracting Officer, that is accessible and includes all mandatory information for employee and visitor review, may be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, Section 01.A.07. Additional items required to be posted include:

a. Confined space entry permit.

b. Hot work permit.

1.9.2 Safety and Occupational Health (SOH) Deficiency Tracking System

Establish a SOH deficiency tracking system that lists and monitors the status of SOH deficiencies in chronological order. Use the tracking system to evaluate the effectiveness of the APP. A monthly evaluation of the data must be discussed in the QC or SOH meeting with everyone on the project. The list must be posted on the project bulletin board and updated daily, and provide the following information:

a. Date deficiency identified;

b. Description of deficiency;

c. Name of person responsible for correcting deficiency;

d. Projected resolution date;

e. Date actually resolved.

1.10 SITE SAFETY REFERENCE MATERIALS

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

1.11 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment in accordance with EM 385-1-1. Government has no responsibility to provide emergency medical treatment.

1.12 NOTIFICATIONS and REPORTS

1.12.1 Mishap Notification

Notify the Contracting Officer as soon as practical, but no more than twenty-four hours, after any mishaps, including recordable accidents, incidents, and near misses, as defined in EM 385-1-1 Appendix Q, any report of injury, illness, or any property damage. For LHE or rigging mishaps, notify the Contracting Officer as soon as practical but not more than four hours after mishap. The Contractor is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. Immediate reporting is required for electrical mishaps, to include Arc Flash; shock; uncontrolled release of hazardous energy (includes electrical and non-electrical); load handling equipment or rigging; fall from height (any level other than same surface); and underwater diving. These mishaps must be investigated in

depth to identify all causes and to recommend hazard control measures.

Within notification include Contractor name; Contractt 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 (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any mishap.

1.12.2 Accident Reports

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. Complete the applicable USACE Accident Report Form 3394, and provide the report to the Contracting Officer within 5 calendar days of the accident. The Contracting Officer will provide copies of any required or special forms.

b. Near Misses: For Army projects, report all "Near Misses" to the GDA, using local mishap reporting procedures, within 24 hrs. The Contracting Officer will provide the Contractor the required forms. Near miss reports are considered positive and proactive Contractor safety management actions.

c. Conduct an accident investigation for any load handling equipment accident (including rigging accidents) to establish the root cause(s) of the accident. Complete the LHE Accident Report (Crane and Rigging Accident Report) form and provide the report to the Contracting Officer within 30 calendar days of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the Contracting Officer. The Contracting Officer will provide a blank copy of the accident report form.

1.12.3 LHE Inspection Reports

Submit LHE inspection reports required in accordance with EM 385-1-1 and as specified herein with Daily Reports of Inspections.

1.12.4 Certificate of Compliance and Pre-lift Plan/Checklist for LHE and Rigging

Provide a FORM 16-1 Certificate of Compliance for LHE entering an activity under this Contract and in accordance with EM 385-1-1. Post certifications on the crane.

Develop a Standard Lift Plan (SLP) in accordance with EM 385-1-1, Section 16.H.03 using Form 16-2 Standard Pre-Lift Crane Plan/Checklist for each lift planned. Submit SLP to the Contracting Officer for approval within 15 calendar days in advance of planned lift.

1.13 HOT WORK

1.13.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e. welding or cutting) or operating other flame-producing/spark producing devices, from the Fire Division. A permit is required from the Explosives Safety Office for work in and around where explosives are processed, stored, or handled. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. Provide at least two 20 pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged, and contain an 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 must be trained in accordance with NFPA 51B and remain on-site for a minimum of one hour after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Division phone number. REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE FIRE DIVISION IMMEDIATELY.

1.13.2 Work Around Flammable Materials

Obtain permit approval from a NFPA Certified Marine Chemist, or Certified Industrial Hygienist for "HOT WORK" within or around flammable materials (such as fuel systems or welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, or vaults) that have the potential for flammable or explosive atmospheres.

Whenever these materials, except beryllium and chromium (VI), are encountered in indoor operations, local mechanical exhaust ventilation systems that are sufficient to reduce and maintain personal exposures to within acceptable limits must be used and maintained in accordance with manufacturer's instruction and supplemented by exceptions noted in EM 385-1-1, Section 06.H

1.14 RADIATION SAFETY REQUIREMENTS

Submit License Certificates, employee training records, and Leak Test Reports for radiation materials and equipment to the Contracting Officer and Radiation Safety Office (RSO) for all specialized and licensed material and equipment proposed for use on the construction project (excludes portable machine sources of ionizing radiation including moisture density and X-Ray Fluorescence (XRF)). Maintain on-site records whenever licensed radiological materials or ionizing equipment are on Government property.

Protect workers from radiation exposure in accordance with 10 CFR 20, ensuring any personnel exposures are maintained As Low As Reasonably Achievable.

1.14.1 Radiography Operation Planning Work Sheet

Submit a Gamma and X-Ray Radiography Operation Planning Work Sheet to Contracting Officer 14 days prior to commencement of operations involving radioactive materials or radiation generating devices. For portable machine sources of ionizing radiation, including moisture density and XRF, use and submit the Portable Gauge Operations Planning Worksheet instead.

The Contracting Officer will review the submitted worksheet and provide questions and comments.

Contractors must use primary dosimeters process by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

1.14.2 Site Access and Security

Coordinate site access and security requirements with the Contracting Officer for all radiological materials and equipment containing ionizing radiation that are proposed for use on a government facility. For gamma radiography materials and equipment, a Government escort is required for any travels on the Installation. The Government authorized representative will meet the Contractor at a designated location outside the Installation, ensure safety of the materials being transported, and will escort the Contractor for gamma sources onto the Installation, to the job site, and off the Installation. For portable machine sources of ionizing radiation, including moisture density and XRF, the Government authorized representative will meet the Contractor at the job site.

Provide a copy of all calibration records, and utilization records for radiological operations performed on the site.

1.14.3 Loss or Release and Unplanned Personnel Exposure

Loss or release of radioactive materials, and unplanned personnel exposures must be reported immediately to the Contracting Officer, RSO, and Base Security Department Emergency Number.

1.14.4 Site Demarcation and Barricade

Properly demark and barricade an area surrounding radiological operations to preclude personnel entrance, in accordance with EM 385-1-1, Nuclear Regulatory Commission, and Applicable State regulations and license requirements, and in accordance with requirements established in the accepted Radiography Operation Planning Work Sheet.

Do not close or obstruct streets, walks, and other facilities occupied and used by the Government without written permission from the Contracting Officer.

1.14.5 Security of Material and Equipment

Properly secure the radiological material and ionizing radiation equipment at all times, including keeping the devices in a properly marked and locked container, and secondarily locking the container to a secure point in the Contractor's vehicle or other approved storage location during transportation and while not in use. While in use, maintain a continuous visual observation on the radiological material and ionizing radiation equipment. In instances where radiography is scheduled near or adjacent to buildings or areas having limited access or one-way doors, make no assumptions as to building occupancy. Where necessary, the Contracting Officer will direct the Contractor to conduct an actual building entry, search, and alert. Where removal of personnel from such a building cannot be accomplished and it is otherwise safe to proceed with the radiography, position a fully instructed employee inside the building or area to prevent exiting while external radiographic operations are in process.

1.14.6 Transportation of Material

Comply with 49 CFR 173 for Transportation of Regulated Amounts of Radioactive Material. Notify Local Fire authorities and the site Radiation Safety Officer (RSO) of any Radioactive Material use.

1.14.7 Schedule for Exposure or Unshielding

Actual exposure of the radiographic film or unshielding the source must not be initiated until after 5 p.m. on weekdays.

1.14.8 Transmitter Requirements

Adhere to the base policy concerning the use of transmitters, such as radios and cell phones. Obey Emissions control (EMCON) restrictions.

1.15 CONFINED SPACE ENTRY REQUIREMENTS

Confined space entry must comply with Section 34 of EM 385-1-1, OSHA 29 CFR 1926, OSHA 29 CFR 1910, OSHA 29 CFR 1910.146, and OSHA Directive CPL 2.100. Any potential for a hazard in the confined space requires a permit system to be used.

1.15.1 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. Comply with EM 385-1-1, Section 34 for entry procedures. Hazards pertaining to the space must be reviewed with each employee during review of the AHA.

1.15.2 Forced Air Ventilation

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.

1.15.3 Sewer Wet Wells

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

1.15.4 Rescue Procedures and Coordination with Local Emergency Responders

Develop and implement an on-site rescue and recovery plan and procedures. The rescue plan must not rely on local emergency responders for rescue from a confined space.

1.16 DIVE SAFETY REQUIREMENTS

Develop a Dive Operations Plan, AHA, emergency management plan, and personnel list that includes qualifications, for each separate diving operation. Submit these documents to the District Dive Coordinator (DDC) via the Contracting Officer or Government Designated Authority (GDA), for review and approval at least 15 working days prior to commencement of diving operations. These documents must be at the diving location at all

times. Provide each of these documents as a part of the project file.

1.17 SEVERE STORM PLAN

In the event of a severe storm warning, the Contractor must comply with the applicable Storm Plan and:

a. Secure outside equipment and materials and place materials that could be damaged in protected areas.

b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

c. Ensure that temporary erosion controls are adequate.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes:

a. Hard Hat

b. Long Pants

c. Appropriate Safety Shoes

d. Appropriate Class Reflective Vests

3.1.1 Worksite Communication

Employees working alone in a remote location or away from other workers must be provided an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. Develop an employee check-in/check-out communication procedure to ensure employee safety.

3.1.2 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 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-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further Contracting Officer approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.1.3 Unforeseen Hazardous Material

Contract documents identify materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e. 29 CFR Part 1910.1000). If material(s) that may be hazardous to human health upon disturbance are encountered during construction operations, stop that portion of work and notify the Contracting Officer immediately. Within 14 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 UTILITY OUTAGE REQUIREMENTS

Apply for utility outages at least days in advance. At a minimum, the written request must include the location of the outage, utilities being affected, duration of outage, any necessary sketches, and a description of the means to fulfill energy isolation requirements in accordance with EM 385-1-1, Section 11.A.02 (Isolation). Some examples of energy isolation devices and procedures are highlighted in EM 385-1-1, Section 12.D. In accordance with EM 385-1-1, Section 12.A.01, where outages involve Government or Utility personnel, coordinate with the Government on all activities involving the control of hazardous energy.

These activities include, but are not limited to, a review of HECP and HEC procedures, as well as applicable Activity Hazard Analyses (AHAs). In accordance with EM 385-1-1, Section 11.A.02 and NFPA 70E, work on energized electrical circuits must not be performed without prior Government authorization. Government permission is considered through the permit process and submission of a detailed AHA. Energized work permits are considered only when de-energizing introduces additional or increased hazard or when de-energizing is infeasible.

3.3 OUTAGE COORDINATION MEETING

After the utility outage request is approved and prior to beginning work on the utility system requiring shut-down, conduct a pre-outage coordination meeting in accordance with EM 385-1-1, Section 12.A. This meeting must include the Prime Contractor, the Prime and subcontractors performing the work, the Contracting Officer, and the Installation representative Public Utilities representative. All parties must fully coordinate HEC activities with one another. During the coordination meeting, all parties must discuss and coordinate on the scope of work, HEC procedures (specifically, the lock-out/tag-out procedures for worker and utility protection), the AHA, assurance of trade personnel qualifications,

identification of competent persons, and compliance with HECP training in accordance with EM 385-1-1, Section 12.C. Clarify when personal protective equipment is required during switching operations, inspection, and verification.

3.4 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Provide and operate a Hazardous Energy Control Program (HECP) in accordance with EM 385-1-1 Section 12, 29 CFR 1910.333, 29 CFR 1915.89, ASSP A10.44, NFPA 70E, and paragraph HAZARDOUS ENERGY CONTROL PROGRAM (HECP).

3.4.1 Safety Preparatory Inspection Coordination Meeting with the Government or Utility

For electrical distribution equipment that is to be operated by Government or Utility personnel, the Prime Contractor and the subcontractor performing the work must attend the safety preparatory inspection coordination meeting, which will also be attended by the Contracting Officer's Representative, and required by EM 385-1-1, Section 12.A.02. The meeting will occur immediately preceding the start of work and following the completion of the outage coordination meeting. Both the safety preparatory inspection coordination meeting and the outage coordination meeting must occur prior to conducting the outage and commencing with lockout/tagout procedures.

3.4.2 Lockout/Tagout Isolation

Where the Government or Utility performs equipment isolation and lockout/tagout, the Contractor must place their own locks and tags on each energy-isolating device and proceed in accordance with the HECP. Before any work begins, both the Contractor and the Government or Utility must perform energy isolation verification testing while wearing required PPE detailed in the Contractor's AHA and required by EM 385-1-1, Sections 05.I and 11.B. Install personal protective grounds, with tags, to eliminate the potential for induced voltage in accordance with EM 385-1-1, Section 12.E.06.

3.4.3 Lockout/Tagout Removal

Upon completion of work, conduct lockout/tagout removal procedure in accordance with the HECP. In accordance with EM 385-1-1, Section 12.E.08, each lock and tag must be removed from each energy isolating device by the authorized individual or systems operator who applied the device. Provide formal notification to the Government (by completing the Government form if provided by Contracting Officer's Representative), confirming that steps of de-energization and lockout/tagout removal procedure have been conducted and certified through inspection and verification. Government or Utility locks and tags used to support the Contractor's work will not be removed until the authorized Government employee receives the formal notification.

3.5 FALL PROTECTION PROGRAM

Establish a fall protection program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and 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 in accordance with ASSP Z359.2 and EM 385-1-1, Sections 21.A and 21.D.

3.5.1 Training

Institute a fall protection training program. As part of the Fall Protection Program, provide training for each employee who might be exposed to fall hazards and using personal fall protection equipment. Provide training by a competent person for fall protection in accordance with EM 385-1-1, Section 21.C. Document training and practical application of the competent person in accordance with EM 385-1-1, Section 21.C.04 and ASSP Z359.2 in the AHA.

3.5.2 Fall Protection Equipment and Systems

Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the Site Specific Fall Protection and Prevention Plan and AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1, Section 21.

Provide personal fall protection equipment, systems, subsystems, and components that comply with EM 385-1-1 Section 21.I, 29 CFR 1926.500 Subpart M,ASSP Z359.0, ASSP Z359.1, ASSP Z359.2, ASSP Z359.3, ASSP Z359.4, ASSP Z359.6, ASSP Z359.7, ASSP Z359.11, ASSP Z359.12, ASSP Z359.13, ASSP Z359.14, ASSP Z359.15, ASSP Z359.16 and ASSP Z359.18.

3.5.2.1 Additional Personal Fall Protection Measures

In addition to the required fall protection systems, other protective measures such as safety skiffs, personal floatation devices, and life rings, are required when working above or next to water in accordance with EM 385-1-1, Sections 21.O through 21.O.06. Personal fall protection systems and equipment are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall protection systems are required when operating other equipment such as scissor lifts. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, travel, or while performing work.

3.5.2.2 Personal Fall Protection Equipment

Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. The use of body belts is not acceptable. Harnesses must 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. Snap hooks and carabineers must be self-closing and self-locking, capable of being opened only by at least two consecutive deliberate actions and have a minimum gate strength of 3,600 lbs in all directions. Use webbing, straps, and ropes made of synthetic fiber. The maximum free fall distance when using fall arrest equipment must not exceed 6 feet, unless the proper energy absorbing lanyard is used. Always take into consideration the total fall distance and any swinging of the worker (pendulum-like motion), that can occur during a fall, when attaching a person to a fall arrest system. Equip all full body harnesses with Suspension Trauma Preventers such as stirrups, relief steps, or similar in order to provide short-term relief from the effects of orthostatic intolerance in accordance with EM 385-1-1, Section 21.I.06.

3.5.3 Fall Protection for Roofing Work

Implement fall protection controls based on the type of roof being constructed and work being performed. Evaluate the roof area to be accessed for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 6 feet from unprotected edge of a roof having a slope less than or equal to 4:12 (vertical to horizontal), protect personnel from falling by the use of conventional fall protection systems (personal fall arrest/restraint systems, guardrails, or safety nets) in accordance with EM 385-1-1, Section 21 and 29 CFR 1926.500. A safety monitoring system is not adequate fall protection and is not authorized.

(2) For work greater than 6 feet from the unprotected roof edge, addition to the use of conventional fall protection systems the use of a warning line system is also permitted, in accordance with 29 CFR 1926.500 and EM 385-1-1, Section 21.L.

b. Steep-Sloped Roofs: Work on a roof having a slope greater than 4:12 (vertical to horizontal) requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also applies to residential or housing type construction.

3.5.4 Horizontal Lifelines (HLL)

Provide HLL in accordance with EM 385-1-1, Section 21.I.08.d.2. Commercially manufactured horizontal lifelines (HLL) must 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). The competent person for fall protection may (if deemed appropriate by the qualified person) supervise the assembly, disassembly, use and inspection of the HLL system under the direction of the qualified person. Locally manufactured HLLs are not acceptable unless they are custom designed for limited or site specific applications by a Registered Professional Engineer who is qualified in designing HLL systems.

3.5.5 Guardrails and Safety Nets

Design, install and use guardrails and safety nets in accordance with EM 385-1-1, Section 21.F.01 and 29 CFR 1926 Subpart M.

3.5.6 Rescue and Evacuation Plan and Procedures

When personal fall arrest systems are used, ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue or assisted-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within 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). The plan must be in accordance with the

requirements of EM 385-1-1, ASSP Z359.2, and ASSP Z359.4.

3.6 WORK PLATFORMS

3.6.1 Scaffolding

Provide employees 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. Comply with the following requirements:

a. Scaffold platforms greater than 20 feet in height must be accessed by use of a scaffold stair system.

b. Ladders commonly provided by scaffold system manufacturers are prohibited for accessing scaffold platforms greater than 20 feet maximum in height.

c. An adequate gate is required.

d. Employees performing scaffold erection and dismantling must be qualified.

e. Scaffold must be capable of supporting at least four times the maximum intended load, and provide appropriate fall protection as delineated in the accepted fall protection and prevention plan.

f. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward.

g. Special care must be given to ensure scaffold systems are not overloaded.

h. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material are prohibited. The first tie-in must be at the height equal to 4 times the width of the smallest dimension of the scaffold base.

i. Scaffolding other than suspended types must bear on base plates upon wood mudsills (2 in x 10 in x 8 in minimum) or other adequate firm foundation.

j. Scaffold or work platform erectors must have fall protection during the erection and dismantling of scaffolding or work platforms that are more than 6 feet.

k. Delineate fall protection requirements when working above 6 feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.6.2 Elevated Aerial Work Platforms (AWPs)

Workers must be anchored to the basket or bucket in accordance with manufacturer's specifications and instructions (anchoring to the boom may only be used when allowed by the manufacturer and permitted by the CP). Lanyards used must be sufficiently short to prohibit worker from climbing out of basket. The climbing of rails is prohibited. Lanyards with built-in shock absorbers are acceptable. Self-retracting devices are not acceptable. Tying off to an adjacent pole or structure is not permitted unless a safe device for 100 percent tie-off is used for the transfer.

Use of AWPs must be operated, inspected, and maintained as specified in the operating manual for the equipment and delineated in the AHA. Operators of AWPs must be designated as qualified operators by the Prime Contractor. Maintain proof of qualifications on site for review and include in the AHA.

3.7 EQUIPMENT

3.7.1 Material Handling Equipment (MHE)

a. Material handling equipment such as forklifts must not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions. Material handling equipment fitted with personnel work platform attachments are prohibited from traveling or positioning while personnel are working on the platform.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions. Material Handling Equipment Operators must be trained in accordance with OSHA 29 CFR 1910, Subpart N.

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

3.7.2 Load Handling Equipment (LHE)

The following requirements apply. In exception, these requirements do not apply to commercial truck mounted and articulating boom cranes used solely to deliver material and supplies (not prefabricated components, structural steel, or components of a systems-engineered metal building) where the lift consists of moving materials and supplies from a truck or trailer to the ground; to cranes installed on mechanics trucks that are used solely in the repair of shore-based equipment; to crane that enter the activity but are not used for lifting; nor to other machines not used to lift loads suspended by rigging equipment. However, LHE accidents occurring during such operations must be reported.

a. Equip cranes and derricks as specified in EM 385-1-1, Section 16.

b. Notify the Contracting Officer 15 working days in advance of any LHE entering the activity, in accordance with EM 385-1-1, Section 16.A.02, so that necessary quality assurance spot checks can be coordinated. Contractor's operator must remain with the crane during the spot check. Rigging gear must be in accordance with OSHA, ASME B30.9 Standards and host country safety standards.

c. Comply with the LHE manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the manufacturer's recommended procedures.

d. Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, ASME B30.8 for floating cranes and floating derricks, ASME B30.9 for slings, ASME B30.20 for below the hook lifting devices and ASME B30.26 for rigging hardware.

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

f. Do not use crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane. Additionally, submit a specific AHA for this work to the Contracting Officer. Ensure the activity and AHA are thoroughly reviewed by all involved personnel.

g. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.

h. All employees must keep clear of loads about to be lifted and of suspended loads, except for employees required to handle the load.

i. 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 access where accessible areas of the LHE's rotating superstructure poses a risk of striking, pinching or crushing personnel.

l. Maintain inspection records in accordance by EM 385-1-1, Section 16.D, including shift, monthly, and annual inspections, the signature of the person performing the inspection, and the serial number or other identifier of the LHE that was inspected. Records must be available for review by the Contracting Officer.

m. Maintain written reports of operational and load testing in accordance with EM 385-1-1, Section 16.F, listing the load test procedures used along with any repairs or alterations performed on the LHE. Reports must be available for review by the Contracting Officer.

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

o. Take steps to ensure that wind speed does not contribute to loss of control of the load during lifting operations. At wind speeds greater than 20 mph, the operator, rigger and lift supervisor must cease all crane operations, evaluate conditions and determine if the lift may proceed. Base the determination to proceed or not on wind calculations per the manufacturer and a reduction in LHE rated capacity if applicable. Include this maximum wind speed determination as part of the activity hazard analysis plan for that operation.

q. Follow FAA guidelines when required based on project location.

3.7.3 Machinery and Mechanized Equipment

a. Proof of qualifications for operator must be kept on the project site for review.

b. Manufacture specifications or owner's manual for the equipment must be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Incorporate such additional safety precautions or requirements into the AHAs.

3.7.4 Base Mounted Drum Hoists

a. Operation of base mounted drum hoists must be in accordance with EM 385-1-1 and ASSP A10.22.

b. Rigging gear must be in accordance with applicable ASME/OSHA standards.

c. When used on telecommunication towers, base mounted drum hoists must be in accordance with TIA-1019, TIA-222, ASME B30.7, 29 CFR 1926.552, and 29 CFR 1926.553.

d. When used to hoist personnel, the AHA must include a written standard operating procedure. Operators must have a physical examination in accordance with EM 385-1-1 Section 16.B.05 and trained, at a minimum, in accordance with EM 385-1-1 Section 16.U and 16.T. The base mounted drum hoist must also comply with OSHA Instruction CPL 02-01-056 and ASME B30.23.

e. Material and personnel must not be hoisted simultaneously.

f. Personnel cage must be marked with the capacity (in number of persons) and load limit in pounds.

g. Construction equipment must not be used for hoisting material or personnel or with trolley/tag lines. Construction equipment may be used for towing and assisting with anchoring guy lines.

3.7.5 Use of Explosives

Explosives must not be used or brought to the project site without prior written approval from the Contracting Officer. Such approval does not relieve the Contractor of responsibility for injury to persons or for damage to property due to blasting operations.

Storage of explosives, when permitted on Government property, must be only where directed and in approved storage facilities. These facilities must be kept locked at all times except for inspection, delivery, and withdrawal of explosives.

3.8 EXCAVATIONS

Soil classification must be performed by a competent person in accordance with 29 CFR 1926 and EM 385-1-1.

3.8.1 Utility Locations

Provide a third party, independent, private utility locating company to positively identify underground utilities in the work area in addition to any station locating service and coordinated with the station utility department.

3.8.2 Utility Location Verification

Physically verify underground utility locations, including utility depth, by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within 3 feet of the underground system.

3.8.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces

Utilities located within and under concrete slabs or pier structures, bridges, parking areas, and the like, are extremely difficult to identify. Whenever Contract work involves chipping, saw cutting, or core drilling through concrete, bituminous asphalt or other impervious surfaces, the existing utility location must be coordinated with station utility departments in addition to location and depth verification by a third party, independent, private locating company. The third party, independent, private locating company must locate utility depth by use of Ground Penetrating Radar (GPR), X-ray, bore scope, or ultrasound prior to the start of demolition and construction. Outages to isolate utility systems must 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.

3.9 ELECTRICAL

Perform electrical work in accordance with EM 385-1-1, Sections 11 and 12.

3.9.1 Conduct of Electrical Work

As delineated in EM 385-1-1, electrical work is to be conducted in a de-energized state unless there is no alternative method for accomplishing the work. In those cases obtain an energized work permit from the Contracting Officer. The energized work permit application must be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized. 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. Attach temporary grounds in accordance with ASTM F855 and IEEE 1048. 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 is 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 are permitted to enter. When work requires work near energized circuits as defined by NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves and 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. Ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.147.

3.9.2 Qualifications

Electrical work must be performed by QP with verifiable credentials who

are familiar with applicable code requirements. Verifiable credentials consist of State, National and Local Certifications or Licenses that a Master or Journeyman Electrician may hold, depending on work being performed, and must be identified in the appropriate AHA. Journeyman/Apprentice ratio must be in accordance with State, Local and Host Nation requirements applicable to where work is being performed.

3.9.3 Arc Flash

Conduct a hazard analysis/arc flash hazard analysis whenever work on or near energized parts greater than 50 volts is necessary, in accordance with NFPA 70E.

All personnel entering the identified arc flash protection boundary must be QPs and properly trained in NFPA 70E requirements and procedures. Unless permitted by NFPA 70E, no Unqualified Person is permitted to approach nearer than the Limited Approach Boundary of energized conductors and circuit parts. Training must be administered by an electrically qualified source and documented.

3.9.4 Grounding

Ground electrical circuits, equipment and enclosures in accordance with NFPA 70 and IEEE C2 to provide a permanent, continuous and effective path to ground unless otherwise noted by EM 385-1-1.

Check grounding circuits to ensure that the circuit between the ground and a grounded power conductor has a resistance low enough to permit sufficient current flow to allow the fuse or circuit breaker to interrupt the current.

3.9.5 Testing

Temporary electrical distribution systems and devices must be inspected, tested and found acceptable for Ground-Fault Circuit Interrupter (GFCI) protection, polarity, ground continuity, and ground resistance before initial use, before use after modification and at least monthly. Monthly inspections and tests must be maintained for each temporary electrical distribution system, and signed by the electrical CP or QP.

-- End of Section --

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS
02/19

PART 1 GENERAL

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 B564 Standard Specification for 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.

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: https://www.transportation.org/

AMERICAN CONCRETE INSTITUTE (ACI)
38800 Country Club Drive
Farmington Hills, MI 48331-3439
Ph: 248-848-3700
Fax: 248-848-3701
Internet: https://www.concrete.org/

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
Two Park Avenue
New York, NY 10016-5990
Ph: 800-843-2763
Fax: 973-882-1717
E-mail: customercare@asme.org
Internet: https://www.asme.org/

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)
520 N. Northwest Highway
Park Ridge, IL 60068
Ph: 847-699-2929
E-mail: customerservice@assp.org
Internet: https://www.assp.org/

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
E-mail: service@astm.org
Internet: https://www.astm.org/

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 and 501 Hoes Lane
Piscataway, NJ 08854-4141
Ph: 732-981-0060 or 800-701-4333
Fax: 732-981-9667
E-mail: onlinesupport@ieee.org
Internet: https://www.ieee.org/

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1 Batterymarch Park
Quincy, MA 02169-7471
Ph: 800-344-3555
Fax: 800-593-6372
Internet: https://www.nfpa.org

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)
1320 North Courthouse Rosd, Suite 200
Arlington, VA 22201
Ph: 703-907-7700
Fax: 703-907-7727
E-mail: marketing@tiaonline.org
Internet: https://www.tiaonline.org/

U.S. ARMY CORPS OF ENGINEERS (USACE)
CRD-C DOCUMENTS available on Internet:
http://www.wbdg.org/ffc/army-coe/standards
Order Other Documents from:
Official Publications of the Headquarters, USACE
E-mail: hqpublications@usace.army.mil
Internet: http://www.publications.usace.army.mil/
or
https://www.hnc.usace.army.mil/Missions/Engineering-Directorate/TECHINFO/

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
8601 Adelphi Road
College Park, MD 20740-6001
Ph: 866-272-6272
Internet: https://www.archives.gov/
Order documents from:
Superintendent of Documents
U.S. Government Publishing Office (GPO)
732 N. Capitol Street, NW
Washington, DC 20401
Ph: 202-512-1800 or 866-512-1800
Bookstore: 202-512-0132
Internet: https://www.gpo.gov/

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

SECTION 01 45 00.15 10

RESIDENT MANAGEMENT SYSTEM CONTRACTOR MODE (RMS CM)
11/16, CHG 2: 08/19

PART 1 GENERAL

1.1 REFERENCES

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

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety -- Safety and Health Requirements Manual

1.2 MEASUREMENT AND PAYMENT

The work of this section is not measured for payment. The Contractor is responsible for the work of this section, without any direct compensation other than the payment received for contract items.

1.3 CONTRACT ADMINISTRATION

The Government will use the Resident Management System (RMS) to assist in its monitoring and administration of this contract. The Government accesses the system using the Government Mode of RMS (RMS GM) and the Contractor accesses the system using the Contractor Mode (RMS CM). The term RMS will be used in the remainder of this section for both RMS GM and RMS CM. The joint Government-Contractor use of RMS facilitates electronic exchange of information and overall management of the contract. The Contractor accesses RMS to record, maintain, input, track, and electronically share information with the Government throughout the contract period in the following areas:

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

1.3.1 Correspondence and Electronic Communications

For ease and speed of communications, exchange correspondence and other documents in electronic format to the maximum extent feasible. Some correspondence, including pay requests and payrolls, are also to be provided in paper format with original signatures. Paper documents will govern, in the event of discrepancy with the electronic version.

1.3.2 Other Factors

Other portions of this document have a direct relationship to the reporting accomplished through RMS. Particular attention is directed to

FAR 52.236-15 Schedules for Construction Contracts; FAR 52.232-27 Prompt Payment for Construction Contracts; FAR 52.232-5 Payments Under Fixed-Priced Construction Contracts; Section 01 32 01.00 10 PROJECT SCHEDULE; Section 01 33 00 SUBMITTAL PROCEDURES; Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS; and Section 01 45 00.00 10 QUALITY CONTROL.

1.4 RMS SOFTWARE

RMS is a web based application. Download, install and be able to utilize the latest version of RMS within 7 calendar days of receipt of the Notice to Proceed. RMS software, user manuals, access and installation instructions, program updates and training information are available from the RMS website (https://rms.usace.army.mil). The Government and the Contractor will have different access authorities to the same contract database through RMS. The common database will be updated automatically each time a user finalizes an entry or change.

1.5 CONTRACT DATABASE - GOVERNMENT

The Government will enter the basic contract award data in RMS prior to granting the Contractor access. The Government entries into RMS will generally be related to submittal reviews, correspondence status, and Quality Assurance(QA)comments, as well as other miscellaneous administrative information.

1.6 CONTRACT DATABASE - CONTRACTOR

Contractor entries into RMS establish, maintain, and update data throughout the duration of the contract. Contractor entries generally include prime and subcontractor information, daily reports, submittals, RFI's, schedule updates and payment requests. RMS includes the ability to import attachments and export reports in many of the modules, including submittals. The Contractor responsibilities for entries in RMS typically include the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

Enter all current Contractor administrative data and information into RMS within 7 calendar days of receiving access to the contract in RMS. This includes, but is not limited to, Contractor's name, address, telephone numbers, management staff, and other required items.

1.6.1.2 Subcontractor Information

Enter all missing subcontractor administrative data and information into RMS CM within 7 calendar days of receiving access to the contract in RMS or within 7 calendar days of the signing of the subcontractor agreement for agreements signed at a later date. This includes name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor is listed separately for each trade to be performed.

1.6.1.3 Correspondence

Identify all Contractor correspondence to the Government with a serial number. Prefix correspondence initiated by the Contractor's site office

with "S". Prefix letters initiated by the Contractor's home (main) office with "H". Letters are numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C" or "RFP".

1.6.1.4 Equipment

Enter and maintain 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 Reports

Track the status of the project utilizing the reports available in RMS. The value of these reports is reflective of the quality of the data input. These reports include the Progress Payment Request worksheet, Quality Control (QC) comments, Submittal Register Status, and Three-Phase Control worksheets.

1.6.1.6 Request For Information (RFI)

Create and track all Requests For Information (RFI) in the RMS Administration Module for Government review and response.

1.6.2 Finances

1.6.2.1 Pay Activity Data

Develop and enter a list of pay activities in conjunction with the project schedule. The sum of pay activities equals the total contract amount, including modifications. Each pay activity must be assigned to a Contract Line Item Number (CLIN). The sum of the activities assigned to a CLIN equals the amount of each CLIN.

1.6.2.2 Payment Requests

Prepare all progress payment requests using RMS. Update the work completed under the contract at least monthly, measured as percent or as specific quantities. After the update, generate a payment request and prompt payment certification using RMS. Submit the signed prompt payment certification and payment request as well as supporting data either electronically or by hard copy. Unless waived by the Contracting Officer, a signed paper copy of the approved payment certification and request is also required and will govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

Enter and track implementation of the 3-phase QC Control System, QC testing, transferred and installed property and warranties in RMS. Prepare daily reports, identify and track deficiencies, document progress of work, and support other Contractor QC requirements in RMS. Maintain all data on a daily basis. Insure that RMS reflects all quality control methods, tests and actions contained within the Contractor Quality Control (CQC) Plan and Government review comments of same within 7 calendar days of Government acceptance of the CQC Plan.

1.6.3.1 Quality Control (QC) Reports

The Contractor's Quality Control (QC) Daily Report in RMS is the official report. The Contractor can use other supplemental formats to record QC data, but information from any supplemental formats are to be consolidated and entered into the RMS QC Daily Report. Any supplemental information may be entered into RMS as an attachment to the report. QC Daily Reports must be finalized and signed in RMS within 24 hours after the date covered by the report. Provide the Government a printed signed copy of the QC Daily Report, unless waived by the Contracting Officer.

1.6.3.2 Deficiency Tracking.

Use the QC Daily Report Module to enter and track deficiencies. Deficiencies identified and entered into RMS by the Contractor or the Government will be sequentially numbered with a QC or QA prefix for tracking purposes. Enter each deficiency into RMS the same day that the deficiency is identified. Monitor, track and resolve all QC and QA entered deficiencies. A deficiency is not considered to be corrected until the Government indicates concurrence in RMS.

1.6.3.3 Three-Phase Control Meetings

Maintain scheduled and actual dates and times of preparatory and initial control meetings in RMS. Worksheets for the three-phase control meetings are generated within RMS.

1.6.3.4 Labor and Equipment Hours

Enter labor and equipment exposure hours on a daily basis. Roll up the labor and equipment exposure data into a monthly exposure report.

1.6.3.5 Accident/Safety Reporting

Both the Contractor and the Government enter safety related comments in RMS as a deficiency. The Contractor must monitor, track and show resolution for safety issues in the QC Daily Report area of the RMS QC Module. In addition, follow all reporting requirements for accidents and incidents as required in EM 385-1-1, Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS and as required by any other applicable Federal, State or local agencies.

1.6.3.6 Definable Features of Work

Enter each feature of work, as defined in the approved CQC Plan, into the RMS QC Module. A feature of work may be associated with a single or multiple pay activities, however a pay activity is only to be linked to a single feature of work.

1.6.3.7 Activity Hazard Analysis

Import activity hazard analysis electronic document files into the RMS QC Module utilizing the document package manager.

1.6.4 Submittal Management

Enter all current submittal register data and information into RMS within 7 calendar days of receiving access to the contract in RMS. The information shown on the submittal register following the specification

Section 01 33 00 SUBMITTAL PROCEDURES will already be entered into the RMS database when access is granted. Group electronic submittal documents into transmittal packages to send to the Government, except very large electronic files, samples, spare parts, mock ups, color boards, or where hard copies are specifically required. Track transmittals and update the submittal register in RMS on a daily basis throughout the duration of the contract. Submit hard copies of all submittals unless waived by the Contracting Officer.

1.6.5 Schedule

Enter and update the contract project schedule in RMS by either manually entering all schedule data or by importing the Standard Data Exchange Format (SDEF) file, based on the requirements in Section 01 32 01.00 13 PROJECT SCHEDULE.

1.6.6 Closeout

Closeout documents, processes and forms are managed and tracked in RMS by both the Contractor and the Government. Ensure that all closeout documents are entered, completed and documented within RMS.

1.7 IMPLEMENTATION

Use of RMS as described in the preceding paragraphs is mandatory. Ensure that sufficient resources are available to maintain contract data within the RMS system. RMS is an integral part of the Contractor's required management of quality control.

1.8 NOTIFICATION OF NONCOMPLIANCE

Take corrective action within 7 calendar days after receipt of notice of RMS non-compliance by the Contracting Officer.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 45 10

CONTRACTOR QUALITY CONTROL
03/01

PART 1 GENERAL

1.1 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.

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 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Data

CQC Plan; G|OP.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

SD-06 Instructions

CQC Plan; G|OP.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

SD-07 Schedules

CQC Plan; G|OP.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used.

SD-08 Statements

Change Notification.

Any changes made by the Contractor.

Phase Notification.

The Government shall be notified in a specified amount of time in advance of beginning the preparatory control phase.

SD-09 Reports

CQC Plan; G|OP.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used..

Request; G|OP.

The requesting of specialized individuals in specific disciplines to perform quality control.

SD-13 Certification

CQC Plan; G|OP.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used..

CQC Mgr Qualification; G|OP.

The evaluation of the project to determine the level of CQC System Manager required.

SD-14 Samples

CQC Mgr Qualification; G|OP.

The evaluation of the project to determine the level of CQC System Manager required.

SD-18 Records

CQC Plan; G|OP.

Identifies personnel, procedures, control, instructions, test, records, and forms to be used..

Minutes.

Prepared by the Government and signed by both the Contractor and the Contracting Officer and shall become a part of the contract file.

CQC Mgr Qualification.

The evaluation of the project to determine the level of CQC System Manager required.

QC Records; G|OP.

Provid factual evidence that required quality control activities and/or tests have been performed.

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 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 CQC PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "FAR 52.246-12, 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 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

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

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters 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 agents. These procedures shall be in accordance with Section 01 33 00 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. The Contractor shall include a copy of his proposed laboratory's latest Corps of Engineers inspection report in the Quality Control Plan. The inspection report details the tests that the lab has been validated to perform under Corps of Engineers contracts. (Laboratory facilities will be approved by the Contracting Officer.)

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

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures 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.

3.2.3 Acceptance of Plan

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

3.2.4 Notification of Changes

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

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 14 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 operations, control activities, testing, administration of the system

for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System 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, show 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 5 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 for the following areas: submittals clerk. 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.

Experience Matrix

Area	Qualifications
a. Submittals	Submittal Clerk with 1 yr experience

3.4.4 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

Submittals, if needed, shall be made as specified in Section 01 33 00 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 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 protion 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 72 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 72 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 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 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. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

e. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

f. Off-site surveillance activities, including actions taken.

g. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

h. Instructions given/received and conflicts in plans and/or specifications.

i. 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.

3.8 SAMPLE FORMS

Sample forms enclosed at the end of this section.

3.9 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.

-- End of Section --

SECTION 01 71 23

SURVEY REQUIREMENTS
02/2018

PART 1 GENERAL

1.1 SCOPE OF SECTION

The work covered by this section consists of furnishing all labor, materials, plant and equipment, and performing all operations required in conducting surveys and survey data submittals.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.Current versions of each publication are available at: https://pubs.usace.army.mil/SitePages/Home.aspx

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-1-1005	Engineering and Design - Control and Topographic Surveying

1.3 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. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

NOTE: Any submittals classified as "SD-01 Preconstruction Submittals" require approval prior to mobilization to the contract work site. All other submittals, classified as "SD-02" through "SD-11," require approval prior to commencing the particular task to which the submittal is associated.

SD-01 Preconstruction Submittals

Qualifications; G,DO

Submit qualifications of the independent licensed surveyor(s) for topographic and hydrographic surveying to the Government Survey Point of Contact prior to commencing any survey work.

Surveying Procedures and Equipment; G,DO

Submit all surveying procedures, methods, and equipment for topographic surveys, hydrographic surveys, and tidal monitoring, to the Government Survey Point of Contact, prior to the start of any surveying work. All survey equipment, including vessels, shall be owned or leased by an independent survey company, unless otherwise approved by the Government. Specific procedures shall be included which define how surveys will be accomplished during placement of all layers. This submittal shall be submitted along

with the General Work Plan submittal required in Section 31 37 00. Resubmit the Surveying Procedures and Equipment if the General Work Plan changes during the contract.

SD-07 Certificates

Location of Survey Lines; G,DO

Submit the locations of the survey lines, in .dxf and .lnw format, prior to any data collection.

Pre-Construction Survey; G,DO

After Capstone Placement Survey; G,DO

After-Dredge Surveys of the Dredging Access Area; G,DO

Survey Logs

Daily submission of survey logs to the District Survey Point of Contact and COR.

Metadata; G,DO

Submit metadata within 14 business days after completion of project placement operations.

1.4 HYDROGRAPHIC SURVEYS

1.4.1 General

Conduct hydrographic surveys in accordance with USACE Performance Standards as defined in the Hydrographic Surveying Manual EM 1110-2-1003. Perform surveys using single transducer sounding techniques, as required. Obtain bottom soundings using a single beam fathometer operating at a frequency ranging from 190 to 210 Khz. Calibrate all fathometers in accordance with the procedures outlined in EM 1110-2-1003. Include raw data with submittals.

1.5 TOPOGRAPHIC SURVEYS

Perform all topographic surveys in accordance with EM 1110-1-1005. Conduct all topographic surveys utilizing real time kinematic GPS or an electronic total station with a data collector. Record a three-dimensional raw electronic position for each data point. Include raw data with submittals.

1.6 SURVEYING RESTRICTIONS

1.7 QUALIFICATIONS

Perform all surveys using an independent survey company. All survey (topographic and hydrographic) data shall be consolidated by the same company to ensure that accuracy tolerances and overlap requirements are met. Perform all topographic surveys under the direction and supervision of a Professional Licensed Surveyor with a minimum 5 years current experience in rock revetment or similar construction. Conduct all hydrographic surveys under the direction and supervision of a Surveyor certified by the National Society of Professional Surveyors / Hydrographic

Society of America as a certified Hydrographer, or by a Professional Licensed Surveyor with a minimum of 5 years documented experience in hydrographic surveys of rock structures using single beam techniques. At least one surveyor working for the survey company shall be a State of Maryland licensed surveyor. This licensed surveyor shall be on-site a minimum of 10 percent of the on-site survey time.

1.8 QUALITY ASSURANCE

Quality assurance will be conducted by the District Survey Office on a minimum of 10 percent of the Contractor's survey work. To accomplish this, the District survey office will either re-survey areas or observe the Contractor in conducting their surveys or inspect submitted raw and processed data.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL SURVEY REQUIREMENTS

Conduct all surveys required to demonstrate that the construction is in compliance with the specified placement tolerances and the lines, grades, and elevations shown on the drawings.

3.1.1 Vertical and Horizontal Datums

Utilize North American Vertical Datum (NAVD) 1988 as the vertical datum for elevation and depth references for all surveys. Utilize Maryland's State Plane Coordinate System (NAD 1983) as the horizontal reference datum.

3.1.2 Tolerances

Topographic surveys shall be surveyed utilizing surveying procedures and methodology that meet or exceed accuracy tolerances of +/- 0.20 feet in the vertical and +/- 0.20 feet in the horizontal. Hydrographic surveys shall be surveyed utilizing surveying procedures and methodology that meet or exceed accuracy tolerances of +/- 0.20 feet in the vertical and +/- 0.20 feet in the horizontal. Horizontally, the topographic and hydrographic survey points shall be kept to within +/- 5 ft of the cross section line. In areas where obstructions are present, complete notes shall be taken explaining the offset.

3.1.3 Overlap of Survey Techniques

Survey lines requiring multiple collection methods shall have an overlap and five points recorded in each method recorded. All points shall be recorded in the final submittal with attributes indicating the recording method. Survey points must be within 5' lateral distance of the planned cross section line and overlap points must demonstrate vertical accuracy of +-0.2' between different methods. Hydrographic surveys should be completed at high tide, and topographic surveys should be completed at low tide to achieve overlap.

3.1.4 Pre-Construction Condition Surveys

Schedule the hydrographic/topographic portions of the survey profiles so

that a maximum time of 10 days transpires between data collection of each portion of the survey lines. If significant differences in elevation between survey segments are observed at locations where segments overlap, submit such information to the District Office for assessment, while still at the site. Significant differences between segments shall be defined as elevation differences which exceed tolerances as specified in the Paragraph titled "Tolerances".

3.1.5 During Construction Surveys

Surveys of each phase of construction, as defined in the Paragraph titled "Required Surveys", shall be conducted prior to the next phase of construction occurring for each profile line.

3.1.6 Survey Baselines

Any survey baselines implemented shall be established from the alignment information described on the contract drawings. Baselines shall be surveyed utilizing surveying procedures and methodology that meet or exceed accuracy tolerances of +/- 0.10 feet in the vertical and +/- 0.10 feet in the horizontal.

3.2 SURVEY CONTROL

Survey control descriptions are provided in Appendix A30 . Survey the control network utilizing surveying procedures and methodology that meet or exceed accuracy tolerances of +/- 0.10 feet in the vertical and +/- 0.10 feet in the horizontal.

USACE-NAB survey control networks are periodically adjusted and updated. This process results in changes to control monuments and coordinates. It does not change the coordinates of the survey baseline. The survey baseline coordinates and the coordinates of the physical monument may vary. It should be assumed that the survey control network and the survey baseline are independent entities. The physical monument may or may not be on the survey baseline. Establish the relationship between the supplied physical monumentation and the survey baseline.

If the name of the survey control point includes stationing or numbers of any kind, the station name should not be assumed to be exact stationing on the survey baselines or profile lines. Coordinates shown on the Survey Control Sheets (DA Form 1959) will govern. Station naming often refers to historic project information and standard calculations must be performed based on coordinates in order to derive the specific relationship between the control point and the survey baseline.

Stake and flag all temporary bench marks or control points set within the work limits and clearly label the elevation of the point on the stake.

3.3 SURVEY LOGS

Prepare survey logs in spreadsheet form describing all survey progress and activity for pre-placement construction surveys and for during construction surveys. The spreadsheet shall be an ongoing log describing all survey lines that have been started as well as completed.

3.4 STAKING AND FLAGGING

3.4.1 Construction Baseline

Stake and flag, every 100 feet, a survey baseline, located such that it provides easy reference by QA and QC personnel. The location of the survey baseline is subject to the approval of the COR. This survey baseline is shown on the contract drawings.

3.5 PRE-CONSTRUCTION CONDITION SURVEYS

3.5.1 General

Obtain pre-construction condition survey. This survey shall consist of a topographic survey and a single beam hydrographic survey. Maximum point intervals shall be 2 feet for the topographic and hydrographic data. The topographic and single beam data shall overlap a minimum of 5 foot horizontal. Combine all topo and hydro data into a surface. Surface shall be provided in the formats listed in Paragraphs titled "DATA SUBMISSION".

3.5.2 Completion Time Requirements

Commence repair operations no more than 42 calendar days after completion of pre-construction condition surveys, subject to the approval of these surveys. Prior to commencement of placement operations, allow the Government a maximum of 14 calendar days for review and approval of these surveys. Revisions to the contract drawings may be made by the Government. Re-collect pre-construction condition surveys in the event placement operations are not started within the time specified above.

3.5.3 Survey Range Required

Topographic data and single beam data shall be conducted from Station 0+00 to Station 13+50. Single beam surveys shall be taken at the profile origin points and azimuths, as shown on the drawings. Topographic and single beam survey data shall be conducted along the profile lines as shown on the drawings.

3.5.4 Quality Control

Data from previous surveys will be provided to the Contractor in advance of the pre-construction surveys. Overlay the previous surveys with pre-construction surveys as a quality control measure. If previous surveys are not available, this requirement will be waived.

3.6 DURING CONSTRUCTION SURVEYS

3.6.1 Required Surveys

During construction the following as-built surveys will be required: Single beam and topographic survey methods are acceptable.

a. After Capstone placement.

3.6.2 Intervals Required

Cross-sections shall be taken every 25 feet, at the profile origin points and azimuths, as shown on the drawings. Elevations along the

cross-sections shall be taken at a maximum of 2 foot intervals, with additional elevations taken at all breaks in grade and as necessary to describe all hydrographic features. Topographic and hydrographic surveys shall be obtained and shall be within 5 feet of each cross section location.

3.6.3 Completion Time Requirements

Surveys shall be taken after work is completed, as specified in the Paragraph titled "Required Surveys".

3.6.4 Timely Submission of Survey Data

Survey data and plotted cross sections and plans unless specified otherwise, shall be submitted to the COR within 14 days of collection of the survey data. The Contractor proceeds at his own risk when work is built-upon that is determined to not be in compliance with the contract. Work not in compliance with the contract, and all overlying features, shall be removed and replaced, at no additional cost to the Government.

3.6.5 Notification

The COR shall be notified a minimum of 48 hours prior to the performance of surveying in any particular area.

3.7 DATA SUBMISSION

3.7.1 General

Record all survey data digitally on compact disc (CD) in ASCII text format. Label the face of each CD to describe contents including: project name, transmittal no., survey type (e.g., Capstone), station, and date. Provide a case or sleeve for each CD. Submit all survey data in all of the following formats:

3.7.1.1 Pre-Construction Condition Surveys:

a. All Raw and Edited data.

b. XYZ format: containing all data, clearly marked with "All" in the titles. Include a description of each point designating it as rock, edge of rock, sand, etc.

c. Electronic drawing in AutoCAD version 2019 containing a surface with all appropriate breaklines and 1 foot contours. Add breaklines as needed to define all features.

d. Electronic profile drawings in AutoCAD version 2019 for each profile survey taken. These profiles shall be overlaid on the contract drawing profiles for comparison purposes. The grid spacing shall be 10 feet in the vertical and 10 feet in the horizontal. Each drawn profile shall show the station that it was taken from. The survey lines should be color coded to represent the survey method. Provide a plan view drawing and pdf showing location of points in comparison to profile lines. Submit electronic files in both AutoCAD and Portable Document Format (PDF).

3.7.1.2 During Construction Surveys:

a. Nine-column XYZ Format, as shown on the attached sheets.

b. One ASCII file containing the following for all profile lines: date, profile ID, survey origin, and grid azimuth with respect to the horizontal reference coordinate system.

c. BMAP Free Format: ASCII files using distances offset from the baseline (X) and elevation (Z1), as shown on attached sheets.

d. Electronic cross section drawings in AutoCAD version 2019 for each cross section survey taken. Overlay these cross sections on the contract drawing cross sections and include the specified template for that location. Cross sections should clearly label what data pertains to topo vs hydro data. Each drawn cross section shall show the station that it was taken from. The grid spacing shall be 10 feet in the vertical and 10 feet in the horizontal. Submit electronic files in both AutoCAD and PDF formats.

e. Plotted plan view drawings that show topographic and hydrographic survey data points with tick marks at each shot collected and color coded by survey type (hydro, wading, topo). Plotted cross section drawings that show topographic and hydrographic survey data that are color coded by survey type. Use the data in the Nine-column XYZ format to derive these drawings.

f. Compile all survey data previously submitted with each new survey disc submittal.

3.8 DISCREPANCIES

In the event of any discrepancies that cannot be resolved by the District Office quality assurance review of the Contractor's data, the COR may request an additional survey be performed by the Philadelphia District Survey Section. The results of the Government survey will be considered in the final determination made by the Contracting Officer to resolve any conflicts.

3.9 METADATA SUBMISSION

Provide metadata file(s) for all geospatial data produced under this Contract that are compatible with ESRI ArcGIS applications. (Information on ESRI ArcGIS is available at the following link: http://www.esri.com.) The metadata file(s) must comply with Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata Version 2.0 or higher. If another metadata generation tool is used, the ".txt" or ".doc" file types will be sufficient, however the ".xml" alternative file type would be preferred.

Geospatial data is defined as information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the earth, which also includes aerial photography. Geospatial data affected by these requirements are those generated for use in a: Geographic Information System (GIS); Land Information System (LIS); remote Sensing or Image processing system; Computer-Aided Design and Drafting (CADD) system; Automated Mapping/Facilities Management (AM/FM) system and other computer systems that employ or reference data using either absolute, relative or assumed coordinates.

Provide digital FGDC compliant metadata file(s) for each deliverable product and data set outlined in these specifications.

Metadata standards can be found at http://www.fgdc.gov/metadata.

3.10 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for the work specified in this section and all costs in connection therewith shall be included in the the cost of all the bid items.

SURVEY DATA FORMATS

a. Nine-column XYZ Format

One ASCII file containing all data points for all profiles and having a descriptive header at the top of the file followed by a record of nine comma delimited fields for each data point including the following information: Profile ID, Date, Time, Point Number, Easting (X), Northing (Y), Elevation (Z), survey type (TOPO, WADING, or HYDRO), and description (as appropriate). The following is a sample data file format:

```
(DESCRIPTIVE HEADER)
FISHING CREEK, MARYLAND
PROFILE DATA
July 2012
VERTICAL DATA REFERENCED TO NAVD88, U.S. SURVEY FOOT
HORIZONTAL CONTROL IS REFERENCED TO THE MARYLAND STATE PLANE COORDINATE
SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

DESCRIPTION LEGEND (SAMPLE):
STREET = STREET OR SHOULDER
ROAD_BED = GRASSY SHOULDER OR EDGE OF ROAD
PK_NAIL = ON STATION, RANGE 0.0, PK NAIL MARKER
SEAWALL = CONCRETE EXTENT
BASE_DUNE = WINDWARD/SEAWARD TOE OF DUNE
VEG_DUNE = VEGETATION AND/OR DUNE SLOPE
TOP_DUNE = CREST OF DUNE
THICK_VEG = MODERATE TO EXTREMELY DENSE VEGETATION
VEG_G = SPARSE TO MODERATE VEGETATION
FENCE = TYPICAL WIRE AND WOOD BEACH FENCE
G = SPARSE TO NIL VEGETATION, GRAVEL OR SAND
RIPRAP = EDGE TO EDGE, EXTENT OF ROCK
BERM = NOTICEABLE HIGH TIDE LIMIT
BEACH_FACE = BETWEEN BERM AND SWASH ZONE
SWASH_ZONE = WAVE BREAK AREA, TIDE DURING COLLECTION

DATA TYPE LEGEND
TOPO = RTK TOPOGRAPHIC DATA COLLECTION
WADING = WADING CONVENTIONAL LEVEL DATA COLLECTION
HYDRO= RTK ECHO SOUNDER COLLECTION (ELEVATION)

PROFILE ID, DATE, TIME (EST), POINT #, EASTING (X), NORTHING (Y),
ELEVATION (Z), TYPE, DESCRIPTION
(START OF DATA)
V020, 20040417, 1107, 10001, 385926.7, 40466.0, 10.9, TOPO, THICK_VEG
V020, 20040417, 1108, 10002, 385931.4, 40457.2, 10.8, TOPO, VEG_DUNE
....
....
V021, 20040417, 1037, 9801, 384943.2, 40330.6, -8.3, HYDRO, SOUNDING
V021, 20040417, 1038, 9802, 384946.7, 40320.6, -8.2, HYDRO, SOUNDING
Etc.
```

b. BMAP Free Format One ASCII file containing all data points for all profiles. For each profile, format includes: 1. One profile header line including three fields separated by a space: (a)Profile ID; (b) Date of data collection in "YYYY_MM_DD" format; (c) Survey descriptor: "Preplacement"; "BD"; "AD"; or "Postplacement" Note: Use Profile IDs listed in drawings for pre/post placement surveys; Use station in "xxx+xx" format as Profile ID for BD/AD profile surveys 2. One line listing the integer number of points "N" in the profile 3. "N" lines including two fields separated by a space: (a) distance from baseline (positive offshore, in ft); (b) elevation (relative to NAVD 88, ft) Note: Points should be sorted such that distances from baseline are listed in ascending order; No two points may have the same distance from baseline (adjacent points should be separated by distance of at least 0.1 ft) The following is a sample data file format: OC003 2015_05_12 Preplacement 5 827.4 9.62 840.3 8.61 848.6 6.60 859.7 5.49 871.4 4.29 OC005 2015_05_12 Preplacement 6 635.0 7.48 640.3 8.75 649.3 7.33 657.2 6.94 663.8 6.51 671.9 6.36

-- End of Section --

SECTION 01 76 00

STRUCTURES MONITORING
02/2018

PART 1 GENERAL

1.1 SCOPE OF SECTION

The work specified in this section consists of furnishing all labor, materials and equipment, and performing all operations required to monitor structures for potential effects of the contract work.

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. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Qualifications; G,DO

Submit qualifications of the professional engineer, including a copy of their license, proposed to develop and conduct the structure monitoring.

Letter to Owners; G,DO

Submit the proposed letter to the owners of the monitored structures.

Structure Monitoring Plan; G,DO

Submit a structures monitoring plan describing the personnel, materials, equipment and methods to be utilized to monitor the effects of the contract operations on existing structures. In addition, the monitoring plan shall include qualifications of the personnel developing the monitoring plan; qualifications of personnel who shall do the monitoring; frequency of monitoring during each phase of the construction; maximum acceptable vibration level; and contingency plan if that vibration level is approached. Plan shall include the maximum threshold (a value below the allowed maximum value) for USACE notification and discussion of contingency plan.

SD-07 Certificates

Monitoring Report; G,DO

Submit the monitoring reports on a monthly basis following the monitoring, and include details of where and when the monitoring was performed, the frequency and peak particle velocities of the vibrations, the limiting criteria and any relevant notes. All exceedances shall be reported immediately.

1.3 OBJECTIVE

Monitor structures during this contract for vibration. The objective of this monitoring is to predict and prevent damage to the structures from the Contractor's work operations. Damage to structures as a result of the Contractor's work operations shall be the responsibility of the Contractor, and shall be repaired at no additional cost to the Government.

1.4 QUALIFICATIONS

Develop the proposed monitoring plan using a professional engineer that has experience with a minimum of 2 monitoring projects similar in type and scope to this monitoring work, within the last 5 years.

1.5 COORDINATION

After approval of the monitoring plan by the Government and before work begins at the site, draft a letter to the owners of all the structures to inform them of the methods of construction to be used for this contract, the hours of operation, and the content of the monitoring plan. In addition, explain to the owners that people may "experience" vibrations at levels much lower than vibration levels that would damage structures. Upon approval of this letter by the Government, the Contractor shall disseminate the letter. Attend a public meeting which will be coordinated, planned, and conducted by the Government.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 DESCRIPTION OF STRUCTURES

Monitor residential and commercial structures. In addition, monitor in-ground pools within the monitoring limits. The type of structures include residential homes, attached decks and commercial buildings and shops. Monitoring of sheds is not required.

3.2 MONITORING

Monitoring shall include the daily use of a seismograph at representative structures only. Monitor representative structures within 500 feet of where contract operations with large and/or heavy equipment are actively working. Place seismographs at locations on or at the base of the structures to obtain the highest peak particle velocities. Representative structures shall be defined as one of each foundation type (pile foundation, masonry, concrete, slab on grade). Monitor no less than three structures within the 500 feet of the active work area.

Determine the maximum acceptable vibration level from the chart attached at the end of this section, published by the United States Bureau of Mines Report of Investigation 8507, dated 1980.

3.3 EXCEEDING ACCEPTABLE VIBRATION LEVELS

Do not continue activities that result in peak particle velocities greater than the maximum acceptable vibration level. In the event construction activities impact a structure, the aforementioned engineer shall reinspect

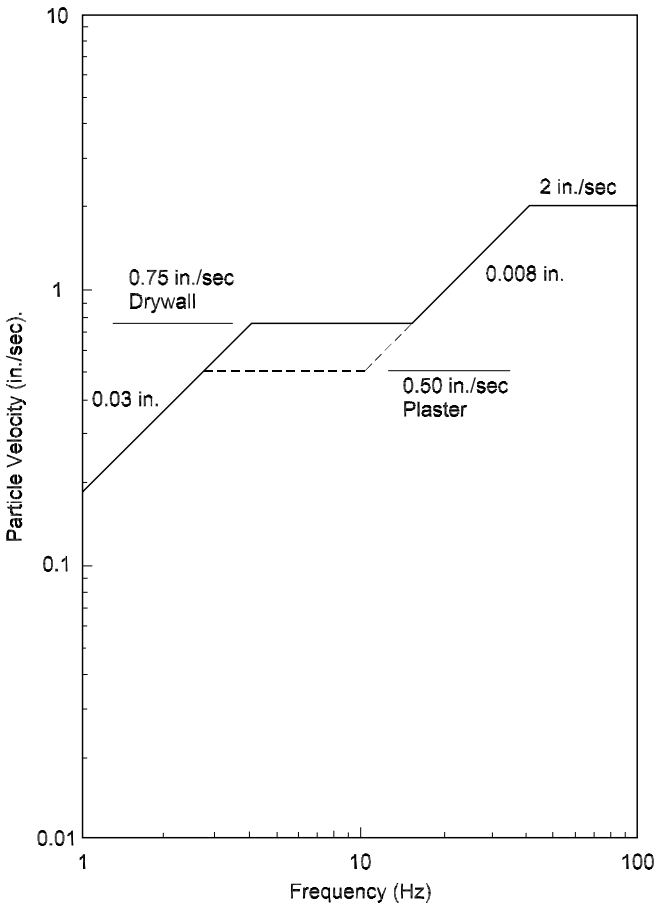
the structure(s) and report the findings, including digital images, to the Contracting Officer via compact disk no later than one day following the reinspection.

3.4 MEASUREMENT AND PAYMENT

The work specified in this section will not be measured for payment and all costs in connection therewith shall be included in the contract lump sum price for the Bid Item titled "Structures Monitoring".

-- End of Section --

Maximum Acceptable Vibration Level



SECTION 31 05 19

GEOTEXTILE
08/08

PART 1 GENERAL

1.1 SCOPE OF SECTION

The work covered by this section consists of furnishing all labor and equipment, and performing all operations required for installing geotextile, as specified herein and as indicated on the drawings.

1.2 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 D4354	(2012) Sampling of Geosynthetics for Testing
ASTM D4355/D4355M	(2014) Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus
ASTM D4491/D4491M	(2017) Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4533/D4533M	(2015) Standard Test Method for Trapezoid Tearing Strength of Geotextiles
ASTM D4632/D4632M	(2015a) Grab Breaking Load and Elongation of Geotextiles
ASTM D4751	(2016) Standard Test Method for Determining Apparent Opening Size of a Geotextile
ASTM D4759	(2011; R 2018) Standard Practice for Determining the Specification Conformance of Geosynthetics
ASTM D4873/D4873M	(2017) Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
ASTM D6241	(2014) Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

1.3 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. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Thread; G, DO
Manufacturing Quality Control Sampling and Testing; G, DO

SD-04 Samples

Quality Assurance Samples and Tests; G, DO

SD-07 Certificates

Geotextile; G, DO

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver, store, and handle geotextile in accordance with ASTM D4873/D4873M.

1.4.1 Delivery

Notify the Contracting Officer a minimum of 24 hours prior to delivery and unloading of geotextile rolls packaged in an opaque, waterproof, protective plastic wrapping. The plastic wrapping shall not be removed until deployment. If quality assurance samples are collected, immediately rewrap rolls with the plastic wrapping. Geotextile or plastic wrapping damaged during storage or handling shall be repaired or replaced, as directed. Label each roll with the manufacturer's name, geotextile type, roll number, roll dimensions (length, width, gross weight), and date manufactured.

1.4.2 Storage

Protect rolls of geotextile from construction equipment, chemicals, sparks and flames, temperatures in excess of 160 degrees F, or any other environmental condition that may damage the physical properties of the geotextile. To protect geotextile from becoming saturated, either elevate rolls off the ground or place them on a sacrificial sheet of plastic in an area where water will not accumulate.

1.4.3 Handling

Handle and unload geotextile rolls with load carrying straps, a fork lift with a stinger bar, or an axial bar assembly. Rolls shall not be dragged along the ground, lifted by one end, or dropped to the ground.

PART 2 PRODUCTS

2.1 RAW MATERIALS

A minimum of 7 days prior to scheduled use, submit manufacturer's certificate of compliance stating that the geotextile meets the requirements of this section. For needle punched geotextiles, the manufacturer shall also certify that the geotextile has been continuously inspected using permanent on-line full-width metal detectors and does not contain any needles which could damage other geosynthetic layers. The

certificate of compliance shall be attested to by a person having legal authority to bind the geotextile manufacturer. Certificate shall be a statement signed by an official authorized to certify on behalf of the manufacturer of the geotextile, attesting that the product meets specified requirements. The statement must be dated after the award of the contract, must state the Contractor's name and address, must name the project and location, and must list the specific requirements which are being certified.

2.1.1 Geotextile

Provide geotextile that is a nonwoven pervious sheet of polymeric material consisting of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The use of woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape-like character) will not be allowed. Add stabilizers and/or inhibitors to the base polymer, as needed, to make the filaments resistant to deterioration by ultraviolet light, oxidation, and heat exposure. Regrind material, which consists of edge trimmings and other scraps that have never reached the consumer, may be used to produce the geotextile. Post-consumer recycled material may also be used. Geotextile shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including the edges. Geotextiles shall meet the requirements specified in Table 1. Where applicable, Table 1 property values represent minimum average roll values (MARV) in the weakest principal direction. Values for AOS represent maximum average roll values.

TABLE 1
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

PROPERTY	UNITS	ACCEPTABLE VALUES	TEST METHOD
GRAB STRENGTH	LBS	350	ASTM D4632/D4632M
GRAB STRENGTH ELONGATION	PERCENT	50	ASTM D4632/D4632M
SEAM STRENGTH	LBS	200	ASTM D4632/D4632M
PUNCTURE	LBS	1025	ASTM D6241
TRAPEZOID TEAR	LBS	140	ASTM D4533/D4533M
APPARENT OPENING SIZE	U.S. SIEVE	100	ASTM D4751
FLOW RATE	GAL/MIN/SQUARE FEET	50	ASTM D4491/D4491M
PERMITTIVITY	SEC -1	0.7	ASTM D4491/D4491M

TABLE 1 MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE			
ULTRAVIOLET DEGRADATION	PERCENT	70 AT 500 HRS	ASTM D4355/D4355M

2.1.2 Thread

A minimum of 7 days prior to scheduled use, submit proposed thread type for sewn seams along with data sheets showing the physical properties of the thread. Construct sewn seams with high-strength polyester, nylon, or other approved thread type. Thread shall have ultraviolet light stability equivalent to the geotextile and the color shall contrast with the geotextile.

2.2 MANUFACTURING QUALITY CONTROL SAMPLING AND TESTING

The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. A minimum of 30 days prior to scheduled use, submit manufacturer's quality control manual. Documentation describing the quality control program shall be made available upon request. Perform manufacturing quality control sampling and testing in accordance with the manufacturer's approved quality control manual. As a minimum, geotextiles shall be randomly sampled for testing in accordance with ASTM D4354, Procedure A. Acceptance of geotextile shall be in accordance with ASTM D4759. Tests not meeting the specified requirements will result in the rejection of applicable rolls.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Placement

Notify the Contracting Officer a minimum of 24 hours prior to installation of geotextile. Geotextile rolls which are damaged or contain imperfections shall be repaired or replaced as directed. The geotextile shall be laid flat and smooth so that it is in direct contact with the subgrade. The geotextile shall also be free of tensile stresses, folds, and wrinkles. Place the geotextile with the long dimension parallel to the jetty centerline and shall be laid smooth and free of tension, stress, folds, wrinkles or creases. The placement procedures require that the length of the geotextile be slightly greater than the jetty length.

3.1.2 Temporary Support of Geotextile

The Contractor may choose to temporarily support the geotextile in place until capstones are placed on top. The method of doing this is up to the Contractor, but shall be submitted for approval. If the geotextile moves prior to capstone placement, the geotextile shall be repositioned, at the direction of the Contracting Officer, at no additional cost to the Government.

3.2 SEAMS

3.2.1 Overlap Seams

Continuously overlap geotextile panels a minimum of 3 feet at all longitudinal and transverse joints. Where seams must be oriented across the slope, lap the lower panel over the upper panel. If approved, sewn seams may be used instead of overlapped seams.

3.2.2 Sewn Seams

Factory and field seams shall be continuously sewn. The stitch type used shall be a 401 locking chain stitch or as recommended by the manufacturer. Provide Quality Assurance seam samples to the Government at the request of the Contracting Officer. Seam strength shall meet the minimum requirements specified in Table 1. The thread at the end of each seam run shall be tied off to prevent unraveling. Skipped stitches or discontinuities shall be sewn with an extra line of stitching with a minimum of 18 inches of overlap.

3.3 PROTECTION

Protect the geotextile during installation from clogging, tears, and other damage. Damaged geotextile shall be repaired or replaced as directed.

3.4 REPAIRS

Repair torn or damaged geotextile. Clogged areas of geotextile shall be removed. Perform repairs by placing a patch of the same type of geotextile over the damaged area. The patch shall extend a minimum of 12 inches beyond the edge of the damaged area. The machine direction of the patch shall be aligned with the machine direction of the geotextile being repaired. Remove and replace geotextile rolls which cannot be repaired. Repairs shall be performed at no additional cost to the Government

3.5 MEASUREMENT AND PAYMENT

The work specified in this section for the installation of geotextile will be measured for payment by the square foot of geotextile installed and accepted. All costs in connection therewith shall be included in the contract unit price for the Bid Items titled "Geotextile".

-- End of Section --

SECTION 31 37 00

JETTY REPAIR

PART 1 GENERAL

1.1 SUMMARY

The work covered by this section consists of furnishing all labor, materials, plant, and equipment, and performing all operations required for repair of the jetty, as specified herein and as shown on the drawings. All repair work shall be conducted from the water. No land access is available.

1.2 REFERENCES

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

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 301	(2016) Specifications for Structural Concrete
ACI 305R	(2010) Guide to Hot Weather Concreting
ACI 306R	(2016) Guide to Cold Weather Concreting

ASTM INTERNATIONAL (ASTM)

ASTM C31/C31M	(2019a) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C39/C39M	(2020) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94/C94M	(2020) Standard Specification for Ready-Mixed Concrete
ASTM C127	(2015) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C143/C143M	(2020) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150/C150M	(2020) Standard Specification for Portland Cement
ASTM C172/C172M	(2017) Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231/C231M	(2017a) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C295/C295M	(2018a) Standard Guide for Petrographic Examination of Aggregates for Concrete
ASTM C535	(2016) Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C618	(2019) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C685/C685M	(2017) Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C1064/C1064M	(2017) Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM D4791	(2010) Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D4992	(2014; E 2015) Evaluation of Rock to be Used for Erosion Control
ASTM D5312	(2012; R2013) Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
ASTM D5519	(2015) Particle Size Analysis of Natural and Man-Made Riprap Materials

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 301	(2016) Specifications for Structural Concrete

MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION (MDOT SHA)

MDOT SHA Specifications	(July 2020) Standard Specifications for Construction and Materials

1.3 SYSTEM DESCRIPTION

1.3.1 Factors Used for Converting In-Place Volume to Weights

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

BULK STONE MATERIAL	SPECIFIC GRAVITY (SSD)	PERCENT VOIDS	POUNDS PER CUBIC FOOT OF MATERIAL INCLUDING COMPENSATION VOIDS (For Excess Quantity Calculations)
Underlayer Stone	2.88	25	135
Capstone	2.88	35	117

1.3.1.1 Revision of Bidding Schedule Quantities

The estimated quantities of stone listed in the BIDDING SCHEDULE were computed on the basis of stone having a percentage of voids and a bulk specific gravity (saturated surface dry (SSD) basis) as shown in the above table based on water having a unit weight of 62.4 pounds per cubic foot. When the bulk specific gravity (SSD) of the stone to be used in the work is other than that shown in the above table, the estimated quantities will be revised by multiplying them by the fraction which results when the bulk specific gravity (SSD) of the stone furnished is divided by the value shown in the above table for each respective stone gradation. Revision for the percentage of voids will likewise be made. The Contracting Officer will issue a modification to the contract in accordance with FAR 52.243-4 Changes, to adjust the estimated quantities in the BIDDING SCHEDULE. The revised quantities will then be the quantities from which the allowable fifteen percent (15 percent) variation in estimated quantity, for payment purposes, will be determined as defined in FAR 52.211-18 Variation in Estimated Quantity.

1.3.1.2 Re-revision of Estimated Quantities

If during the progress of the work it is determined that the delivered stone actually placed has a percentage of voids or a bulk specific gravity range different from that on which the BIDDING SCHEDULE is based, the BIDDING SCHEDULE will be further revised in accordance with Paragraph titled "Revision Of Bidding Schedule Quantities".

1.4 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 01 33 00 SUBMITTAL PROCEDURES:

NOTE: Any submittals classified as "SD-01 Preconstruction Submittals" are submittals required to be submitted to, and approved by, the office indicated prior to mobilization to the contract work site. All other submittals, classified as "SD-02" through "SD-11", shall be submitted to, and approved or reviewed by, the office indicated prior to commencing the particular task to which the submittal is associated.

SD-01 Preconstruction Submittals

Qualifications; G,COR

Qualifications of the Superintendent and the crane/equipment operator placing the stone shall be submitted.

Jetty Repair - General Work Plan; G,DO

The work plan shall include, but not be limited to, the following: a detailed description of the personnel, materials, equipment, and methods to be used for each operation, including, but not limited to: excavation; transporting, handling, storing, and placing the geotextile, underlayer stone, and capstone, including the proposed method for temporarily supporting the geotextile in place. A detailed description of personnel, equipment and methods proposed for use when removing, classifying, weighing, and stockpiling new stone: a detailed description of personnel, equipment and methods proposed for use to ensure the underlayer stone and capstone meets quality, weight, and shape requirements specified herein both at the quarry and at the project site prior to placing the stone in the jetty; proposed procedures (and frequency of same) for verification that contract requirements have been satisfied (including layer thicknesses and lateral and vertical alignment) by utilization of divers, hydrographic and/or topographic surveys, and/or other methods proposed and/or required per these specifications for this purpose. Include details on the means and methods that will be taken to avoid impacting the stability of, or risk damage to the existing jetty. This submittal shall be submitted along with the Surveying Procedures and Equipment submittal required in Section 01 71 23. Resubmit the Surveying Procedures and Equipment submittal if the General Work Plan changes during the contract.

Concrete Grout Work Plan; G,DO

Submit a work plan, including a detailed description of the personnel, materials, equipment, and methods to be used to construct concrete grout in between the capstones and existing jetty rock, at the locations and in the manner indicated on the drawings.

SD-03 Product Data

Underlayer Stone and Capstone; G,DO

The proposed source of each size of stone specified herein shall be submitted for approval by the Contracting Officer no less than 14 days in advance of delivery of material to the work site.

Concrete Grout Mixture Proportions; G,DO

Submit the mixture proportions that will produce concrete grout of the qualities required, a minimum of 30 days prior to placement.

Concrete Grout Admixtures; G,DO

Submit any admixtures a minimum of 30 days prior to placement.

Batching and Mixing Equipment; G,DO

Submit the proposed method of measuring materials, batching operation, and mixer for the on-site batching and mixing facility located on the barge for review. Also submit manufacturer's data for batching and mixing equipment for review, which demonstrates

compliance with the applicable specifications.

SD-06 Test Reports

Stone Source and Records; G,DO

The test data specified herein for those sources shall be submitted. In the event such data is unavailable, procure the services of a Corps of Engineers validated testing laboratory to perform the required acceptance tests. The results of all acceptance tests shall be furnished to the Contracting Officer at least 30 days prior to the delivery of the stone to the work site. All testing shall be entirely at the Contractor's expense.

The Government will visit the proposed quarry(s) to inspect rock quality, weight, and dimensions at least 14 days before any stone delivery to the work site.

Concrete Grout Testing; G,COR

Check Surveys; G,COR

SD-07 Certificates

Laboratory; G,DO

Weigh Scale Certification

Submit Weigh Scale Certification, by a copy of the certification from the regulation agency, attesting to the scale's accuracy

Certified Weight Scale Tickets

Submit Certified Weight Scale Tickets indicating the delivery time, quarry name and address, and the weight of material delivered. The slip shall be signed by the inspector or other designated person at the quarry, for each load of stone delivered to the work site, certifying that the stone meets the quality and weight requirements specified herein.

Certified Test Results for Admixtures; G,COR

Submit certified test results for admixtures, certifying that the admixture meet the requirements specified herein.

Concrete Grout Delivery Tickets; G,COR

Submit ready-mixed concrete delivery tickets in accordance with ASTM C94/C94M for each ready-mix concrete delivery.

1.5 QUALITY ASSURANCE

1.5.1 Stone

1.5.1.1 General

Stone shall be durable material as approved by the Contracting Officer. Stone shall be of a suitable quality to ensure permanence in the structure and in the climate in which it is to be used. It shall be free from

cracks, blast fractures, bedding, seams and other defects that would tend to increase its deterioration from natural causes. Inspections for cracks, fractures, seams and defects shall be made by visual examination. If, by visual examination, it is determined that 20 percent or more of the stone produced contains hairline cracks, then all stone produced by the means and measures which caused the fractures shall be rejected. A hairline crack that is defined as being detrimental shall have a minimum width of 4 mil and shall be continuous for one-third the dimension of at least two sides of the stone. The stone shall be clean and adequately free from all foreign matter. Foreign material adhering to or combined with the stone as a result of stockpiling shall be removed prior to placement.

1.5.1.2 Acceptance of Materials

Acceptance of a source of stone is not to be construed as acceptance of all material from that source. The right is reserved to reject materials from certain localized areas, zones, strata, or channels, when such materials are unsuitable for stone as determined by the Contracting Officer. The Contracting Officer also reserves the right to reject individual units of produced specified materials in stockpiles at the quarry, all transfer points, and at the project construction site when such materials are determined to be unsuitable. During the contract period, both prior to and after materials are delivered to the job site, visual inspections and measurements of the stone materials may be performed by the Contracting Officer. If the Contracting Officer, during the inspections, finds that the stone quality, gradation or weights of stone being furnished are not as specified or are questionable, re-sampling and re-testing is required. Sampling of the delivered stone for testing and the manner in which the testing is to be performed shall be as directed by the Contracting Officer. This additional sampling and testing shall be performed, at no additional cost to the Government, when test results indicate that the materials do not meet specified requirements. Material rejected shall be removed or disposed of as specified, at no additional cost to the Government.

1.5.2 Concrete Grout

1.5.2.1 General

Sample and test the aggregates and concrete to determine compliance with the specifications. Provide facilities and labor as may be necessary to test samples. Samples of aggregates shall be obtained at the point of batching in accordance with ASTM D75/D75M. Concrete grout shall be sampled in accordance with ASTM C172/C172M. Test the concrete grout during mix design and production for slump, air content, temperature, and compressive strength in accordance with paragraph "CONCRETE GROUT TESTING AND INSPECTING."

1.5.2.2 Concrete Grout Mixture Proportions

Concrete grout mixture proportions shall be the responsibility of the Contractor. Submit the mixture proportions that will produce concrete grout of the qualities required, 30 days prior to placement. Mixture proportions shall include the dry weights of cementitious material(s); the specific gravities, absorptions, and saturated surface-dry weights of the fine and coarse aggregates; the quantities, types, and names of admixtures; and quantity of water per cubic yard of concrete grout. Also, applicable test reports, such as air content, water/cement ratio, slump, compressive strength, and unit weight of the concrete grout, shall be

submitted to verify the proportions selected will produce concrete grout of the quality specified. The approved concrete grout mixture proportions shall not be changed without approval.

1.5.2.3 Admixtures

Submit test results in accordance with ASTM C494/C494M and ASTM C1017/C1017M for concrete admixtures, ASTM C260/C260M for air-entraining admixture, and manufacturer's literature and test reports for anti-washout admixture. Submitted data shall be based upon tests performed within 6 months of submittal. Submit certified copies of test results for the specific lots or batches to be used on the project. Test results shall be not more than 6 months old prior to use in the work. Chemical admixtures that have been in storage at the project site for longer than 6 months or that has been subjected to freezing will be retested at the expense of the Contractor.

1.5.2.4 Evaluation and Acceptance of Concrete Grout

The acceptance test results will be the average of the strengths of the 2 specimens tested at 28 days. The strength of the concrete grout will be considered satisfactory so long as the average of 3 consecutive acceptance test results equal or exceed the specified compressive strength f'c and no individual acceptance test result falls below the specified strength f'c by more than 500 pounds per square inch.

1.6 DELIVERY, STORAGE, AND HANDLING OF CONCRETE GROUT MATERIALS

1.6.1 Cementitious Materials

1.6.1.1 Transportation

When bulk cement, pozzolan, dry silica fume, or ground granulated blast-furnace slag is not unloaded from primary carriers directly into weather-tight hoppers at the batching plant, transportation from the railhead, mill, or intermediate storage to the batching plant shall be accomplished in weather-tight trucks, conveyors, or other means that will protect the material from exposure to moisture.

1.6.1.2 Storage

Cementitious materials shall be furnished in bulk except that cement used for finishing and patching may be packaged. Immediately upon receipt at the site of the work, all cementitious materials, shall be stored in separate dry, weather-tight, and properly ventilated structures. All storage facilities shall permit easy access for inspection and identification. Sufficient materials shall be in storage to complete any lift of concrete started. In order that cement may not become unduly aged after delivery, use any cement that has been stored at the site for 60 days or more before using cement of lesser age.

1.6.1.3 Separation of Materials

Separate facilities shall be provided for unloading, transporting, and handling each cementitious material. Separate appropriate storage facilities shall be provided for each type of cement and each source of pozzolan, or slag. The contents of each storage facility shall be plainly marked with a large permanent sign posted near the loading port.

1.6.2 Aggregates Storage

Fine aggregate and each size of coarse aggregate shall be stored in separate size groups adjacent to the batch plant and in such a manner as to prevent the intermingling of size groups or the inclusion of foreign materials in the concrete. Sufficient fine and coarse aggregate shall be maintained at the site at all times to permit continuous placement and completion of any lift of concrete started.

1.7 CONSTRUCTION TOLERANCES

The finished surface shall not deviate from the lines and grades shown by more than the tolerances listed below. Tolerances are measured perpendicular to the indicated lines on the contract drawings. Extreme limits of the tolerances given for below the neatline shall not be continuous in any direction for more than 5 times the nominal stone dimension nor for an area greater than 100 square feet of the structure surface, i.e. the capstone on the crest shall not be placed 6 inches above the required elevation on the drawings for more than 100 square feet of the structure.

VERTICAL TOLERANCES (feet)

Capstone on Crest	+1.0/-0.0
Capstone on Slope	+1.0/-0.0

LATERAL TOLERANCES (feet)

Capstone	+1.0/-0.0

The intention is that the work shall be built to the required elevations, slopes and neatlines indicated on the contract drawings. Placed material not meeting these limits shall be removed or reworked, at no additional cost to the Government. It is anticipated that stones shall require multiple adjustments to achieve the tolerances indicated above. Payment will not be made for excess material which the Contracting Officer permits to remain in place.

1.8 QUALIFICATIONS

The Contractor's Superintendent shall have 10 years of current experience in heavy construction in a marine environment with work similar to the work under this contract. The crane/equipment operator placing the stone shall have 5 years of current experience in stone and placement in a marine environment. The experience shall be with similar size/weight of stone being placed in this project.

PART 2 PRODUCTS

2.1 GEOTEXTILE

Material for the geotextile shall conform to Section 31 05 19 GEOTEXTILE.

2.2 UNDERLAYER STONE AND CAPSTONE

2.2.1 Samples

Samples of stone from the quarry shall be taken by a representative of the Quarry for testing and acceptance prior to delivery of any stone from this source to the site of the work. Information provided with the samples shall include the location within the quarry from which the sample was taken along with a field examination of the quarry. The field examination shall include the information outline in ASTM D4992, Paragraph 7. Samples shall consist of at least three pieces of stone, roughly cubical in shape and shall be of sufficient size as required by the testing method identified in the Paragraph titled "Testing". The samples shall be shipped to a USACE validated laboratory to perform the required tests.

2.2.2 Testing

Evaluation tests shall be performed on stone samples collected from the proposed source as specified below. The quarry investigation shall be performed by a registered geologist or registered engineer. The laboratory to perform the required testing shall be a USACE validated testing laboratory to perform the required acceptance tests, and no work requiring testing shall be permitted until the laboratory has been inspected and validated. The individual tests shall be listed for which the validation covers along with the date of the inspection. Laboratory testing data, from a USACE validated laboratory, will be acceptable given the testing results are not greater than 1 year old from the date of the solicitation.

Perform the following tests on the proposed stone and the test results will be used by the Government to determine the acceptability of the stone selected by the Contractor.

PROPERTY	TEST METHOD	ACCEPTABLE TEST RESULTS
Petrographic Examination	ASTM C295/C295M	Fresh, interlocking, crystalline, with few vugs, no clay minerals and no soluble minerals.
Specific Gravity and Absorption	ASTM C127	Minimum Unit Weight (dry) of 165 pounds per cubic foot. Absorption less than 1 percent.
Abrasion Resistance	ASTM C535	Less than 20 percent loss for 500 revolutions.
Freezing/ Thawing	ASTM D5312	Less than 10 percent loss for 25 cycles.

Additional testing shall be required if results from the tests, specified above, are close to the limits of acceptability.

The laboratory to perform the required testing shall be a USACE validated laboratory. A listing of USACE validated laboratories can be found at

Http://gsl.erdc.usace.army.mil/SL/MTC.

2.2.3 Gradation Test

Perform gradation tests on the underlayer stone and capstone at the quarry in accordance with ASTM D5519-07. Notify the Contracting Officer not less than 3 days in advance of each test. Submit the gradation tests using the GRADATION TEST DATA SHEET enclosed at end of this section for underlayer stone and capstone. At least one gradation test shall be performed per each size of material (underlayer stone and capstone) placed, but not less than one test shall be performed. The gradation tests shall be reported using the forms, GRADATION TEST DATA SHEETand ENG FORM 4794-R, attached at end of this section. Designate on the test form that portion in tons of the lot tested which is applicable to this contract. Any deviation from the reported tonnage shall be corrected and recorded on a revised GRADATION TEST DATA SHEET. The demonstration stockpiles shall be prepared in accordance with the Paragraph titled "Demonstration Stockpile at Source" and shall be collected in a random manner which will provide a sample which accurately reflects the actual gradation arriving at the jobsite. A minimum of two tests are required for acceptance of capstone. The weight of the individual pieces of capstone, representing the minimum, maximum and 50 percent greater than sizes for the specified capstone gradation, shall be printed on each stone and be placed at the quarry to provide visual comparison during production at the quarry. Failure of the test on the initial sample and on an additional sample will be considered cause for rejection of the quarry process, and all material represented by the failed tests shall be set aside and not incorporated into the work. Any additional tests required because of the failure of an initial test sample will not be considered as one of the other required tests. If collected by the truckload, each truckload shall be representative of the gradation requirements. If the gradation test fails, additional gradation tests will be required, at no additional cost to the Government, to delineate the limits of unacceptable stone. The additional gradation tests shall not count as part of the minimum number of gradation tests required. The unacceptable stone shall either be reworked to bring the stone within the specified gradation or the stone shall be removed from the project site as determined by the Contracting Officer. The Contracting Officer may direct this testing under FAR 52.246-12 Inspection of Construction. Provide all necessary screens, scales and other equipment, and operating personnel, to grade the sample. Certification and test results shall represent material shipped from the quarry. Certification and tests results must be received by the Contracting Officer at the jobsite before the material is used in the work.

2.2.4 Proportional Dimension Limitations

The maximum aspect ratio (greatest dimension:least dimension) of any piece of stone for size ranges shall be not greater than 2:1 when measured across mutually perpendicular axes. ASTM D4791 shall be used as a guide to perform the test.

2.2.5 Underlayer Stone and Capstone Sizes

Only quarried stone shall be used. Underlayer Stone and Capstone quality shall be as specified in the Paragraph titled "UNDERLAYER STONE AND CAPSTONE". Stone shall be well graded and shall conform to the table(s) below:

TABLE 1 - UNDERLAYER STONE	
PERCENT SMALLER BY SIZE	LIMITS OF STONE WEIGHT, POUNDS
W100	2,500
W50	1,100
W0	370

TABLE 2 - 1.5-TON CAPSTONE	
PERCENT LIGHTER BY WEIGHT (SSD)	LIMITS OF STONE WEIGHT, TONS
W100	2.3
W50	1.5
W0	1.1

TABLE 3 - 2.8-TON CAPSTONE	
PERCENT LIGHTER BY WEIGHT (SSD)	LIMITS OF STONE WEIGHT, TONS
W100	4.1
W50	2.8
W0	2.1

2.3 CONCRETE GROUT MATERIALS

Materials used in the production of concrete grout shall be in accordance with Section 902 of the MDOT SHA Specifications and as specified herein.

2.3.1 Concrete Grout

Concrete Mix No. 2 per Table 902 A of the MDOT SHA Specifications, except as specified below. The proposed concrete grout mix design must be a currently approved MDOT SHA concrete mix design, unless otherwise approved.

a. Slump shall be 4 - 6 inches. Minor adjustments may be made to the mix design as approved and directed during production to achieve the desired penetration into the riprap.

b. Portland Cement shall be Type IIA in accordance with ASTM C150/C150M, unless otherwise approved by the Contracting Officer.

c. Pozzolan (fly ash) conforming to Specification ASTM C618, Class F, 20 to 25 percent by total weight of cementitious materials.

d. Ground-granulated blast furnace (GGBF) slag cement may be used as the supplemental cementitious material instead of fly ash in the concrete grout mix. GGBF slag Cement shall be per MDOT SHA Specifications Section 902.03.02, Grade 100 or 120, 40 to 50 percent by total weight of cementitious materials.

e. Concrete admixtures in accordance with Section 902.06 of the MDOT SHA Specifications.

f. Anti-washout admixture for the underwater placement of concrete grout meeting the requirements of CRD-C661-06. Use at a dosage rate as recommended by the manufacturer, but in no case less than 0.5 gallons per cubic yard (10 fluid oz. per 100 pounds of cementitious material), unless otherwise directed or approved. Increase the dosage as necessary or directed if it visually appears that excessive loss of cementitious slurry is occuring during underwater placement.

PART 3 EXECUTION

3.1 TRANSPORTATION

Provide, at the request of the Contracting Officer, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew of the equipment or marine plant as may be reasonably necessary in inspecting and monitoring the work. Provide, at the request of the Contracting Officer, suitable transportation from points on shore to and from the various pieces of plant and the work site.

3.2 EXISTING JETTY STONES

The Contractor may, at his expense, relocate existing jetty stones to aid in the construction of the jetty repair. All stones relocated shall first be approved by the Contracting Officer.

3.3 PLACEMENT OF UNDERLAYER STONE

3.3.1 General

The underlayer stone shall be placed in existing jetty stone voids and low elevation areas in order to achieve capstone tolerances. Underlayer stone shall be placed to the minimum extents necessary. Stones shall not be dropped from a height greater than 1 foot in loading, transit, or placement on the structure.

3.3.2 Placement

Prior to starting work, submit the proposed method of placing the underlayer stone.

3.4 PLACEMENT OF CAPSTONE

3.4.1 General

Capstone shall be placed carefully with equipment suitable for handling the stone. Stones shall not be dropped from a height greater than 1 foot in loading, transit, or placement on the structure. Stones shall be placed on the structure by feeling with the handling equipment to achieve contact when vision is obscured, i.e., below water, and then released.

3.4.2 Placement

The various sizes of capstone shall be distributed in such a manner as to produce a compact, uniform, well-placed mass to the specified tolerances, lines and grades indicated on the contract drawings. Placement shall begin at the bottom of the area to be covered and continue up slope. Subsequent loads of material shall be placed against previously placed material in such a manner as to ensure a homogenous mass. Adjacent stone shall be selected with care as to size and shape and placed in contact, the smaller stones filling the spaces between the larger ones so as to leave a minimum of voids.

The capstone shall be placed in one layer, as indicated on the contract drawings to the neatlines and within the tolerances specified herein. Closely fit stones together to establish stone to stone contact in both the horizontal and vertical plane to prevent independent movement. Stagger joints between stones in both the horizontal and vertical plane. Extreme limits of the minimum weights given for the capstone shall not be continuous in any direction for more than 2 times the nominal stone dimension nor for an area greater than 100 square feet of the structure surface.

Capstones shall be selected for the top layer/crest to provide a flat, horizontally level, neat, tabletop appearance.

Due to stability concerns, capstones not meeting the tolerances specified in the Paragraph titled "CONSTRUCTION TOLERANCES" shall be removed or reworked, at no additional cost to the Government.

3.5 PRODUCTION OF CONCRETE GROUT

3.5.1 Ready-Mixed Concrete

Provide ready-mixed concrete conforming to ASTM C94/C94M except as otherwise specified. Submit concrete grout delivery tickets in accordance with ASTM C94/C94M for each ready-mix concrete delivery.

3.5.2 Concrete Made by Volumetric Batching and Continuous Mixing

Conform to ASTM C685/C685M.

3.5.3 Batching and Mixing Equipment

The option of using an on-site batching and mixing facility located on the barge is available. The facility must provide sufficient batching and mixing equipment capacity to prevent cold joints. Submit the method of measuring materials, batching operation, and mixer for review, and manufacturer's data for batching and mixing equipment demonstrating compliance with the applicable specifications. Provide an Onsite Plant conforming to the requirements of ASTM C94/C94M or ASTM C685/C685M.

3.6 PLACEMENT OF CONCRETE GROUT

Convey and place concrete grout in accordance with Section 5 of ACI 301, the approved Concrete Grout Work Plan, and as shown on the drawings.

3.6.1 Cold-Weather Requirements

Place concrete in cold weather in accordance with ACI 306R.

3.6.2 Hot-Weather Requirements

Place concrete in hot weather in accordance with ACI 305R.

3.7 TESTS AND INSPECTIONS

3.7.1 Check Surveys

Surveys made by the Contractor are required on each material placed for determining that the materials are acceptably placed in the work. Make checks as the work progresses to verify lines, grades and thicknesses established for completed work. At least 1 check survey shall be made for each 25 foot section after completion. Following placement of each type of material, the cross section of each step of the work shall be approved by the Contracting Officer before proceeding with the next step of the work. Approval of cross sections based upon check surveys shall not constitute final acceptance of the work. Cross sections shall be taken on lines 25 feet apart, measured along the structure control line, with readings at 2 foot intervals and at breaks along the lines. However, other cross section spacing and reading intervals may be used if determined appropriate by the Contracting Officer. Additional elevations and soundings shall be taken as the Contracting Officer may deem necessary or advisable. The surveys shall be conducted in the presence of an authorized representative of the Contracting Officer, unless this requirement is waived by the Contracting Officer.

3.7.2 Demonstration Stockpile at Source

Following submittal of the Contractor's Quality Control (CQC) Plan and selection of a source, make arrangements to provide a pre-production demonstration stockpile for each of the stone size ranges for the project. The stockpiles shall be located at the source of the stone and be shaped in windrow fashion. Stones under 1.5 tons in weight shall not be stacked higher than 4 feet. The stones placed in the demonstration stockpiles shall be representative of the overall quality of materials in the source and shall not consist of the best specimens unless it is reasonable to determine that the source will provide the required amount of stone of the applicable size range with a degree of quality no less than that existent in the demonstration stockpile. For ease of identification, all capstones shall be spray painted with the approximate weight of the stone (to the nearest 0.1 ton). The quantity of stone in each demonstration stockpile shall be dependent upon the gradation size range to be produced for the project. The following parameters shall apply:

SIZE OF INDIVIDUAL STONES WITHIN A RANGE	DEMONSTRATION STOCKPILE QUANTITY BASED ON PROJECT QUANTITY FOR SIZE RANGE (TONS)
UNDERLAYER STONE	10
CAPSTONE	20

For the duration of the contract, all underlayer stones and capstones

shall be spray painted with the stones approximate weight. Ship capstones such that an appropriate quantity of capstone, of the proper gradation, shall be available for use at the project.

3.7.3 Evaluation of Demonstration Stockpile at Source

Notify the Contracting Officer when stockpiles are ready for evaluation. The Contractor's approved Quality Control Manager (CQCSM) and all QCP inspectors shall accompany the Contracting Officer's Representative (COR) during the Government's evaluation of the demonstration stockpiles. Arrange to have individual stones turned as necessary to accommodate the COR's evaluation. The COR will mark rejected stones with a red "X" and such stones shall be removed to the reject stockpile or to a crusher if one is available. If more than 5 unacceptable stones are found within a stockpile, the entire stockpile will be rejected by the Government and a replacement stockpile shall be created for re-evaluation. If the replacement stockpile is rejected, revise and resubmit its Quality Control Plan (QCP) and create another replacement demonstration stockpile for evaluation. If the third demonstration stockpile for a particular size range at a single source is found unacceptable, the source will be disapproved for such size range and a new source shall be submitted for approval. In addition, submit the name and qualifications for a person to replace the QCP supervisor. The Contractor may choose a replacement source at the time a first or second demonstration stockpile is found unacceptable. The replacement of demonstration stockpiles or stone sources shall be at no additional cost to the Government and with no change in the time of completion.

3.7.4 Approval of Demonstration Stockpile at Source

At the time the COR finds the contents of a demonstration stockpile to be acceptable, through laboratory testing, the Contractor will be notified in writing that the source, the QCP plan and QCP staff are approved, whereupon the Contractor may proceed with production of materials for the project provided they are consistent with demonstration stockpiles.

3.7.5 Duration of Demonstration Stockpile at Source

Other than for being shipped as the final quantities of materials to be placed in the work, each demonstration stockpile shall remain unchanged at the source until all other required material of the size range represented by the stockpile has been shipped from the source.

3.8 CONCRETE GROUT TESTING AND INSPECTING

Report the results of all tests and inspections conducted at the project site informally at the end of each shift. Submit written reports weekly. Deliver within three days after the end of each weekly reporting period. See Section 01 45 00.00 10 QUALITY CONTROL.

3.8.1 Field Testing Technicians

The individuals who sample and test concrete must have demonstrated a knowledge and ability to perform the necessary test procedures equivalent to the ACI minimum guidelines for certification of Concrete Field Testing Technicians, Grade I.

3.8.2 Preparations for Placing

Inspect existing jetty and capstones to be grouted in sufficient time prior to each concrete placement to certify that it does not contain any unsatisfactory material in the riprap voids and is ready to receive concrete.. Such unsatisfactory material to remove includes, but is not limited to, trash, construction waste or debris, root and other organic or woody matter, frozen material, mud, or otherwise unsatisfactory material as deemed by the COR.

3.8.3 Concrete Grout Sampling and Testing

a. Obtain samples and test concrete for quality control during placement. Sample fresh concrete for testing in accordance with ASTM C172/C172M. Make six test cylinders for every 50 cubic yards of concrete delivered or produced for each shift, or fraction thereof. Assuming a typical, 10 cubic yard concrete truck delivery or batch, make test cylinders from the first truck load or batch and then every 50 cubic yards after that (e.g., test the 1st truck, 6th truck, 11th truck, etc.). Make, cure, and transport test cylinders in accordance with ASTM C31/C31M.

b. Test concrete for compressive strength at 7 and 28 days for each design mix and for every 50 cubic yards of concrete. Test two cylinders at 7 days; two cylinders at 28 days; and hold two cylinders in reserve. Perform compressive strength testing conforming to ASTM C39/C39M.

c. Test slump at the site of discharge for each design mix in accordance with ASTM C143/C143M. Check slump whenever compressive test cylinders are made, or at any other time during concrete production when the concrete quality is in question and as directed by the COR or Contractor's QC Manager.

d. Test air content for air-entrained concrete in accordance with ASTM C231/C231M. Check air content whenever compressive test cylinders are made, or at any other time during concrete production when the concrete quality is in question and as directed by the COR or Contractor's QC Manager.

e. Determine temperature of concrete at time of placement in accordance with ASTM C1064/C1064M. Check concrete temperature whenever compressive test cylinders are made, or at any other time during concrete production when the concrete quality is in question and as directed by the COR or Contractor's QC Manager.

3.8.4 Action Required During Concrete Grout Placement

3.8.4.1 Placing

Do not begin placement until the availability of an adequate number of acceptable vibrators, which are in working order and have competent operators, has been verified. Discontinue placing if any lift is inadequately consolidated.

3.8.4.2 Air Content

Whenever an air content test result is outside the specification limits, adjust the dosage of the air-entrainment admixture prior to delivery of

concrete to riprap.

3.8.4.3 Slump

Whenever a slump test result is outside the specification limits, adjust the batch weights of water and fine aggregate prior to delivery of concrete to the riprap. Make the adjustments so that the water-cementitious material ratio does not exceed that listed in the approved concrete mix design and the required concrete strength is still met.

3.9 QUALITY CONTROL MEASURES

Establish and maintain quality control for all work performed at the job site under this section to assure compliance with contract requirements. Maintain records of the quality control tests, inspections and corrective actions. Quality control measures shall cover all construction operations including, but not limited to, the placement of all materials to the slope and neatlines shown and in accordance with this section.

3.10 MEASUREMENT AND PAYMENT

3.10.1 Mobilization and Demobilization

All costs connected with the mobilization and demobilization of the Contractor's plant and equipment required for the contract work will be paid for at the contract lump sum prices for these items as listed in the Bid Schedule. Sixty percent (60%) of the lump sum price will be paid to the Contractor upon completion of his mobilization at the work site. The remaining forty percent (40%) will be included in the final payment for work under this contract.

3.10.1.1 Contractor Furnished Cost Data

In the event the Contracting Officer considers that the amount in these items (sixty percent) which represents mobilization, does not bear a reasonable relation to the cost of the work in this contract, the Contracting Officer may require the Contractor to furnish cost data to justify this portion of the price. Failure to justify such price to the satisfaction of the Contracting Officer will result in the payment of actual mobilization costs, as determined by the Contracting Officer, at the completion of mobilization. The payment of the remainder of these items will be included in the final payment under the contract. The determination of the Contracting Officer in these circumstances is not subject to appeal.

3.10.1.2 Mobilization and Demobilization Costs

All costs in connection with the mobilization and demobilization of the Contractor's plant and equipment as defined below shall be included in the contract lump sum price for the Bid Item titled, "Mobilization /Demobilization" as listed in the Bid Schedule.

a. Mobilization shall include all costs for operations accomplished prior to commencement of operations; that is transfer of all plant and equipment to the work site and all other incidentals in advance of work on the project site.

b. Demobilization shall include general preparation for transfer of the

plant and equipment to the Contractor's home or standby base, cleanup, and the transfer of plant and equipment to the home or standby base.

3.10.2 Underlayer Stone

The work specified herein for underlayer stone will be measured for payment by the ton, from certified weight scale tickets, of underlayer stone satisfactorily placed. Deductions from those quantities will be made for rejected material. All costs in connection therewith shall be included in the contract unit price for the Bid Items titled "Underlayer Stone".

3.10.3 1.5 Ton Capstone

The work specified in this section for capstone will be measured for payment by the ton, from certified weight scale tickets, capstone satisfactorily placed, as confirmed by the COR through check surveys. Deductions from those quantities will be made for rejected material. Each capstone shall be weighed and marked individually. All costs, in connection with the capstone satisfactorily placed and accepted, shall be included in the contract unit price for the Bid Item titled, "1.5 Ton Capstone". Deductions from those quantities will be made for capstone placed outside the construction tolerances specified herein.

3.10.4 2.8 Ton Capstone

The work specified in this section for capstone will be measured for payment by the ton, from certified weight scale tickets, capstone satisfactorily placed, as confirmed by the COR through check surveys. Deductions from those quantities will be made for rejected material. Each capstone shall be weighed and marked individually. All costs, in connection with the capstone satisfactorily placed and accepted, shall be included in the contract unit price for the Bid Items titled, "2.8 Ton Capstone". Deductions from those quantities will be made for capstone placed outside the construction tolerances specified herein.

3.10.5 Concrete Grouting

The work specified in this section for concrete grout will be measured for payment by the cubic yard of concrete grout_satisfactory placed. All costs in connection therewith shall be included in the contract unit price for the Bid Items titled "Concrete Grouting".

-- End of Section --

G R A D A T I O N T E S T D A T A S H E E T

Quarry _____ Stone Tested _____

Date of Test _____ Testing Rate _____

T E S T R E P R E S E N T S

Contract No.	District	Tons
	TOTAL	

G R A D A T I O N

Stone Size (lbs)	Individual Weight Retained	Individual % Retained	Cumulative %Coarser	Cumulative %Finer	Specification % Finer by wt
Total Weight					

Remarks:_____

I Certify that the above stone sample is representative of the total tonnage covered by this test report.

Contractor Representative

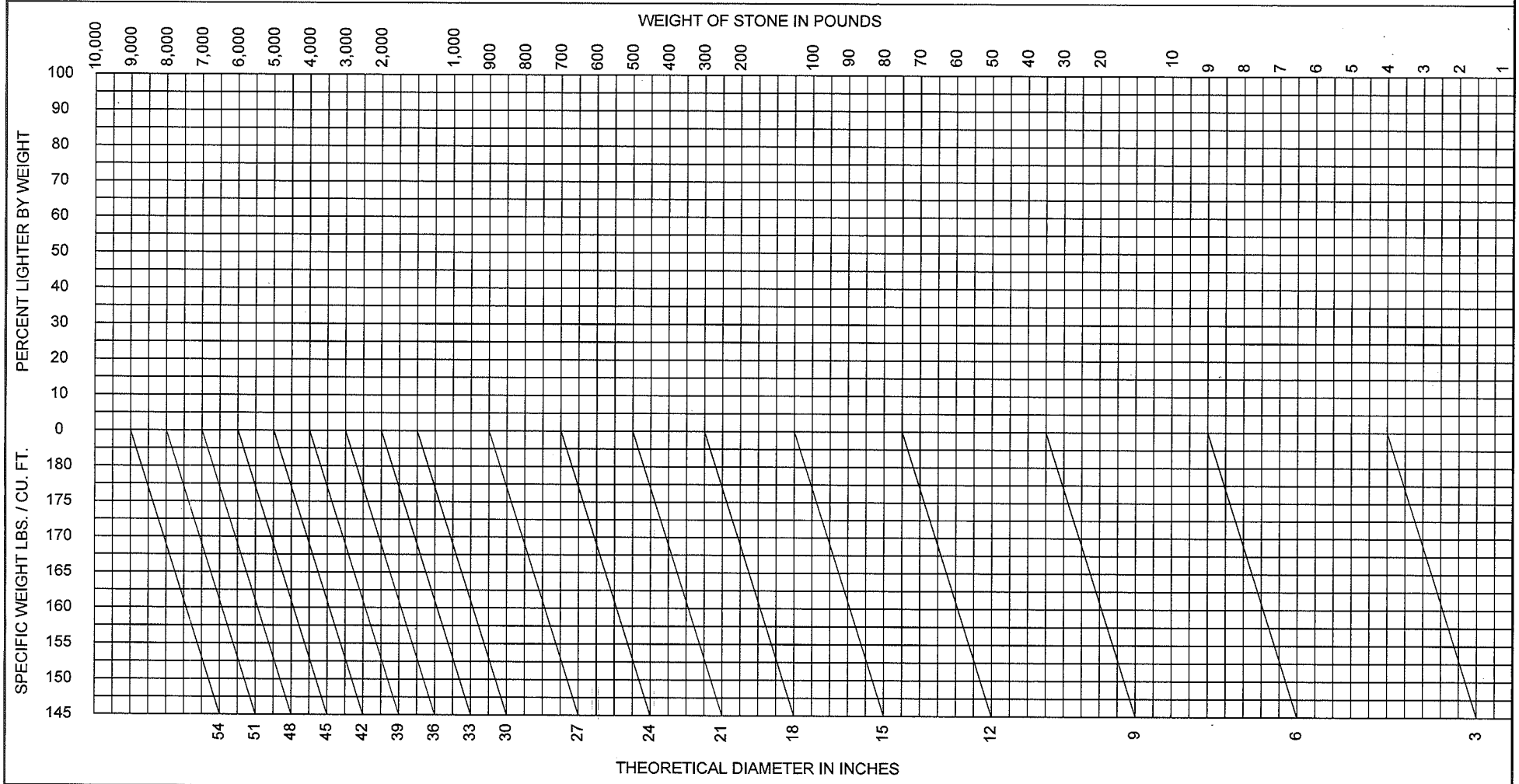
_____

Government Representative

_____

RIPRAP GRADATION CURVES

For use of this form, see EM 1110-2-1601; the proponent agency is DAEN-CWE-HO.



1. RIPRAP GRADATION SUMMARY NOTES	3. PROJECT
	4. AREA
	5. DATE *(YYYYMMDD)* / 6. BY *(Last, First MI)*
2. SPECIFIC WEIGHT OF STONE *(LBS / CU FT)*	7. BY SIGNATURE

ENG FORM 4794, SEP 1982 PREVIOUS EDITIONS ARE OBSOLETE. VERSION 1.1

SECTION 35 20 23

DREDGING
04/14

PART 1 SPECIAL CLAUSES

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 and represent the latest edition in force when this contract is awarded

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 294	(2011) Standard Specification for Corrugated Polyethylene Pipe, 12- to 60-in. Diameter

ASTM International (ASTM)

ASTM A 36	(2012) Carbon Structural Steel
ASTM D 422	Particle-Size Analysis of Soils
ASTM D 698	Laboratory Compaction Characteristics of Soil Using Standard Effort (12,000 ft-lbf/cf (600 kN-m/m3))
ASTM D 2216	Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures
ASTM D 2922	Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	Moisture Content of Soil and Soil-Aggregate in place by Nuclear Methods (Shallow Depth)
ASTM D 4318	Test Method for Liquid Limit, Plastic Limit, and Plasticity Index for soils
ASTM D 4718	Correction of Unit weights and Water Content for Soil Containing Oversize Particles

The Society for Protective Coatings (SSPC)

SSPC Paint 16	(2006) Paint Specification No. 16 Coal Tar Epoxy Polyamide, Black (or Dark Red) Coating
SSPC PS 11.01	(1982; E 2004) Painting System No. 11.01

	Black (or Dark Red) Coal Tar Epoxy Polyamide Painting System
SSPC SP 10	(2007) Joint Surface Preparation Standard SSPC-SP 10/NACE No. 2 Near-White Metal Blast Cleaning

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011; Change 7 2012) Safety and Health Requirements Manual
EM 1110-2-1003	(2013) Hydrographic Surveying

1.2 COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK

The Contractor shall be required to commence work under this contract within 10 calendar days after the date of receipt by him/her of Notice to Proceed, to prosecute said work for the weir box construction diligently and to complete the entirety of the dike work ready for use not later than 99 calendar days after the date of receipt by him of notice to proceed. Optional Items may be exercised at any time within 60 calendar days after contract award. The Contracting Officer may exercise the Optional Item by written notice to the Contractor, postmarked within the period specified above. Additional time for contract completion will be allowed as stated below when any Optional Items are exercised. The amounts of additional time are as follows:

Optional Item No. 0018 21 calendar days

Due to environmental concerns, dredging is permitted between March 2 and 14 November from Stations 0+000 to Stations 1+000. In addition, dredging is only permitted between 1 October to 31 May from Stations 0+000 to 2+000. All other dredging Stations may be dredged at any time of year. There is no environmental time of year concern for the jetty work and access channel dredging. If an extension of time is granted to complete the remaining work during the next succeeding environmentally acceptable dredging period as noted above, additional mobilization and demobilization as a result of time extensions granted under this contract shall be the responsibility of the Contractor. Should the total quantity of material to be paid for and actually removed under the contract exceed the limit established in the Special Contract Requirement VARIATIONS IN ESTIMATED QUANTITY, additional time will be allowed at the rate of one calendar day for each 2,000 cubic yards in excess of the established limit. The time stated for completion shall include final clean up of the premises. The Contractor's attention is called to Technical Provisions, paragraph: CONTROL OF DISPOSAL AREA EFFLUENT and paragraph: SEDIMENT CONTROL.

1.3 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 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Title Evidence

Proof of purchase for equipment and/or materials.

Invoice Copies

Proof of rental equipment costs.

Payment Evidence

Proof of full payment.

Accident Prevention Program; G, OP

Within 7 calendar days after receipt of Notice to Proceed the Contractor shall furnish their Accident Prevention Program and three copies thereof to the Contracting Officer or their authorized representative for review and approval.

SD-02 Shop Drawings

Weir Structure

SD-03 Product Data

Cost or Pricing Data

Proof of actual equipment costs.

Corrugated PE Pipe; G, OP

Polyurethane Sealant

Equipment Data

An itemized list of serial/model numbers and equipment installed by the Contractor under this contract..

SD-05 Design Data

Weir Structure; G, OP

Progress Schedule; G, OP

A schedule that shows the manner in which the Contractor intends to prosecute the work.

SD-07 Certificates

Resin Certification

SD-08 Manufacturer's Instructions

Joints, Pipe Coupler

1.4 ESTIMATED QUANTITIES

The project Bid Items and Optional Bid Items estimated quantities of material necessary to be removed from within the specified limits, as shown on the contract drawings are as shown in the table below:

Dredge Items	Channel Stationing	Required Dredging (CY)	Allowable Overdepth (CY)	Total Quantity (CY)
0003	0+000 to 4+223	3,966	6,025	9,991
Option BId Item: 0005	0+000 to 4+223	12,186	0	12,186
Total =				22,177

1.5 PHYSICAL DATA

Information and data furnished or referred to below are furnished for information only and it is expressly understood that the Government will not be responsible for any interpretation or conclusion drawn therefore by the Contractor.

(a) The indications of physical conditions indicated on the contract drawings and in the specifications are the result of site investigations by surveys and/or probing. Records of previous dredging of the existing Federal channel indicate that the material to be removed by maintenance dredging consists principally of debris, silt, gravel, shell, sand, clay and combinations thereof. This project has previously been maintained at a required depth of 7 feet plus 1 foot of overdepth.

(b) Weather Conditions: Complete weather records and reports may be obtained from the U.S. Weather Bureau. The Contractor shall satisfy himself as to the hazards likely to arise from weather conditions during the dredging period. The site of work is exposed, and suspension of work may at times be necessary during extreme storm periods. Tidal currents may have an adverse effect on dredging operations. The mean range tide is 1.5 foot, with greater fluctuations occurring during high winds and storm periods.

(c) Transportation Facilities: The Contractor shall make their own investigation of transportation facilities in the vicinity of the work.

(d) Conditions of Channel: The best information available as to the present conditions of the Federal channel in Fishing Creek is shown on the contract drawings. The Contractor shall coordinate with the local utility companies for locations of under water utility cables which will obstruct dredging operation. The Contractor shall report any possible obstructions to the Contracting Officer for instruction prior to starting work.

(e) Channel Traffic: Channel traffic consists of commercial barges, recreational craft, etc. and may cause minor delays to the dredging operations.

(f) Obstruction of Channel: The Government will not undertake to keep the channel free from vessels or other obstructions, except to the extent of such regulations, if any, as may be prescribed by the Secretary of the Army, in accordance with the provisions of Section 7 of the River and Harbor Act approved 8 August 1917. The Contractor shall be required to conduct the work in such manner as to obstruct navigation as little as possible, and in case the Contractor's plant so obstructs the channel as to make difficult or endanger the passage of vessels, said plant shall be promptly moved on the approach of any vessels to such an extent as may be necessary to afford a safe practicable passage. Upon completion of the work the Contractor shall promptly remove their plant, including ranges, buoys, piles, and other marks placed by him under the contract in navigable waters or on shore.

(g) Navigation Aids: The Contractor shall not relocate or move any aids to navigation that have been established by the U.S. Coast Guard. If it becomes necessary to have any aid to navigation moved by the contractor in order to complete dredging operations under this contract, the Contractor shall notify the Commander AON, Fifth U.S. Coast Guard District, Office of Aids to Navigation, Portsmouth, Virginia 23705, ATTN: Mr. John Walters (757) 398 6360, in writing with a copy to the Contracting Officer or their authorized representative not less than 30 days prior to such need for movement. The Contractor shall notify the U.S. Coast Guard of the approximate time the navigation aid may be relocated to its original position.

(h) Laying of Submerged Pipe Lines and Obstruction of Channel: Should it become necessary in the performance of this contract to use a submerged pipeline across a navigable channel the Contractor shall notify the Contracting Officer in writing to be received in the District Office at least 15 working days prior to the desired closure date. This notification shall furnish the following:

(1) Location (Channel Centerline Stationing) and depth (over the top of the pipeline) at which the submerged line will be placed.

(2) The desired length of time the channel is to be closed.

(3) The date and hour placement or removal will commence.

(4) The date and hour of anticipated completion.

(i) Notice To Mariners: Should the Contractor, during dredging operations, encounter any objects on the channel bottom which could be a hazard to navigation, he shall immediately notify the Contracting Officer or their authorized representative as to the location of said object and any other pertinent information necessary for the Contracting Officer or their authorized representative to put out a Notice to Mariners.

(j) Bridge-to-Bridge Radio Communication: The Contractor is required to monitor both channels 13 and 16.

(1) Channel 13: The master, operator, or designated pilot of the

vessel must maintain a listening watch on the designated bridge-to-bridge frequency while underway on the navigable waters of the United States. The designated frequency is VHF-FM Channel 13. The person maintaining the watch also must be able to communicate in English.

(2) Channel 16: In addition to the Channel 13 watch, vessels must keep a continuous watch on VHF-FM Channel 16 (International Distress and Calling Channel) while underway, except when transmitting or receiving traffic on other VHF-FM channels (e.g., vessels may switch to other channels to pass traffic, listen to weather reports, etc.) or when participating in and monitoring a VTS channel. While not required to have a VHF-FM radio onboard (Voluntary Ship Stations), vessels not subject to the bridge-to-bridge regulations must maintain a watch on Channel 16 whenever the radio, if onboard, is operating (i.e., energized) and is not being used to communicate on other channels.

(k) Notification of the Coast Guard: Prior to commencement of work on this contract, the Contractor shall notify the Commander, Fifth U.S. Coast Guard District of their intended dredging operations and request the issuance of a Broadcast Notice to Mariners (BNM) and/or a Local Notice to Mariners (LNM). This notification must be given in sufficient time so that it appears in the Notice to Mariners at least one week prior to the commencement of this dredging operation.

(l) Shellfish Areas: Shellfish areas exist in the vicinity of the area to be dredged a the mouth of Fishing Creek. Dredging operations shall be conducted in such a manner as to avoid possible damage to these grounds. The Contractor is advised to exercise caution in their dredging and any other operations attendant with dredging (such as the construction of trestles; the movement and anchoring of barges, vessels, or other equipment; the placing or moving of anchors, and leaking pipelines) to prevent damage to all oyster grounds.

1.6 LAYOUT OF WORK:

(a) The Contractor shall be responsible for the layout of their work. The Government will furnish the channel centerline coordinates and bearings at the beginning point, at each point where the channel changes direction, and at the ending point; and the channel toe coordinates and bearings of both sides of the channel at the beginning point, at each point where the channel changes direction, and at the ending point. The Government will furnish the coordinates and the monument descriptions of the existing horizontal and vertical control within the project area. The Contractor shall be responsible, by utilizing this data, to dredge within the dredging prisms that are shown on the contract drawings. The Contractor shall maintain, preserve, repair or replace, at their own expense, any gages or location markers that are lost, damaged or destroyed for any reason subsequent to their initial establishment by the Contracting Officer until authorized to remove them. The Contractor may, at their option, establish offset stakes, back up stakes, and gages to be utilized in re establishing any baseline, ranges and gages that are lost, damaged or destroyed. The contract completion time will not be increased due to work delays that result from the failure of the Contractor to maintain, repair or replace the Government established baselines, ranges and gages.

(b) The Contractor shall give the Contracting Officer or their authorized representative adequate advance notice of the commencement of work in order to assure the timely completion of the before dredging survey and the establishment of necessary dredging layouts. The notice shall be furnished at least 15 days prior to mobilization of the dredge plant to the work site. It is understood that the survey made in response to this notice will constitute the before dredging survey and any subsequent surveys occasioned through Contractor delays may be charged against the Contractor at a rate of $2,300.00 per day. If the Contractor fails to provide adequate advance notice, the Contracting Officer will not be responsible for any delays in the commencement of work caused by incomplete dredging layouts.

(c) Datum and Bench Marks: The plane of reference MLLW (NOS), mean lower low water as established by National Ocean Survey, shall be used in these specifications for dredging operations.

(d) Horizontal Control: Horizontal control data will be provided to the Contractor on request. This request should be made to the Hydrographic Survey Section, Navigation Branch, point of contact Steve Golder at (410) 962-6031.

1.7 SIGNAL LIGHTS

(a) The Contractor shall display lights and conduct their operations in accordance with the General Regulations of the Department of the Army and of the Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65 feet in length moored or anchored in a fairway or channel, and the passing by other vessels of floating plant working in navigable channels, as set forth in Commandant U.S. Coast Guard Instruction M16672.2, Navigation Rules: International Inland (Comdtinst M16672.2), or 33 CFR 81 Appendix A (International) and 33 CFR 84 through 33 CFR 89 (Inland) as applicable. (DAEN PRP 1984 JUL)

(b) Marking of Floating Dredge Pipeline: The Contractor shall mark and maintain the floating dredge pipeline in accordance with U.S. Coast Guard navigation rules, inland NX5 88.15. As a minimum the Contractor shall mark the pipeline with amber lights visible on all points of the horizon for 2 miles on a clear night. The lights shall flash at 50 70 times per minute and be placed between 1 and 3.5 meters above the water. Spacing shall be sufficient to clearly show the pipeline length and course. Where the pipeline crosses a navigable channel spacing shall be every 10 meters. Two red lights, visible on all points of the horizon, shall be displayed at each end of the floating pipeline. They shall be arranged vertically 1 meter apart with the lower light at the same elevation as the amber lights.

1.8 ACCOMMODATIONS AND MEALS FOR INSPECTORS:

If the Contractor maintains on this work establishment for the subsistence of their own employees, he shall, when required, furnish to inspectors

employed on the work and to all Government agents who may visit the work on official business, meals of a quality satisfactory to the Contracting Officer. The meals furnished will be paid for by the Government at a rate of $3.50 per person for each meal.

1.9 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE: (1985 JUN HQ USACE)

(a) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a Contractor or sub-Contractor at any tier shall be based on actual cost data when the Government can determine both ownership and operating costs for each piece of equipment or equipment groups of similar serial and series from the Contractor's accounting records. When both ownership and operating costs cannot be determined from the Contractor's accounting records, equipment costs shall be based upon the applicable provisions of EP 1110 1 8, "Construction Equipment Ownership and Operating Expense Schedule," Region II. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the Contracting Officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the Schedule in effect at the time of negotiations shall apply. For retrospective pricing, the Schedule in effect as to the time work was performed shall apply.

(b) Equipment rental costs are allowable, subject to the provisions of FAR 31.105 (d)(ii) and FAR 31.205 36 substantiated by certified copies of paid invoices. Rates for equipment rented from an organization under common control, lease purchase or sale lease back arrangements will be determined using the schedule except that rental costs leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated leases are allowable. Costs for major repairs and overhaul are unallowable.

(c) When actual equipment costs are proposed and the total amount of the pricing action is over $25,000, cost or pricing data shall be submitted on Standard Form 1411, "Contract Pricing Proposal Cover Sheet." By submitting cost or pricing data, the Contractor grants to the Contracting Officer or an authorized representative the right to examine those books, records, documents and other supporting data that will permit evaluation of the proposed equipment costs. After price agreement the Contractor shall certify that the equipment cost or pricing data are accurate, complete and current.

(d) (d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet. CENAB-CT/SEP 95 (EFARS 52.231-5000)

1.10 SAFETY

1.10.1 General

The Contractor shall comply with the Contract Clause ACCIDENT PREVENTION. EM 385-1-1, 30 November 2014, subject: Safety and Health Requirements

Manual, is a part of these specifications.

1.10.2 Accident Prevention Program

Within 7 calendar days after receipt of Notice to Proceed the Contractor shall furnish their Accident Prevention Program and three copies thereof to the Contracting Officer or their authorized representative for review and approval. The program shall be prepared in the following format:

(a) Administrative Plan

(b) Job Hazard Analysis

(c) A copy of company policy statement of accident prevention and any other guidance statements normally provided new employees.

(d) When marine plant and equipment are in use the Contractor shall assure that oil transfer operations to or from their plant comply with all Federal, State, county, and Municipal laws, codes and regulations. Particular attention is invited to 33 CFR Subchapter 0, POLLUTION. The Contractor shall incorporate in their accident prevention program, submitted in compliance with Contract Clause ACCIDENT PREVENTION, sufficient information to demonstrate that all fuel transfers will be made in accordance with 33 CFR 156 and any other applicable laws, codes and regulations. (CENABEN 1984 APR)

(e) The Contractor shall not commence physical work at the project site until the program has been approved by the Contracting Officer or their authorized representative. As an additional measure to implementation of the Accident Prevention Program, the Contractor shall meet with representatives of the Contracting Officer as soon as practicable after receipt of Notice to Proceed and before start of work to discuss and develop a mutual understanding relative to administration of the overall safety program. Minutes of the meeting shall be prepared, signed by the Contractor and the Contracting Officer or their authorized representative. At the Contracting Officer's discretion, the Contractor may submit their Job Hazard Analysis only for the phases of construction. All remaining phases shall be submitted and accepted prior to the beginning of work in each phase. EM 385-1-1, Section 1.

1.10.3 Accident Investigation and Reporting

Accidents shall be investigated by immediate supervisor of the employee(s) involved and reported to the Contracting Officer or the Government inspector within one working day after the accident. Paragraph 01.D, EM 385 1 1.

(a) The Contractor shall insure that all accidents which involve loss of life, occupational disease of the employee, injury incapacitating any person for normal work beyond the day of injury, or damage to property, materials, supplies, or equipment, of $50,000.00 or more, and which relate to the working area, or the disposal area, shall be recorded, investigated, and reported to the Contracting Officer or their authorized representative.

(b) Each accident shall be verbally reported to the Government inspector at the earliest practicable time, but within 24 hours. Each accident involving loss of life or traumatic injury to any person shall be

reported to the Government inspector verbally, telephonically, or by radio immediately.

(c) The Contractor shall promptly investigate each accident and submit a written, signed report on ENG Form 3394 to the Government inspector within 48 hours.

(d) A factual record of each accident shall be entered in the Contractor's official daily log book.

1.10.4 Safety Manager

The Contractor shall provide an individual at the site of work, whose sole duties are to control compliance with safety requirements of this contract and to carry out the provisions of the approved accident prevention plan. The safety manager must be competent and familiar with the requirements of EM 385 1 1 and industry safety standards.

1.10.4.1 Daily Inspections

The Contractor shall institute a daily inspection program to assure all safety requirements are being fulfilled. Reports of daily inspections shall be maintained in the Contractor's official daily log book. The reports shall be records of the daily inspections and resulting actions. Each report shall include, as a minimum, the following:

(a) Phase(s) of construction underway during the inspection.

(b) Locations of areas inspections were made.

(c) Results of inspection, including nature of deficiencies observed and corrective actions taken, or to be taken, date, and signature of the person responsible for its contents.

1.10.4.2 Master Deficiency List

A "Master Deficiency List" identifying all safety deficiencies observed by the QC staff and/or the Contracting Officer or designees will be maintained by the Contractor. The information maintained in the list shall include the following at a minimum:

(a) Description of the deficiency and the corresponding EM 385 1 1 paragraph number.

(b) Date the deficiency was noted and the identifying party.

(c) Corrective action taken and the date accomplished.

1.10.4.3 Weekly Master Deficiency List

The updated "Master Deficiency List" shall be submitted to the CO weekly. All safety deficiencies shall be corrected promptly. Failure to promptly correct safety deficiencies will result in suspension of work, retainage of funds, or complete withholding of partial payments.

1.10.5 Means of Escape for Personnel Quartered or Working on Floating Plant

Two means of escape shall be provided for assembly, sleeping, and messing

areas on floating plants. For areas involving 10 or more persons, both means of egress shall be through standard size doors opening to different exit routes. Where 9 or fewer persons are involved, one of the means of escape may be a window (minimum dimensions 24 inch by 36 inch) which leads to a different exit route. EM 385-1-1, Section 19.

1.10.6 Emergency Alarms and Signals

1.10.6.1 Alarms

Emergency alarms shall be installed and maintained on all floating plant requiring a crew where it is possible for either a passenger or crewman to be out of sight or hearing from any other person. The alarm system shall be operated from the primary electrical system with standby batteries on trickle charge that will automatically furnish the required energy during an electrical system failure.

1.10.6.2 Signals

(a) Fire Alarm Signals: The general fire alarm signal shall be in accordance with paragraph 97.13 15b of the Coast Guard Rules and Regulations for Cargo and Miscellaneous Vessels, Subchapter I, 1 Sep 77 (CG 257)

(b) Abandon Ship Signals: The signal for abandon ship shall be in accordance with paragraph 97.13 15c of referenced cited in (a) above.

(c) Man Overboard Signal: Hail and pass the word to the bridge. All personnel and vessels capable of rendering assistance shall respond.

1.10.7 Exposure Hours

(a) Engineer Manual (EM) 385-1-1, as well as 29 CFR 1904 dated 1 Jan 2005, requires the Prime Contractors to maintain records of all exposure and accident experience incidental to the work (this includes exposure and accident experience of the Prime Contractor and subcontractors) and, as a minimum, these records shall include exposure work hours and a log of occupational injuries and illnesses.

(b) Paragraph 01.D.05c., EM 385-1-1 requires that this data be submitted to the COR monthly on the form provided by the COR. Work hours include all hours on the project where an employee is in an on-duty pay status.

(c) All Prime Contractors performing work covered under the requirements of EM 385-1-1, shall complete a monthly summary report of accident experience and exposure on the electronic data collection tool provided (see attached form at the end of the specifications) and forward to the COR no later than close of business (COB) the 7th day of the following month.

1.10.8 Head Protection (Hard Hat)

The entire work site under this contract is designated as a hard hat area. The Contractor shall post the area in accordance with the requirements of section 05.D.01, EM 385 1 1, and shall insure that all prime and subcontractor personnel, vendors and visitors utilize hard hats while within the project area.

1.10.9 Oil Transfer Operations

The Contractor shall assure that oil transfer operations to or from their plant comply with all federal, state, and municipal laws, codes and regulations. Particular attention is directed to 33 CFR Subchapter O, POLLUTION. The Contractor shall incorporate in their accident prevention program, submitted in compliance with Contract Clause ACCIDENT PREVENTION, sufficient information to demonstrate that all fuel transfers shall be made in accordance with 33 CFR 156 and any other applicable laws, codes and regulations. (CENAB EN 1984 APR)

1.10.10 Hoisting Equipment (If applicable)

1.10.10.1 General

All hoisting equipment must be capable of satisfactorily completing a performance (operating) test before being placed in service on the project. This test shall consist of maneuvering a specified test load through maximum lift height, lift radius, and boom quadrant. Except for the test load, the anticipated load is the maximum load that can be lifted by the hoisting equipment. The test shall be repeated prior to unusual or critical lifts, and after alteration, modification, repairs or reassembly, and at least every 12 months. Test records shall be made a part of the official project file. A thorough annual inspection of hoisting machinery shall be made by a competent person.

1.10.10.2 Load Capacities

Load capacities, determined by the performance test, recommended operating speeds, and special hazards, warnings or instructions shall be posted where clearly visible to the operators of the cranes and derricks.

1.10.10.3 Floating Cranes and Floating Derricks

Floating cranes and floating derricks in use shall meet the requirements for design, construction, testing installation, maintenance, and operation discussed in ANSI B30.8, Safety Code for Floating Cranes and Floating Derricks. Performance tests shall demonstrate the strength; stability; capability; and adequacy of power, brakes, clutches, and controls in accordance with the following table:

PERFORMANCE TEST FOR FLOATING CRANES

SAFE WORKING LOAD	TEST LOAD
Up to 20 tons	125% of working load
20 to 50 tons	Working load plus 5 tons
Over 50 tons	110% of working load

1.10.11 Front End Loader - Backhoe Machines

All front end loader - backhoe machines and other machines, such as tractors that utilize a backhoe attachment, should be checked for:

(a) Exposed backhoe boom swing foot pedals.

(b) Backhoe boom swing lever which can be reached by a man standing on the ground or on the outrigger support bracket.

Where these conditions exist, guards should be fabricated to:

(a) Cover over exposed foot pedals to prevent someone from accidentally stepping on them.

(b) Inclose the swing lever so as to preclude operation from the ground or from the outrigger support bracket.

1.10.12 Trailers

All covered trailers, regardless of their use, shall be anchored after spotting and blocking up by installation of four 8 way expanding anchors with rods and cable, one under each of the four corners of the trailer. The anchors shall not be less than 3 feet under the surface of the ground with anchor rod extending to the ground surface. The trailer shall be securely anchored down by installation to each anchor of a 1/2 inch cable attached to the longitudinal frame member of the trailer by passing the cable over the frame member or to an eyebolt fastened to the frame, and then tightened by use of a turnbuckle or other approved means as necessary to prevent movement. Details of the proposed method of anchorage shall be submitted to the Contracting Officer for approval.

1.10.13 Mooring Lines

Eye loops on mooring lines shall be equipped with brackets or handling ropes to protect the hands of deckhands.

1.11 ENVIRONMENTAL LITIGATION

(a) If tIf the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the Contract Clause SUSPENSION OF WORK. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

(b) The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment.

1.12 WORK AT NIGHT

For night operations the Contractor shall provide and maintain, at their expense, two light towers equipped with a 3 KW generator (minimum) at the dredged material placement site. Each light tower shall have metal halide bulbs (1000 watt) or equivalent, capable of giving off a minimum of 200,000 lumens. No work will be permitted after dusk without the aid of

both light towers.

1.13 RADIO COMMUNICATIONS

At all times pumping operations are in progress, the Contractor is responsible and required to provide any and all equipment necessary to maintain 24 hour oral communication between the dredge operator, Quality Control System Manager, and the Corps of Engineers' inspector on site. For this purpose, the Contractor shall provide and maintain at their expense a marine band walkie talkie radio for use by the Government inspector(s). The Contractor is responsible for any and all circumstances not conforming to the plans and specifications resulting from the inadequate operation of the equipment.

1.14 PROGRESS SCHEDULING AND REPORTING

In accordance with the Contract Clauses, the Contractor, shall within 5 days or as otherwise determined by the Contracting Officer, after date of commencement of work, submit for approval a practicable progress schedule showing the manner in which he intends to prosecute the work. ENG Form 2454 ("Construction Progress Chart") will be furnished upon request for use in preparing this schedule. If a Contractor form is used, the same information as shown in the ENG Form 2454 shall be provided. Preparation and updating of the schedule shall be as follows:

1.14.1 Preparation

The progress schedule shall be prepared in the form of time scaled summary network diagram graphically indicating the sequence proposed to accomplish each work activity or operation, and appropriate interdependencies between the various activities. The chart shall show the starting and completion dates of all activities on a linear horizontal time scale beginning with the dates of Notice to Proceed and indicating calendar days to completion. Each activity in the construction shall be represented by an arrow and shall have a beginning and ending node (event). The entire project shall have only one beginning node and one ending node. The arrangement of arrows shall be such that they flow from the left to right. Each arrow representing an activity shall be annotated to show the activity description, duration and cost. The Contractor shall indicate on the chart the important work activities that are critical to the timely overall completion of the project. This schedule shall be the medium through which the timeliness of the Contractor's construction effort is appraised.

1.14.2 Updating

The Contractor shall update the schedule by entering actual progress thereon at monthly intervals. The status of activities completed or partially completed as of the end of each period shall be shown, as well as the percentage of work completed. In computing actual progress, the value of material and equipment on site but not incorporated into the work may not be considered. When changes are authorized that result in contract time extensions; the Contractor shall submit a modified chart for approval by the Contracting Officer. The Contract Clause SCHEDULES FOR CONSTRUCTION CONTRACTS with reference to overtime, extra shifts, etc., may be invoked when the Contractor fails to start or complete work activities or portions of same by the date indicated on the approved progress chart, or when it is apparent to the Contracting Officer from the Contractor's actual progress that these dates will not be met.

1.14.3 Daily Reports

The Contractor shall provide daily reports. Daily reports shall contain, at a minimum, the following: total barge tonnage, tonnage placed per day, type of material placed, GPS coordinates of location that the material was placed at, time when material was placed, name of persons on plant and jobs performed. The Contractor shall also provide GPS coordinate information for each clamshell or bucket of material that is placed in each bed.

1.15 CONTINUITY OF WORK

No payment will be made for work done in any area designated by the Contracting Officer until the full depth required under the contract is secured in the whole of such area, unless prevented by ledge rock, nor will payment be made for excavation in any area not adjacent to and in prolongation of areas where full depth has been secured except by decision of the contracting officer. Should any such nonadjacent area be excavated to full depth during the operations carried on under the contract, payment for all work therein may be deferred until the required depth has been made in the area intervening. The Contractor may be required to suspend dredging at any time when for any reason the gages or ranges cannot be seen or properly followed.

1.16 MISPLACED MATERIAL

Should the Contractor during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, plant machinery, or appliance, which in the opinion of the Contracting Officer may be dangerous to or obstruct navigation, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the Contracting Officer or inspector, and when required shall mark or buoy such obstructions until the same are removed. Should he refuse, neglect, or delay compliance with the above requirements, such obstructions may be removed by the Contracting Officer, and the cost of such removal may be deducted from any money due or to become due to the Contractor, or may be recovered under their bond. The liability of the Contractor of the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Section 15, 19, and 20 of the River and Harbor Act of March 3, 1899 (33 U.S.C. 410 et seq.).

1.17 INSPECTION

The Government inspector(s) will direct the maintenance of the gauges, ranges, location marks and limit marks in proper order and position; but the presence of the Government inspector(s) shall not relieve the Contractor of responsibility for the proper execution of the work in accordance with the specifications. The Contractor shall be required:

(a) To furnish, on the request of the Contracting Officer, any Government inspector, or authorized representative, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew of the dredging plant as may be reasonably necessary in inspecting and supervising the work. However, the Contractor will not be required to furnish such facilities for the surveys prescribed in the Special Clause FINAL EXAMINATION AND ACCEPTANCE.

(b) To furnish, on the request of the Contracting Officer, any Government inspector, or authorized representative, suitable transportation from all points on shore designated by the Contracting Officer to and from the various pieces of plant, and to and from the disposal site.

(c) Should the Contractor refuse, neglect, or delay compliance with these requirements, the specific facilities may be furnished and maintained by the Contracting Officer, and the cost thereof will be deducted from any amounts due or to become due the Contractor.

1.18 SHOALING

(a) If, before the contract is completed, shoaling occurs in any section previously accepted, including shoaling in the finished channel, because of the natural lowering of the side slopes, redredging at contract price, within the limit of available funds, may be done if agreeable to both the Contractor and the Contracting Officer.

(b) If before dredging survey indicates shoaling in the channel immediately adjacent to the channel to be dredged, the Contractor shall be required to dredge the additional shoaling at the contract unit price if directed by the Contracting Officer.

1.19 FINAL EXAMINATION AND ACCEPTANCE

(a) As soon as practicable after the completion of the entire work or any section thereof (if the work is divided into sections) as in the opinion of the Contracting Officer or their authorized representative will not be subject to damage by further operations under the contract, such work will be thoroughly examined at the cost and expense of the Government by sounding or by sweeping, or both, as determined by the Contracting Officer or their authorized representative. Should any shoals, lumps, or other lack of contract depth be disclosed by this examination the Contractor shall be required to remove same by dragging the bottom or by dredging at the contract rate for dredging, but if the bottom is soft and the shoal areas are small and form no material obstruction to navigation, the removal of such shoal may be waived by the discretion of the Contracting Officer or their authorized representative. The Contractor or their authorized representative will be notified when soundings and/or sweepings are to be made, and will be permitted to accompany the survey party. When the area is found to be in a satisfactory condition, it will be accepted finally. Should more than two sounding or sweeping operations by the Government over an area be necessary by reason of work for the removal of shoals disclosed at a prior sounding or sweeping, the cost of such third and any subsequent sounding or sweeping operations will be charged against the Contractor at the rate of $1,200.00 per day for each day in which the Government plant is engaged in sounding or sweeping and/ or is enroute to or from the site or held at or near the said site for such operations.

(b) Final acceptance of the whole or a part of the work and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error, and the acceptance of a completed section shall not change the time of payment of the retained percentages of the whole or any part of the work.

1.20 FUEL USAGE

The Contractor shall furnish the Contracting Officer a report, to be received on or before the last day of the calendar month, listing the totals of fuels consumed by the dredging plant and supporting vessels. The report shall list the quantities of different fuels separately. The report shall cover the period from the 25th of the preceding month to the 25th of the current month. This information may be included in the Contractor's Daily Report of Operations.

1.21 ENVIRONMENTAL PROTECTION

1.21.1 General

The Contractor shall furnish all labor, materials and equipment, to perform all work required for the prevention of environmental pollution during, and as the result of, construction/dredging operations under this contract except for those measures set forth in the technical Provisions of these specifications. For the purpose of this specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; or affect other species of importance to man. The control of environmental pollution requires consideration of air, water, and land.

1.21.2 Applicable Regulations

The Contractor and their subcontractors, in the performance of this contract, shall comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement in effect on the date of this solicitation, as well as the specific requirements stated elsewhere in the contract specifications.

1.21.3 Notification

The Contracting Officer or their authorized representative will notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer or their authorized representative may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of time lost due to any such stop order shall be made subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.21.4 Sub-Contractors

Compliance with the provisions for environmental protection by sub-Contractors shall be the responsibility of the Contractor.

1.21.5 Protection of Water Resources

The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acid construction wastes, or other harmful materials. All work under this contract shall be performed in such a manner that objectionable conditions will not be created in streams through or adjacent to the project area. The Contractor shall take

special positive protective measures to prevent spillage of potential pollutant materials such as fuel, emulsion materials, chemicals etc., from storage containers or equipment into public waters. Such positive protective measures may include, but not limited to the following:

(a) A berm enclosure of sufficient capacity to contain such materials.

(b) Security measures to prevent acts of vandalism which could result in spillage of such materials (fences, guards, etc.).

(c) Storage of such materials in an area where the terrain would preclude leakage into public waters.

(d) Utilization of secure Government storage areas if the Contracting Officer indicates such space is available. No storage past immediate needs (2 days) without the consent of the Contracting Officer or their authorized representative.

1.21.6 Burning

Burning shall be in compliance with Federal, State, and local laws. The Contractor shall be responsible for obtaining all required burning permit approvals.

1.21.7 Dust Control

The Contractor shall maintain all work areas free from dust which would contribute to air pollution. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust. Sprinkling, where used, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

1.21.8 Protection of Land Resources

1.21.8.1 General

It is intended that land resources within the project boundaries and outside the limits of the permanent work performed under this contract be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. Insofar as possible, the Contractor shall confine their construction activities to areas defined by the plans and specifications or to be cleared for other operations. The following additional requirements are intended to supplement and clarify the requirements of the CONTRACT CLAUSES.

1.21.8.2 Protection of Trees Retained

(a) The Contractor shall be responsible for the protection of the tops, trunks, and roots of all existing trees that are to be retained on the site. Protection shall be maintained until all work in the vicinity has been completed and shall not be removed without the consent of the Contracting Officer or the authorized representative of the contracting officer. If the Contracting Officer or their authorized representative finds that the protective devices are insufficient, additional protection devices shall be installed.

(b) Heavy equipment, vehicular traffic, or stockpiling of any materials shall not be permitted within the drip line of trees to be retained.

(c) No toxic materials shall be stored within 100 feet from the drip line of trees to be retained.

(d) Except for areas shown on the contract drawings to be cleared, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority. Existing nearby trees shall not be used for anchorage unless specifically authorized by the Contracting Officer or their authorized representative. Where such special emergency use is permitted, the Contractor or their authorized representative shall first adequately protect the trunk with a sufficient thickness of burlap over which softwood cleats shall be tied.

(e) No protective devices, signs, utility boxes or other objects shall be nailed to trees to be retained on the site.

1.21.9 Restoration of Landscape Damage

Any tree or other landscape feature scarred or damaged by the Contractor's operations shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer or their authorized representative will decide what method of restoration shall be used and whether damaged trees shall be treated and healed or removed and disposed of. All trimmings or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted. Where tree climbing is necessary, the use of climbing spurs will not be permitted. Trees that are to remain, both within or outside established clearing limits, that are subsequently damaged by the Contractor and are beyond saving in the opinion of the Contracting Officer or their authorized representative, shall be immediately removed and replaced with a nursery grown tree of the same species. Replacement trees shall measure no less than 2 inches in diameter at 6 inches above the ground level.

1.21.10 Location of Storage and Service Facilities

The location on Government property of the Contractor's storage and service facilities, required temporarily in the performance of the work, shall be upon cleared portions of the jobsite or areas to be cleared. The preservation of the landscape shall be an imperative consideration in the selection of all sites.

1.21.11 Temporary Excavation and Embankments

If the Contractor proposes to construct temporary roads, embankments, or excavations for plant and/or work areas, he shall submit a plan for approval prior to scheduled start of such temporary work.

1.21.12 Waste Disposal

Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., in areas adjacent to the work site shall not be permitted. If waste material is dumped in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall

be excavated, disposed of as directed by the Contracting Officer, replaced with suitable fill material, compacted and planted as required to reestablish vegetation.

1.21.13 Toilet Facilities

The Contractor shall provide on shore toilet facilities, in accordance with paragraph 02.E, EM 385-1-1, at the dredged material disposal site. Dredge plant toilet facilities may not be substituted for on shore facility requirements.

1.21.14 Corrective Action

The Contractor shall, upon receipt of a notice in writing of any noncompliance with the foregoing provisions, take immediate corrective action. 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 any such stop orders shall be made the subject of a claim for extension of time or for excess costs of damages by the Contractor unless it was later determined that the Contractor was in compliance.

1.21.15 Measurement and Payment

No separate measurement and payment will be made for the work performed in Environmental Protection, specified herein, and all costs in connection therewith shall be considered a subsidiary obligation of the Contractor and shall be included in the overall cost of the work.

1.22 SUBCONTRACTS

In accordance with Section 00100, Instructions, Conditions, and Notices to Bidders, NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY, the Contractor shall, within 10 working days following award of any construction subcontract by the Contractor or a Sub-Contractor, deliver to the Contracting Officer or their authorized representative a completed DD form 1565.

1.23 CONTRACTOR RESPONSIBILITY

(ECI, APP.A) The Contractor shall be responsible that their employees strictly comply with all Federal, State, and municipal laws that may apply to operations under the contract; and it is understood and agreed that the Contractor assumes full responsibility for the safety of their employees, plant, and materials, and for any damage or injury done by or to them from any source or cause, except damage caused to the plant or equipment by acts of the Government, its officers, agents or employees, in which event such damages will be the responsibility of the Government in accordance with applicable Federal laws. For the purpose of this clause, the terms "officers, agents or employees" of the Government shall not include persons who are employed by the Contractor and whose services have been furnished to the Government pursuant to this or any other contract. (See also FAR 52.236-7 and FAR 52.236-13)

1.23.1 Responsibility For Contractor Plant and Government Property

The Government will not be responsible for the equipment and attendant plant, any Government property aboard the equipment and attendant plant, or any accidental damage thereto during the period of the contract. The

Contractor shall release the Government and its officers and agents from all responsibility for damages to dock facilities, submerged and aerial crossings, bridges, moored vessels, or other damages ordinarily covered by fire and marine insurance. (See also FAR 52.236-9)

1.23.2 Warranty

The Contractor warrants to the Government the quiet and peaceable use of the aforesaid property, and in case of any disturbance, by suit or otherwise, will defend the same free of charge to the Government in or before the proper State or United States courts.

1.23.3 Delays

If the Contractor refuses or fails to make delivery of the property within the time specified or any extension thereof, as provided in specifications, or to maintain the property in serviceable condition and diligently and competently to conduct the specified operations, the Government may, by written notice terminate the right of the Contractor to proceed with delivery or with further performance under the contract or such parts or parts thereof affected by the contract or otherwise and the Contractor shall be liable to the Government for any excess cost occasioned thereby.

1.23.4 Disclaimer

The Contractor shall hold and save harmless the United states, its officers and employees, from all claims that may arise resulting from the Contractor's negligence in connection with the work to be performed under the contract, or from noncompliance by the Contractor with the provisions of the contract, contract drawings, and specifications and/or the instructions of the Contracting Officer or their authorized representative. (See also FAR 52.236-10)

PART 2 TECHNICAL PROVISIONS

2.1 WORK COVERED BY CONTRACT PRICE

2.1.1 Payment Item No. 0014

Reimbursement of Performance and Payment Bonds shall include all costs in connection with the full reimbursement for the premiums actually paid for performance and payment bonds. Payment shall be made in accordance with Item No. 0014, "Reimbursement of Performance and Payment Bonds" as listed in the Unit Price Schedule.

2.1.2 Payment Item No. 0015

All costs connected with the mobilization and demobilization of the Contractor's dredging plant and equipment furnished for Fishing Creek, Calvert County, Maryland as defined below shall be included in the contract lump sum price for Item No. 0015 "Mobilization and Demobilization for Dredging" of the Unit Price Schedule.

2.1.2.1 Mobilization

Mobilization shall include all costs for operations accomplished prior to commencement of actual dredging operations, i.e. transfer of dredge, attendant plant, and equipment to site; initial installation of pipe, and

disposal area preparation required; and any other work that is necessary in advance of the actual dredging operations.

2.1.2.2 Demobilization

Demobilization shall include general preparation for transfer of plant to its home base, removal of pipelines, disposal area cleanup, and transfer of plant to its home base.

2.1.3 Payment Item No. 0016

The contract price per cubic yard for maintenance dredging the channel shall include the costs of removal, and disposal of all material as specified herein or as indicated on the contract drawings exclusive of mobilization and demobilization costs as defined in the above paragraphs. Payment shall be made in accordance with Item No. 0016 "Maintenance Dredging Fishing Creek - Stations 0+00 to 4+223" of the Unit Price Schedule which shall be full compensation for the work performed.

2.1.3.1 [Enter Appropriate Subpart Title Here]

2.1.3.2 [Enter Appropriate Subpart Title Here]

2.1.4 Payment Item No. 0017

The contract price for weir box removal and installation of new replacement weir boxes at the existing Fishing Creek placement site shall include all costs in connection with removing the exisitng weir boxes and fully constructing and installing the new weir boxes. The item will also include the cost of the weirs, the construction of the access ramp over the effluent discharge pipeline, if needed. Payment shall be made in accordance with Item No. 0017, "Weir Boxes at Fishing Creek Placement Site" of the Unit Price Schedule which shall be full compensation for the work performed.

2.1.5 Optional Payment Item No. 0018

The contract price per cubic yard for maintenance dredging the channel shall include the costs of removal, and disposal of all material as specified herein or as indicated on the contract drawings exclusive of mobilization and demobilization costs as defined in the above paragraphs. Payment shall be made in accordance with Item No. 0018 "Maintenance Dredging Fishing Creek Overdepth - Stations 0+00 to 4+223" of the Unit Price Schedule which shall be full compensation for the work performed.

2.1.6 [Enter Appropriate Subpart Title Here]

2.1.7 [Enter Appropriate Subpart Title Here]

2.2 ORDER OF WORK

The Contractor shall install all sediment and erosion control measures prior to proceeding with the dike construction. The order of dredging for Fishing Creek shall be at the Contractor's discretion, subject to approval of the Contracting Officer's Representative.

(a) The dredging consists of furnishing, delivering, and operating one cutterhead, hydraulic, pipeline dredge with attendant plant capable of performing maintenance dredging in Fishing Creek, Calvert County, Maryland. Dredged material shall be placed in the designated upland placement site.

(b) The Contractor shall deliver the dredge and attendant plant ready for operation at the project site within 10 calendar days prior to the initiation of dredging. Upon arrival of the dredge and all attendant plant at the project site in Fishing Creek, Calvert County, Maryland, the Contracting Officer's appointed inspector(s) will inspect the plant to determine whether any deficiencies have occurred subsequent to the time the plant was brought into compliance pursuant to the preaward inspection. The Contractor will be notified of acceptance or rejection of the plant within 24 hours after delivery.

(c) Upon Contractor notification and at least 24 hours prior to the commencement of dredging operations the Contractor and Government inspector(s) shall conduct a joint inspection of the completed disposal area operations. No dredging will be permitted to begin until all deficiencies identified by the Government inspector(s) have been satisfactorily corrected by the Contractor.

(d) No dredging shall be permitted unless the Contractor appointed quality control person is present at the disposal area while pumping operations are in progress.

(e) The dredged material shall be deposited in the disposal area(s) designated on the contract drawings.

2.3 PLANT

2.3.1 Plant

Plant and equipment employed on the work shall be in satisfactory operating condition and capable of safely and efficiently performing the work under exposed environmental conditions and as set forth in the specification and shall be subject to inspection by the Contracting Officer at all times. Pipeline for hydraulic machines shall be kept in good conditions at all times, any leaks or breaks along their length shall be promptly and properly repaired. No reduction in the capacity of the

plant employed on the work shall be made except by written permission of the Contracting Officer. The measure of the "Capacity of Plant" shall be its actual performance on the work to which these specifications apply. All floating pipelines used as accessways shall be equipped with walkways and guardrail conforming to paragraph 19.B.05 of Corps of Engineers Manual EM 385-1-1.

2.3.2 Dredge Positioning System

Each dredge shall be equipped with an electronic positioning system, capable of positioning the dredge in the channel with accuracies as shown in Table 3-1 Minimum Performance Standards for Corps of Engineers Hydrographic Surveys (Mandatory) in USACE EM 1110-2-1003. This positioning system shall be established, operated, and maintained by the Contractor during the entire period of the contract. The positioning system shall be used to precisely locate the dredge, the location of the cutterhead, dragarm, and/or bucket and shall be capable of displaying and recording the dredge's location in an acceptable coordinate system which can be related to, or is directly based on, the Maryland State Plane Coordinate System. Navigation channel control, and shore station control, if required, will be provided to the Contractor in the same Maryland coordinate system prior to commencement of work. It shall be the responsibility of the Contractor to have the positioning/navigation system reviewed, inspected, and approved by the Contracting Officer or their/her designated representative prior to the commencement of work.

2.4 CHARACTER OF MATERIALS

The maintenance material to be removed to restore the depth within the limits shown on the contract drawings, is that composing the shoaling that has occurred since the channel was last dredged. The existing channel has previously been dredged at a required depth of 7 feet plus 1 foot overdepth. It is believed that the material to be removed will consist principally of shell, clay, sand, silt, mud, gravel, debris, trash and combinations thereof. Minor variations in the subsurface materials are to be expected and, if encountered, shall not be considered as being materially different within the purview of the Contract Clause DIFFERING SITE CONDITIONS. Bidders are expected to examine the site of the work, and decide for themselves the character of the materials.

2.5 DISPOSAL OF EXCAVATED MATERIAL

2.5.1 General

The Contractor shall use the designated Government furnished disposal areas. Within 7 days after receipt of Notice to Proceed, the Contractor shall furnish their plan for the dredging and disposal operations to the Contracting Officer for review and approval. This plan shall include a description of all proposed dredging, transporting, and rehandling equipment to be utilized in performance of the contract work, and shall also include disposal area layout plans indicating the locations of the dredged material discharge pipeline and the type and locations of the lights to be utilized for night operations. Dredging will not be permitted to commence until this plan is approved by the Contracting Officer or their authorized representative.

2.5.2 Retention Dikes and Dredged Material

The Contractor must confine the retention dikes and dredged material within the designated contract disposal site areas. All dikes needed for confining the dredged material, with necessary weir boxes, shall be provided and maintained by the Contractor, and the cost thereof included in the contract price. The Contractor shall be responsible for any damage arising from the fact that the material or the carrier water (effluent) has been permitted to run off the dredged material disposal area(s). The flow of effluent into the channel shall be regulated to such extent as to prevent erosion or the return of dredged material to the channel. The Contractor shall provide adequate drainage for all back areas by keeping drains and water courses open for this purpose. The Contractor shall also be responsible for providing and maintaining adequate ramps over the dredge pipeline where it is necessary to cross roads and streets, and to provide adequate lighting and safeguards for such ramps. When necessary to cross private property to get to the disposal area(s) with roads or pipelines, the Contractor shall obtain permission from the owners of the property before proceeding to cross. The upland disposal areas shall be left in a draining condition without significant ponding of water.

2.5.3 Effluent

2.5.3.1 Control of Disposal Area Effluent

The Contractor shall employ the full length of weir crest at all times. The Contractor shall be required to raise the elevation of the weir crest or to stop pumping into the disposal area and permit the fill to settle whenever the density of samples, taken as provided hereinafter, of the mixture of suspended materials and water discharge over the weir is greater than 0.2 grams per liter Total Suspended Solids (TSS) or 150 Nephelometric Turbidity Units (NTU). The Contractor shall furnish and install sufficient weir boards to control the elevation of the dredged material under the contract, and the weir boards so installed shall be left in place upon completion of all work under the contract. Approved flocculants may be used to maximize the capacity of the placement site. Flocculant shall be added to the dredge material slurry as close to the inflow as possible to maximize the benefit, if needed.

2.5.3.2 Discharge of Disposal Area Effluent

In order to localize the effect of increased turbidity, diked disposal site effluent shall be discharged as near to the area being dredged as is practical. Effluent from the diked disposal site shall be discharged directly to open water. The effluent shall be not discharged to any wetland areas. The effluent is to be carried by pipeline over such wetland areas as marshes or wooded swamps in order to prevent sediment accumulation in these environmentally sensitive areas. Any accumulation on sediment on wetlands shall be considered as misplaced excavated material.

2.5.4 Disposal Weir Box

It shall be the responsibility of the Contractor to design, construct, and maintain a weir box, or boxes, of sufficient size and capacity to take care of the effluent from the disposal area, and to prevent any material from escaping through the weir box or boxes in accordance with standard tests outlined herein. It is the intent of these specifications that the escape of material from the disposal area be held to an absolute

practicable minimum. Pipes from the weir box or boxes through the dike shall be of adequate size and number to carry the effluent water. Pipe weirs shall not be permitted. Minimum weir box requirements are as follows:

(a) For dredges 8 inches to 12 inches, one (1) 16 foot crest weir box; and for dredges 14 inches to 18 inches, one (1) 28 foot crest weir box or two (2) 14-foot crest weir boxes.

(b) An effluent level board shall be installed on the side of the weir box. It shall be graduated in one-tenth of a foot intervals beginning with a datum level of zero feet at the elevation of the bottom of the weir box discharge pipe. The graduations shall continue to 1-foot above the highest point on the dike. Each foot shall be clearly marked and visible from the dike.

(c) A walkway and safety railing shall be installed to the weir box.

(d) Weir box(es) shall be constructed and installed outside the limits of the dike toe and effluent pipes shall extend beyond the dike toe to open water as specified in paragraph 2.5.3.2.

(e) Suitable screen shall be installed around the weir box(es) in order to stop debris entering into the weir box(es).

2.5.5 Misplaced Excavated Material

Any material that is deposited elsewhere than in places designated or approved by the Contracting Officer or their authorized representative will not be paid for and the Contractor may be required to remove such misplaced material and deposit it where directed at their expense. Misplaced excavated material may constitute a violation of applicable Federal, State, and Local statutes and the Contractor shall be liable for any civil and/or criminal penalties imposed by these statutes. The Water Quality Certification for the work included in this contract, is in process with the State of Maryland.

2.6 GOVERNMENT FURNISHED PLACEMENT SITE

(a) The material excavated shall be transported, deposited, and retained in the Contractor maintained, existing diked dredged material disposal site designated as "Fishing Creek Placement Site" on the contract drawings.

(b) The Contractor shall be responsible for preparing the existing diked disposal areas and maintaining the integrity of the disposal areas retention dikes which must confine the dredged material throughout the life of the contract. At no time will dredge pipes be permitted to enter the disposal areas through the dike and/or shall encroachment upon the area retention dikes be permitted. Freeboard shall be measured as the distance between material and water and the crest elevation of the confining dike. Under no circumstances shall the operating freeboard be less than 2 feet at any time.

(c) In the event any leaks occur in the dredge pipeline line, the Contractor shall immediately discontinue dredging operations until such leaks in the line, or breaks are remedied at the Contractor's expense. The Contractor shall also, at their expense, recover and remove any material misplaced by such leaks, or breaks.

(d) Restoration of Landscape Damage. Any tree, grassed area or other landscape scarred or damaged by the Contractor's equipment shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer shall determine the methods of restoration to be used.

(e) The local sponsor, The Town of Chesapeake Beach, has removed approximately 41,000 cubic yards of dredged material from the Fishing Creek Placement Site. Cells 1 and 2 shall both be available for placement of dredged material for this contract. The conditions of the Fishing Creek Placement Site, represented on the contract drawings, were post removal activity. The local sponsor shall mow the vegetation on the dike crests and outside slopes, prior to issuance of notice to proceed, for the contractor's inspection of the dikes. The existing spillway boxes that are being replaced can be disposed of by burying them inside Cell 2.

2.7 DISPOSAL DIKE CONSTRUCTION

2.7.1 DRAINAGE AND DEWATERING

Fill placement operations shall be performed so that all fills and areas receiving fill will be continually and effectively drained. Water shall not be permitted to accumulate on the fills. No fill shall be placed in water. The Contractor is responsible for draining or dewatering the existing cells, all excavations, and areas to receive fills to the extent and by the means necessary to allow for proper placement of dike embankment fills.

2.7.2 WEIR BOX INSTALLATION AND DIKE RECONSTRUCTION

(a) The Contractor shall remove and replace the entire weir box structures that drain from Cell 1 to Cell 2 and from Cell 2 to the effluent pipe. Both of these existing weir boxes shall be removed in their entirety and replaced with new, at the same elevations as the existing weir boxes.

(b) The contractor will be responsible for the design and construction of the new weir boxes and the excavation and reconstruction of the dike embankment. The ends of the effluent discharge pipes shall also extend beyond the dike toe. The contractor shall reconstruct the dike to the original configuration. Where new outlet pipes are used, a filter drain around the outside 1/3 of the length of pipe is required. The 18-inch angular thickness drainage filter shall consist of the following material:

Table 901A of Section 901 - Aggregates

Fine Aggregate - Portland Cement Concrete, Underdrain, and Pneumatic Mortar

Sieve Size	Percent Passing by weight
3/8-inch	100
No. 4	95-100
No. 16	45-85
No. 50	10-30
No. 100	0-10

2.7.3 Weir Box Connection And Outlet Pipe

2.7.3.1 Delivery, Storage, And Handling

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.

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

2.7.3.2 Outlet Pipe For Weir Structure

The Contractor shall be responsible for design and selection of the outlet pipes for the weir structures. Pipe for weir structure shall be a nominal size of 24 inches and shall conform to the requirements specified.

2.7.3.2.1 PE Pipe

The Contractor shall submit the pipe manufacturer's resin certification, indicating the cell classification of PE used to manufacture the pipe, 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.

(a) Corrugated PE Pipe: AASHTO M 294, Type S. For slow crack growth resistance, acceptance of resins shall be determined by using the notched constant ligament-stress (NCLS) test meeting the requirements of AASHTO M 294. Pipe walls shall have the following properties:

Nominal Size (in.)	Minimum Wall Area (square in./ft.)	Minimum Moment of Inertia of Wall Section (in.4/in.)
24	3.14	0.116

2.7.3.2.2 Joints

Pipe joints shall be soil tight and shall conform to the requirements in AASHTO M 294. Joint type shall be bell and spigot.

2.7.3.3 Pipe-to-Weir Structure Connection

The Contractor shall provide an outlet from the pre-fabricated weir structure consisting of a one-half inch thick carbon steel plate of dimensions 48" wide by 48" tall. The half-inch steel plate shall contain a hole in the center of the face of the plate, with a rolled one-quarter inch plate welded along the circumference of the hole. The rolled quarter-inch steel plate shall extend no less than 36 inches from the half-inch plate. Carbon steel shall conform to ASTM A 36.

The bell of the PE pipe joint shall fit snug over the rolled quarter-inch plate. The difference between the outside diameter of the rolled steel plate and the inside diameter of the PE pipe bell shall be no greater than 1/2". The rolled steel plate and PE pipe shall have a minimum overlap of 6 inches. The inlet end of the PE pipe shall be a minimum of 12 inches from the pre-fabricated weir structure. The Contractor shall provide a polyurethane sealant between the interior of the rolled steel plate and the inlet-side end of the PE pipe. The Contractor shall drill matching holes through the pipe and quarter-inch plate and attach the pieces using galvanized bolts, nuts, and washers. The proposed connection shall be designed for full flow through the effluent pipe and weir structure.

After fabrication of the connection, the Contractor shall blast clean the steel components in accordance with SSPC SP 10. The Contractor shall submit for approval a coal tar epoxy - polyamide paint that conforms to SSPC Paint 16. The steel components of this connection shall be painted with two coats of the coal tar epoxy - polyamide paint in accordance with SSPC PS 11.01 and the manufacturer's recommendations.

The Contractor shall provide and install a Mar Mac polyseal pipe coupler at the connection of the rolled steel plate and PE pipe, or an approved equal submitted for approval by the Contracting Officer. Installation of pipe coupler shall be in accordance with the manufacturer's recommendations.

2.7.4 REPAIR OF ANY EXISTING "DAMAGED" AREAS

The Contractor shall remove any ground cover on the exterior slopes to allow for a thorough inspection. This thorough inspection is necessary along the entire area of exterior slopes to find any holes, sloughs or other existing conditions that would compromise the dikes integrity. Any damaged area shall be repaired in its entirety. The damaged area shall be removed to the full depth and reconstructed within the above requirements under paragraph DIKE CONSTRUCTION.

2.7.5 REMEDIAL MEASURES

The contractor shall maintain the following materials at the disposal site, and upon the direction of the Contracting Officer, be able to make any necessary repairs to the dike within 24 hours.

(a) 2000 sq. ft. of an impervious plastic liner.

(b) A list of available local suppliers of sand and gravel that can supply approximately 300 cubic yards of sand and gravel within 8 hours notice.

2.8 Pipeline

2.8.1 Pipeline Right of Ways

The pipeline right of ways where shown on the "Temporary Pipeline Easement for Fishing Creek Placement Site" (shown at the end of the specifications) are Government furnished. The pipeline right-of-way is 30 feet wide. The pipeline must be weighted down and submerged at all times in and around the area of the docks, to prevent interference with boats. However, the Contractor is not restricted to the right-of-ways shown on the contract drawing(s). In those cases where the Contractor routes a pipeline outside of the Government furnished right-of-way or disposal area property, he shall obtain all easements, permits, and right-of-ways at their own expense.

2.8.1.1 Prevention of Landscape Defacement within Government Furnished Pipeline Right-of-Ways

Unless otherwise noted on the contract drawing(s), the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without the authority of the Contracting Officer or their authorized representative. Monuments and markers shall be protected before construction operations commence and until contract completion.

2.8.1.2 Restoration of Landscape Damage within Government Furnished Pipeline Rights-of-Ways.

Any tree, grassed area or other landscape scarred or damaged by the Contractor's equipment shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer shall determine the methods of restoration to be used.

2.8.2 Condition of Pipelines

2.8.2.1 Submerged Pipeline

It is the Contractor's responsibility to ensure pipelines are properly maintained during this contract. All pipelines for hydraulic machines must be kept in good condition at all times and any leaks or breaks along their length must be promptly and properly repaired. The Contractor shall comply with lighting of the floating pipeline in accordance with EM 385-1-1 AND U.S. Coast Guard Regulations.

2.8.2.1.1 Placement of Pipeline

Submerged pipeline shall rest on the channel bottom where a pipeline crosses a navigation channel and while submerged; the top of the pipeline and any anchor securing the pipe shall be no higher than the required project depth for the navigation channel in which the pipe is placed.

2.8.2.1.2 Buoyant or Semi-buoyant Pipeline

Whenever buoyant or semi-buoyant pipeline is used, the dredge operator shall ensure that the pipeline remains fully submerged and on the bottom. Whenever it is necessary to raise the pipeline, proper clearances shall be made and maintained and the entire length of the pipeline shall be adequately marked.

2.8.2.1.3 Marking the Location of the Pipeline

Submerged pipeline shall be marked in accordance with local USCG requirements and an approved by the Government Designated Authority (GDA).

(a) Unless otherwise specified by the USCG, submerged pipelines are considered to require special marks and shall have a USCG approved flashing yellow light.

(b) Indicators, such as signs or buoys that state "DANGER SUBMERGED PIPELINE" will be placed at the beginning and end of the pipeline. In addition, indicators are required beginning in areas which reduce the charted depth by more than 10 percent and, as a minimum, every 1000 ft. to clearly warn of the pipeline length and course.

(c) If barges or other vessels are used to anchor the beginning and/or end of the submerged pipeline, they shall be lighted in accordance with 33 CFR 88.13.

(d) Within a navigation channel, each end of the pipeline shall be identified with a regulatory marker buoy.

(e) Lengths of submerged pipeline located outside of the navigation channel, which reduce the charted depth by more than 10 percent, will be identified with high visibility buoys marked with 360 degree visibility retro-reflective tape, such as orange neoprene buoys, placed at an interval not to exceed 500 ft. (152.4m) to clearly show the pipeline length and course.

2.8.2.1.4 Inspections

Routine inspections of the submerged pipe shall be conducted to ensure anchorage.

2.8.2.1.5 Removal of Related Equipment

All anchors and related material shall be removed when the submerged pipe is removed.

2.8.2.2 Floating Pipeline

Floating pipeline is any pipeline which is not anchored on the channel bottom. Floating pipeline, to include rubber discharge hoses, shall be

clearly marked.

2.8.3 Location of Pipelines

Pipelines shall not be permitted to fluctuate between the water surface and the channel bottom or lie partially submerged.

2.9 NONCOMPLIANCE

The Contracting Officer or their authorized representative will notify the Contractor in writing of any noncompliance with the foregoing provisions. Such notice, when delivered to the Contractor or their authorized representative at the site of the work, shall be deemed sufficient for the purpose. Within 24 hours after the receipt of such notice, the Contractor shall mail, or personally deliver to the Contracting Officer or their authorized representative, a complete proposal of the prompt correction of the noncompliance. The Contracting Officer or their authorized representative will review the proposal and return it to the Contractor approved, subject to such changes or conditions as he finds necessary to assure correction of noncompliance. Immediately upon receipt of such approval, the Contractor shall begin the corrective work and shall carry it to completion. If the Contractor fails or refuses to submit their proposal or to proceed with the corrective work, the Contracting Officer or their authorized representative may suspend all or any part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such suspension shall be made the subject of a claim for extension of time nor for excess costs or damages by the Contractor. If he so elects, the Contracting Officer or their authorized representative may cause the corrective work to be accomplished by others, in which event the cost thereof shall be chargeable against any monies otherwise due the Contractor from the Government.

2.10 INSPECTION AND TESTING

2.10.1 Inspection

The work will be conducted under the general direction of the District Engineer and will be subject to inspection by their appointed inspector(s) to insure strict compliance with the specifications. The Government inspector(s) will direct the maintenance of the gages, ranges, location marks, and limit marks in proper order. Portable lighting shall be provided upon request of the Government inspector(s) for more detailed inspection of potential trouble areas.

2.10.1.1 Suspension of Operations

The Government inspector(s) will direct suspension of operations at any unit of work where the Contractor upon request does not correct:

(a) A safety hazard which is so grave as to endanger life, limb, or property or cause serious damage to the work. This includes but is not limited to a failure on the part of the Contractor (1) to have a full time quality control person present and fully alert and awake on the disposal area at all times pumping operations are in progress or (2) provide and maintain the required marine band radio for use by Government inspector(s) at all times while pumping operations are in progress and/or (3) provide and maintain the approved lighting on the disposal area for safe night operations are all basis for Government inspector direct suspension of work.

(b) An effluent reading from the disposal area which exceeds 150 NTU's.

(c) An encroachment upon the maintenance of two feet of operating freeboard on the disposal area retention dikes.

(d) Noticeable dike seepage and/or loss of required dike crest width.

2.10.2 Testing

The Contractor shall provide all equipment and labor necessary to satisfactorily obtain, test, and record the results thereof of weir box effluent testing. The Contractor shall determine the density of the effluent. Effluent samples for density determinations shall be obtained at the weir box. Each sample shall be made by partially filling, without overflow, a one quart container with the mixture flowing over the weir. Samples shall also be taken from the end of the effluent discharge pipe, on occasion, where feasible. When settled solids are not present in the sample, the Contractor may determine the density by the turbidity meter method or the weight volume method as hereinafter specified. When settled solids are present, the density shall be determined by the weight volume method.

2.10.2.1 Turbidity Meter Method

When a turbidity meter method is used for density determination, an instrument similar or equal to Hach #16800 shall be used. The instrument shall be capable of reading at least 0 to 100 NTU's.

2.10.2.2 Weight-Volume Method

When the weight-volume method is used for density determination, the total sample shall be measured to obtain volume in liters and weight in grams. Measurements shall be made with a 1000 c.c. laboratory cylinder to the nearest gram. The unit weight shall be obtained by dividing the total weight in grams by the total volume in liters.

2.10.2.3 Hourly Effluent Samples

Effluent samples shall be obtained on an hourly basis at all times pumping operations are in progress and immediately after removing any weir boards. The frequency of sampling and testing may be increased at the direction of the Government inspector(s) if effluent densities increase.

2.10.2.4 Records

Records of disposal area effluent sampling and corrective action(s) taken to ensure compliance with turbidity requirements shall be submitted daily to the Government inspector(s). The Contractor shall also record the height of the dike effluent each time an effluent sample is obtained. Effluent test results shall be recorded immediately after tests are performed and made available to the Government inspector(s) at all times upon request.

2.10.2.5 Shelter

The Contractor shall provide a shelter on the disposal area(s) to house testing equipment and furnish shelter for quality control personnel.

2.11 OVERDEPTH AND SIDE SLOPES

2.11.1 Overdepth

To cover inaccuracies of the dredging process, material actually removed from within the specific areas to be dredged to a depth of not more than 1.0 foot below the required depth will be estimated and paid for at the contract price.

2.11.2 Side Slopes

Material actually removed, within limits approved by the Contracting Officer, to provide for final side slopes not flatter than 1 vertical on 3 horizontal, but not in excess of the amount originally lying above this limiting side slope will be estimated and paid for, whether dredged in original position or by dredging space below the pay slope plane at the bottom of the slope for upslope material capable of falling into the cut. In computing the limiting amount of sideslope dredging, an over depth of 1.0 foot measured vertically will be used.

2.11.3 Excessive Dredging

Material taken from beyond the limits as extended in the provisions of paragraphs 2.11.1 and 2.11.2 above will be deducted from the total amount dredged as excessive overdepth dredging, or excessive sideslope dredging for which payment will not be made. The Contractor is advised that dredging conducted outside the authorized footprint could be considered a violation of state and federal laws, requiring restoration, mitigation, or fines. Any additional costs incurred by the Contractor, or requirements for restoration or mitigation resulting from dredging outside the limits identified on the plans shall not be charged to the Government. Nothing herein shall be construed to prevent payment for the removal of shoals performed in accordance with the applicable provisions of the Special Clauses FINAL EXAMINATION AND ACCEPTANCE or SHOALING.

2.12 MEASUREMENT AND PAYMENT

2.12.1 Performance and Payment Bonds

The Government will reimburse the Contractor for the entire amount of premiums paid for Performance and Payment Bonds (including coinsurance and reinsurance agreements when applicable) at the contract lump sum amount under the Unit Price Schedule Base Bid Item No. 0014, entitled "Reimbursement of Performance and Payment Bonds." Such payment will be made only after the Contractor furnishes to the Government evidence of full payment to the surety. In no case will any payment be made by the Government for reimbursement of Performance and Payment Bonds exceeding that amount bid by the Contractor under the aforementioned Unit Price Schedule Item.

2.12.2 Mobilization and Demobilization

Mobilization and demobilization shall include all costs in connection with but not limited to: obtaining any necessary permits and approvals for the work specified in accordance with the Contract Clause PERMITS AND RESPONSIBILITIES; moving the Contractor's dredging plant and equipment to the site; initial laying of pipelines; maintenance of the disposal areas, and the removal of all dredging plant, equipment, and pipelines from the site upon completion of the work. Payment shall be made in accordance

with Base Bid Item No. 0015, "Mobilization and Demobilization" of the Unit Price Schedule which shall be full compensation for the work performed.

2.12.3 Weir Boxes at Fishing Creek Placement Site

Weir box removal and reinstallation shall include all costs in connection with but not limited to: obtaining any necessary permits and approvals for the work specified in accordance with the Contract Clause PERMITS AND RESPONSIBILITIES; moving the Contractor's equipment to the site; accomplishing the work required by the Sediment Control details in the plans; fully removing and properly disposing of the old weir boxes; fully construct and install the new weir boxes to the specifications; and the removal of all equipment and fencing from the site upon completion of the work. This item will also include the construction of the access ramp over the effluent discharge pipeline if needed. Payment shall be made in accordance with Base Bid Item No. 0016, "Weir Boxes at Fishing Creek Placement Site" of the Unit Price Schedule which shall be full compensation for the work performed.

2.12.4 Dredging

The total amount of material removed and to be paid for under the contract, will be measured by the cubic yard in place by computing the volume, using the average end area method, between the bottom surface shown by soundings of the last survey made before dredging and the bottom surface shown by the soundings of a survey made as soon as practicable after the entire work specified has been completed and included within the limits of the overdepth and side slopes described in the Technical Provision paragraph OVERDEPTH AND SIDE SLOPES less any deductions that may be required for misplaced material described in the Technical Provision paragraph MISPLACED MATERIAL. The before and after dredge surveys will be performed by either the Corps or by a survey Contractor under contract with the Corps to perform such surveys. The Payment shall be made in accordance with the following:

(a) Base Bid Item No. 0017 "Maintenance Dredging - Fishing Creek Stations 0+00 to 4+223",

(b) Optional Item No. 0018 "Maintenance Dredging - Fishing Creek Overdepth Stations 0+00 to 4+223,

2.12.5 Maps/Drawings

The maps and/or drawings already prepared are believed to represent accurately conditions existing on the date shown on the contract drawing(s). Determination of quantities removed and the deductions made therefrom to determine quantities by place measurement to be paid in the area specified, after having once been made, will not be reopened except on evidence of collusion, fraud, or obvious error.

2.12.6 Monthly Partial Payments

Monthly partial payments will be based on approximate quantities determined by soundings or sweepings taken behind the dredge and/or approximate quantities reported in the Daily Reports of Operations.

2.12.7 Dredging for Third Parties

Should the Contractor in conjunction with work under this contract perform dredging for third parties adjacent to the specified area to be dredged, payment will be made by the Government only for material removed from the contract area within a vertical plane at the contract unit lines at the location work is performed for such third parties.

2.13 WORK IN THE VICINITY OF STRUCTURES AND UTILITY CROSSINGS

(a) The Contractor shall contact the One-Call Service (Miss Utility) and the local utility companies, to request the locations of any utilities within the dredged area that may be affected by the dredging operations. The Contractor shall not proceed with any dredging operations until all utilities, including abandoned utilities, have been marked to the satisfaction of the Contracting Officer.

(b) The Contractor shall exercise caution when working in the vicinity of structures and utility crossings or adjacent to the channel or disposal areas. Repair of any damage resulting from excessive or improper excavation in the bottom or side slopes of the channel shall be the responsibility of the Contractor. Where dredging to the required elevation might endanger any structure, the Contracting Officer or their authorized representative may reduce the required excavation in the vicinity of such structure.

(c) The Contractor shall provide at least project channel dimensions over all utility crossings. The Contractor shall submit for approval by the Contracting Officer or their authorized representative a detailed plan of operation at each pipeline or utility crossing where construction surveys indicated project channel does not exist. The plan shall contain emergency measures to be taken in the event of an accident. The Contractor shall notify the owners of pipelines or utilities at least three calendar days prior to operating within 150 feet of a pipeline or utility. The Government will not be responsible for any damage to structure or utilities due to the Contractor's deviation from the approved plan.

(d) Any unidentified pipelines or structures which may be found within the limits of work shall not be disturbed nor shall dredging or the disposal of dredged material be performed at these locations unless, and until, approved by the Contracting Officer.

(e) The Delmarva Power & Light Company maintains an aerial electric transmission line across the Fishing Creek within the proposed dredge area. Prior to the commencement of any dredge activities, contact Matt Savage, at (302) 454-4475, to obtain information pertaining to clearances of the wires above the waterway.

(f) The Delmarva Power & Light Company maintains several underground submarine cable under the Fishing Creek within the proposed dredge area. Please contact Rodney Bane, at (410) 860-6292, for additional information pertaining to this cable crossing.

2.14 SEDIMENT CONTROL

2.14.1 General

The Corps is in the process of making the application for approval of the

sediment control plan as presented in the plans and specifications. The contractor must comply with the requirements of plan and any deviations must be approved by the MDE Inspector and the Contracting Officer. The Contractor shall notify the MDE Inspector and the Contracting Officer's Representative at least 7 days before the proposed work begins. The contact for the MDE Inspector is the Compliance Program at (410) 537-3510.

2.14.2 Retention Dike Sediment Control

(a) All dike repairs shall be so shaped and compacted so as to have side slopes no steeper than the requirements specified in paragraph 7, Technical provisions, Construction Specifications.

(b) Protection against erosion and scour shall be provided at the pipe weir box point of discharge.

(c) The outside and top surface of the dike repair areas shall be stabilized no later than 7 days after completion of the dike repairs.

(d) Silt fence shall be provided in accordance with the requirements of the plans and specifications.

2.14.3 Final Acceptance

The repaired sections of the disposal area dikes will be inspected for sediment control compliance during seeding operations and 30 days after seeding. Seed germination must be sufficient to cover the entire area with a minimum of 100 plants per sq. ft. Bare spots in excess of 2 ft. in diameter are to be reseeded in accordance with the Vegetative Stabilization requirements, shown above. Initial seeding will be required to be accomplished during the contract performance period. However, subsequent reseeding, if necessary, will not be required to be accomplished during the contract performance period. Liquidated damages will not be assessed during reseeding operations. However, every effort will be made by the Contractor to complete reseeding operations as quickly as possible.

2.15 QUALITY CONTROL

The Contractor shall establish a Quality Control system to assure compliance with contract requirements and shall maintain records of their quality control for all construction and dredging operations as required in the QUALITY CONTROL paragraphs in the Special Clauses.

PART 3 NOT USED

-- End of Section --