

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT	1. CONTRACT ID CODE	PAGE OF PAGES
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2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
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6. ISSUED BY CODE	7. ADMINISTERED BY (If other than Item 6) CODE
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8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	(X)	9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 11)
CODE	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED
16B. UNITED STATES OF AMERICA (Signature of Contracting Officer)	16C. DATE SIGNED

INSTRUCTIONS

Instructions for items other than those that are self-explanatory, are as follows:

(a) Item 1 (Contract ID Code). Insert the contract type identification code that appears in the title block of the contract being modified.

(b) Item 3 (Effective date).

(1) For a solicitation amendment, change order, or administrative change, the effective date shall be the issue date of the amendment, change order, or administrative change.

(2) For a supplemental agreement, the effective date shall be the date agreed to by the contracting parties.

(3) For a modification issued as an initial or confirming notice of termination for the convenience of the Government, the effective date and the modification number of the confirming notice shall be the same as the effective date and modification number of the initial notice.

(4) For a modification converting a termination for default to a termination for the convenience of the Government, the effective date shall be the same as the effective date of the termination for default.

(5) For a modification confirming the contracting officer's determination of the amount due in settlement of a contract termination, the effective date shall be the same as the effective date of the initial decision.

(c) Item 6 (Issued By). Insert the name and address of the issuing office. If applicable, insert the appropriate issuing office code in the code block.

(d) Item 8 (Name and Address of Contractor). For modifications to a contract or order, enter the contractor's name, address, and code as shown in the original contract or order, unless changed by this or a previous modification.

(e) Item 9, (Amendment of Solicitation No. - Dated), and 10, (Modification of Contract/Order No. - Dated). Check the appropriate box and in the corresponding blanks insert the number and date of the original solicitation, contract, or order.

(f) Item 12 (Accounting and Appropriation Data). When appropriate, indicate the impact of the modification on each affected accounting classification by inserting one of the following entries.

(1) Accounting classification _____
Net increase \$ _____

(2) Accounting classification _____
Net decrease \$ _____

NOTE: If there are changes to multiple accounting classifications that cannot be placed in block 12, insert an asterisk and the words "See continuation sheet".

(g) Item 13. Check the appropriate box to indicate the type of modification. Insert in the corresponding blank the authority under which the modification is issued. Check whether or not contractor must sign this document. (See FAR 43.103.)

(h) Item 14 (Description of Amendment/Modification).

(1) Organize amendments or modifications under the appropriate Uniform Contract Format (UCF) section headings from the applicable solicitation or contract. The UCF table of contents, however, shall not be set forth in this document

(2) Indicate the impact of the modification on the overall total contract price by inserting one of the following entries:

(i) Total contract price increased by \$ _____

(ii) Total contract price decreased by \$ _____

(iii) Total contract price unchanged.

(3) State reason for modification.

(4) When removing, reinstating, or adding funds, identify the contract items and accounting classifications.

(5) When the SF 30 is used to reflect a determination by the contracting officer of the amount due in settlement of a contract terminated for the convenience of the Government, the entry in Item 14 of the modification may be limited to --

(i) A reference to the letter determination; and

(ii) A statement of the net amount determined to be due in settlement of the contract.

(6) Include subject matter or short title of solicitation/contract where feasible.

(i) Item 16B. The contracting officer's signature is not required on solicitation amendments. The contracting officer's signature is normally affixed last on supplemental agreements.

1. The specifications and drawings for Invitation No. DACW64-03-B-0025, Storm Damage Reduction and Environmental Restoration Project, North Padre Island, Corpus Christi, Texas, advertised 20 May 2003, and for which bids are to be opened on 2 July 2003, are hereby modified as follows:

BID OPENING IS HEREBY RESCHEDULED FOR 2:00 PM LOCAL TIME IN ROOM 175, JADWIN BUILDING, 9 JULY 2003.

QUESTIONS FROM PROSPECTIVE BIDDERS AND ANSWERS BY THE GALVESTON DISTRICT DESIGN TEAM ON 18 JUNE 2003 ARE ENCLOSED.

(a) Specifications.

(1) COVER. - The enclosed Cover supersedes that issued with Amendment No. 0002 to this Invitation. Also, all references to this Project shall reflect the following Title: "Corpus Christi, Texas, North Padre Island, Storm Damage Reduction and Environmental Restoration Project."

(2) STANDARD FORM 1442, Item 10. - The following information shall be added to Item 10:

" Technical Contacts:

Primary Contact

Vern R. (Richard) Schrank

Phone Number (409) 766-3958

Fax Number (409) 766-3041

E-Mail vern.r.schrank@swg02.usace.army.mil

(Mr. Schrank will be at training from 6/21/03 to 6/29/03

during that period you can contact

Charles M. (Mike) Castelline

Phone Number (409) 766-3970

Fax Number (409) 766-6300

E-Mail charles.m.castelline@swg02.army.mil

Alternate Contact

Elijio Garza Jr.

Phone Number (361) 884-3385 Ext 18

Fax Number (361) 884-4959

E-Mail elijio.garza_jr@swg02.army.mil

Note: Due to the complexity of the work, it is recommended that phone comments be followed by faxing the comments to whom you have conversed."

(3) Page 00100-1 of 11, CLAUSE 52-1-4001 ESTIMATED CONSTRUCTION PRICE RANGE (APR 1985) (FAR 36.304). - Change the figures "\$25,000,000" and "\$100,000,000" to "\$10,000,000" and "\$25,000,000," respectively.

(4) Page 00600-6 of 14, CLAUSE 52-219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (APR 2002), Subparagraph (a)(2). - Change the figure "\$17,000,000" to "\$28,500,000."

(5) BID SCHEDULE. Pages 00010-1 Through 00010-5 (Issued with Amendment No. 0002). - The enclosed new Bid Schedule, Pages 00010-1 through 00010-5 supersedes that issued with Amendment No. 0002 to this Invitation.

(6) Page 00800-1, Paragraph 1(e). - In the Index of Drawings, change "68 Sheets" to "71 Sheets."

(7) Page 01100-1, Paragraph 1. - In the eighth line, change "20,000" to "15,000."

(8) SECTION 01121 CONSTRUCTION SEQUENCE. - The enclosed new SECTION 01121 entitled CONSTRUCTION SEQUENCE supersedes that issued with this Invitation.

(9) SECTION 01355 ENVIRONMENTAL PROTECTION. - The enclosed new SECTION 01355 entitled ENVIRONMENTAL PROTECTION supersedes that issued with this Invitation.

(10) Page 02300-5, Subparagraph 1.7.6. - In the first line, delete "5,700 cubic yards of."

(11) Page 02300-10, Paragraph 3.6. - Delete the first sentence and substitute: "The dune shall be constructed within limits and to elevation as shown." Also, delete the last sentence.

(12) Page 02300-12, Subparagraph 3.10.1. - In the second line, delete the word "daily." In the third line, delete the word "days." also, in the last line, delete the period and add "as the surveys occur."

(13) Page 02378-4, TABLE 1 - PHYSICAL REQUIREMENTS. - Delete the second row beginning with "Permittivity. . . ."

(14) SECTION 02384 STONE PROTECTION. - The enclosed new SECTION 02384 entitled STONE PROTECTION supersedes that issued with this Invitation.

(15) Page 02482-2, Paragraph 1.4. - In the ninth line, delete the sentence beginning with "When using more than one"

(16) Page 02482-7, Subparagraph 3.2.2. - Delete this Subparagraph and substitute the following:

:3.2.2 Discharge Effluent. Effluent from the outfall structure of Placement Area No. 1 shall be sampled at least daily by the Contractor. When the Total Suspended Solids (TSS) in effluent exceeds 300 milligrams per liter, the Contractor

will discontinue dredge placement operations into the Placement Area until the effluent TSS returns to below 300 milligrams per liter. The minimum frequency of sampling at the outfall structure shall be increased when the effluent increases or nears the maximum specified limit. The Contractor shall report the test results on the Daily Report of Operation and submit copies to the Contracting Officer."

(17) Page 02482-7, Subparagraph 3.2.3. - Delete the last two sentences of this Subparagraph.

(18) Page 02482-7, Subparagraph 3.2.3.1. - Delete this Subparagraph and substitute the following:

"3.2.3.1 Total Suspended Solids Measurement. The method to be used shall be in accordance with the most recent edition of the publication entitled Standard Methods For the Examination of Water and Wastewater, Method 208D, Total Nonfilterable Residue Dried at 103-105C (Total Suspended Matter)."

(19) Page 02482-7, Subparagraph 3.2.3.2. - Delete this Subparagraph.

(20) Page 02615-4, Subparagraph 1.5.1. - Delete the first sentence and substitute the following: "The Contractor shall use pipe welders certified by the pipe manufacturer."

(21) Page 02918-1, Paragraph 1.1. - At the end of this Paragraph, add the following: "Water for vegetation may be obtained from the City of Corpus Christi, P.O.C. is Mr. Rey Luna at (361) 857-1860."

(22) Page 02918-5, Subparagraph 3.2.4. - In the second line, delete the word "exceeds" and insert "does not exceed."

(23) Page 02918-5, APPLICATION TABLE. - Delete this Table and substitute the following:

"APPLICATION		
APPLICATION PERIOD	RATE PER ACRE	ANALYSIS
1. Fall/Spring	300 lbs	10-10-10
2. Spring/Fall	200 lbs	Ammonium Nitrate"

(24) Page 03301-8, Subparagraph 1.4.1.1. - Delete this Subparagraph and substitute the following:

"1.4.1.1 Aggregates. Certified copies of laboratory test reports, including mill tests and other test data, for Portland cement, blended cement, pozzolan, ground granulated blast furnace slag, silica fume, aggregate, admixtures, and curing compound proposed for use on this project."

(25) SECTION 05500 HANDRAILS. - The enclosed new SECTION 05501 entitled BARRIER RAILING supersedes SECTION 05500 entitled HANDRAILS.

(b) Drawings.

(1) Drawings Nos. C-1 Through C-70. - Manually change the Drawing numbers from "C-1 through C-70" to "C-1 through C-71."

(2) Drawing No. C-3. - Add the following Note 13 to Drawing No. C-3:

"13. SH 361 BRIDGE IS DESIGNED BY TEXAS DEPARTMENT OF TRANSPORTATION FOR HS20 VEHICLE LOADING."

(3) Drawing No. C-3. - Delete Note 9 and substitute the following Note 9 on Drawing No. C-3:

"9. PROVIDE TEMPORARY PROJECT SAFETY FENCING AROUND PROTECTED RESOURCE AREAS."

(4) Drawing No. C-28. - Add the following Note 4 to Drawing No. C-28:

"4. PLANTS FOR DUNE CONSTRUCTION AREA CONSIST OF SEA OATS AND BITTER PANICUM."

(5) Drawing No. C-30. - The enclosed new Drawing No. 30 supersedes that issued with this Invitation.

(6) Drawing No. C-53. - In the DETAILS 1 through 4, delete the 1'-0" callout next to BLANKET STONE.

(7) Drawing No. C-54. - In the SECTION SHORELINE ARMORING TRANSITION, delete the 1'-0" callout next to BLANKET STONE.

(8) Drawing No. C-74. - Add the following Note 3 to Drawing No. C-74:

"3. SEE DRAWING NO. C-28 FOR LOCATION OF DUNE CONSTRUCTION AREA."

(9) Drawing No. C-75. - The enclosed new Drawing No. C-75 shall be added to and become part of this Invitation.

(10) Drawing No. G-1. - The enclosed new Drawing No. G-1 shall be added to and become part of this Invitation.

2. This amendment shall be attached to and become a part of the specifications.

9 Encls

1. Q & A (9 Pgs w/list of Attendees)
2. Cover
3. Bid Sched, Pgs 00010-1 thru 00010-5
4. Section 01121
5. Section 01355
6. Section 02384
7. Section 05501
8. Dwg No. C-30
9. Dwg No. C-75
9. Dwg No. G-1

**PRE-BID CONFERENCE FOR NORTH PADRE ISLAND STORM DAMAGE
REDUCTION AND ENVIRONMENTAL RESTORATION PROJECT**

**QUESTIONS FROM PROSPECTIVE BIDDERS AND ANSWERS BY THE
GALVESTON DISTRICT DESIGN TEAM ON 18 JUNE 2003**

Q 1: "Storage of Construction Materials -- States that materials received with certified weights that are unloaded from barges and trucks and which cannot be used immediately for construction shall be stored in an approved storage area." The question, "How is this storage area going to be approved?"

A 1: Staging Areas are shown on Drawing C-3. Specification Section 01500, Paragraph 1.4.1 requires the location of storage areas to be identified and submitted as part of the Contractor's Site Plan for approval.

Q 2: "Section 2482, Dredging, paragraph 3.2.2, Discharge Effluent. When the effluent density exceeds 300 milligrams per liter more than the corresponding density of the receiving body of water, the contractor will discontinue dredge placement area" -- I'm sorry -- "placement operations into the placement area until the effluent density returns to below 300 milligrams per liter. Clarify whether the effluent density limitation is; A, 300 milligrams per liter more than the corresponding density of the receiving body of water, or; B, an absolute limit of 300 milligrams per liter."

A 2: Specification Section 02482 will be amended for the measurement of Total Suspended Solids instead of density. The limit will be an absolute limit.

Q 3: "Section 02482, dredging, paragraphs 3.2.3, 3.2.3.1 and 3.2.3.2 - These three paragraphs all describe methods of measuring effluent density. Given that measurement needs to be at a resolution of 300 milligrams/liter, whether above background or absolutely, the methods described here seem to us unlikely to provide the required resolution, while methods that will provide it will have too slow a turnaround time. Clarify the required method of measurement."

A 3 See response to Question 2.

Q 4. "Section 02702, Outfall structure, paragraph 3.1.2, effluent solids concentration - - States maximum allowable effluent solids concentration shall be 300 mg/L when measured as described in the requirements of the quality control plan contained in the section entitled dredging. This paragraph seems to imply that an absolute effluent density limitation of 300 milligrams per liter does not apply. Please clarify."

A 4. See Response to Question 2.

Q 5. "Plans - The location and design of the required outfall structure does not seem to be indicated on the plans. Please clarify."

A 5: Specification Section 02702, Outfall Structure, indicates that the Contractor is responsible for the design. This allows the dredger to match the outfall structure to his dredge plant. Also, the specification does indicate that the discharge from the outfall structure will be into the inner basin, but it does not indicate where in placement area one the structure will be located.

Q 6: "Section 02384, Stone protection, part two, products, Page 02384-7 - Jetty stone classifications, cover stone, granite, 10 ton, generally rectangular shape. "Under the tolerance column it states a plus or minus 25 by weight. Is this a measurement per stone or plus or minus 25 in pounds per stone?"

A 6: Specification Section 02384 will be amended.

Q 7: "Drawing C-74 - Shows the areas to be planted with spartina patens and bitter panicum adjacent to the placement areas one and three. Is there a drawing that shows the planting layout for the dune construction to be planted with sea oats, or is that placement area No. 2 as shown in the same drawing?"

A 7: The area to be planted is located on drawing C-28, and the spacing is addressed in the planting specification, which is Section 02918. The amendment will clarify this item.

Q 8 "Given the large quantity of plant material needed, and the amount of time required to collect seed and contract growth the required plants, will an extension of time for contract completion be considered?"

A 8: Construction time will not be changed. However, the contract will remain open until the vegetative stabilization is accepted.

Q 9. "Is there a freshwater source available, and if not, can a temporary water well be installed to provide a water source for maintenance of the harvested plant material until the project is ready for final planting and also for maintenance after planting?"

A 9: Specification Section 02918 will be amended to address the water source.

Q 10. "Paragraph 52.219-4 of Section 600 includes the Hubzone preference - The estimated price range of the proposed construction is between 25 million to 100 million as stated in the specifications. This price range exceeds the limitation for small business concerns. Although a small business concern may elect to submit a proposal for this project, we believe it is unfair to grant a 10 percent preference on a project which exceeds the small business limitation. This process encourages the use of a Hubzone firm who could reap an unjust benefit while performing very little work on the project."

A 10: In accordance with the Federal Acquisition Regulations 19.1307-(b), any time there's a solicitation, that is full and open competition, we're required to insert that particular contract clause. In addition, according to 13 Code of Federal Regulations, CFR 126.613, if we do get a bid from a Hubzone and they're within 10 percent of the lowest bidder, which happens to be a large business, we are required to apply 10 percent evaluation. If the Hubzone small business firm is the lowest bidder, the preference -- 10 percent preference does not apply. If the Hubzone small business firm is 10 percent more than the large lowest responsive bidder, the 10 percent preference does not apply, but it's a Federal requirement in the Code of Federal Regulations that anything we do for full and open competition that clause has to be in that solicitation.

Q 11. "Paragraph 01500-1.8 - States that the contractor shall furnish and erect temporary project safety fencing at the work site. Please define the limits of the safety fencing."

A 11: Safety fencing is required to protect the protected resources referenced on Drawing No. C-3. Note 9 will be modified by amendment to clarify.

Q 12. "Paragraph 02300-1.7.6 concerns the dune construction - Is the quantity 5,700 cubic yards or the actual amount placed?"

A 12. The bid schedule and Specification Section 02300, Paragraph 1.7.6 and 3.6 will be amended to clarify the quantity. The payment will be for the actual amount.

Q 13. "Placement of the compacted and semi-compacted fill are delineated in paragraphs 02300-3.2.1 and 3.2.2. The lift thickness for semi-compacted fill is stated to be a maximum 18. What is the lift thickness for the compacted fill?"

A 13. Lift thickness is nine inches and the specified in Section 2300, paragraph 3.9. Paragraph 3.2.1 refers to paragraph 3.9 Compaction.

Q 14. "Paragraph 02300-3.10 - States that the contractor shall perform daily topographic surveys. What about days when no fill is placed?"

A 14. See the amendment for clarification.

Q 15. "Paragraph 02316-1.4.2.1 - States that the contractor shall provide a seal by a Registered Professional Engineer licensed in the State of Texas. May this certification be provided by an engineer licensed in any other state?"

A 15. No.

Q 16. "Paragraph 02374-2.1.1, table one - The geotextile (bottom layer) shows an AOS 170 sieve. This number is usually 70 to 100, and the 170 value is not possible with fabrics. A typical fabric will meet an AOS of 100."

A 16 The sand at the site is very fine, and the typical fabric with an AOS of 70 to 100 would lose about 10 to 15 percent of the material through that fabric, which would lead to loss and deformation of the shoreline protection system. Fabric with AOS of 170 is available: DuPont SF-65 and TYPAR-3801.

Q 17. "Paragraph 02378-2.1.2, table one - Lists the permittivity as 0.52. Standard products have a permittivity of 0.40. Fabrics that meet the permittivity do not have enough strength to meet the burst, puncture, and tear."

A 17 The fabric is being used as a separation fabric so permittivity is not an issue for this fabric. An amendment will be issued to address this item.

Q 18. "Paragraph 02378-2.2.2, Table 2 - Lists the AOS of the fabric at a 170 sieve. As stated above, please consider an AOS value of 100 instead of 170 listed."

A 18. See response to Question 16.

Q 19. "Section 05500-1.4.2.1 - The contractor is to design the handrails for this project. Since these handrails must be approved by the government, it would be appropriate for the government to provide the design."

A 19 The design of the handrails is to be left up to the manufacturer of the handrails. We specify a performance requirement with design loads on the system mainly to allow manufacturer's to fit their designs to the loads and system proposed. This allows more competition by allowing a manufacturer to design it and provide it.

Q 20. "Paragraph 02384-2.4.1 - The cover stone gradation is shown to be 10 ton, without any upper or lower limits. Under the tolerance, define the meaning by plus or minus 25 by weight."

A 20. See response to Question 6.

Q 21. "For the 1-3 ton stone, it appears that this material must be a dimensioned stone like the cover stone. Is this correct?"

A 21 No. An amendment will be issued to clarify this item.

Q 22."If this is a dimension stone, what would be the thickness of this material?"

A 22 It is not a dimension stone.

Q 23. "What is the maximum size of the stone if 75 percent is between 1.5 and 3.75 tons; what about the other 25 percent?"

A 23. An amendment will be issued to clarify this item.

Q 24. "Does the 1-3 ton stone need to be individually numbered? Define what is meant by well graded on the 1-3 ton stone."

A 24. The 1-3 ton stone does not need to be individually numbered, and again, an amendment will clarify the overall gradation for the stones.

Q 25. "Paragraph 02384-2.8 - States that the testing of the riprap for gradation and specific gravity should be done every 2,000 tons. This frequency is needless and adds to the expense of the project. Consider a frequency rate of 20,000 tons for these tests."

A 25. An amendment will be issued to clarify this item.

Q 26. "Paragraph 02384-2.8 - This paragraph implies that the testing of the armor stone should also be performed every 2,000 tons. Is it necessary to individually measure every cover and core stone for this project?"

A 26. An amendment will be issued to clarify this item.

Q 27. "Paragraph 02384-3.9.1 - The frequency for the quality tests are presented. We request that the frequency of this testing be reduced to 20,000 tons. In addition, the 1-3 ton stone will be obtained from the same source as the cover stone in all probability. It would appear that the frequency of the testing should be the same for both."

A 27. An amendment will be issued to clarify this item.

Q 28. "Paragraph 02384-3.9.4 states that surveys are to be taken on a daily basis. The project engineer will be monitoring the stone placement to ascertain that it meets the contract specifications, but a formal daily cross-section should not be necessary."

A 28. An amendment will be issued to clarify this item.

Q 29. "Paragraph 02384-3.5.1 - States that the blanket stone cannot be placed more than 100 foot in advance without being covered with core or reset stone. Generally, the Corps allows 200 foot in advance. Is there a reason in this case for the 100 foot limitation instead of the normal 200?"

A 29. An amendment will be issued to address this item. The 100 foot requirement will remain for the jetties beyond station 182+00 whereas 200 foot will be allowed for the jetties between 173+16 and 182+00.

Q 30. "Paragraph 02384-3.8 - Requires no self-propelled equipment to be used on the riprap. Does this include blanket and filler stone? We anticipate it will require a small dozer and/or hydraulic excavator to dress the blanket, filler and riprap in certain areas."

A 30. An amendment will be issued to clarify this item.

Q 31. "Paragraph 02615-1.5.1 - States that welders are to be certified. Who performs the certification?"

A 31 The manufacturer of the pipe provides the certification for the welder, and we'll clarify that within the specification by amendment.

Q 32 "Paragraph 02918-3.2.4 - States that the planted area will be accepted when the plant mortality exceeds 50 percent. Is this correct?"

A 32 No, it's not correct. "Does not exceed" will be put in place in between mortality and exceeds. An amendment will be issued to address this item.

Q 33. "Paragraph 02918-3.3 - Implies that the area must be fertilized a minimum of four times. Is this correct?"

A 33. The Specification will be amended and will only require two applications.

Q 34: "Paragraph 03301-1.4.1.1 - States that the contractor shall furnish aggregates from a listed source. What are these sources?"

A 34: An amendment will be issued to clarify this item.

Q 35. "Bid item 0018 through 0023 - These items include erosion protection in the form of CCM of various types. Many projects offer the option of utilizing graded riprap in order to obtain the most economical price for this work. We request that you consider the option of installing riprap for these bid items."

A 35. This alternative was reviewed during the value engineering study performed in coordination with the local sponsor. CCM was selected through this process. Thus, graded riprap will not be considered as an option.

Q 36. "Drawing C-53 - Shows the typical jetty head for a double stack cover stone. It appears the thickness would be three and one half feet for each layer. However, at the jetty crown, reducing the thickness by two feet of concrete and one feet of filler stone, the resultant jetty stone thickness would be four foot. Is there a definitive thickness for the cover stone?"

A 36 The 1.0 ft descriptor will be removed from Drawing C-53 and C-54 as part of the amendment. The layer thickness for the cover stone is nominally 3.5 feet.

Q 37. "Jetty construction - would it be acceptable to drill holes into the 10 ton cover stone for anchoring devices and handling? It is anticipated that holes would be 1 to 1.5 diameter."

A 37. After careful consideration and consultation among engineers at the Galveston District, it has been determined that drilling the 10-ton stone for the purpose of handling will not be acceptable. Ten ton stone for this application will generally be sized

about 3.5 feet by 3.5 feet by 10 feet. It is believed that drilling into this size stone could be construed to compromise our acceptance of the stone as described in Section 02384, paragraph 2.6, which indicates that stone shall be "sound, durable and hard, and free from laminations, weak cleavages, undesirable weathering, blasting, or handling-induced fractures, or fracture zones which subtend more than 1/3 of the total circumference of the stone along the plane of fracturing." In addition, ten ton stone are light enough to be handled with readily available equipment suitable for the task.

Q 38. Is the jetty stone three and a half foot thickness? Is that what we're going to call the thickness?

A 38. Nominally, it is 3.5 feet.

Q 39: Will these monitorings (piping plover and turtle) take place on all phases of the contract or just those designated areas that you spoke about?

A 39: It will take place during any construction activity that will be located either on the beach or any other area where the Piping Plover may likely be found. Sea turtles will primarily be on the beach area. Some of the turtle species will come up during the daytime to nest. I would doubt that they would come up in this area because of the construction activity, but it's still a possibility. A turtle may wash up on the beach, and then you need to contact the service at that time. Some of them will nest at night. Training will be provided to educate the construction staff of their duties relating to the monitoring.

Q 40: First question regards the pre-award information which is listed on Page 1 of 11, and on this pre-award information, the contractor's supposed to submit with his bid financial information, key personnel, outstanding work, a number of items, and for many of the contractors this has been submitted previously on other contracts. My question is, can that information be eliminated if you have a current contract with Galveston? In addition to that, there's also -- if you're a large business, you must submit a subcontracting plan. The problem with submitting a subcontracting plan at the time of bid is that you have to list the bid amount and then the percentages in dollars of each one. On a bid like this, with subcontractors and all, probably are going to be the last minute getting your final dollar value, which makes it a little difficult. I would request that the low bidder be allowed maybe two days or just some minimal time, even one day, so you can get it from the low bidder at that time.

A 40. The Pre-Award Information shall include the information that is specified in 52.1-4007 Paragraphs (a),(b),(c)(Note (c) is required only if the contractor does not have a contract with the Galveston District in this Fiscal Year 2003), (d), (e), and (f). Note the Subcontracting Plan must be submitted within two (2) days after bid opening.

Q 41. The other question I have is regarding the jetty construction. We're somewhat confused in our own mind how these jetties are going to be constructed because of the criteria and the dredging being done after the jetty construction and the template of the

jetty. Could we maybe pick the technical team's minds as far as how they envision the jetties to be built?

A 41. It has been envisioned that material will be transported to the site by barge. A bench for both jetties has been included as part of the jetties, which may be used for barge access because it goes to a depth of -6.0 mllw. The material from the mechanical excavation of this area may be placed in the channel template. Later, it may be transported to the placement area during the dredging of Reach 1. This amount of material has been incorporated in the dredging volume for Reach 1. A specific permit is not required to perform these activities.

Trucks may be used for the transport of material. The SH361 bridge is designed and constructed for HS20 vehicles.

Q 42: Can consideration be given to adding additional plant species to the placement area one and placement area three sites, given that the dominant species growing now and that are already present far exceed the species that are specified to be planted? Given the large number of plants involved, we're looking in excess of 100,000 plants, which seems like it would be advantageous to take advantage of the large quantity of plants that are already growing there and are used to this environment. So I'd just like to request, you know, maybe additional three or four species be added to the list.

A 42: We have considered your request but we will not be modifying the plant species.

Q 43: Just one other question, and that is, what is the deadline going to be for any additional questions after this meeting is concluded?

A 43: Questions will be accepted and addressed in an appropriate manner. The bid date will not be modified to accommodate further questions.

Q 44: The gentleman for URS kind of reminded me of a question that I had. On the dredging section 2482-9, on your volume tables and calculations, you have volume calculations for - On Page 2482-9, you have volume calculations for your mechanical dredging wet and mechanical dredging land. You have the option to put that material within the template of the dredge cut. Is that -- are those volumes also included in the hydraulic dredging reach one?

A 44. Yes, that's correct.

Q 45: The requirement for electronic positioning equipment, is that going to be a requirement for every piece of dredging equipment water based that may be involved on this project? Will the requirement for electronic positioning be required for all types of dredging, water-based dredging on this operation?

A 45: Electronic positioning will be required for all hydraulic dredging.

Q 46 Are there funds available for this project? We've been hearing these horror stories from all over.

A 46. This project, just like all our other projects that cover more than one fiscal year, are susceptible to funding by Congress. You have clauses in your contract that covers it, notification if you're going to exhaust funds, or we have notification if we don't get funded. So this is not any different than any other multi-fiscal year contract. We are susceptible to whether Congress appropriates funds or not and how quickly from October they appropriate them.

Q 47: There is a piece in here that says when more than one dredge is being used, it can't be closer than three nautical miles. The project is just barely three miles long. Can you use two dredges in the project?

A 47: The restriction will be removed from the specification. An amendment will be issued to address this item.

Q 48: It's my understanding that 300 milligrams per liter effluent requirement is fairly new. Are there any Corps jobs that are being executed or that have been executed that included that 300 milligrams per liter requirement?

A 48: This is the first Federal project. There's a lot of private permits that have to comply with this requirement, but this is the first Federal project.

Q 48: Have you-all executed any hydraulic dredging on those private permits that had this requirement and Achieved those goals?

A 48: We don't have knowledge of the private permits. The regulatory folks, or the state, may have knowledge of this. It's their condition, so they would be responsible for monitoring it.

Q 49 I'm referring to a question that was noted by Mr. Bill Shaw about the flotation requirements for the rock jetty. I missed the answer given to that question, if you could repeat it?

A 49. See response to Question 41.

Q 50. And that bench area that you're noting is specified down to a minus six elevation? Is that the bench you're talking about?

A 50. Correct. Minus six mean lower low water level is the elevation of the bench.

CORPUS CHRISTI, TEXAS
NORTH PADRE ISLAND

STORM DAMAGE REDUCTION AND ENVIRONMENTAL
RESTORATION PROJECT

SIGN-IN PAGE

Name

Company

<u>Name</u>	<u>Company</u>
DAVID BROWN	CORPS OF ENGINEERS
Raymond Van Antwerp	King Fisher Marine
DAVID A. GUILLOT	KING FISHER MARINE
Tim McAlester	McAlester Con.
MIKE MAYEUX	MANSON GULF LLC
Felix Ocasas	City of Corpus Christi
Joe F. TREJO	City of Corpus Christi
JOHN L. McMANUS	CORPS OF ENGINEERS
CARL M. ANDERSON	CORPS OF ENGINEERS
MARK MAZUCH	URS
Mike DIAZ	Corps of Engineers
Richard Schrank	Corps of Engineers
CARLOS TATE	CORPS OF ENGINEERS
MICHAEL BERRY	TEXAS DOCK & RAIL
Wm. B. RICHOLSON	ERCON COOPERATIVE
BRIAN FRUEGER	APACHE ECOLOGICAL SERV.
Matthew Brown	SSG
Jeremy Glasgow	SSG
Michael Lühr	LUHR BROS INC.
Bill Shaw	Luhr Bros, Inc.
JACK W SEWARD	LUHR BROS INC
CHRIS AMEIKA	GREAT LAKES DREDGE
Tim LaQuay	T.W. LaQuay Dredging
Linda LaQuay	T.W. LaQuay Dredging
AL MCCULLOUGH	SACHRY CORP.
Leslie Cross	JAVELER CONST
JOHN WILSON SR	WILCO INC
TIMMY AFFOLTER	AFFOLTER CON LTD
CHUCK BRASSARD	WEEKS MARINE INC.
Terry Bautista	Corps of Engineers
Rob Hauch	Corps of Engineers
Mike Castelli	Corps of Engineers

CORPUS CHRISTI, TEXAS
NORTH PADRE ISLAND

STORM DAMAGE REDUCTION AND ENVIRONMENTAL
RESTORATION PROJECT

SIGN-IN PAGE

<u>Name</u>	<u>Company</u>
Terry Roberts	COE
J. S. Martini	COE
DAVID ESPERANZA	WEEKS MARINE
Steve Stufflebame	Weeks Marine
JERRY DEVILLE	WEEKS MARINE
GARY A. REED	CCC GROUP, INC.
J.C. CARTER JR.	FIVE STAR DREDGING
Alan Petty	COE
Eligio GARZA JR	COE-SAO
David Montgomery	COE- REC -E
Travis Poluchinsky	COE-Contracting
CURTIS COLE JR	COE

INVITATION NO. DACW64-03-B-0025

**CORPUS CHRISTI, TEXAS
NORTH PADRE ISLAND**

PROJECT MANUAL

FOR

**STORM DAMAGE REDUCTION AND
ENVIRONMENTAL RESTORATION PROJECT**

MAY 2003



**DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS**

(To Accompany Amendment No. 0003 to Invitation No. DACW64-03-B-0025)

**CORPUS CHRISTI, TEXAS,
NORTH PADRE ISLAND, STORM
DAMAGE REDUCTION AND
ENVIRONMENTAL RESTORATION
PROJECT**

**BIDDING SCHEDULE
(TO BE ATTACHED TO STANDARD FORM 1442)**

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
<u>SCHEDULE NO. 1</u>					
0001	Environmental Protection/ EPA Storm Water Pollution Protection Plan	1	L.S.	\$ _____	\$ _____
0002	Demolition and Removal	1	L.S.	\$ _____	\$ _____
0003	Utility Casing Installation	1,156	L.F.	\$ _____	\$ _____
0004	Sand Bypassing Casing Installation	840	L.F.	\$ _____	\$ _____
0005	Clearing, Grubbing, and Removal of Debris and Vegetation	1	L.S.	\$ _____	\$ _____
0006	Required Excavation for PA1	40,800	C.Y.	\$ _____	\$ _____
0007	Mechanically-Constructed Exterior Levees	1	L.S.	\$ _____	\$ _____
0008	Mechanically-Constructed Interior Levees	1	L.S.	\$ _____	\$ _____
0009	Compacted Fill for PA2	59,300	C.Y.	\$ _____	\$ _____
0010	Compacted Fill for PA3	26,200	C.Y.	\$ _____	\$ _____

00010-1

(To Accompany Amendment No. 0003 to Invitation No. DACW64-03-B-0025)

INVITATION NO. DACW64-03-B-0025

**BIDDING SCHEDULE (CONT'D)
(TO BE ATTACHED TO STANDARD FORM 1442)**

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
<u>SCHEDULE NO. 1 (CONT'D)</u>					
0011	Dune Construction	5,800	C.Y.	\$ _____	\$ _____
0012	Hydraulically-Constructed Levees	4,360	L.F.	\$ _____	\$ _____
0013	Final Grading for PA1	1	L.S.	\$ _____	\$ _____
0014	Beach Fill for PA4	1	L.S.	\$ _____	\$ _____
0015	Disposal of Unsatisfactory Material	70	C.Y.	\$ _____	\$ _____
0016	Storm Drainage System Installation	904	L.F.	\$ _____	\$ _____
0017	Bedding	70	C.Y.	\$ _____	\$ _____
0018	CCM-Type A	5,940	L.F.	\$ _____	\$ _____
0019	CCM -Type C	420	L.F.	\$ _____	\$ _____
0020	CCM -Type D	750	L.F.	\$ _____	\$ _____
0021	CCM -Type B1	2,025	L.F.	\$ _____	\$ _____
0022	CCM -Type B2	230	L.F.	\$ _____	\$ _____
0023	CCM -Type B3	450	L.F.	\$ _____	\$ _____
0024	Woven Geotextiles for Bridge Scour Protection	9,800	S.Y.	\$ _____	\$ _____

00010-2

(To Accompany Amendment No. 0003 to Invitation No. DACW64-03-B-0025)

INVITATION NO. DACW64-03-B-0025

**BIDDING SCHEDULE (CONT'D)
(TO BE ATTACHED TO STANDARD FORM 1442)**

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
<u>SCHEDULE NO. 1 (CONT'D)</u>					
0025	Cover Stone	57,500	TON	\$ _____	\$ _____
0026	1 to 3 Ton Stone	17,100	TON	\$ _____	\$ _____
0027	Core Stone	27,800	TON	\$ _____	\$ _____
0028	Blanket Stone	42,500	TON	\$ _____	\$ _____
0029	Filler Stone	9,500	TON	\$ _____	\$ _____
0030	Bridge Scour Protection- Riprap 1	3,150	TON	\$ _____	\$ _____
0031	Bridge Scour Protection- Riprap 2	12,750	TON	\$ _____	\$ _____
0032	Removal and Disposal of Existing Riprap	1	L.S.	\$ _____	\$ _____
0033	Mobilization and Demobilization	1	L.S.	\$ _____	\$ _____
0034	Dredging - Hydraulic, Reach 1	729,700	C.Y.	\$ _____	\$ _____
0035	Dredging - Hydraulic, Reach 2	125,200	C.Y.	\$ _____	\$ _____
0036	Dredging, Mechanical, Water	15,900	C.Y.	\$ _____	\$ _____
0037	Dredging, Mechanical, Land	99,300	C.Y.	\$ _____	\$ _____
0038	Pipelines, Reach 1	1	L.S.	\$ _____	\$ _____

00010-3

(To Accompany Amendment No. 0003 to Invitation No. DACW64-03-B-0025)

INVITATION NO. DACW64-03-B-0025

**BIDDING SCHEDULE (CONT'D)
(TO BE ATTACHED TO STANDARD FORM 1442)**

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
<u>SCHEDULE NO. 1 (CONT'D)</u>					
0039	Pipelines, Reach 2	1	L.S.	\$ _____	\$ _____
0040	Endangered Species Monitoring	1	L.S.	\$ _____	\$ _____
0041	Outfall Structure	1	L.S.	\$ _____	\$ _____
0042	Mulching	20.1	ACRE	\$ _____	\$ _____
0043	Fertilization	20.1	ACRE	\$ _____	\$ _____
0044	Planting	8.1	ACRE	\$ _____	\$ _____
0045	Jetty Walkway	4,508	L.F.	\$ _____	\$ _____
0046	Tremie Placed Concrete	1	L.S.	\$ _____	\$ _____
0047	Barrier Railing	4,744	L.F.	\$ _____	\$ _____
TOTAL SCHEDULE NO. 1					\$ _____

00010-4

(To Accompany Amendment No. 0003 to Invitation No. DACW64-03-B-0025)

BIDDING SCHEDULE (Cont'd)
(TO BE ATTACHED TO STANDARD FORM 1442)

1. ARITHMETIC DISCREPANCIES (JAN 1997) (EFARS 52.214-5000).

(a) For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of bidding schedule as submitted by the bidder:

- (1) Obviously misplaced decimal points will be corrected;
- (2) Discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected;
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the Government will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

2. MODIFICATIONS (CESWG). If a modification to a bid based on unit prices is submitted, which provides for a lump sum adjustment to the total estimated cost, the application of the lump sum adjustment of each unit price in the bid schedule must be stated. If it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the bid schedule.

3. SALES TAX EXEMPTION. If you intend seeking a sales tax exemption on this contract please contact the Comptroller of Public Accounts at 1 800-252-5555.

00010-5

(To Accompany Amendment No. 0003 to Invitation No. DACW64-03-B-0025)

SECTION TABLE OF CONTENTS

GENERAL REQUIREMENTS

SECTION 01121 - CONSTRUCTION SEQUENCE

PARAGRAPH	TITLE	PAGE NOS.
PART 1 - GENERAL		
1.1	SCOPE OF WORK	01121-01
1.2	SUBMITTALS	01121-01
1.3	LOCATION	01121-01
1.4	DEFINITIONS	01121-02
1.5	MEASUREMENT	01121-02
1.6	PAYMENT	01121-02
PART 2 - PRODUCTS (NOT APPLICABLE)		
PART 3 - EXECUTION		
3.1	GENERAL	01121-02
3.2	PLACEMENT AREA EARTHWORK	01121-03

SECTION 01121 - CONSTRUCTION SEQUENCE**PART 1 - GENERAL**

1.1 SCOPE OF WORK. This contract shall be executed in accordance with the criteria and general sequence specified herein. The sequence was developed, in part to minimize turbidity, to protect or minimize dredging, for material placement effort, and to protect areas of the Channel prior to connecting the Channel to the Gulf of Mexico. The Contracting Officer may consider changes to the sequence requested by the Contractor provided the changes accomplish the requirements specified and shown while meeting the sequencing criteria.

1.2 SUBMITTALS. The following shall be submitted in accordance with the SECTION entitled SUBMITTAL PROCEDURES.

1.2.1 SD-01 Data.

1.2.1.1 Construction Sequence Plan: GA. The Contractor shall submit an Overall Construction Sequence Plan outlining the construction sequence for the completion of this Contract 14 calendar days after receipt of Notice to Proceed. The Plan is to include the following as a minimum:

- (1) The phasing of demolition, clearing and grubbing, harvesting of plants, horizontal directional drilling of utility and sad bypass casings, bridge scour protection, jetties construction, PA1 construction and dredging of related channel reach, PA2 and PA3 construction, installation of shoreline armoring, dune construction, PA4 (Beach Fill) construction and dredging of related channel reach, and vegetation and mulching.
- (2) Estimated start and completion dates for each phase.
- (3) A complete list of plant and equipment to be used for each phase of work.

Specific Construction Plans for each individual phase is specified in their respective Sections.

1.3 LOCATION. This Project extends from the Gulf Intracoastal Waterway to the Gulf of Mexico and is located in the City of Corpus Christi, Nueces County, Texas. This Project is on a barrier island that experiences tropical storms and seasonal high tides. Localized flooding may occur during rain events and tidal conditions.

1.4 DEFINITIONS.

1.4.1 Jetties: The system of North and South Jetties that protect the Channel outlet from the Gulf wave action and help prevent sand from filling in the dredged Channel.

1.4.2 Bridge Scour Protection: The system comprised of riprap that protects the Channel bottom and side slopes in the bridge vicinity from scour.

1.4.3 Placement Area No. 1: This Placement Area, located south of the Channel, is a confined placement area located as shown. Levee construction and hydraulic fill combined with shaping and grading is used to bring the area to grade.

1.4.4 Placement Area No. 2: This Placement Area is located north of the Channel as shown. Compacted fill, mechanically placed is used to bring the area to grade.

1.4.5 Placement Area No. 3: This Placement Area, located south of the channel, as shown. Compacted fill, mechanically placed is used to bring the area to grade.

1.4.6 Beach Placement Area or Placement Area No. 4 is the Placement Area directly on the beach shoreline in front of the existing seawall as shown.

1.5 MEASUREMENT. The work specified herein shall not be measured for payment.

1.6 PAYMENT. No separate payment will be made for work specified herein and will be considered a subsidiary obligation of the Contractor, the cost of which will be included in the applicable contract price for the item to which the work pertains.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL. The following Table provides the general sequence of work and identifies activities that may be performed simultaneously by grouping them together. Specific construction consequences associated with activities are provided in the following paragraphs. The Contractor shall complete shoreline armoring and bridge scour protection before the Channel is open to the Gulf of Mexico.

Order of Work	Construction Activity
1	a. Demolition b. Clearing, grubbing and removal of debris c. Harvesting of plant material for revegetation d. Horizontal directional drilling of utility and sand bypass casings
2	a. Bridge scour protection b. Jetties construction c. Construction of PA1 including dredging of Reach 2 and installation of shoreline armoring d. Construction of Pa2 including storm drainage systems and shoreline and slope armoring e. Relocation of dunes f. Construction of PA3 including storm drainage systems and shoreline and slope armoring
3	a. Mechanical dredging of Reach 1
4	a. Hydraulic dredging of Reach 1 and placement on beach b. Vegetation of Dunes and PA1 and PA3

3.2 PLACEMENT AREA EARTHWORK. The filling of the Placement Areas shall utilize material dredged from the Packery Channel template as specified in the SECTION entitled DREDGING or from the required excavation of PA 1. The following general sequence for placing the material in these Areas is required.

3.2.1 Placement Area No. 1.

- (1) Excavate to required grade within the Placement Area.
- (2) Construct mechanically-constructed levees for Placement Area No. 1 from material within the Placement Area and install outfall structure.
- (3) Dredge Reach 2, Section 2 into PA1 and construct hydraulically-constructed levees. Discharge from the PA during this operation shall meet the discharge limits as specified. It shall be necessary to pond water within the PA by altering the discharge level at the outfall structure.
- (4) Dredge Reach 2, Section 1 into PA1. A significant portion of this section consists of fine grained material. Discharge from the PA during this operation shall meet the discharge limits as specified.

It shall be necessary to pond water within the PA by altering the discharge level at the outfall structure.

- (5) Ponded water shall be drained from the area and the outfall structure shall be removed. The area shall be shaped and graded to the final lines and grades as shown.
- (6) Cellular concrete mattresses (CCM) shall be installed for shoreline armoring.
- (7) Install vegetation and mulch.

3.2.2 Placement Area No. 2.

- (1) Mechanically construct the fill for Placement Area No. 2.
- (2) Install storm drainage system.
- (3) Grade the site to the required section.
- (4) Install CCM for shoreline and slope armoring.

3.2.3 Placement Area No. 3.

- (1) Mechanically construct the fill for Placement Area No. 3.
- (2) Install storm drainage system.
- (3) Grade the site to the required section.
- (4) Install CCM for shoreline and slope armoring.
- (5) Install vegetation and mulch.

3.2.4 Beach Placement Area No. 4. Beach placement shall consist of placing a specified dredge section per section of beach to create a uniform beach width throughout the beach area.

- (1) Dredge Reach 1 and discharge the material directly onto the beach as specified beginning at Station B70+00.
- (2) Place fill to the minimum bench width as shown between Station B70+00 to B80+00 and determine the angle of repose of the beach slope

- (3) Adjust the bench width based on the angle of repose and place fill to the adjusted bench width along the beach to the south. Terminate fill when dredging is completed.

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SECTION TABLE OF CONTENTS

GENERAL REQUIREMENTS

SECTION 01355 - ENVIRONMENTAL PROTECTION

PARAGRAPH	TITLE	PAGE NOS.
PART 1 - GENERAL		
1.1	SCOPE OF WORK.	01355-01
1.2	QUALITY CONTROL.	01355-01
1.3	SUBMITTALS	01355-01
1.4	SUBCONTRACTORS	01355-03
1.5	NOTIFICATION OF NON-COMPLIANCE	01355-03
1.6	PAYMENT.	01355-03
PART 2 - PRODUCTS (NOT APPLICABLE)		
PART 3 - EXECUTION		
3.1	PROTECTION OF ENVIRONMENTAL RESOURCES.	01355-04
3.2	PRESERVATION AND RECOVERY OF HISTORICAL, ARCHEOLOGICAL AND CULTURAL RESOURCES.	01355-07
3.3	PROTECTION OF WATER RESOURCES	01355-07
3.4	PROTECTION OF FISH AND WILDLIFE RESOURCES.	01355-08
3.5	PROTECTION OF AIR RESOURCES.	01355-08
3.6	PROTECTION FROM SOUND INTRUSIONS	01355-09
3.7	POST CONSTRUCTION CLEAN-UP	01355-09
3.8	RESTORATION OF LANDSCAPE DAMAGE.	01355-09
3.9	MAINTENANCE OF POLLUTION CONTROL FACILITIES.	01355-09
3.10	POLLUTION PREVENTION PLAN.	01355-09
3.11	INSPECTION REPORT FORM	01355-09

SECTION TABLE OF CONTENTS (CONT'D)

<u>PARAGRAPH</u>	<u>TITLE</u>	<u>PAGE NOS.</u>
3.12	TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL	01355-10

ATTACHMENTS

A	STORM WATER POLLUTION PREVENTION PLAN.	A-1 - A-4
B	INSPECTION AND MAINTENANCE REPORT	B-1 - B-5
C	POLLUTION PREVENTION PLAN CERTIFICATION	C-1
D	EPA NOTICE OF INTENT (NOI)	D-1 - D-2

SECTION 01355 - ENVIRONMENTAL PROTECTION**PART 1 - GENERAL**

1.1 SCOPE OF WORK. This Section covers prevention of environmental pollution and damage as the result of construction operations under this contract and for those measures set forth in other Sections of these specifications. For the purpose of this specification, environmental pollution and damage 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; affect other species of importance to human life; or degrade the balance of the environment. The control of environmental pollution and damage requires consideration of air, water, and land elements; and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials; as well as other pollutants.

1.2 QUALITY CONTROL. The Contractor shall establish and maintain Quality Control for environmental protection of the items set forth herein. The Contractor shall record on daily reports problems in complying with laws, regulations, and ordinances, and the corrective action taken.

1.3 SUBMITTALS. The Contractor shall submit two (2) sets of the Environmental Protection Plan, including the Contractor's Storm Water Pollution Prevention Plan, 21 days after receipt of the Notice to Proceed in accordance with provisions as herein specified. The Contractor shall allow 21 working days for Government approval.

1.3.1 Environmental Protection Plan shall include but not be limited to the following:

- (1) A list of Federal, State and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits. For project sites greater than 5 acres in size, including other project phases, temporary access roads, trailer sites, storage areas, and other disturbed areas associated with construction activities, this submittal shall include a copy of the Contractor's Storm Water Pollution Prevention Plan as prepared prior to submitting Notice of Intent for a General Permit for Storm Water Discharges as administered by the Environmental Protection Agency (EPA).

- (2) Methods for Protection of Features to be preserved within authorized work areas. The Contractor shall prepare a listing of methods to protect resources needing protection, such as, trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archeological, and cultural resources.
- (3) Procedures to be Implemented to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes or failure to follow the procedures set out in accordance with the Environmental Protection Plan.
- (4) Permit or License and the Location of the solid waste disposal area.
- (5) Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.
- (6) Traffic Control Plans, including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. The Plan shall include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.
- (7) Work Area Plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan shall include measures for marking the limits of use areas, including methods to protect features to be preserved.
- (8) Method of Marking and Maintaining Markings for limits of clearing.
- (9) Method for Controlling Equipment Maneuver to avoid environmental damage.
- (10) Training and Control of Contractor Personnel for environment protection.
- (11) Prevention and Control of Damaging Spillages.
- (12) Methods for Layout of Work Areas, Plant Sites, Haul Roads, Borrow and Waste Areas.
- (13) Methods and Location of Disposal of Waste and Debris.

- (14) Erosion and Sediment Control Plan that identifies the type and location of the erosion and sediment controls to be provided. The Plan shall include monitoring and reporting requirements to assure that the control measures are in compliance with the Erosion and Sediment Plan, Federal, State, and local laws and regulations. The controls shall be identified on the Contractor's Storm Water Pollution Prevention Plan.

1.3.2 Certification and Environmental Protection Agency Notices. The Contractor's Environmental Protection Plan, including the Storm Water Pollution Prevention Plan, shall be approved in writing by the Contracting Officer prior to commencement of work. Upon approval the Contracting Officer, Contractor, and subcontractors will sign the Pollution Prevention Plan Certification, (Attachment C). The Contractor shall submit a Notice Of Intent (NOI) (Attachment D-1) to be attached and submitted with the Government's NOI. The Government will be responsible for filing a NOI and Notice of Termination for the contract. Construction shall not commence until at least 48 hours after the Government has filed a NOI with the Environmental Protection Agency (EPA). Approval of the Contractor's Plan will not relieve the Contractor of the responsibility for adequate and continuing control of Pollutants and other environmental protection measures.

1.3.3 Changing the Plan. When there are changes in design, construction, operation, or maintenance and the change has a significant effect on the potential for discharging pollutants, the Storm Water Pollution Prevention Plan shall be modified by the Contractor and subcontractors and shall be resubmitted for approval. Minor changes made as a result of weekly inspections will not require resubmittal.

1.4 SUBCONTRACTORS. Assurance of compliance with this Section by subcontractors will be the responsibility of the Contractor.

1.5 NOTIFICATION OF NON-COMPLIANCE. The Contracting Officer will notify the Contractor in writing of observed non-compliances with the aforementioned Federal, State, or local laws or regulations, permits and other elements of the Contractor's Environmental Protection Plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for such suspension.

1.6 PAYMENT. No separate payment or direct payment will be made for the cost of the work covered under this Section and the cost in connection therewith shall be included in the contract lump sum price for "Environmental Protection/EPA Storm Water Pollution Prevention Plan."

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PROTECTION OF ENVIRONMENTAL RESOURCES. The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine its activities to areas defined by the drawings and specifications. Environmental protection shall be as stated in the following subparagraphs.

3.1.1 Protection of Land Resources. Prior to the beginning of construction, the Contractor shall identify the land resources to be preserved within the Contractor's work area. The Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without special permission from the Contracting Officer. Ropes, cables, or guys shall not be fastened to or attached to trees for anchorage unless specifically authorized. Where such special emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources as defined in the following subparagraphs.

3.1.1.1 Work Area Limits. Prior to construction the Contractor shall mark the areas that are not required to accomplish work to be performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor shall convey to its personnel the purpose of marking and protection of the necessary objects.

3.1.1.2 Reduction of Exposure of Unprotected Erodible Soils. Earthwork brought to final grade shall be finished as indicated and specified. Unless otherwise approved, the Contractor shall stabilize side slopes, back slopes and other exposed soil within 14 days after construction activity on a particular portion of the site has temporarily or permanently ceased. Stabilization may be achieved with seeding, mulching, geotextiles, vegetative buffer strips or a combination of these methods. Vegetative buffer strips shall be maintained at a minimum width of 15-feet. Bare areas or areas incapable of trapping sediment within the buffer strip shall be temporarily seeded. Earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in instances where the constructed feature obscures borrow areas, quarries and waste material areas, these areas shall not initially be cleared in total. Stabilization methods may be temporary or permanent.

3.1.1.3 Temporary Protection of Disturbed Areas. The Contractor shall install storm water controls before soil disturbing activities occur to effectively prevent erosion and to control sedimentation. These controls include, but are not limited to the following:

- (1) Retardation and Control of Runoff. Runoff from the construction site shall be controlled by construction of diversion ditches, benches, and berms to retard and divert runoff to protected

drainage courses, and measures required by area-wide plans approved under paragraph 208 of the Clean Water Act.

- (2) Sediment Basins. Sediment from construction areas shall be trapped in temporary sediment basins. The basins shall accommodate the runoff of a local 2-year, 24-hour storm. After each storm the basins shall be pumped dry and accumulated sediment shall be removed as necessary to maintain basin effectiveness. Overflow shall be controlled by paved weir or by vertical overflow pipe, draining from the surface.

3.1.1.4 Erosion and Sedimentation Control Measures. The Contractor shall be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The erosion and sediment controls selected and maintained by the Contractor shall ensure that water quality standards are not violated as a result of the Contractor's construction activities. The area of bare soil exposed by construction operations during this contract shall be kept to a minimum. The Contractor shall construct or install temporary and permanent erosion and sediment control best management practices. These best management practices may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. Temporary measures shall be removed after the area has been stabilized.

3.1.1.5 Location of Field Offices, Storage, and Other Contractor Facilities. The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas approved. Temporary movement or relocation of Contractor facilities shall be made only on approval.

3.1.2 Temporary Excavations and Embankments for plant or work areas shall be controlled to protect adjacent areas from despoilment.

3.1.3 Disposal of Solid Wastes. Solid wastes, excluding clearing debris, shall be placed in containers which are emptied on a regular schedule. Handling and disposal shall be conducted to prevent contamination.

3.1.4 Disposal of Discarded Materials. Discarded materials, other than those which can be included in the solid waste category, will be handled as directed by the Contracting Officer.

3.1.5 Sanitation Facilities. The Contractor shall provide and operate sanitation facilities that will adequately treat or dispose sanitary wastes in conformance with Federal, State, and local health regulations.

3.2 PRESERVATION AND RECOVERY OF HISTORICAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES. Existing historical, archeological, and cultural resources within the Contractor's work area will be so designated by the Contracting Officer and precautions taken to preserve such resources as they existed at the time

they were pointed out to the Contractor. If during the excavation and disposal activities the Contractor encounters archeological sites or shipwrecks of historical or archeological value, work shall cease immediately pursuant to the CONTRACT CLAUSE entitled SUSPENSION OF WORK and the Contracting Officer shall be notified by the fastest available method. After investigation by the Contracting Officer, the Contractor will be instructed on the procedures to follow and if an unreasonable delay is incurred or the work is changed, the contract will be modified accordingly.

3.3 PROTECTION OF WATER RESOURCES. The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Special management techniques, as set out below, shall be implemented to control water pollution by the listed construction activities which are included in this contract. For project sites greater than 5 acres in size, the Contractor shall develop a detailed Storm Water Pollution Prevention Plan for Storm Water Discharges as required for an National Pollutant Discharge Elimination System General Permit administered by the Environmental Protection Agency. The Contractor's detailed Pollution Prevention Plan shall be developed within the guidelines of the basic Pollution Protection Plan provided as Attachment A to this Section of the specifications.

3.3.1 Washing and Curing Water. Waste waters directly derived from fill material processing, aggregate processing, concrete curing, foundation and concrete lift cleanup, and any other source in the construction activities shall not be allowed to enter water areas. These waste waters shall be collected and placed in retention ponds where suspended material can be settled out or the water evaporates so that pollutants are separated from the water.

3.3.2 Cofferdam and Diversion Operations. The Contractor shall plan its operation and perform the work necessary to minimize adverse impact or violation of the water quality standard for the Water Areas affected by this contract. Construction operations for dewatering and removal of cofferdams shall be controlled at all times to limit the impact of water turbidity on the habitat for wildlife and impacts on water quality for downstream use.

3.3.3 Stream Crossings shall be controlled during construction. Crossings shall provide movement of materials or equipment that do not violate water pollution control standards of the Federal, State, or local government. Stream crossings shall be within straight portions of the Channel to minimize erosion and locations shall be approved prior to installation.

3.3.4 Monitoring of Water Areas Affected by Construction Activities shall be the responsibility of the Contractor. Water areas affected by construction activities shall be monitored by the Contractor.

3.3.5 Inspection of Pollution Control Activities. For construction sites greater than 5 acres in size and covered by a General Permit for Storm Water Discharges, the Contractor's quality control organization shall inspect pollution control structures and activities a minimum of once every 7 calendar days and within 24 hours after a storm event of greater than 0.5-inch. Attachment B is a sample inspection report form. An

inspection report for each inspection shall be retained on site by the Contractor. In addition, the Contractor shall furnish a copy of each report to the Contracting Officer. When the inspection reveals inadequacies, the pollution prevention measures in the Contractor's Pollution Prevention Plan must be revised and changes implemented within 7 days after the inspection.

3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES. The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection will be listed by the Contractor prior to beginning of construction operations.

3.5 PROTECTION OF AIR RESOURCES. The Contractor shall keep construction activities under surveillance, management, and control to minimize pollution of air resources. Activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the State of Texas Clean Air Act implemented in 1967, and the Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency shall be maintained for the construction operations and activities specified in this Section. Special management techniques as set out below shall be implemented to control air pollution by the construction activities included in the contract.

3.5.1 Particulates. Dust particles, aerosols, and gaseous byproducts from construction activities, processing and preparation of materials, such as from asphaltic batch plants, shall be constantly controlled, including weekends, holidays, and hours when work is not in progress.

3.5.1.1 Particulates Control. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, waste areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which may cause the air pollution standards mentioned in Subparagraph: Protection of Air Resources above, to be exceeded or which may cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, shall be repeated at such intervals as to keep the disturbed area damp. The Contractor shall have sufficient competent equipment available to accomplish this task. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

3.5.2 Hydrocarbons and Carbon Monoxide emissions from equipment shall be controlled to Federal and State allowable limits.

3.5.3 Odors shall be continually controlled for construction activities, processing, and preparation of materials.

3.5.4 Monitoring of Air Quality shall be the responsibility of the Contractor. Air areas affected by the construction activities shall be monitored by the Contractor.

3.6 PROTECTION FROM SOUND INTRUSIONS. The Contractor shall keep construction activities under surveillance and control to minimize damage to the environment by noise.

3.7 POST CONSTRUCTION CLEAN-UP. The Contractor shall clean areas used for construction.

3.8 RESTORATION OF LANDSCAPE DAMAGE. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work areas. This restoration shall be in accordance with the Plan submitted for approval and the work will be accomplished at the Contractor's expense.

3.8.1 Damaged Areas of vegetation and topsoil shall be restored by the Contractor. Damaged topsoil shall be repaired to obliterate scars and prevent erosion by hauling in approved topsoil, and hand-spading and hand-raking it level with the undisturbed topsoil.

3.9 MAINTENANCE OF POLLUTION CONTROL FACILITIES. During the life of this contract, the Contractor shall maintain permanent and temporary facilities constructed for pollution control under this contract as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created. For construction sites greater than 5 acres in size and covered by a General Permit for Storm Water Discharges, the Contractor's Quality Control organization shall inspect pollution control structures and activities a minimum of once every 7 calendar days and within 24 hours after a storm event greater than 0.5 inch.

3.10 POLLUTION PREVENTION PLAN. Attachment A to this Section outlines basic requirements for the development of a detailed Pollution Prevention Plan. After the project has been awarded the Contractor shall develop a detailed Pollution Prevention Plan.

3.11 INSPECTION REPORT FORM. Attachment B to this Section is a sample Inspection Report Form. An inspection report for each inspection shall be retained on-site by the Contractor. In addition, the Contractor shall submit a copy of each report within 24 hours of the inspection as part of the Contractor's daily Contractor Quality Control Reports. When the inspection reveals inadequacies, the pollution prevention measures in the Contractor's Pollution Prevention Plan shall be revised and changes implemented within 7 calendar days after the inspection.

3.12 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL. The Contractor shall train its personnel in the phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of

facilities such as vegetative covers, and instruments required for monitoring purposes, to ensure adequate and continuous environmental pollution control.

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ATTACHMENT A

STORM WATER POLLUTION PREVENTION PLAN

1. SUMMARY

1.1 PROJECT DESCRIPTION. This project consists of demolition, clearing and grubbing, harvesting of plants, horizontal directional drilling of utility and sand bypass casings, bridge scour protection, jetties construction, PA1 construction and dredging of related channel reach, Placement Area No. 2 and Placement Area No. 3 construction, installation of shoreline armoring, dune construction, Placement Area No. 4 (Beach Fill) construction and dredging of related channel reach, and vegetation and mulching. Soil disturbing activities include clearing, grubbing, stripping, and levee construction. The site is approximately 45 acres of which 35 acres will be disturbed by construction activities.

1.2 STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES. The standard Industrial Classification Code for the project is 1629.

1.3 PROJECT NAME AND LOCATION. Corpus Christi, Texas, North Padre Island. The project extends from the Gulf Intracoastal Waterway to the Gulf of Mexico and is located in the City of Corpus Christi, Nueces County, Texas.

Latitude	Longitude
27°36'58"	97°12'35"

1.4 RECEIVING WATERS. The site drains into the Gulf Intracoastal Waterway, thence into Laguna Madre, thence into the Corpus Christi Bay, which flows into the Gulf of Mexico.

2 SITE DESCRIPTIONS.

2.1 EXISTING CONDITIONS. The existing area is currently sparsely vegetated with salt marsh and sand flat vegetation. No records of runoff water quality exist near the site. Land use of this area consists of residential, and recreational. Environmental investigations indicate there are no known potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges from the construction site.

2.2 FUTURE CONDITIONS. The proposed Channel will connect the Gulf Intracoastal Waterway to the Gulf of Mexico. Stone jetties will flank the North and South sides of the Channel at the connection to the Gulf. After spoil material has been deposited within the Placement Areas and dewatered, the sites shall be graded and sloped to drain, stone armoring shall be installed along the waters edge. The remaining portions of the Placement Areas will be planted with either marsh vegetation or mulched with native hay mulch.

2.3 CONSTRUCTION PHASING. As a minimum, the following list of construction activities, which shall not be construed as an order of work, shall be reflected by the Contractor when developing a construction-phasing plan for preparation of the Pollution Plan:

- (1) Demolition.
- (2) Clearing, grubbing, and removal of debris.
- (3) Harvesting of plant material for re-vegetation.
- (4) Horizontal directional drilling of utility and sand bypass casings.
- (5) Bridge scour protection.
- (6) Jetties construction.
- (7) Construction of PA 1 including dredging of Reach 2 and installation of shoreline armoring.
- (8) Construction of PA 2 including storm drainage systems and shoreline and slope armoring.
- (9) Relocation of dunes.
- (10) Construction of PA 3 including storm drainage systems and shoreline and slope armoring.
- (11) Mechanical dredging of Reach 1.
- (12) Hydraulic dredging of Reach 1 and placement on beach.
- (13) Vegetation of Dunes and PA1 and PA3.

2.4 SOIL DATA. The geology of the area and general soils over which the Corpus Christi, Texas North Padre Island Storm Damage Reduction and Environmental Restoration Project exists on the Mustang soil series, within the Lissie and Beaumont geological formation. From 0 to 6 inches the surface soil is a loose, single grained, brownish gray fine grain sand, with many fine roots and few shell fragments. The subsoil from 6 to 72 inches is a single grained, light gray fine sand with few fine faint yellowish brown iron coatings along the root challenge upper 20 inches.

2.5 SITE MAPS. One (1) drawing is included in this contract to allow the Contractor to develop a detailed Pollution Prevention Plan. The storm water controls, including pollution prevention details shown, are a minimum required for the development of a detailed Pollution Prevention Plan.

3. EROSION AND SEDIMENT CONTROLS.

3.1 TEMPORARY STABILIZATION. Temporary stabilization practices shall include:

- (1) Temporary sediment basins or traps.
- (2) Temporary seeding and mulching.
- (3) Temporary mulching.

3.2 PERMANENT STABILIZATION. Permanent stabilization practices shall include:

Grading of soil, plant installation, seeding, mulching, and fertilizing of planted areas.

3.3 STRUCTURAL CONTROLS. Structural controls shall include:

- (1) Filter Fabric.
- (2) Storm drain inlet protection.
- (3) Surface Roughening.
- (4) Drainage Swales.

4. STORM WATER MANAGEMENT CONTROLS. Upon completion of the project, planting marsh vegetation and mulching with native hay mulch will permanently stabilize Placement Areas PA1 and PA3.

5. BEST MANAGEMENT PRACTICES DURING CONSTRUCTION.

5.1 WASTE MATERIALS. Solid wastes, excluding clearing debris, shall be placed in containers which are emptied on a regular schedule. Handling and disposal shall be conducted to prevent contamination.

5.2 SANITARY WASTE. The Contractor shall provide and operate sanitation facilities that will adequately treat or dispose sanitary wastes to conform with Federal, State, and local health regulations.

5.3 OFF-SITE VEHICLE TRACKING. Stabilized construction entrances shall be provided by the Contractor at the construction site and disposal area to control tracking of soil. Paved streets adjacent to the construction site shall be swept daily, or more often as directed, to remove excess mud, dirt or rock from the site. Dump trucks hauling material from the construction site shall be covered with a tarpaulin.

6. TIMING OF CONTROLS AND ACTIVITIES. The Contractor shall schedule pollution prevention measures and construction activities to minimize erosion and sediment. Areas where construction activity ceases for more than 14 days will be immediately stabilized with temporary measures. Once construction activity ceases permanently in an area, that area will be stabilized with permanent turf.

7. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. The Contractor's Storm Water Pollution Prevention Plan shall be in accordance with Section 402(p) of the Clean Water Act and follow the guidance established for Pollution Prevention Plan preparation in EPA-832-R-005, "Storm Water Management Handbook for Construction Activities," latest Edition. The Pollution Prevention Plan shall also follow guidance established in the "Storm Water Management Handbook for Construction Activities," Final Draft, dated September 17, 1992, as prepared by Harris County, Harris County Flood Control District, and City of Houston, Storm Water Management Joint Task Force. A copy of both documents shall be maintained at the job site at all times.

8. MAINTENANCE AND INSPECTION PROCEDURES. Pollution prevention measures will be inspected by the Contractor's Quality Control organization at least once every 7 days and within 24-hours following a storm event of 0.50 inches or more. The inspector will thoroughly understand the requirements of the detailed Contractor Pollution Prevention Plan and have a basic knowledge of engineering aspects on controlling storm water and reducing runoff pollution. Temporary grading will be inspected for erosion and soil loss from the site. Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth. Discharge points will be inspected for signs of erosion or sediment associated with the discharge. Locations where vehicles enter and leave the site will be checked for signs of off-site sediment tracking. Best Management Practices and pollution control maintenance procedures will be inspected for adequacy. Deficiencies will be noted in the Inspection Report and corrections implemented within 7 calendar days. The Pollution Prevention Plan will be revised as necessary.

9. MATERIAL INVENTORY. The Contractor shall list materials or substances that will be present on-site during construction.

10. NON-STORM WATER DISCHARGES. Non-storm water discharges will not be allowed during construction of the project, except for emergency fire-fighting flows and other flows permitted in 57 CFR 175, 9 Sept. 92, referenced in paragraph 7.0. In addition, spill of hazardous substances or oil in excess of reporting quantities shall be reported as required under 40 CFR 110.

11. CONTRACTOR COMPLIANCE. After this project has been awarded, the Contractor shall develop a detailed Pollution Prevention Plan within the guidelines of this basic Pollution Prevention Plan. As the party in control of day-to-day operations at the construction site, the Contractor shall comply with the requirements of the EPA National Pollutant Discharge Elimination System (NPDES).

**U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT**

ATTACHMENT B

STORM WATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT

TO BE COMPLETED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT OF 0.5 INCHES OR MORE

INSPECTOR: _____ DATE _____

INSPECTOR'S QUALIFICATIONS:

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL: _____ INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBANCE	DATE OF NEXT DISTURBANCE	STABILIZED? (YES/NO)	STABILIZED WITH?	CONDITION

STABILIZATION REQUIRED:

TO BE PERFORMED BY: _____ ON OR BEFORE _____

**U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT**

**STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT**

STRUCTURAL CONTROLS - EARTH DIKE(S)

FROM	TO	IS DIKE STABILIZED?	IS THERE EVIDENCE OF WASH-OUT OR OVERTOPPING?
------	----	---------------------	---

MAINTENANCE REQUIRED FOR THE EARTH DIKE(S):

TO BE PERFORMED BY: _____ ON OR BEFORE _____

STRUCTURAL CONTROLS - SEDIMENT BASIN(S)

DEPTH OF SEDIMENT IN BASIN	CONDITION OF BASIN SIDE SLOPES	ANY EVIDENCE OF OVERTOPPING OF THE EMBANKMENT?	CONDITION OF OUTFALL FROM THE SEDIMENT BASIN?
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**U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT**

STORM WATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT

MAINTENANCE REQUIRED FOR SEDIMENT BASIN(S):

TO BE PERFORMED BY: _____ ON OR BEFORE _____

STRUCTURAL CONTROLS - SILT FENCE(S)

FROM	TO	IS THE BOTTOM OF THE FABRIC STILL BURIED?	IS THE FABRIC IN GOOD CONDITION?	HOW DEEP IS THE SEDIMENT?
<hr/>				

MAINTENANCE REQUIRED FOR THE SILT FENCE(S):

TO BE PERFORMED BY: _____ ON OR BEFORE _____

**U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT**

STORM WATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT

OTHER CONTROLS - STABILIZED CONSTRUCTION ENTRANCE

IS MUCH SEDIMENT TRACKED ONTO THE ROAD?	ARE DUST AND SEDIMENT CONTROL MEASURES WORKING?	DOES ALL TRAFFIC USE THE STABILIZED ENTRANCE TO THE SITE?	ARE ASSOCIATED DRAINAGE STRUCTURES WORKING?
---	--	--	--

MAINTENANCE REQUIRED FOR CONSTRUCTION ENTRANCE:

TO BE PERFORMED BY: _____ ON OR BEFORE _____

OTHER CONTROLS - DEVELOP SITE SPECIFIC TABLES AS NEEDED

FOR ALL STABILIZATION MEASURES, STRUCTURAL AND NON-STRUCTURAL CONTROLS

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

**U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT**

**STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT**

REASONS FOR CHANGES:

INSPECTOR'S SIGNATURE: _____ DATE _____

**U.S. ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT**

ATTACHMENT C

POLLUTION PREVENTION PLAN CERTIFICATION

I certify that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Signed: _____
Name _____
Title _____
Organization _____
Date _____

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Signature Company Name and Address Project Responsibility

Title _____
Organization: _____
Date _____

Title _____
Organization: _____
Date _____

Title _____
Organization: _____
Date _____

NPDES
FORM



United States Environmental Protection Agency
Washington, DC 20460

Notice of Intent (NOI) for Storm Water Discharges Associated with
CONSTRUCTION ACTIVITY Under a NPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a NPDES permit issued for storm water discharges associated with construction activity in the State/Indian Country Land identified in Section II of this form. Submission of this Notice of Intent also constitutes notice that the party identified in Section I of this form meets the eligibility requirements in Part I.B. of the general permit (including those related to protection of endangered species determined through the procedures in Addendum A of the general permit), understands that continued authorization to discharge is contingent on maintaining permit eligibility, and that implementation of the Storm Water Pollution Prevention Plan required under Part IV of the general permit will begin at the time the permittee commences work on the construction project identified in Section II below. IN ORDER TO OBTAIN AUTHORIZATION, ALL INFORMATION REQUESTED MUST BE INCLUDED ON THIS FORM. SEE INSTRUCTIONS ON BACK OF FORM.

I. Owner/Operator (Applicant) Information

Name: _____ Phone: _____
Address: _____ Status of Owner/Operator:
City: _____ State: ____ Zip Code: _____

II. Project/Site Information

Project Name: _____ Is the facility located on Indian Country Lands? Yes No
Project Address/Location: _____
City: _____ State: ____ Zip Code: _____
Latitude: _____ Longitude: _____ County: _____
Has the Storm Water Pollution Prevention Plan (SWPPP) been prepared? Yes No

Optional: Address of location of SWPPP for viewing Address in Section I above Address in Section II above Other address (if known) below:

SWPPP Address: _____ Phone: _____
City: _____ State: ____ Zip Code: _____
Name of Receiving Water: _____

Month Day Year Month Day Year
Estimated Construction Start Date Estimated Completion Date

Estimate of area to be disturbed (to nearest acre): _____

- Estimate of Likelihood of Discharge (choose only one):
- 1. Unlikely
 - 2. Once per month
 - 3. Once per week
 - 4. Once per day
 - 5. Continual

Based on instruction provided in Addendum A of the permit, are there any listed endangered or threatened species, or designated critical habitat in the project area?

Yes No

I have satisfied permit eligibility with regard to protection of endangered species through the indicated section of Part I.B.3.e.(2) of the permit (check one or more boxes):

(a) (b) (c) (d)

III. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: _____ Date: _____
Signature: _____



**Notice of Intent (NOI) for Storm Water Discharges Associated with
Construction Activity to be Covered Under a NPDES Permit**

Who Must File a Notice of Intent Form

Under the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et seq.; the Act), except as provided by Part I.B.3 the permit, Federal law prohibits discharges of pollutants in storm water from construction activities without a National Pollutant Discharge Elimination System Permit. Operator(s) of construction sites where 5 or more acres are disturbed, smaller sites that are part of a larger common plan of development or sale where there is a cumulative disturbance of at least 5 acres, or any site designated by the Director, must submit an NOI to obtain coverage under an NPDES Storm Water Construction General Permit. If you have questions about whether you need a permit under the NPDES Storm Water program, or if you need information as to whether a particular program is administered by EPA or a State agency, write to or telephone the Notice of Intent Processing Center at (703) 931-3230.

Where to File NOI Form

NOIs must be sent to the following address:

Storm Water Notice of Intent (4203)
USEPA
401 M. Street, SW
Washington, D.C. 20460

Do not send Storm Water Pollution Prevention Plans (SWPPPs) to the above address. For overnight/express delivery of NOIs, please include the room number 2104 Northeast Mail and phone number (202) 260-9541 in the address.

When to File

This form must be filed at least 48 hours before construction begins.

Completing the Form

OBTAIN AND READ A COPY OF THE APPROPRIATE EPA STORM WATER CONSTRUCTION GENERAL PERMIT FOR YOUR AREA. To complete this form, type or print, using uppercase letters, in the appropriate areas only. Please place each character between the marks (abbreviate if necessary to stay within the number of characters allowed for each item). Use one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response. If you have any questions on this form, call the Notice of Intent Processing Center at (703) 931-3230.

Section I. Facility Owner/Operator (Applicant) Information

Provide the legal name, mailing address, and telephone number of the person, firm, public organization, or any other entity that meet either of the following two criteria: (1) they have operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or (2) they have the day-to-day operational control of those activities at the project necessary to ensure compliance with SWPPP requirements or other permit conditions. Each person that meets either of these criteria must file this form. Do not use a colloquial name. Correspondence for the permit will be sent to this address.

Enter the appropriate letter to indicate the legal status of the owner/operator of the project: F = Federal; S = State; M = Public (other than federal or state); P = Private.

Section II. Project/Site Information

Enter the official or legal name and complete street address, including city, county, state, zip code, and phone number of the project or site. If it lacks a street address, indicate with a general statement the location of the site (e.g., intersection of State Highways 61 and 34). Complete site information must be provided for permit coverage to be granted.

The applicant must also provide the latitude and longitude of the facility in degrees, minutes, and seconds to the nearest 15 seconds. The latitude and longitude of your facility can be located on USGS quadrangle maps. Quadrangle maps can be obtained by calling 1-800 USA MAPS. Longitude and latitude may also be obtained at the Census Bureau Internet site: <http://www.census.gov/cgi-bin/gazetteer>.

Latitude and longitude for a facility in decimal form must be converted to degrees, minutes and seconds for proper entry on the NOI form. To convert decimal latitude or longitude to degrees, minutes, and seconds, follow the steps in the following example.

Convert decimal latitude 45.1234567 to degrees, minutes, and seconds

- 1) The numbers to the left of the decimal point are degrees.
- 2) To obtain minutes, multiply the first four numbers to the right of the decimal point by 0.006. $1234 \times .006 = 7.404$.
- 3) The numbers to the left of the decimal point in the result obtained in step 2 are the minutes: 7.
- 4) To obtain seconds, multiply the remaining three numbers to the right of the decimal from the result in step 2 by 0.06: $404 \times 0.06 = 24.24$. Since the numbers to the right of the decimal point are not used, the result is 24".
- 5) The conversion for 45.1234 = 45° 7' 24".

Indicate whether the project is on Indian Country Lands.

Indicate if the Storm Water Pollution Prevention Plan (SWPPP) has been developed. Refer to Part IV of the general permit for information on SWPPPs. To be eligible for coverage, a SWPPP must have been prepared.

Optional: Provide the address and phone number where the SWPPP can be viewed if different from addresses previously given. Check appropriate box.

Enter the name of the closest water body which receives the project's construction storm water discharge.

Enter the estimated construction start and completion dates using four digits for the year (i.e. 05/27/1998).

Enter the estimated area to be disturbed including but not limited to grubbing, excavation, grading, and utilities and infrastructure installation. Indicate to the nearest acre; if less than 1 acre, enter "1." Note: 1 acre = 43,560 sq. ft.

Indicate your best estimate of the likelihood of storm water discharges from the project. EPA recognizes that actual discharges may differ from this estimate due to unforeseen or chance circumstances.

Indicate if there are any listed endangered or threatened species, or designated critical habitat in the project area.

Indicate which Part of the permit that the applicant is eligible with regard to protection of endangered or threatened species, or designated critical habitat.

Section III. Certification

Federal Statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner of the proprietor, or

For a municipality, state, federal, or other public facility: by either a principal executive or ranking elected official. An unsigned or undated NOI form will not be granted permit coverage.

Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 3.7 hours. This estimate includes time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Director, OPPE Regulatory Information Division (2137), U.S. Environmental Protection Agency, 401 M Street, SW, Washington, D.C. 20460. Include the OMB control number on any correspondence. Do not send the completed form to this address.

SECTION TABLE OF CONTENTS**SITE WORK****SECTION 02384 - STONE PROTECTION**

PARAGRAPH	TITLE	PAGE NOS.
PART 1 - GENERAL		
1.1	SCOPE OF WORK	02384-01
1.2	RIGHTS-OF-WAY AND ACCESS TO WORK SITE	02384-01
1.3	REFERENCES.	02384-01
1.4	SUBMITTALS	02384-02
1.5	STORAGE OF CONSTRUCTION MATERIALS	02384-03
1.6	MEASUREMENT.	02384-03
1.7	REMEASUREMENT.	02384-05
1.8	PAYMENT.	02384-05
PART 2 - PRODUCTS		
2.1	MATERIALS.	02384-06
2.2	STONE SOURCES	02384-06
2.3	QUALITY COMPLIANCE TESTING	02384-07
2.4	STONE SIZE	02384-07
2.5	STONE QUALITY	02384-08
2.6	STONE ACCEPTANCE	02384-10
2.7	REJECTED STONE	02384-10
2.8	PERIODIC TESTING	02384-10
PART 3 - EXECUTION		
3.1	GENERAL	02384-11
3.2	TOLERANCES	02384-11
3.3	MISPLACED MATERIAL	02384-11
3.4	MISPLACED EQUIPMENT	02384-11
3.5	JETTY STONE PLACEMENT	02384-11
3.6	REMOVAL AND DISPOSAL OF EXISTING RIPRAP	02384-13
3.7	DISPOSITION OF EXISTING RIPRAP	02384-13
3.8	RIPRAP PLACEMENT	02384-13
3.9	CONTRACTOR QUALITY CONTROL.	02384-13

SECTION 02384 - STONE PROTECTION**PART 1 - GENERAL**

1.1 SCOPE OF WORK. The work covered in this Section consists of providing stone for jetty construction, and bridge scour protection and the removal of existing riprap associated with the bridge scour protection.

1.2 RIGHTS-OF-WAY AND ACCESS TO WORK SITE. Rights-of-way for the required construction will be furnished without cost to the Contractor. The construction site can be accessed by either land or waterborne transport.

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

American Society for Testing and Materials (ASTM) Publications.

C 88-99A	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C 97-02	Absorption and Bulk Specific Gravity of Dimension Stone
C 127-01	Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
C 131-01	Resistance to degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C 136-01	Sieve Analysis of Fine and Coarse Aggregates
C 170-90 (R 1999)	Compressive Strength of Dimension Stone
C 295-98	Petrographic Examination of Aggregate for Concrete
C 535-01	Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

D 75-97	Sampling Aggregates
D 1141-98 (E 1999)	Substitute Ocean Water
D 5313-92 (R 1997)	Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions.

1.4 SUBMITTALS. The following shall be submitted to the Contracting Officer in accordance with the SECTION entitled SUBMITTAL PROCEDURES:

1.4.1 SD-01 Data.

1.4.1.1 Equipment List: FIO. A list of the major pieces of equipment that are to be used for performing the stone work shall be submitted.

1.4.1.2 Stone Source Documentation: GA. Stone source documentation shall be submitted a minimum of 60 days before the stone is required in the work.

1.4.1.3 Contractor Quality Control Plan: GA. The Contractor shall submit a Quality Control Plan prior to construction detailing the requirements specified herein.

1.4.2 SD-04 Drawings.

1.4.2.1 Equipment Layout: GA. The Contractor shall submit shop drawings of the floating equipment showing access locations and sizes prior to construction.

1.4.3 SD-07 Schedules.

1.4.3.1 Stone Work Plan and Schedule: FIO. The Contractor shall submit a stone plan and schedule that describes the equipment, quarry operations, loading and unloading, transportation, placement methods, and sequences planned to be used in stone placement. This plan and schedule shall be submitted prior to shipment of the stone. The schedule shall be updated monthly to reflect the work completed and a schedule for work yet remaining. The Contractor shall not commence stone work until the plan and schedule have been reviewed and incorporated into the overall construction and progress schedule.

1.4.4 SD-09 Reports.

1.4.4.1 Concrete Slope Pavement: FIO. The Contractor shall submit a report documenting the existing condition of the concrete slope pavement at the State Highway 361 Bridge 7 calendar days prior to the commencement of the removal work.

1.4.5 SD-14 Samples.

1.4.5.1 Stone: GA. Stone samples shall be submitted for testing a minimum of 60 days before the stone is required in the work.

1.5 STORAGE OF CONSTRUCTION MATERIALS. Construction materials received with certified weights that are unloaded from the barges and trucks and which cannot be used immediately for construction shall be stored in an approved storage area. The storage area shall be reasonably near the jobsite and shall be approved. The storage area shall be a relatively smooth area so that the stored material may later be recovered free from dirt or other foreign materials.

1.6 MEASUREMENT.

1.6.1 Stone Transported By Truck. The stone shall be measured in short tons of 2,000 pounds each. Certified truck weights will be accepted for determination of the weight of stone placed in the finished section. The weight of stone that is rejected will be estimated by the Contracting Officer and be deducted from the truckload weights, but the Contractor may have rejected stone weighed if it so desires, in which event the actual weight will be used for the deduction from the truck weight. The stone shall be weighed on standard scales by a certified weighmaster. The Contractor shall have the scales tested in the presence of a Government inspector when directed. The original printed scale ticket or a certified copy prepared in ink or indelible pencil shall be submitted promptly after a truck is weighed and before the stone is placed in the areas to be protected. The report of weight for each truckload shall show the gross, tare and net weights, and erasures or changes on a report shall be explained by a memorandum made on or attached to the report and signed by the weigher. If deemed advisable, the Government will employ an inspector at the scales and the necessary facilities shall be furnished to the inspector for observing the weighing and recording the scale weights and stenciled light weights on the trucks. Expense of weighing stone and testing scales shall be borne by the Contractor. Other methods of measurement may be used when approved.

1.6.1.1 Cover Stones, for which certified truck weights will be accepted, shall be marked by printing legible consecutive numbers thereon so that the truck initials and number on which each stone was received can be determined.

1.6.1.2 Sideboards, Stakes, and Skips The weight of sideboards, stakes, and skips, if any, will be determined by actual weighing or by estimates, mutually agreed upon by the Contracting Officer and the Contractor, and the weights so determined, together with the tare weight of the truck shall be deducted from the gross weight to determine the net weight of stone delivered.

1.6.2 Measurement by Barge Displacement. Stone shall be measured in short tons of 2,000 pounds each. Barge displacement measurements will be accepted for determination of the weight of stone placed in the finished section. The barge will be gaged at a protected location near the site as approved. For this purpose each barge

shall be fitted by the Contractor, at its expense, with gages graduated either to inches or tenths of a foot, located either inside or outside of the hull, as the Contracting Officer may direct, and attached solidly to the hull itself. These gages shall be located two (2) near each end of the vessel on opposite sides, and two (2) additional gages amidship if deemed necessary by the Contracting Officer. If located inside the hull, provision shall be made for the free passage of the outside water to a transparent tube placed, or capable of being placed, in contact with the gage. If located outside upon wooden hulls, the gages shall be protected by solid fenders or recessed into the planking, or if upon steel hulls, the gage marks may be placed directly on the plates and identified by punch marks. Gages shall be placed so that their zeros are below water when the vessel is in its normal trim, light, and free from water. In lieu of the gages in the interior of the barge, the Contractor may provide an equal number of wells for determining the amount of the load. These wells shall be located as specified for interior gages and shall be constructed and approved.

1.6.2.1 Fore and Aft Displacements, due to load, shall not differ more than 10 percent from their mean for the determination of tonnage of each barge load of stone ready for placement. In determining the tonnage of cargo, the change in gage readings due to discharge of the cargo will be used.

1.6.2.2 Barge Preparation. The barges shall be fitted for the work sufficiently ahead of the time fixed for commencement to enable the Contracting Officer to measure them accurately before work is commenced. The Contractor will be required at its expense to place the barges in dry dock for measurement and furnish materials and facilities for taking the necessary measurements for preparing barge displacement tables. The Contractor shall pump the water from barges when so requested but no pumping of a barge shall be done between the time it is gaged loaded and light to determine the amount of a barge load.

1.6.2.3 Repairs or Additions made to the barges during the progress of the work shall be promptly reported to the Contracting Officer. During the progress of the work when the Contracting Officer deems it advisable or necessary, each barge shall be re-measured at the expense of the Contractor and under the supervision of the Contracting Officer. No barge shall be used that is not in seaworthy condition or that leaks excessively. The barges used shall be constructed so that when loaded they do not bend or warp so that the gages are unreliable. Each barge load shall contain only one (1) class of stone.

1.6.2.4 Load Measurement. To determine the load, measurements shall be taken immediately before a barge starts for its point of unloading and immediately after it returns from that point. The gages will be read by the Contracting Officer and the Contractor is invited to be present when the readings are taken. Disagreements on the part of the Contractor as to the weight of stone will be reported to the Contracting Officer in writing within 10 days of their occurrence. Disputes will be handled in accordance with the CONTRACT CLAUSE entitled DISPUTES. To ensure the use of the proper weight of surrounding water in calculating the weight of stone from the barge gage

readings, hydrometer measurements will be made alongside each barge when it is gaged loaded and light. Other methods of measurement may be used when approved.

1.6.3 Removal and Disposal of Existing Riprap. Measurement shall not be made for "Removal and Disposal of Existing Riprap."

1.7 RE-MEASUREMENT. Where a loss of material due to stockpiling, rehandling or hauling is possible, the Contracting Officer may direct re re-measurement prior to placement.

1.8 PAYMENT. The Contractor shall place a measured amount of stone within a section for acceptance. Surveys shall be performed before and after the placement of material to determine if the Contractor has established an acceptable section. The tonnage of material per acceptable section will be used for the basis of payment.

1.8.1 Jetty Stone. Payment for each of the following stone items shall include costs of labor, plant, materials and equipment required to complete the work specified herein and as shown.

1.8.1.1 Cover Stone. Payment for cover stone will be made at the contract unit price per ton for "Cover Stone," which shall include furnishing, sampling, testing, and placing the cover stone.

1.8.1.2 1 to 3 Ton Stone. Payment for 1 to 3 ton stone will be made at the contract unit price per ton for "1 to 3 Ton Stone," which shall include furnishing, sampling, testing, and placing the 1 to 3 Ton Stone.

1.8.1.3 Core Stone. Payment for core stone will be made at the contract unit price per ton for "Core Stone," which shall include furnishing, sampling, testing, and placing the core stone .

1.8.1.4 Blanket Stone. Payment for blanket stone will be made at the contract unit price per ton for "Blanket Stone," which shall include furnishing, sampling, testing, and placing the blanket stone.

1.8.1.5 Filler Stone. Payment for filler stone will be made at the contract unit price per ton for "Filler Stone," which shall include furnishing, sampling, testing, and placing the filler stone.

1.8.2 Bridge Scour Protection. Payment for bridge scour protection will be made at the contract unit price per ton for "Bridge Scour Protection – Riprap 1," and "Bridge Scour Protection – Riprap 2," which shall include the costs for the required labor, plant, materials, equipment and furnishing, sampling, testing, and placing the bridge scour protection to complete the work specified herein and as shown.

1.8.3 Removal and Disposal of Existing Riprap. Payment for the removal and disposal of existing riprap associated with the existing State Highway 361 Bridge will be included in the contract lump sum price for "Removal and Disposal of Existing Riprap," which will constitute full payment for material, labor, and inspection necessary to complete the work.

1.8.4 Marking Cover Stones. No separate payment will be made for marking cover stones and the expense of numbering the cover stone shall be borne by the Contractor.

1.8.5 Sampling and Testing. No separate payment will be made for the costs for sampling and testing, which shall be included in the applicable contract unit price per ton for each stone type.

PART 2 - PRODUCTS

2.1 MATERIALS.

2.1.1 General. The Contractor shall make arrangements, pay royalties, and secure the permits for procurement, furnishing, and transporting stone. The Contractor shall vary the quarrying, processing, loading, and placing operations to produce the sizes and quality of stone specified. If the stone being furnished by the Contractor does not fully meet the requirements as specified herein, the Contractor shall furnish, at no additional cost to the Government, other stone meeting these requirements.

2.2 STONE SOURCES.

2.2.1 Authorization. Before stone is produced from a source for completion of the work in this contract, the source of stone shall be approved. Approval of a stone source shall not be construed as a waiver of the right of Government to require the Contractor to furnish stone that complies as specified herein. Materials produced from localized areas, zones, or strata will be rejected when these materials do not comply as specified herein.

2.2.2 Source Documentation. Approval of a proposed stone source will be based on test results or service records. In general, current U.S. Army Corps of Engineers test results shall be required as specified in the Paragraph: QUALITY COMPLIANCE TESTING below. The Contracting Officer may elect to use either past Corps of Engineers test results or a combination of service records along with Corps approved test results from other agencies or private laboratories. A service record is considered to be acceptable if stone from the proposed source has remained sound and functional after at least 10 years of exposure on a project similar to the one to be constructed under this contract.

2.3 QUALITY COMPLIANCE TESTING.

2.3.1 Samples. If required, samples for U.S. Army Corps of Engineers testing shall be submitted a minimum of 60 days in advance of the time when the stone will be required in the work. Stone from a proposed source or sources will be tested by the Contractor for quality compliance. Test samples of 1,000 pounds minimum, shall be representative of the stone source and shall be obtained by the Contractor as directed.

2.4 STONE SIZE.

2.4.1 Jetty Stone requirements shall meet the following:

JETTY STONE CLASSIFICATIONS				
Stone	Rock Type	Weight	Shape	Tolerance
Cover stone	Granite	10 ton	Generally rectangular shape	± 25% by weight Longest dimension shall not be less than two nor more than three times the shortest dimension as determined along perpendicular axis passing through the approximate center of gravity.
Stone	Rock Type	Weight	Shape	Gradation
				% of Total Stone Weight Weight
1-3 ton stone	Quarried Rock	1-3 ton	Irregular Angular	50% min. 2 to 3 tons 40% min. 1 to 2 tons 10% min/max 750 to 2,000 lbs
Core stone	Quarried Rock	200-2,000 lbs.	Irregular Angular	75% min. 1000 to 2000 lbs 15% min. 200 to 1000 lbs 10% min/max 50 to 200 lbs
				% Lighter Weight
Blanket stone	Quarried Rock	5-100 lbs	Irregular	100% min. 100 to 40 lbs 50% min. 40 to 20 lbs 15% min/max 20 to 5 lbs
Filler stone	Quarried Rock	N/A	Irregular	% Passing 4 in – 90 to 100 % Passing 3 in – 25 – 60 % Passing 2 in – 0 to 15 % Passing 1 in 0 – 5

2.4.2 Bridge Scour Protection requirements shall meet the following:

BRIDGE SCOUR PROTECTION CLASSIFICATIONS				
Stone	Rock Type	Weight	Shape	Gradation
				% of Total Stone Weight
Riprap 1	Quarried Rock	1.0-2.5 tons	Irregular Angular	75% min. 1.0 - 2.5 tons 15% min. 400 to 2000 lbs 10% min/max 100 to 400 lbs
Riprap 2	Quarried Rock	50-200 lbs	Irregular	100% min. 200 to 40 lbs 50% min. 80 to 40 lbs 15% min/max 40 to 10 lbs

2.5 STONE QUALITY.

2.5.1 General. Stone for used in this project shall be durable natural stone as approved. The sources where the Contractor proposes to obtain the material shall be selected and approved well in advance of the time when the material will be required in the work. Suitable tests and service records will be used to determine the acceptability of the stone. If suitable test reports and a service record that are approved are not available, as when newly operated sources are used, the material shall be subjected to the tests necessary to determine its acceptance for use in the work. Suitable samples of stone to be used shall be submitted for approval prior to delivery of this material to the worksite. Unless otherwise specified, test samples shall being obtained by the Contractor, supervised by the Contracting Officer, and delivered at the Contractor's expense to a point designated by the Contracting Officer at least 60 days in advance of the time shipment of the stone is expected to begin. Acceptable stone shall meet the minimum and maximum physical requirements when tested in accordance with the procedures specified below:

2.5.2 Jetty Stone Testing shall meet the following requirements

Test Designation	Test Method	Cover Stone		1 to 3 Ton Stone		All Other Stone	
		Min.	Max.	Min.	Max.	Min.	Max.
(1) Sampling	ASTM D 75						
(2) Stone absorption	ASTM C 127		1.5%		3%		3.0%
(3) The weight per cubic foot calculated from the bulk specific gravity	ASTM C 127	165 lbs.		160 lbs.		155 lbs	
(4) Stone Abrasion Loss when processed and tested for No. 1 grading	ASTM C 131, ASTM C 535		35.0%		4%		40.0%

2.5.2.1 Acceptance Tests will be made by or under the supervision of the Contractor and at its expense. New stone shall be durable and of a suitable quality to ensure permanence in the structure and in the climate where it is to be used. It shall be free from cracks, clay pockets, seams and other defects that can increase unduly its deterioration from natural causes. The inclusion of objectionable quantities of dirt, sand, clay, and rock fines will not be permitted.

2.5.3 Bridge Scour Protection Stone Testing shall meet the following requirements:

Test Designation	Test Method	Requirements	
		Min.	Max.
(1) Sampling	ASTM D 75		
(2) Stone Absorption.	ASTM C 127	1.5%	3.0%
(3) The weight per cubic foot calculated from the bulk specific gravity	ASTM C 127	155 lbs.	
(4) Wetting and Drying	ASTM D 5313 ⁽¹⁾	No fracturing ⁽²⁾	
(5) Stone Abrasion Loss when processed and tested for No. 1 grading	ASTM C 131, ASTM C 535	40%. ⁽³⁾	

⁽¹⁾ The testing procedure used in ASTM D 5313 shall include testing of each sample in potable and in salt water prepared in accordance with ASTM D 1141.

⁽²⁾ Weakening and loss of individual surface particles is permissible unless bonding of the surface grains softens and causes general disintegration of the surface material.

⁽³⁾ Stone that has a loss greater than the specified limit will be accepted if the Contractor demonstrates that the stone has a satisfactory service record that exceeds 10 years.

In addition to the above tests, the stone shall be subjected to a petrographic and x-ray diffraction analysis in accordance with ASTM C 295⁽⁴⁾. The stone shall not contain expansive clays.

⁽⁴⁾ Test procedure for Petrographic and X-ray Diffraction is performed according to ASTM C 295, except for the following:

- (I) A colored microscope photograph shall be made of each stone type, whether igneous, sedimentary or metamorphic, and the individual minerals within the stone type shall be identified by labels and arrows upon the photograph.
- (II) A very detailed macroscopic and microscopic description shall be made of the stone, to include the entire mineral constituents, individual sizes, their approximate percentages and mineralogical histories. A description of stone hardness, texture, weathering and durability factors shall also be discussed. Pictures of the source wall within the quarry to show any layering and lithology shall be included.
- (III) A written summary of the suitability of stone for use as armor stone based on the Petrographic and X-ray tests and the abrasion loss (L.A. Rattler) shall be presented in the final laboratory report on stone quality.

2.6 STONE ACCEPTANCE. Prior to placement, stone shall be subject to approval. Approval of any stone shall not constitute acceptance of all stone from a source. Approved stone shall be: of the same lithology as the original stone from which test results or service records were taken as a basis for authorization of the source; sound, durable and hard, and free from laminations, weak cleavages, undesirable weathering, blasting or handling-induced fractures, or fracture zones which subtend more than 1/3 of the total circumference of the stone along the plane of fracturing. The stone shall be of good character so that it will not disintegrate from the action of air, water, or the conditions of handling and placing; shall be clean and free from earth, clay, refuse, or adherent coatings; shall be angular quarried material with a shape which assures interlocking with adjacent stone, and the greatest dimension of each piece shall not be greater than 3 times the least dimension.

2.7 REJECTED STONE. Stone of unsuitable quality or size distribution as specified will be rejected and shall be promptly removed from the project at no expense to the Government.

2.8 PERIODIC TESTING. Stone taken from a particular source shall be tested and certified in terms of gradation and specific gravity as noted in the Paragraph COMPLIANCE INSPECTION below. Gradation testing shall be in accordance with ASTM C 136. However, due to the stone size, the cover stone shall be individually weighed and measured. Specific gravity testing shall be in accordance with the procedures specified in the Paragraph: STONE QUALITY above. Testing shall commence prior to shipment of the material and each barge load of riprap or quarry run stone delivered, shall be retested using the same method. Tests shall be performed by an approved testing laboratory on samples selected by the Contracting Officer. The Government reserves the right to make the tests. Sampling and gradation tests performed by the Contractor shall be as directed and the Contracting Officer shall be given 7 days notice to witness the tests. Test results shall be

submitted upon completion of each test. Additional sampling and testing of a load of material delivered to the project site shall be at the Contracting Officer's discretion, randomly chosen up to a maximum of five (5) tests. Costs for sampling and testing shall be at the Contractor's expense.

PART 3 - EXECUTION

3.1 GENERAL. Except as otherwise specified, the limits of the stone in place shall follow with reasonable variation the indicated lines and slopes. Quarried rock may be used if conforming to the applicable requirements specified in the Paragraphs: STONE SIZE and STONE QUALITY above. Templates shall be placed at adequate intervals, as directed, to accurately delineate the surfaces. The Contractor shall submit the method of placement for stone work for approval before commencement of placing operations.

3.2 TOLERANCES. Stone shall be placed to the lines and grades shown. Final surfaces of the finished course shall be reasonably even, uniform, and shall follow with reasonable variation the indicated lines and grades without continuous under or overbuilding. A tolerance of plus or minus 12-inches from the lines and grades shown will be permitted in the finished surface of the jetty cover stone, except that the extremes of this tolerance will not be allowed in the exposed surface of adjacent stones for the jetty slopes. The cover stones shall be placed on the crown of the jetties so that the average final crown elevation shall be as near as practicable to the elevation shown. Tolerance shall be no more than plus 12 inches or minus 3-inches for the jetty crown. Deviations in layer thickness from the design value for other stone placed shall not be greater than plus or minus 6 inches.

3.3 MISPLACED MATERIAL. Material misplaced while loading, transporting,, placing or that is deposited incorrectly shall be removed and re-deposited where directed at Contractor's expense.

3.4 MISPLACED EQUIPMENT. If the Contractor, during performance of the work loses, dumps, throws overboard, sinks, or misplaces material, plant, machinery or an appliance that may be dangerous to, or interfere with uses of navigable waters, or causes pollution of the waters, the Contractor shall submit immediate notice to the Contracting Officer, with the description and location of these obstructions. This material shall be removed at the Contractor's expense. If the Contractor refuses, neglects or delays compliance with the above requirements, these obstructions may be removed by the Government and the cost of removal may be deducted from the money due or to become due the Contractor.

3.5 JETTY STONE PLACEMENT.

3.5.1 Blanket Stone shall be placed under the jetty to support the larger stones as shown. Blanket stone shall be layered and spread uniformly using a satisfactory method to the neat lines shown. Blanket stone shall be placed to produce a reasonably well-graded mass of rock with the minimum practicable percentage of

voids. Placing of stone by methods that tends to segregate particle size within the blanket will not be permitted. Placement of the blanket stone under the jetties shall not proceed more than 200 feet in advance of Stations 173+16 to 182+00 or 100 feet in advance beyond Station 182+00 of being covered with core or cover stone as appropriate, unless specifically approved.

3.5.2 Core Stone. Core stone shall be placed as shown and in such a manner as to produce a reasonably well graded mass of rock with the minimum practicable percentage of voids, and shall be constructed to the lines shown. The larger stones shall be well distributed and the entire mass of stones in their final position shall be roughly graded to conform to the gradation specified above. The finished work shall be free from objectionable pockets of small stones and clusters of larger stones. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source, by controlled dumping of successive loads during final placing or by other methods of placement that will produce the specified results.

3.5.3 1 to 3 Ton Stone shall be placed within the limits shown or otherwise directed. The 1 to 3 ton stone shall be placed using a method that will produce a reasonably well-graded mass of rock with the minimum practicable percentage of voids. The larger stones shall be well distributed and the entire mass of stones in their final position shall be roughly graded to conform to the gradation specified above. The finished work shall be free from objectionable pockets of small stones and clusters of larger stones. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source, by controlled dumping of successive loads during final placing or by other methods of placement which will produce the specified results.

3.5.4 Filler Stone. Shall be placed on the core stone and between the cover stone to fill voids as shown. Filler stone shall be layered and spread uniformly using a satisfactory method to the neat lines shown. Filler stone shall be placed to produce a reasonable well-graded mass of rock with a minimum practicable percentage of voids. Placing stone by methods that tends to segregate particle size within the blanket will not be permitted.

3.5.5 Cover Stone shall be placed individually within the limits shown or otherwise directed. Cover stone shall be placed by equipment suitable for handling materials of the sizes specified. The various sizes of cover stone shall be distributed to produce a uniform well-graded mass. The long axis of each stone shall be placed along the length of the jetty. The cover stones shall be placed on the crown of the jetties so that the average final crown elevation will be as near as practicable to the elevation shown.. Adjacent stones shall be selected as to size and shape and carefully keyed-in to provide a compact and integrated surface course with the smaller stones filling the space between larger ones so a minimum of voids are left.

3.6 REMOVAL AND DISPOSAL OF EXISTING RIPRAP. The Contractor shall document the existing conditions of the concrete slope pavement prior to the removal of existing riprap associated with State Highway 361 Bridge as shown. The Contractor shall remove and dispose of the existing riprap. The Contractor shall not disturb or damage the existing concrete slope pavement during the removal of the existing riprap.

3.7 DISPOSITION OF EXISTING RIPRAP. Title to items to be removed, is vested in the Contractor upon receipt of Notice to Proceed. The Contractor shall dispose of the riprap. The Contractor shall dispose of the material at disposal facilities permitted to accept all classes and types of materials encountered. Fees associated with providing the disposal facilities shall be borne by the Contractor.

3.8 RIPRAP PLACEMENT. Riprap shall be constructed to the lines and grades shown. The stone shall be placed so that a reasonably well-graded mass is produced with a minimum practicable percentage of voids. The stone shall be placed to its full course thickness in one (1) operation, using a method that will avoid damage to the geotextile. Stone shall be allowed to fall no more than 5 feet from the bottom of the clam or other bucket. For underwater work, where the work surface is more than 5 feet below the water level, the maximum drop shall be 5 feet. If an alternate method does not cause segregation of stone sizes, breakage of individual stones, or damage to the filter fabric, allowable drop heights may be developed on-site, between the Contracting Officer and Contractor, based on actual performance. The Contractor shall maintain the stone layer until accepted and if material is displaced or the surface damaged, replacement shall be made to the indicated lines and grades, at the Contractor's expense. Tolerances shall be no more than +0.5-foot nor less than specified grade. If self-propelled equipment is used on the riprap, then caution shall be taken to protect the underlying geosynthetic.

3.9 CONTRACTOR QUALITY CONTROL.

3.9.1 Compliance Inspection. The Contractor shall inspect, sample, and test for compliance with the contract requirements and record the inspection of operations. The Contractor, at its expense, shall perform inspection in accordance with the following schedule:

- | | |
|--------------------------|--|
| (1) <u>Blanket Stone</u> | |
| Quality - | One (1) set of quality tests per 10,000 tons. |
| Gradation - | One (1) gradation test per 10,000 tons of material to be performed with a minimum sample size of 3,000 pounds. |
| Placement - | Continuous check of placement to ensure proper thickness and that material is not segregated. |

- (2) Core Stone
- Quality - One (1) set of quality tests per 5,000 tons.
- Gradation - One (1) gradation test per 5,000 tons of material to be performed with a minimum sample size of 3,000 pounds.
- Placement - Continuous check of placement to ensure proper size and compliance with grade lines as shown.
- (3) 1-3 Ton Stone
- Quality - One (1) set of quality tests per 5,000 tons.
- Gradation - One (1) gradation test per 5,000 tons of material to be performed with a minimum sample size of 3000 pounds.
- Placement - Continuous check of placement to ensure proper size and compliance with grade lines as shown.
- (4) Cover Stone
- Quality - One (1) set of quality tests per 10,000 tons.
- Placement - Continuous check of placement to ensure proper size and compliance with grade lines as shown.
- (5) Filler Stone
- Quality - One (1) set of quality tests per 5,000 tons.
- Gradation - One (1) gradation test per 5,000 tons of material to be performed with a minimum sample size of 3,000 pounds.
- Placement - Continuous check of placement to ensure proper thickness and that material is not segregated.
- (6) Riprap 1
- Quality - One (1) set of quality tests per 2,000 tons.

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|-----------------------------|---|
| Gradation - | One (1) gradation test per 2,000 tons of material to be performed with a minimum sample size of 3,000 pounds. |
| Placement - | Continuous check of placement to ensure proper size and compliance with grade lines as shown. |
|
(7) <u>Riprap 2</u> | |
| Quality - | One (1) set of quality tests per 4,000 tons. |
| Gradation - | One (1) gradation test per 4,000 tons of material to be performed with a minimum sample size of 3,000 pounds. |
| Placement - | Continuous check of placement to ensure proper size and compliance with grade lines as shown. |
|
(8) <u>Excavation</u> - | |
| | Lines and grades, disposition of material. |

3.9.2 Additional Tests. The Government may, as it deems necessary, make additional tests at Government expense from representative samples of the stone being furnished for the work.

3.9.3 Records. A copy of the records of inspection, as well as the records of corrective action taken, shall be submitted as directed.

3.9.4 Surveys. Quality Control Surveys shall be completed before payment of jetty stone and bridge scour protection is made. The results shall be presented in both graphical and digital formats. The digital format shall be ASCII X, Y, and Z in the project datum. The graphical format shall consist of cross sections at scales not smaller than 1 inch equals 50 feet horizontal and 1 inch equals 10 feet vertical so that each section can be presented on 8-1/2 by 11-inch paper. Cross sections shall be taken at maximum intervals of 100 feet unless otherwise specified. The cross sections shall extend a minimum of 30 feet beyond the proposed geotextile. The cross sections shall be complete no later than 5 calendar days following completion of the grading for the proposed stone shore protection. Elevations shall be taken at 3-foot intervals using MLLW datum. The cross sections shall be submitted within 7 calendar days of data collection. Submittal shall include hard copy plots and electronic files. The Government also reserves the right to conduct additional surveys.

3.9.4.1 Jetty Stone. Surveys shall be performed by the Contractor for every 200 foot of completed layer of the jetty section, including Blanket Stone, Core Stone, 1 to 3 Ton Stone, and Cover Stone. Cross sections shall be taken after grading for stone and after the stone installation.

3.9.4.2 Bridge Scour Protection Surveys shall be performed by Contractor for every 25 foot of completed section. Cross sections shall be taken at intervals of 25 feet between station 137+75 and 138+75 and 50 feet elsewhere. Cross sections shall be taken after grading for the placement of stone and geotextile and after the stone installation.

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SECTION TABLE OF CONTENTS**METALS****SECTION 05501 - BARRIER RAILING**

<u>PARAGRAPH</u>	<u>TITLE</u>	<u>PAGE NOS.</u>
PART 1 - GENERAL		
1.1	SCOPE OF WORK	05501-01
1.2	REFERENCES	05501-01
1.3	DELIVERY, STORAGE, AND HANDLING OF MATERIALS	05501-01
1.4	SUBMITTALS	05501-02
1.5	PERFORMANCE REQUIREMENTS.	05501-02
1.6	MEASUREMENT	05501-03
1.7	PAYMENT	05501-03
PART 2 - PRODUCTS		
2.1	MATERIALS	05501-03
2.2	FABRICATION	05501-03
PART 3 - EXECUTION		
3.1	PREPARATION	05501-04
3.2	INSTALLATION	05501-05
3.3	PROTECTION	05501-05

SECTION 05501 - BARRIER RAILING**PART 1 - GENERAL**

1.1 SCOPE OF WORK. The work covered in this Section consists of furnishing plant, labor, equipment, and materials, and performing the operations associated with the installation of removable barrier railing along the jetties in accordance with the lines, and dimensions shown and as specified herein.

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 Society of Civil Engineers (ASCE) Publications.

7-88	Minimum Design Loads for Buildings and Other Structures.
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American Society for Testing and Materials (ASTM) Publications.

A 312/312M-02	Seamless and Welded Austenitic Stainless Steel Pipes
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A 554-98e1	Welded Stainless Steel Mechanical Tubing
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A 743/743M-98Ae1	Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application
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1.3 DELIVERY, STORAGE, AND HANDLING OF MATERIALS.

1.3.1 Delivery and Storage. Materials shall be inspected for damage prior to and upon delivery to the site. They shall be transported with minimal handling. No storage area for the materials will be provided onsite. It shall be the Contractor's responsibility to store materials in an approved area. Materials shall not be stored directly on the ground and shall be kept free of dirt, detrimental substances, and debris.

1.3.2 Handling. Materials handling shall ensure delivery to the site in sound undamaged condition.

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

1.4.1 SD-01 Data.

1.4.1.1 Product Specifications and Installation Instructions: FIO. Manufacturer's product specifications and installation instructions shall be submitted for products and processes used in barrier railing.

1.4.2 SD-04 Drawings.

1.4.2.1 Barrier Railing: GA. Shop drawings sealed by a Professional Engineer licensed in the State of Texas shall show the plan, elevations, profiles, joining method, fastening details, adjacent construction interfaces, and dimensions prior to fabrication and installation. The Contractor shall submit structural load tables for the applicable use and design calculations demonstrating compliance with the performance criteria.

1.5 PERFORMANCE REQUIREMENTS.

1.5.1 Barrier Railing shall be installed that withstand the following structural loads without exceeding the allowable design working stress of the materials for the barrier railing. Each load shall be applied to produce the maximum stress in each of the respective components comprising the barrier railing. Performance criteria shall comply with the local and state Code, other authorities having jurisdiction and the following criteria whichever is more stringent.

1.5.1.1 Toprails of Barrier Railing Systems shall be capable of withstanding the following loads applied as indicated:

- (1) Concentrated load of 200 pounds applied at any point in any direction.
- (2) Uniform load of 50 pounds per linear foot applied horizontally and concurrently with a uniform load 100 pounds per linear foot applied vertically downward.
- (3) Concentrated load need not be assumed to act concurrently with uniform loads.

1.5.1.2 Railing Not Serving as Toprails shall be capable of withstanding the following loads applied as indicated:

- (1) Concentrated load of 200 pounds applied at any point in any direction.

- (2) Uniform load of 50 pounds per linear foot applied in any direction.
- (3) Concentrated and uniform loads need not be assumed to act concurrently.

1.5.2 Control of Corrosion. Incompatible materials shall be separated by insulation metals and other materials to prevent corrosion.

1.5.3 Manufacturer: St. Owens Enterprises, Inc., 505 E. Law St., Chalmette, Louisiana 70044, Phone: (504) 271-5573 or approved equal.

1.6 MEASUREMENT for the barrier railing system shall be by the linear foot of handrail system installed.

1.7 PAYMENT for the barrier railing system will be made at the contract unit price per linear foot of barrier railing system for "Barrier Railing," which shall constitute full compensation for furnishing, delivering, handling, and installing material; labor; and equipment necessary to install the barrier railing system.

PART 2 - PRODUCTS

2.1 MATERIALS.

2.1.1 Barrier Railing System shall be manufactured from stainless steel with the characteristics specified below.

2.1.1.1 Tubing shall conform to ASTM A 554, Grade MT 316.

2.1.1.2 Pipe shall conform to ASTM A 312/312M, Grade TP 316.

2.1.1.3 Castings shall conform to ASTM A 743, Grade CF 8 or CF 20.

2.2 FABRICATION.

2.2.1 General. Barrier railing shall be fabricated to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacings, and anchorage, but not less than those required to support structural loads.

2.2.2 Pre-assembly. Barrier railing systems shall be pre-assembled in shop to greatest extent possible to minimize field splicing and assembly. Barrier railing units shall be disassembled only as necessary for shipping and handling limitations. The Contractor shall clearly mark units for reassembly and coordinated installation. Contractor shall use connections that maintain structural value of joined pieces.

2.2.3 Curves. Simple and compound curves shall be made by bending pipe and shapes in jigs to produce uniform curvature for each repetitive configuration required; cylindrical cross section of pipe shall be maintained throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of pipe. Grain separation of formed and bent members will not be accepted.

2.2.4 Welded Connections. For connections made during fabrication, corners and seams shall be welded continuously to comply with the following:

- (1) Materials and methods shall be used that minimize distortion and develop strength and corrosion resistance of base metals.
- (1) Fusion shall be obtained without undercut or overlap.
- (2) Welding flux shall be removed immediately.
- (3) At tee and cross intersections, ends of intersecting members shall be matched to fit contour of pipe to which end is joined and welded all around.
- (4) At exposed connections, exposed welds and surfaces shall be finished smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.

2.2.5 Removable Posts. Manufacturer shall fabricate or cast slip-fit socket insert whose inside diameter is sized for a close fit and to limit deflection of posts without lateral load, measured at top, to no more than 1/12 of post height. Provide socket cover or wedge plug with tamper-proof machined screws to secure post in socket.

2.2.6 Metal Preparation. Metals shall be sheared and punched cleanly and accurately. Burrs shall be removed from exposed cut edges. Exposed edges shall be eased to a radius of approximately 1/32 inch, unless otherwise indicated. Bent-metal corners shall be formed to the smallest radius possible without causing grain separation or otherwise impairing work. Miscellaneous metal work shall be cut, reinforced, drilled, and tapped as indicated to receive finish hardware; screws, stainless steel, Type 316; and similar items.

PART 3 - EXECUTION

3.1 PREPARATION.

3.1.1 Field Measurements shall be taken prior to preparation of shop drawings and fabrication, where possible. Job progress shall not be delayed; allow for adjustments during installation where taking field measurements before fabrication might delay work.

3.2 INSTALLATION.

3.2.1 General. Work shall be set accurately in location, alignment, and elevation, shall be plumb, level, true and free of rack, measured from established lines and levels. Surfaces of barrier railing shall not be welded, cut or abraded that have been coated or finished after fabrication, and are intended for field installation without further cutting or fitting. Posts shall be spaced at interval indicated, as required by design loadings.

3.2.2 Posts shall be anchored into socket-insert preset and anchored into concrete.

3.3 PROTECTION.

3.3.1 Finishes. The Contractor shall protect finishes of barrier railing from damage during construction period with temporary protective coverings approved by the Manufacturer.

3.3.2 Restoration. Finishes damaged during installation and construction period shall be restored so that no evidence remains of corrective work. Contractor shall replace items that cannot be refinished in the field.

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