

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

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| 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 |

1. The specifications and drawings for Invitation No. DACW64-02-B-0004, Dredging, Mid Bayou (45-Foot Project), Houston-Galveston Navigation Channels, Texas, advertised 1 July 2002, and for which bids are to be opened on 15 August 2002, are hereby modified as follows:

(a) Specifications.

(1) BIDDING SCHEDULE, Pages 00010-1 Through 00010-7. - The enclosed new Bidding Schedule, Pages 00010-1 through 00010-7 supersedes that issued with this Invitation.

(2) Page 01100-1, Paragraph 1. - In the last line, delete the period and add “for the Options.”

(3) Page 01100-2, Paragraph 4. - In the seventeenth line, change “\$5,586.00” to “\$6,807.00.”

(4) Page 01121-1, Paragraph 1.2. - In the first line, delete “Environmental Protection” and substitute “Construction Sequence.”

(5) Page 01121-1, Subparagraph 1.2.1. - In the third line, after the word “Plan” delete “is.”

(6) Page 01121, Paragraph 3.2. - Delete this Paragraph and substitute the following therefor:

“3.2 LOST LAKE LEVEES. The Mechanically Constructed West Levee, containment levees for the Hydraulically Constructed North Levees, and the Slide Repair area shall be completed prior to placement of the materials dredged, or otherwise excavated from the Houston Ship Channel into the interior of the Lost Lake Placement Area. The work specified in the SECTIONS entitled STRIPPING AND EXCAVATION - LOST LAKE and LOST LAKE RETAINING LEVEES shall be the first order of work for this contract and specific sequencing for the work is included therein.”

(7) SECTION 01312. - The page immediately following the SECTION TABLE OF CONTENTS, entitled “NOTES FOR PREPARATION OF THE QUALITY CONTROL SYSTEM” shall be deleted.

(8) Page 01451-11, Paragraph 3.10. - Delete the second sentence beginning with “The effluent from each” and substitute “The discharge effluent from each spillway at Lost Lake Placement Area and the corresponding receiving water shall be sampled at least daily by the Contractor.” Also, in the twelfth line, delete the sentence beginning with “Base samples” and substitute “Base samples of the receiving body of water shall be taken upstream or opposite to the direction of flow where the discharge enters Old River or the San Jacinto River.”

(9) Page 02312-1, Paragraph 2.1. - After Paragraph 2.1, add the following new Paragraph 2.2:

“2.2 UNSATISFACTORY SOILS include displaced foundation material, silts, organic soils, and very soft or soft clays. Satisfactory material that becomes mixed with unsatisfactory materials is no longer satisfactory material.”

(10) Page 02315-7, Subparagraph 3.2.1. - In the fourth line, after the word “Mid” insert “and Upper.”

(11) Page 02315-11, Subparagraph 3.5.5. - In the fifth line, after “Contracting Officer” insert “Excessive effluent will not include effluent densities less than 8 mg/L higher than the receiving waters. Densities greater than 8 mg/L differential over the receiving waters will be evaluated on a case by case basis.”

(12) SECTION 02319, STRIPPING AND EXCAVATION - LOST LAKE. - Delete this Section and substitute the enclosed new “SECTION 02115 entitled STRIPPING AND EXCAVATION - LOST LAKE.

(13) SECTION 02331, LOST LAKE RETAINING LEVEES. - Delete this Section and substitute the enclosed new “SECTION 02331 entitled LOST LAKE RETAINING LEVEES.”

(14) Page 02388-1, Paragraph 1.2. - In the eleventh line, delete “required” and substitute “allowable.”

(15) Page 02482-10, Subparagraph 1.13.2. - After the first sentence, insert: The two (2) pay items that include material to be excavated from Section 20 do not contain duplicate quantities. Payment will be made separately for each area as delineated in the Paragraph: DREDGING METHODS, below.”

(16) Page 02482-16, Subparagraph 3.5.3.2. - Delete this Subparagraph and substitute the following therefor:

“3.5.3.2 Lost Lake. The material dredged from channel Sections 16 through 21 shall be placed into the Lost Lake Placement Area as specified in the SECTION entitled LOST LAKE RETAINING LEVEES.”

(17) SECTION 02924, SEEDING AND FERTILIZING. - Delete this Section and substitute the enclosed new SECTION 02924 entitled SEEDING AND FERFILIZING.

(b) Drawings.

(1) Drawing No. C-2. - Delete “DOWNSTREAM LIMIT OF DREDGING UPPER BAYOU” and substitute “UPSTREAM LIMIT OF DREDGING UPPER BAYOU.” Also, delete “UPSTREAM LIMIT OF DREDGING UPPER BAYOU” and substitute “DOWNSTREAM LIMIT OF DREDGING UPPER BAYOU.”

(2) Drawings Nos. C-3, C-33, C-57, C-67 Through C-73, F-16, and F-17. - Tthe enclosed new Drawings Nos. C-3 REV 1, C-33 REV 1, C-57 REV 1, C-67 REV 1 Through C-73 REV 1, F-16 REV 1, and F-17 REV 1 supersede those issued with this Invitation.

(3) Drawing No. C-4. - At the "RED BUOY" near HSC STA. 409+00, change "12" to "124."

(4) Drawing No. C-5. - Add the following to Drawing No. C-5:

"1-8" BASELL USA (HIMONT)-OPERATED BY BUCKEYE PERMIT #18529." Also add a pipeline dashed line crossing STA. 388+00, parallel to the HUNTSMAN PIPELINES.

(5) Drawings Nos. C-31 and C-32. - Add "1-8" BASELL USA" pipeline at STA. 388+00.

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

5 Encls:

1. Bd Sched
2. SECTION 02115
3. SECTION 02223
4. SECTION 02924
5. DWGS NOS. C-3 REV 1,
C-33 REV 1, C-57 REV 1,
C-67 REV 1 Through C-73 REV 1,
F-16 REV 1, and F-17 REV 1

File 7783S

INVITATION NO. DACW64-02-B-0004

**HOUSTON-GALVESTON NAVIGATION
CHANNELS, TEXAS, (45-FOOT PROJECT)
MID BAYOU, DREDGING)**

**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 | 1 | L.S. | \$ _____ | \$ _____ |
| 0002 | Grading-Goat Island | 1 | L.S. | \$ _____ | \$ _____ |
| 0003 | Grading-San Jacinto | 1 | L.S. | \$ _____ | \$ _____ |
| 0004 | Stripping, Lost Lake | 1 | L.S. | \$ _____ | \$ _____ |
| 0005 | Mechanically Constructed West Levees, Lost Lake | 1 | L.S. | \$ _____ | \$ _____ |
| 0006 | Hydraulically Constructed North Levees, Lost Lake | 5,675 | L.F. | \$ _____ | \$ _____ |
| 0007 | Slide Repair, Lost Lake | 1,200 | C.Y | \$ _____ | \$ _____ |
| 0008 | Rock Dike- Goat Island | 292,000 | TON | \$ _____ | \$ _____ |
| 0009 | Wave Trip- Goat Island | 25,000 | TON | \$ _____ | \$ _____ |
| 0010 | Rock Dike- San Jacinto | 81,000 | TON | \$ _____ | \$ _____ |
| 0011 | Slope Protection- Goat Island | 10,590 | L.F. | \$ _____ | \$ _____ |

00010-1

(To Accompany Amendment No. 0001 to Invitation No. DACW64-02-B-0004)

INVITATION NO. DACW64-02-B-0004

**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> | | | | | |
| 0012 | Mobilization and Demobilization | 1 | L.S. | \$ _____ | \$ _____ |
| 0013 | Dredging (Sec. Nos. 1 and 2) | 559,500 | C.Y. | \$ _____ | \$ _____ |
| 0014 | Dredging (Sec. Nos. 4 thru 11) | 1,975,500 | C.Y. | \$ _____ | \$ _____ |
| 0015 | Dredging (Sec. Nos. 14 and 15) | 679,700 | C.Y. | \$ _____ | \$ _____ |
| 0016 | Dredging (Sec. Nos. 16 thru 20) | 1,719,200 | C.Y. | \$ _____ | \$ _____ |
| 0017 | Mechanical Dredging (Sec. No. 20) | 45,000 | C.Y. | \$ _____ | \$ _____ |
| 0018 | Upper Bayou Dredging (Sec. No. 21) | 272,600 | C.Y. | \$ _____ | \$ _____ |
| 0019 | Debris Removal North Ferry Landing-Concrete and Rock Rubble | 1 | L.S. | \$ _____ | \$ _____ |
| 0020 | Debris Removal North Ferry Landing-Other Miscellaneous Debris | 7.5 | TON | \$ _____ | \$ _____ |
| 0021 | Debris Removal North Ferry Landing-Wooden Piling, Not Exceeding 40 Feet in Length With Appurtenances | 2 | EACH | \$ _____ | \$ _____ |

INVITATION NO. DACW64-02-B-0004

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

| <u>Item</u> <u>No.</u> | <u>Description</u> | <u>Estimated</u> <u>Quantity</u> | <u>Unit</u> | <u>Unit</u> <u>Price</u> | <u>Estimated</u> <u>Amount</u> |
|---------------------------------------|--|-------------------------------------|-------------|-----------------------------|-----------------------------------|
| <u>SCHEDULE NO. 1 (CONT'D)</u> | | | | | |
| 0022 | Pipelines | 1 | L.S. | \$_____ | \$_____ |
| 0023 | Drop-outlet Structures -Goat Island | 2 | EACH | \$_____ | \$_____ |
| 0024 | Seeding and Fertilizing | 1 | L.S. | \$_____ | \$_____ |
| TOTAL SCHEDULE NO. 1 | | | | | \$_____ |

INVITATION NO. DACW64-02-B-0004

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

| <u>Item</u> <u>No.</u> | <u>Description</u> | <u>Estimated</u> <u>Quantity</u> | <u>Unit</u> | <u>Unit</u> <u>Price</u> | <u>Estimated</u> <u>Amount</u> |
|--|--------------------------------------|-------------------------------------|-------------|-----------------------------|-----------------------------------|
| <u>OPTION NO. 1</u> | | | | | |
| 0025 | Dredging Pipeline Plug Sec. No. 3 | 335,300 | C.Y. | \$ _____ | \$ _____ |
| TOTAL OPTION NO. 1 | | | | | \$ _____ |
| TOTAL SCHEDULE NO. 1 AND OPTION NO. 1 | | | | | \$ _____ |

INVITATION NO. DACW64-02-B-0004

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

| Item No. | Description | Estimated Quantity | Unit | Unit Price | Estimated Amount |
|--|---|--------------------|------|------------|------------------|
| <u>OPTION NO. 2</u> | | | | | |
| 0026 | Dredging Pipeline Plug Sec. Nos. 12 and 13 | 428,200 | C.Y. | \$ _____ | \$ _____ |
| TOTAL OPTION NO. 2 | | | | | \$ _____ |
| TOTAL SCHEDULE NO. 1 AND OPTIONS NOS. 1 AND 2 | | | | | \$ _____ |

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

1. ARITHMETIC DISCREPANCIES (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. SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS SUBCONTRACTING PLAN ((FAR 52.219-9) (See CONTRACT CLAUSES.) In reference to the above, the bidder/offeror shall take into consideration only those subcontracts which he/she will award when preparing the subcontracting plan required in FAR.

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

4. EVALUATION OF OPTIONS (JUL 1990) (FAR 52.217-5). Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interest, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the options.

5. SALES TAX EXEMPTION. The following blanks are not a part of your bid price. See Block 17 on Standard Form 1442. The Texas Tax Code has changed. If you intend seeking a sales tax exemption on this contract, complete the following. Such provides the "separated contract" requirement now critical to your obtaining an exemption certificate. For information concerning tax exemptions please contact the Comptroller of Public Accounts at 1 800-252-5555.

Materials: \$_____

Services: \$_____

Total: \$_____

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SITE WORK

SECTION 02115- STRIPPING AND EXCAVATION- LOST LAKE

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SECTION 02115 - STRIPPING AND EXCAVATION- LOST LAKE

PART 1 - GENERAL

1.1 SCOPE OF WORK. The work in this Section consists of furnishing plant, labor, equipment, supplies, and material and performing the operations to strip foundation and borrow areas and to excavate earth borrow materials from designated areas, as specified herein.

1.2 BORROW AREAS. The rights-of-way and earth borrow material will be furnished without cost to the Contractor at the locations shown.

1.3 MEASUREMENT.

1.3.1 Stripping of foundation areas and other required areas shall not be measured for payment.

1.3.2. Excavation shall not be measured for payment.

1.4 PAYMENT.

1.4.1 Stripping. Payment for stripping as specified herein will be made at the contract lump sum price for "Stripping, Lost Lake," which constitutes full compensation for the cost of labor, equipment, tools, supplies, and incidentals necessary to complete the operations of stripping, as specified herein.

1.4.2 Excavation will not be paid for separately, but will be considered incidental to the item for which the work pertains.

PART 2 - PRODUCTS

2.1 EQUIPMENT. Excavation shall be accomplished with draglines, backhoes, shovels, or other suitable excavating equipment. Only trucks, scrapers, and other types of earth-hauling equipment, approved and suitable for construction, shall be used.

PART 3 - EXECUTION

3.1 STRIPPING.

3.1.1 Foundation Areas. The foundation area or any portion of the area within the work limits indicated, that is to receive fill by mechanical methods and is covered with vegetation shall be stripped to a minimum depth of 6 inches, to remove humus, vegetation, brush, and roots. Stripped materials shall be disposed as specified in the

Paragraph: DISPOSITION OF STRIPPED MATERIALS, below. Sandy areas, soft bare muddy areas, or other areas devoid of vegetation shall not be stripped, but shall be scarified to a depth of 4 inches, prior to the placement of fill. In areas specified for stripping, that have vegetation in excess of 8 inches in height, a mower or “brushhog” type shredder shall be used to cut and mulch the tall grass and weeds and then the area shall be stripped to a minimum of 6 inches. The height of cutting shall not exceed 8 inches above the average ground height.

3.1.2 Borrow Areas. Areas where borrow material is to be obtained shall be stripped to a depth necessary to obtain satisfactory borrow materials free from vegetation and other objectionable materials. Stripped material from borrow areas shall be disposed as specified in the Paragraph: DISPOSITION OF STRIPPED MATERIALS, below.

3.2 DISPOSITION OF STRIPPED MATERIALS. Stripped materials shall be placed, spread, and shaped to drain on approved bare areas along the exterior toe and berm of the north perimeter embankment between Stations 45+00 and 57+00 at the northeast corner of the Island as directed.

3.3 EXCAVATION shall be as required to obtain a sufficient quantity of satisfactory materials for use in repair and construction of earth levees specified in the SECTION entitled LOST LAKE RETAINING LEVEES. Earth borrow materials for constructing the Mechanically Constructed West Levee shall be obtained from the adjacent borrow area indicated. The depth of the Borrow Area is limited to Elevation +14.0 Mean Low Tide (MLT); however, the width shall be as wide as necessary to the interior of the Placement Area to obtain sufficient quantity of borrow to accomplish the specified construction. Earth borrow materials for constructing exterior containment levees shall be obtained from the interior of the Placement Area, a distance of no closer than 50 feet, nor farther than 150 feet, from the apparent centerline of the existing Lost Lake perimeter levee. The excavation shall have side slopes of 1 Vertical on 3 Horizontal, and excavation shall not be allowed below Elevation +17.0 feet MLT. Earth borrow materials for repairing the embankment slope near Station 98+00 of the east levee (Slide Repair Area) shall be obtained from the Slide Repair Borrow Area indicated. The Contractor shall continuously conduct excavation operations in one (1) location within the area, using a safe method, as approved. Unsatisfactory materials may be disposed outside the limits of the borrow area, as approved.

3.4 CONTACTOR QUALITY CONTROL.

3.4.1 Compliance Inspection. The Contractor shall inspect for compliance with contract requirements and shall record the inspection of operations including, but not limited to, the following:

- (1) Stripping. Areas as specified, depth, and disposition of materials.
- (2) Excavation. Side Slopes, dimensions and elevations, disposition of materials.

3.4.2 Records. A copy of the records of inspections and tests, as well as the records of corrective action shall be submitted as directed.

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SECTION 02223 – LOST LAKE RETAINING LEVEES**PART 1 - GENERAL**

1.1 SCOPE OF WORK. The work in this Section consists of furnishing plant, labor, equipment, supplies, and materials, and performing the operations to construct and shape perimeter retaining levees and berms utilizing mechanical construction and hydraulic dredging placement methods, as shown and specified herein.

1.2 REFERENCES. The publication listed below forms a part of the specification to the extent referenced. The publication is referred to in the text by the basic designation only.

American Society for Testing and Materials (ASTM) Publication.

D 2487-00

Classification of Soils for Engineering Purposes
(Unified Soil Classification System).

1.3 SUBMITTALS.1.3.1 SD-01 Data.

1.3.1.1 Construction Plan: GA. The Contractor shall submit a Plan for the construction of the Mechanically Constructed Levees and the Hydraulically Constructed Levees describing as a minimum the following:

- (1) The Phasing and construction of the Mechanically Constructed West Levee, including construction methods, and equipment suitable for working inside a Placement Area.
- (2) The Phasing and construction of the Hydraulically Constructed North Levees, including discharge pipeline placements, with sketches where applicable, and design and construction of the exterior and interior containment levees, and other techniques to ensure maximum retainage of dredged materials within the lines and grades shown.
- (3) The phasing and repair of the slide area near Station 98+00.
- (4) Compliance with the order of work specified herein.
- (5) Estimated start and completion dates for each phase of construction.

- (6) A complete list of plant and equipment to be used for each phase of construction.
- (7) A brief description of the proposed execution of required monitoring of the initial fill placement, as specified in the Paragraph: CONTRACTOR QUALITY CONTROL, below. The description shall include details on how the monitoring information will be used by the Contractor to control placement of the hydraulic fill, to achieve the specified requirements to place sufficient hydraulically dredged materials at all locations along the levee. The description shall include details and calculations to be made to access the production rate throughout this contract, and a description of the format the Contractor will use to report the levee construction progress during the hydraulic fill placement.

1.3.1.2 Surveys. GA. The Contractor shall submit plots of cross section surveys and other information as specified, for required monitoring and acceptance of the completed levee and berm construction.

1.3.2 SD-07 Schedules.

1.3.2.1 Project Schedule: GA. The overall project schedule shall identify construction phases as separate line items.

1.4 DEFINITIONS.

1.4.1 Initial Placement. The Initial Placement shall be hydraulic fill discharged from the dredge pipe along the alignment indicated, for the required Hydraulically Constructed North Levees. The Initial Placement quantity along the levee alignment shall provide sufficient material to safely recovered by the Contractor's equipment from outside the lines and grades indicated, to accomplish Final Shaping and Grading to the minimum lines and grades indicated.

1.4.2 Final Shaping and Grading. The work performed by the Contractor's equipment after Initial Placement. This work shall ensure that the hydraulically placed material is placed to the minimum lines and grades indicated.

1.4.3 Final Grade. The elevations and grades of the Hydraulically Constructed Levees, indicated by cross sections taken after completion of Final Shaping and Grading.

1.4.4 Limits of Recovery. A description of the limits of depth and distance from the existing baseline, where material shown by cross sections after Initial Placement, can be recovered during Final Shaping and Grading, to construct the levee to Final Grade. The bottom limit of recovery is defined as the elevation of the interior placement area surface prior to dredging, as indicated. The interior distance limit shall be

determined by the Contractor and shown on the plotted surveys of Initial Placement cross sections, as specified.

1.4.5 Net Retention Rate. The neat-line fill quantity, computed from Final Grade cross sections shown, divided by the gross quantity of material dredged, for a particular levee reach.

1.4.6 Gross Retention Rate. The sum of actual quantity of fill measured within the Limits of Recovery, by Quality Control cross section surveys, divided by the gross quantity of material dredged, for a particular levee reach.

1.5 GENERAL PROVISIONS.

1.5.1 Lines and Grades. The Hydraulically Constructed Levees shall conform to the lines, grades, and cross sections shown, unless otherwise directed. The Government reserves the right to increase or decrease the foundation widths or the embankment slopes, or make changes in the embankment sections as may be deemed necessary to produce a safe structure. Government directed field changes in embankment sections will be covered in accordance with the CONTRACT CLAUSE entitled CHANGES.

1.5.2 Conduct of Work. The Contractor shall maintain and protect the levee embankment in a satisfactory condition at all times until completion and acceptance of the work under this contract. If, in the opinion of the Contracting Officer the hauling equipment causes shears or slickensides, rutting, quaking, heaving, cracking, or excessive deformation of the levee embankment, the Contractor shall limit the type, load, or travel speed of the equipment on the embankment.

1.5.3 Order of Work. The Contractor shall perform the required work in the following order:

- (1) Mechanical Construction. The Contractor shall construct earthen levees on either side of the alignment for the Hydraulically Constructed North Levees, as specified herein, to ensure maximum containment of hydraulic fill along the alignment indicated. In addition, the Contractor shall complete the Mechanically Constructed West Levee to the lines and grades specified herein, as well as complete repairs to the slide area on the interior of the existing perimeter embankment near Station 98+00. Upon completion of the mechanical construction specified herein, the completed levees shall be seeded and fertilized to the limits indicated, as specified in the SECTION entitled SEEDING AND FERTILIZING. Earthwork to be performed using mechanical methods, as specified above, shall be completed prior to placement of dredged materials into the Lost Lake Placement Area.

- (2) Hydraulic Dredging. The Contractor shall dredge Sections 16 through 20, beginning at Station 420+00 and proceeding to Station 470+00, in order. The dredged materials removed from this reach of channel shall be placed along the alignment for the Hydraulically Constructed North Levees beginning at Station 44+40 and proceeding west until the placement operations lie between Stations 25+00 and 15+00. The Contractor shall then cease placement in this reach, and re-start placement of the Hydraulically Constructed North Levee at Station 3+00 and proceed east until full closure of the Hydraulically Constructed North Levee to the lines and grades indicated, is completed in the reach of retaining levee between Stations 3+00 and 44+40. At that time, the Contractor will again re-start placement of the Hydraulically Constructed North Levee at Station 221+35 to the lines and grades indicated, and shall proceed west to Station 206+00, to connect with and match the new Mechanically Constructed West Levee and accomplish full closure of the perimeter retaining levee. Excess materials may be placed into the discharge corridor designated to receive materials from Station 16 through 20, as indicated. The Contractor shall dredge Section 21 at its discretion, using acceptable dredging methods and techniques, subject to approval. However, it shall not be allowed to place materials from required dredging into the Lost Lake Placement Area until completion of mechanical construction, as specified above. If the Contractor elects to place materials dredged or otherwise excavated from Section 21 directly into the Lost Lake Placement Area, it shall be required to place all materials into the "Discharge Corridor for Material Dredged from Section 21" indicated.
- (3) Final Shaping and Grading. Upon completion of the Hydraulically Constructed North Levees, the Contractor shall be required to grade and shape the perimeter levee as indicated, and seed and fertilize the completed embankment to the limits indicated, as specified in the SECTION entitled SEEDING AND FERTILIZING.

1.5.4 Slides. In the event of sliding of any part of a levee, during its construction or after its completion, but prior to its acceptance, the Contractor shall, upon written directions from the Contracting Officer, rebuild that portion of the levee. If the slide is caused through fault of the Contractor, the foregoing operations shall be performed without cost to the Government. If the slide is due to no fault of the Contractor, payment will be as specified below, in addition to payment due the Contractor for materials previously placed.

1.5.5 Changes in Embankment Alignment. The Contracting Officer reserves the right to make changes in the embankment alignment as may be found necessary before completion of the work. If it becomes necessary, through no fault of the Contractor, to

abandon a line or location on work that has been done, payment for material placed will be made as specified below.

1.6 MEASUREMENT.

1.6.1 Containment Levees (Station 3+00 to Station 44+40 and Station 206+00 to Station 221+35) shall not be measured for payment.

1.6.2 Mechanically Constructed West Levee (Station 170+00 to Station 206+00) shall be measured for payment by the cubic yard of compacted fill , placed to the minimum lines and grades indicated, as specified herein. The basis for measurement will be cross sections of the area taken by the Contractor after stripping, but prior to filling, and again immediately after completion of the Mechanically Constructed West Levee to the lines and grades indicated..

1.6.3 Hydraulically Constructed North Levee (Station 3+00 to Station 44+40 and Station 206+00 to Station 221+35) shall be measured for payment by the linear foot of completed levee, shaped and graded to the minimum lines and grades, as specified herein.

1.6.4 Slide Repair (Station 98+00) shall be measured for payment by the cubic yard of compacted fill placed to the lines and grades indicated. The basis of measurement will be cross sections of the area taken by the Contractor prior to filling, and again immediately after completion of repairs and restoration of the embankment to the lines and grades indicated.

1.6.5 Surveys shall not be measured for payment.

1.6.6 Haul Roads shall not be measured for payment.

1.7 PAYMENT.

1.7.1 Containment Levees (Station 3+00 to Station 44+40 and Station 206+00 to Station 221+35) will not be paid separately, but will be considered a subsidiary cost of the item to which the work pertains.

1.7.2 Mechanically Constructed West Levee (Station 170+00 to Station 206+00) will be paid for at the contract unit price per cubic yard for “Mechanically Constructed West Levee, Lost Lake,” measured as specified herein

1.7.3 Hydraulically Constructed North Levee (Station 3+00 to Station 44+40 and Station 206+00 to Station 221+35) will be paid for at the contract unit price per linear foot for “Hydraulically Constructed North Levees, Lost Lake,” measured as specified herein.

1.7.4 Slide Repair (Station 98+00) will be paid for at the contract unit price per cubic yard for "Slide Repair, Lost Lake," measured as specified herein.

1.7.5 Surveys. No separate payment will be made for surveys. The cost of this work will be incidental to the cost of the paid work item for which the surveys are performed.

1.7.6 Haul Roads. No separate payment will be made for haul roads. The cost of this work will be incidental to the cost of the paid work item for which the haul roads are used.

PART 2 - PRODUCTS

2.1 EQUIPMENT. A list of equipment, with accompanying specifications information, shall be submitted prior to commencement of construction.

2.1.1 Crawler-type Tractors used for spreading and compaction shall weigh not less than 30,000 pounds, shall exert a unit tread pressure of not less than 7 pounds per square inch and shall not be operated at a speed to exceed 5 miles per hour.

2.1.2 Power-driven Tampers. Compaction of material in areas where it is impracticable to use a tractor shall be performed by the use of approved power-driven tampers of the rammer type having a static weight of at least 70 pounds or by hydraulic actuated tractor-mounted tampers as approved.

2.1.3 Miscellaneous Equipment. Scarifiers, disks, motorized graders, spreaders, marsh buggies, and other equipment shall be of approved types, suitable for construction of levee embankments in upland and marsh-type conditions. Only trucks, scrapers, and other types of earth-hauling equipment that are approved and suitable for construction shall be used.

2.2 MATERIALS.

2.2.1 Satisfactory Materials. Earth materials considered satisfactory for use as fill in the Mechanically Constructed West Levees, required exterior containment levees, and slide repair area shall consist of cohesive or cohesionless material classified in ASTM D 2487 as CH and CL, and SW, SP, SM, SM-SC, and SC. Material classified as CH or CL shall have the consistency of medium, stiff, or very stiff, as determined using a SOIL TEST DIRECT READING POCKET PENETROMETER MODEL CL-700, or approved equal. Satisfactory material used for all mechanically type earthwork shall be free from roots, brush, sod, or other perishable materials. Satisfactory materials for use as fill in the Hydraulically Constructed Levees shall consist of all hydraulically pumped materials within the limits of recovery and filled to the lines and grades indicated, as specified herein.

PART 3 - EXECUTION

3.1 CONTAINMENT LEVEES. The Contractor will be responsible for the design and construction of mechanically constructed levees along the north levee (Station 3+00 to Station 44+40 and Station 206+00 to Station 221+35). The levees will be designed and constructed to function as “containment levees” for ensuring that the placement of fill for the Hydraulically Constructed North Levees is as much as practicable, retained with reasonable limits of recovery during placement operations. There shall be two (2) types of containment levees used in this contract, including exterior levees, located on the approximate centerline of the existing perimeter levees, and interior levees, located within the placement area. Interior levees shall serve as a “toe levee” to retain as much of the hydraulically placed dredged materials within the proposed levee alignment as possible. The locations, size, shape, and integrity (compaction) of the containment levees shall be the sole responsibility of the Contractor. Earth borrow materials for constructing exterior levees shall be obtained from the interior of the Placement Area, a distance of no closer than 50 feet nor farther than 150 feet from the apparent centerline of the existing Lost Lake perimeter levee. The excavation shall have slide slopes of 1 Vertical on 3 Horizontal and the excavation shall not be allowed below Elevation +17.0 feet Mean Low Tide (MLT), as specified. Earth borrow materials for constructing interior levees shall be obtained from the interior of the Placement Area as side cast material. Compaction of exterior levees shall be the responsibility of the Contractor; however, compaction requirements for fill material placed onto the exterior slopes shall, as a minimum, meet the requirements specified in the Paragraph: COMPACTED FILL, below. The Contractor shall not be allowed to degrade the existing perimeter levee crown or exterior side slopes to obtain earth materials for mechanically constructed levees.

3.2 MECHANICALLY CONSTRUCTED WEST LEVEE. The Contractor will be required to construct the west levee between Stations 170+00 and 206+00 to the lines and grades indicated. Excavation, hauling, spreading, grading, and compaction of earth materials shall be accomplished by mechanical methods, utilizing equipment suitable for the work. The Contractor will be required to excavate sufficient satisfactory materials from the adjacent borrow area, to construct the levee and interior berm to the lines and grades indicated. The Contractor will not be allowed to excavated below Elevation +14.0 feet MLT within the limits of the borrow area;; however, the width of the borrow area is not specified, to allow the Contractor to recover the necessary quantity of satisfactory materials to complete the work specified herein. Fill used in construction of the west levee shall be satisfactory earth material, as specified in the Paragraph: SATISFACTORY MATERIALS, above, and shall be compacted as specified in the Paragraph: COMPACTED FILL, below. Excavated materials that are not satisfactory for use in construction of the levee shall be disposed in abandoned portions of the borrow area, as approved. Upon completion of final shaping and grading of the west levee to the lines and grades indicated, the completed embankment shall be seeded and fertilized to conform to the requirements specified in the SECTION entitled SEEDING AND FERTILIZING.

3.3 HYDRAULICALLY CONSTRUCTED NORTH LEVEES.

3.3.1 General. Satisfactory materials used for Hydraulically Constructed North Levees and Berms shall be obtained from required dredging. Hydraulic fill for the Hydraulically Constructed North Levee (Station 3+00 to Station 44+00 and Station 206+00 to Station 221+35) shall be obtained from Sections 16 through 20 (Station 420+00 to Station 469+95.77) of the required dredging. The Contractor shall evenly distribute sufficient hydraulic material at all locations along the levee alignment so that the final new levee section can be shaped and graded to the lines and grades indicated. The Contractor shall take the measures necessary to ensure that no water is allowed to pond between the hydraulically placed fill and the exterior mechanically constructed levee or existing perimeter levee. Deposits of soft mud from the backwash that may accumulate in low areas of the fill shall be immediately drained and the area completely dried prior to performing the final grading and shaping of the fill to lines and grades indicated.

3.3.2 Initial Placement. The initial placement of material for the hydraulically constructed levees and berms shall consist of controlled discharge of the dredged material along the alignment indicated. The Contractor shall take reasonable measures available to retain satisfactory material within the specified limits of recovery, including the control of discharge actions specified herein. The limits of recovery, as specified in the Paragraph: DEFINITIONS above, shall be determined by the Contractor, based on observed behavior of the discharged material, the type of equipment, and the procedures used to recover the initial placement material. The limits that basically identify materials to be used for construction, shall be identified on individual cross sections to allow monitoring of initial placement as required by the specifications. Details of initial placement shall be included in the Construction Plan.

3.3.3 Control of Discharge. During the initial placement, the Contractor shall use frequent movement of the discharge point, along with an effective directing of the discharge flow in the same direction as the levee construction, to retain the maximum quantity of material possible within the limits of recovery. Directing of the discharge flow, when discharging clay materials, shall be accomplished using marsh excavating equipment, or suitable approved, alternate equipment, to provide for continuous removal of material mounding in front of the discharge pipe or other locations, which can result in lateral-direction “wash” of material from the limits of recovery. Additionally, spreaders, spoons, or other effective measures shall be employed as required, to limit lateral wash loss of sands. The Contractor shall also use a “Y” valve and a lateral “shunt” discharge line for discharging water and maintenance slurry, to minimize erosion of previously placed levee fill. The Contractor shall include details in the Construction Plan regarding the proposed technique and equipment to be used to accomplish the required control of discharge.

3.3.4 Excess Materials. If the Contractor completes the placement of hydraulic fill for final grading of the Hydraulically Constructed North Levees, prior to the completion of dredging of Sections 16 through 21, the excess material shall be deposited into the “Discharge Corridor for Excess Material Dredged from Sections 16 through 20”

adjacent to the east levee, as indicated.. Placement of excess materials shall proceed using a method that will retain clay balls and sands along the alignment of the east levee for the length of the discharge corridor.

3.3.5 Misplaced Materials. At no time will material or water be allowed to overflow the mechanically constructed exterior levees or the existing perimeter levee. Construction operations shall be so sequenced as to allow fines pumped in with the levee building material, time to settle and the water to be discharged through the drop-outlet structure. While placing the Hydraulically Constructed Levees, the Contractor shall be responsible for maintaining the mechanically constructed exterior levee and existing levee heights to prevent spillover from the levee construction operations. If the dredged material approaches the height of the mechanically constructed exterior levees or existing perimeter levee, the Contractor shall raise the elevation of the levees by constructing earthen embankments of sufficient size to contain the material. Failure to contain dredged materials may result in the requirement for the Contractor to remove misplaced material or unauthorized placement of material in accordance with the SECTION entitled DREDGING.

3.2.6 Final Shaping and Grading. During final shaping and grading operations, the Contractor shall excavate, grade, fill, and compact earth materials as required, to ensure contract requirements for final lines and grades are satisfied, as indicated. Areas requiring fill shall be excavated to neat lines and grades to facilitate compaction with crawler-type tractors or hand tampers. Fill materials shall be placed in layers not exceeding 12 inches in depth, and compacted to the density of the undisturbed surrounding materials using hand tampers or crawler-type tractors.

3.4 SLIDE REPAIR. Satisfactory earth material shall be used as fill material to repair the interior slope of the east levee embankment near Station 98+00, and shall be obtained from the borrow area near Station 118+00, as indicated. The damaged slope of the embankment shall be repaired by excavating, hauling, spreading, compacted, and grading satisfactory earth fill materials to the lines, grades, and elevations indicated. Earth borrow materials used as fill that can be excavated using draglines, backhoes, dozers, or other suitable equipment, transported to the repair site, and placed, spread, compacted, and graded to conform to the requirements specified in the Paragraph: COMPACTED FILL, below.

3.5 COMPACTED FILL. Earth materials used as fill for repair, construction, or final shaping and grading of the newly constructed or repaired perimeter levees, within the foundation area limits specified herein, shall consist of satisfactory materials conforming to the requirements of the Paragraph; SATISFACTORY MATERIALS, above. Fill material shall be transported to the foundation areas and placed in layers not exceeding 12 inches in thickness before compaction. In areas having standing water or soft foundation conditions, borrow materials shall be placed in a single lift (layer) of sufficient thickness to support hauling and compaction equipment. The moisture content of each layer of material placed shall be suitable to obtain the maximum compaction with the equipment used. If the fill material is either too wet or too dry to obtain proper compaction, the material shall be disked and aerated to dry the material,

or moistened and disked to distribute moisture throughout each layer. After placement, each layer shall be compacted by not less than four (4) coverages of a crawler-type tractor conforming to the requirements specified in the Paragraph: EQUIPMENT, above.

3.6 GRADE TOLERANCES AND SHRINKAGE ALLOWANCES FOR LEVEES.

The Hydraulically Constructed North Levees shall be constructed, as a minimum, to the grades and elevations indicated. After completion of recovery of fill within the limits of recovery, and final shaping and grading for acceptance, an over height of +2 feet above the minimum required elevation will be allowed at all locations. No additional over height will be accepted unless approved in advance for the specific location. Graded surfaces shall be sloped to drain.

3.7 HAUL ROADS shall be constructed as required on Lost Lake Placement Area to enable borrow material to be transported as needed for construction of mechanically constructed levees and for disposal of other materials as specified previously. If the crown of the existing levee is used as a haul road, the Contractor shall construct and maintain the haul road at elevations equal to or higher than the crown elevations that existed prior to construction. Degrading or re-shaping on the levee crown shall not be allowed until the hydraulically constructed levees and berms have been shaped to grade, as specified herein

3.8 SURVEYS.

3.8.1 General. During the course of levee construction, the Contractor shall perform daily topographic surveys for submittal. The surveys shall encompass the previous day's construction to the maximum extent practicable. The results shall be presented in both graphical and digital formats. The digital shall be ASCII X, Y, Z in the project data. The graphical format shall consist of cross sections at scales not smaller than 1 inch equals 10 feet horizontal, and 1 inch equals 2 feet vertical. Cross section intervals shall be 50 feet on center with a data density no smaller than one (1) elevation shot every 10 linear feet on line. Additional elevation shots shall be taken at the levee crossing and at abrupt changes in grade. Temporary bench marks and controls established by the Contractor to perform the surveys will be verified by Real Time Kinematic Global Positioning Systems on a weekly basis, at a minimum. The results of the surveys shall be submitted with the Daily Quality Control Report.

3.8.2 Levee Cross Sections. At a minimum, three (3) sets of cross sections shall be taken as follows: (1) cross sections at 50-foot intervals before initial placement of material; (2) cross sections at 50-foot intervals after initial placement; and (3) cross sections at 200-foot intervals after shaping and grading. Information from the first two sets of cross sections shall be used for the initial placement monitoring. The third cross section will be used for acceptance. The cross sections shall extend from the exterior toe of the existing perimeter levee, to a point 100 feet beyond the location the location of the interior toe of the new levee.

3.8.3 Scheduling Surveys and Reporting Results. Quality Control surveys of initial placement shall be taken as soon as practicable, after the initial placement of each 50-feet of levee material. Survey data shall be reduced, plotted, and submitted before discharge proceeds more than 200 feet beyond a surveyed location. Information from surveys required for the Quality Control initial placement monitoring shall be entered into the spreadsheet within 3 days of the survey. Quality Control surveys for final shaping and grading shall be taken as required by the Contractor to ensure full compliance with the specified tolerance for the completed levees and as specified in the Paragraph: ACCEPTANCE AND CORRECTIVE ACTION below.

3.9 ACCEPTANCE AND CORRECTIVE ACTION.

3.9.1 Acceptance of Completed Levees. After completion of the final shaping and grading, the final grade levees will be accepted in 2,000-foot sections. Acceptance will be based on topographic surveys performed by the Contractor as specified in the Paragraph: SURVEYS above. Request for acceptance shall be in writing. Prior to acceptance, the Government will conduct spot check, Quality Assurance surveys to verify proper elevations and grades. If there is a disagreement between the Contractor and Government surveys, the Government information shall govern. The Contractor shall take additional surveys as directed to eliminate discrepancies or check questionable elevations. Corrective action shall be required on out-of-tolerance levee sections prior to acceptance as specified herein.

3.9.2 Corrective Action. The Contractor shall provide additional material from an approved source for levee sections below minimum grade to bring the section to the required lines and grades.

3.10 CONTACTOR QUALITY CONTROL.

3.10.1 Quality Control Inspections. The Contractor shall conduct daily Quality Control inspections of the construction activities for compliance with the contract requirements and record the information as specified herein. A copy of the records of Quality Control inspections, as well as the corrective action taken, shall be filed daily and submitted as directed. The Quality Control Reports shall be submitted on an approved Quality Control Report form. Retention Rate Monitoring information shall be submitted on an approved Retention Rate Spreadsheet. Required survey information and plots of the surveys shall be attached to the Quality Control Reports and Retention Rate Spreadsheets, as specified.

3.10.2 Monitoring of Initial Placement. Monitoring of the initial placement material shall be made based on Contractor Quality Control cross section surveys, taken as specified herein. Quantity calculations required for completing the Retention Rate Spreadsheet shall be made for each 200-foot section (length) of levee, unless otherwise directed. The required Report information and entries to the Spreadsheet shall be recorded daily. In areas where surveys indicate the quantity of material within the limits of recovery is below the calculated amount required to construct the required levee, the Contractor shall place additional material and perform additional surveys to verify

material quantity is within specified tolerance. No immediate corrective action is required in areas where surveys indicate over placement, unless specifically directed. If volume calculations indicate insufficient material placement or excessive replacement, a descriptive note shall be made on the Quality Control Daily Report. The Contractor shall then make adjustments to the work procedure necessary to accomplish proper distribution of initial material placement.

3.10.3 Retention Rate Spreadsheet. A Retention Rate Spreadsheet programmed to make appropriate calculations, shall be set up on a Microsoft Excel 97 spreadsheet computer program, with the following column headings which are required for Retention Rate Monitoring and reporting: Cross Section Station, Neat Line Cross Section Area, Actual Cross Section Area, Over-Placement Ratio, Average End-Area (Actual), Distance, Volume Between Cross Sections, Cumulative Volume, Gross Dredging Between Stations, Gross Dredging to Date, Gross Retention Rate, Net Retention Rate, Over-Placement (or Under-Placement) Quantity, and Acceptance (Check). Copies of a pre-programmed example spreadsheet and explanation of use will be provided to the Contractor at the Pre-Construction Conference.

3.10.4 Quality Control Report. A copy of the records of Quality Control inspections and tests, as well as the records of corrective action shall be submitted as directed. In addition, the Quality Control Report shall include the information required to accomplish monitoring of Initial Placement, including ongoing Retention Rates, as specified. The Report shall include a description of the Control of Discharge and a discussion of prior and ongoing placement activities during the previous 24 hours, to include the following:

- (1) Date,
- (2) Gross dredging quantity for the last 24 hours,
- (3) Gross dredging quantity to date,
- (4) End Stations of Initial Placement and Final shaping and Grading for the last 24 hours,
- (5) End Stations of Initial Placement and Final shaping and Grading to date,
- (6) Station and Offset Boundaries of dredging for the last 24 hours,
- (7) Control of Discharge, other comments.

A Quality Control Daily Report Form, containing blanks for required information shall be developed by the Contractor for use during this contract. A copy of the Quality Control Report form shall be furnished with the Quality Control Plan for approval.

3.10.5 Submittal of Reports. Daily Reports shall be submitted as directed. A copy of the completed spreadsheet shall be attached to the Daily Quality Control Report on the Thursday of each week, or as directed. Additionally, on the Thursday of each week or as often as directed, the Contractor shall send the spreadsheet to seven electronic mail (e-mail) addresses that will be provided at the Pre-Construction Conference.

3.10.6 Compliance Inspection. The Contractor shall inspect for compliance with contract requirements and record the inspection of operations including, but not limited to the following:

- (1) Placement of fill, thickness of layers, spreading and compacting.
- (2) Construction to lines and grades shown, final shaping as indicated.
- (3) Misplaced materials - Monitoring and removal if required.
- (4) Length of levee constructed, utilization of suitable material, and estimated quantity of remaining suitable material available for levee construction.
- (5) Drainage of ponded water as required, between hydraulically placed fill and exterior and existing containing levees.
- (6) Uniform shaping of perimeter levee berm, proper drainage.

3.10.7 Records. A copy of the records of inspections and tests, as well as the records of corrective action shall be submitted as directed.

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SECTION 02924 - SEEDING AND FERTILIZING

PART 1 - GENERAL

1.1 SCOPE OF WORK. The work covered in this Section consists of permanent establishment of a warm season perennial grass. Seeding and fertilizing shall include labor, equipment, and equipment to prepare the seedbed and fertilize to successfully establish growth of warm season perennial grasses. This work shall take place in areas shown at Lost Lake and soil surfaces at Goat Island as shown in the final acceptance sections. The Contractor shall adapt its operations to variations in weather or soil conditions as necessary for the successful establishment and growth of the grasses.

1.2 REFERENCES. The publication listed below forms a part of this specification to the extent referenced. The publication is referred to in the text by basic designation only.

United States Department of Agriculture (USDA) Regulation.

Rules and Regulations Under the Federal Seed Act and the Texas Seed Law

1.3 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 to the Contracting Officer in accordance with the SECTION entitled SUBMITTAL PROCEDURES.

1.3.1 SD-13 Certificates.

1.3.1.1 Seed: GA. A certificate attesting that the seed supplied meets the requirements specified herein shall be submitted.

1.4 HANDLING AND STORAGE. During handling and storing, the seed shall be stored in an area that will assure that the seed is protected from heat, moisture, rodents, or other damage.

1.5 PAYMENT. Seeding and fertilizing will be paid for at the contract lump sum price for "Seeding and Fertilizing," which price shall constitute full compensation for the work specified herein.

PART 2 - PRODUCTS

2.1 MATERIALS.

2.1.1 Seed Containers shall carry a label showing the percent purity and germination, name of the seed, and that the seed meets the requirements of the USDA and applicable State laws. Seed shall be used that has been treated with an approved fungicide. Seed that has become wet, moldy, bears a test date older than 5 months, or otherwise damaged in transit or storage will not be accepted. Seeds of the species specified herein shall have 85 percent live seed and shall be free of weeds. Seed is to be mixed before sowing and the mixing shall be done in a commercial seed-mixing machine or by equally thorough hand-mixing, after sampling and testing have been completed.

2.1.2 Fertilizer. The fertilizer used shall be a controlled release commercial grade, free flowing, and uniform in composition. The nutrient ratio shall be 13 percent nitrogen, 13 percent phosphorous, and 13 percent potassium. The fertilizer shall be balanced with the inclusion of trace materials and micro-nutrients, including mychoral fungicide. Organic matter consisting of dry leaf matter, compost or other approved material shall be added to the seed mix.

2.2 SEED. Seeding operations shall not take place when the weather conditions, including wind velocity, will prevent uniform seed distribution. Seed shall be applied at the following rates for the following species:

| <u>Planting Dates</u> | <u>Seed Mix</u> | <u>Rate (lbs/acre)</u> |
|-----------------------|--|------------------------|
| Oct 1-Mar 31 | Tall fescue (<i>Festuca anundinaceae</i>) | 10 |
| | Gulf Ryegrass | 50 |
| | Crimson Clover (<i>Trifolium incarnatum</i>) | 20 |
| | Hairy Vetch (<i>Vieca villosa</i>) | 5 |
| Apr 1-Sept 30 | Foxtail Millet (<i>Setaria italica</i>) | 10 |
| | Sideoats Grama (<i>Boutelona curtipendula</i>) | 15 |
| | Inland Sea Oats (<i>Chasmanthium latifolium</i>) | 10 |
| | Green Sprangletop (<i>Leptochloa dubia</i>) | 10 |
| | Sand Lovegrass (<i>Eragrotis trichodes</i>) | 5 |
| | Little Bluestem (<i>Schizachyrium scoparium</i>) | 10 |
| | Indiangrass (<i>Sorghastrum avenaceum</i>) | 10 |

PART 3 - EXECUTION

3.1 SEEDING CONDITIONS. Seeding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed.

3.2 SEEDBED PREPARATION. Areas shown and areas disturbed by the Contractor shall be seeded. When mechanically placed, soil shall be scarified or otherwise loosened to a depth of not less than 4 inches. Clods shall be broken and rock or debris larger than 6 inches shall be removed. Where hydraulically placed material is too wet to mechanically prepare, the seedbed shall not be scarified.

3.3 SEEDING shall be placed at the rates specified in the Paragraph: SEED MIX above. The timing of the seeding may correspond with rain forecasts so that the seeded areas remain moist.

3.3.1 Broadcast Seeding. Seed shall be uniformly broadcast before the application of fertilizer and organic matter at the rate specified. Reseed areas damaged by erosion or showing no germination of seed mix within 3 weeks. Do not apply seeds when weather is too windy, hot or drying, or other adverse conditions exist.

3.3.2 Protection of Seeded Areas. Immediately after seeding, fertilizer and organic matter shall be applied. The organic matter shall be dry leaf matter, compost, straw of oats, rice stems, prairie grass or other approved material.

3.4 FERTILIZER AND ORGANIC MATTER APPLICATION. Fertilizer shall be applied at the rate of 400 pounds per acre. Organic matter shall be applied at the rate of 200 pounds per acre. After the seeding operations, fertilizer and organic matter shall be uniformly spread by an approved broadcasting method.

3.5 ACCEPTABILITY. A satisfactory stand of vegetation shall be healthy and vigorous with scattered bare spots not larger than 100-foot square, with the bare spots not exceeding 30 percent of each seeded area.

3.5.1 Final Inspection. An inspection shall be held by the Contracting Officer to make note of deficiencies in germination. Germination shall occur within 10 to 14 days after seeding depending upon weather conditions. Adequate coverage shall be achieved in 30 to 45 days. Final inspection with the Contracting Officer shall be scheduled 45 to 60 days after seeding. The Contractor shall repair areas not properly germinating within 4 weeks.

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