SECTION 02960

WETLAND VEGETATION

1.0 GENERAL

1.01 SCOPE - The work covered by these specifications consists of furnishing all materials, equipment and labor, and performing all operations required to complete planting for the Bucktown Harbor Wetland Planting Project. Major tasks associated with this work include, but may not necessarily be limited to, the following:

A. Under the Base Bid of this proposal, the Contractor shall select, transport, and plant approximately 1,030 trade gallons of Smooth Cordgrass *(Spartina alterniflora cv.* Vermilion) and 8,000 vegetative plugs of Smooth Cordgrass *(Spartina alterniflora cv.* Vermilion) as specified. Date and time for delivery and planting shall be coordinated with the Engineer. The Contractor shall provide all equipment, materials and labor to complete the project.

B. The Smooth Cordgrass shall be planted four (4) ft on center in rows as shown on the Plans. The Engineer reserves to the right to modify the spacing and location of plants and rows; such mod)fications shall be accomplishedthrough Change or Field Orders where appropriate.

1.02 SITE EXAMINATION - Bidders are required to examine the site of work. Investigation of the site may show that mudflats, rock, logs, stumps, snags, debris and other obstructions may be encountered. No removal or disposal of these obstructions shall be made.

A. The Contractor shall become familiar with the location and conditions of the Bucktown Harbor Wetland Planting project area. The Contractor shall be aware of shallow waters, stumps, logs, sand bars, mudflats, and any obstructions near the site. The site is accessible by land from Old Hammond Highway in Metairie, Louisiana at the U. S. Coast Guard / Bucktown Harbor access road over the levee. An on-site gravel maintenance road provides access to the edge of the marsh planting area.

B. The Contractor is advised to visit the site and determine the best unloading locations. The Contractor shall use maps and information for the site area, but must always judge site conditions because of ever changing conditions of tides and currents. No additional compensation shall be allowed for difficult access due to adverse weather and high tides. The Contractor shall verify the types of equipment necessary for accessing the site and completing the work as specified.

C. No dredging for site access, mobilization, or any other reason shall be allowed.

1.03 PERMITS - The Contractor shall be furnished with a copy of each permit issued and shall be responsible for compliance with all provisions and conditions. These permits do not relieve the responsibility of the Contractor from obtaining additional permits that may be needed to complete the work.

1.04 SPECIAL PERMITS - Copies of any special permits obtained by the Contractor to complete work shall be submitted to the Engineer.

1.05 REMOVAL OF TRASH - The Contractor shall at all times keep all project and adjacent areas free from accumulations of waste material or rubbish caused by the Contractor's employees or by the work, and at the completion ofthe work, all planting containers, debris, trash or other incidentals used by the Contractor shall be removed from the project area and properly disposed of prior to Final Inspection and Acceptance by Jefferson Parish and demobilization.

1.06 EXISTING FEATURES - The Contractor shall be responsible for investigating, locating and protecting all existing facilities, structures, services, and pipelines on, above, or under the surface of the area where construction operations are to be performed.

1.07 SUBMITTALS

PRIOR TO PLANTING

A. Within fifteen (15) days after the receipt of the Notice to Proceed, the Contractor shall submit, in writing to the Engineer, a work plan and estimated work schedule to determine its acceptability.

B. WORK PLAN - The work plan shall include information regarding:

1. The source(s) of all plant materials (nursery name, mailing and physical address, phone number, and name of contact person).

2. A legible copy of all current and state nursery licenses and/or permits issued to the nursery or nurseries. A legible copy of all permits required in the transportation, collection, and propagation of nursery stock, if applicable.

3. A letter from the nursery or nurseries supplying plant materials that it has received, read, and understands the plant specifications regarding this contract and that it will provide plant materials meeting these specifications.

4. The types of equipment the Contractor proposes to use for delivering plant materials from the nursery to the delivery site and from the delivery site to the planting site and on the planting site to transport materials, personnel, etc., including methods of protecting plants during transportation.

5. The Contractor's proposed method of salt-hardening plants and watering plants prior to planting.

C. WORK SCHEDULE - The estimated work schedule shall show the planned schedule of dates and time lines for the major elements of work required to complete the work described in these specifications, including but not limited to the anticipated dates of the following:

1. The date all plant materials are on the premises of the nursery or nurseries.

2. The anticipated dates that salt-hardening shall be commenced and completed.

3. The anticipated date(s) for site layout and staking.

4. The anticipated initiation of delivery and planting operations at the work location.

5. The estimated duration of planting operations.

D. Within thirty (30) days following the receipt of the Notice to Proceed the Contractor shall notify, in writing to the Engineer, of the date that plant material is on the premises of the nursery (or nursries) responsible for growing operations in an amount sufficient to propagate the required number of contract transplants.

E. The Contractor shall inform, in writing to the Engineer, two (2) weeks prior to the commencement of salt hardening.

F. After the Notice to Proceed, but before planting operations commence or materials are delivered, the Contractor, Subcontractors, the Owner and the Engineer shall have a mandatory pre-planting meeting. This meeting shall be held at a mutually agreeable time and place to discuss pertinent details of the work schedules, etc. At the pre-planting meeting the Contractor shall provide the following to Engineer:

1. Work Plan

2. Work Schedule
3. Safety Plan Report
4. A written statement from the contract nursery (or nurseries) that all plants produced for use under this contract are true to name (species, variety or cultivar) and meet the requirements of this contract.

DURING PLANTING

A. The Contractor shall provide, transport, and plant approximately 1,030 trade gallons of Smooth Cordgrass *(Spartina alterniflora cv.* Vermilion) and 8,000 vegetative plugs of Smooth Cordgrass *(Spartina alterniflora cv.* Vermilion) within the marsh area as specified.

B. The Contractor shall keep a daily record of plantings, including species and number of plants delivered and installed, any Field or Change Orders, compliance with the approved work schedule, watering methods, transportation of plants, installation methods, weather conditions (wind speed and direction, temperature, seas, sky conditions, and precipitation), and non working days which shall be included with the weekly reports of progress. The daily reports shall be submitted to Engineer at the weekly progress meeting, unless otherwise instructed.

AFTER PLANTING

A. The Contractor shall contact the Engineer a minimum of seventy two (72) hours prior to of anticipated completion for the purpose of Final Inspection and Acceptance.

B. The Contractor shall furnish the Engineer with copies of delivery slips, indicating the source of plant materials, species name, date delivered, exact quantity, size, and date dug with each shipment of plant materials to the delivery site as specified.

C. The Contractor shall furnish the Engineer with one record copy of the Contract Documents at the site in proper order and marked to show all Field and Change Orders made by Engineer.

D. The Contractor shall furnish the Engineer with a minimum of thirty-six (36) slides or digital photograph files taken during planting as specified.

1.08 MOBILIZATION AND DEMOBILIZATION

A. Mobilization consists of preparatory work and operations, including those necessary for movement of personnel, equipment, supplies and incidentals to

the project site; the establishment of offices, buildings and other facilities necessary for work on the project; the cost of bonds and any required insurance; and other preconstruction expenses necessary for start of the work, excluding the cost of construction materials. Such costs include, but are not necessarily limited to the following:

1. Fuel, lubrication, maintenance and repair of equipment.

2. Temporary Construction facilities.

3. Offshore radio telephones.

4. Movement of all equipment and material to and from the project sites. Capital costs for equipment and such other costs may be prohibited by the contract documents or by law and shall not be included.

5. Arbitrarv Mobilization bv Contractor. No compensation will be made for any remobilization that may be required because of inclement weather, or any other circumstance. Should the Contractor elect to demobilize prior to completing the project, such demobilization and subsequent remobilization shall be at no cost to the DNRJCRD.

6. Measurement and payment. All costs connected with mobilization and demobilization of all the Contractor 'splant, equipment, personnel, and those of his subcontractors and other such costs in the contract documents for the North Lake Mechant Landbridge Vegetative Plantings shall be paid for as outlined in the SCHEDULE OF BID ITEMS.

2.0 PRODUCTS

3.3 PLANT MATERIAL REQUIREMENTS

A. All plants shall be obtained from a Louisiana licensed nursery grower. All plants shall be Louisiana-grown plant material and grown in Louisiana. The contracting nursery shall acclimate plant materials by growing plants in full sun conditions for at least thirty (30) days before planting. (i.e. not inside greenhouse, under glass, under shade cloth, etc.). A legible copy of all current state nursery license(s) and/or permit(s) issued to the contracting nursery (or nurseries, or their subcontractors) to be utilized by the Contractor shall be provided to the Engineer.

B. Certification shall be provided that all plant materials have been produced in accordance with federal and Louisiana state laws where applicable. Federal

and State Quarantine Summaries are available through the Regulatory Affairs Director, American Nursery and Landscape Association, Washington, DC.

C. The Contractor, or its Subcontractor, shall secure all permits required in the transportation, collection, and propagation of nursery stock. A copy of all permits required in the transportation, collection, and propagation of nursery stock shall be provided to the Engineer.

D. Within thirty (30) days following the receipt ofthe Notice to Proceed the Contractor shall notify, in writing to the Engineer, that plant material is on the premises of the nursery (or nurseries) responsible for growing operations in an amount aufficient to propagate the required number of contract transplants. After submission of the nursery or nurseries to be utilized, the Contractor shall not change the selected source of plant materials without notifying the Engineer in writing.

E. Plants shall be free of defects, disfiguring, sun scalding, diseases, insects, insect eggs, borers, or other forms of infections or infestation.

F. Plants shall be available for inspection at the nursery by the Engineer. The Contractor and the nursery (or nurseries) shall make available for inspection to the Engineer the specified vegetation that is to be used for this project.

G. All plants shall be packed for delivery from the nursery to the delivery site and from the delivery site to the planting site in such a manner as to ensure adequate protection against climatic, seasonal, wind damage or other injuries during transit. Special care shall be taken for prompt delivery and careful handling in loading and unloading. Damaged plants shall be rejected by the Engineer and shall be removed and replaced immediately at the Contractor's expense.

H. Each individual shipment of plants to the delivery site shall be accompanied by a delivery slip indicating the following information: 1) source of plant material (nursery name), 2) species (scientific and common name and if applicable, cultivar), 3) plant size, 4) quantity being delivered, 5) date dug (Smooth Cordgrass plugs only), and 6) date of delivery. Shipping slips are to be signed by the Contractor. Copies of the shipping slips shall be provided to Engineer.

2.02 SALT HARDENING

A. Smooth Cordgrass plants are to be salt-hardened under ponding conditions at a minimum of ten (10) parts per thousand. Plants are to be salt-hardened to these levels for at least fourteen (14) consecutive days within one (1) week of delivery.

B. Smooth Cordgrass plants are to be salt hardened at increments of no more than five (5) parts per thousand per week.

C. The Contractor shall inform, in writing to the Engineer, two (2) weeks prior to the commencement of salt hardening and of the methods how each plant species shall be salt hardened.

2.03 PLANT TYPES

A. SMOOTH CORDGRASS

1. Acceptable Smooth Cordgrass plants for the purpose of this contract are plants produced vegetatively from first generation foundation material and/or plants produced vegetatively as accessional generations from foundation materials of *Spartina alterniflora cv.* Vermilion. Plants produced from seed, cell and tissue culture lines, DNA fragments and pollen, or other methods of biotechnology are not acceptable.

2. The plant species *Spartina alterniflora cv.* Vermilion is a cultivated variety released by the USDA, Natural Resources Conservation Service, Golden Meadow Plant Materials Center (PMC) in 1989. The complete and proper name for acceptable plant materials for this contract is *Spart.na alterniflora* Loisel cv. Vermilion.

3. Foundation material as it related to *Spartina alterniflora cv.* Vermilion and this contract is defined as 1) vegetative germplasm released and maintained by the Natural Resource Conservation Service, Golden Meadow PMC; 2) foundation material provided directly to the nursery from the Golden Meadow PMC; and 3) vegetative propagules subsequently produced as direct accessional generations from the original foundation material provided to the nursery by the Golden Meadow PMC.

2.04 PLANT SIZES AND CONTAINERS

A. VEGETATIVE PLUGS All Smooth Cordgrass vegetative plug transplants shall consist of multi-stemmed, bare-root material, and shall meet the following specifications:

1. All vegetative plug transplants shall have a minrmurn of three (3) live stems, attached at the stem-root interface. At least two (2) of the three (3) stems shall have a minimum stem height/length of twelve (12) inches from the stem-root interface to the stem (not leaf) tip. In

addition, each plug shall have a root mass of not less than two (2) inches in diameter at the root crown, and with no less than a total of four (4) primary roots per plug. Plug roots shall not be less than six (6) inches in length from the point of attachment to the root tip when stretched.

2. Vegetative plug transplants shall not be dug earlier than seventy two (72) hours prior to the time of planting.

3. All portions of the vegetative plug transplants, i.e., stems, roots and leaves, shall be specifically protected in such a manner as to ensure adequate protection against climatic, seasonal, mechanical, or other injury during transit, loading and unloading, holding, and planting. Plugs can be protected by a number of acceptable methods such as wrapping with: 1) burlap, 2) sphagnum (or other water-holding mosses), 3) paper, 4) packing in water absorbing gels, or 5) a combinationofmaterials. The Contractor shall inform in writing to the Engineer for approval of the method of transporting plants from the nursery to the dock and from the dock to the planting site.

2.05 GALLON CONTAINERS

A. Gallon containers shall be round in shape and shall be individual containers, not molded trays or tray liners. Containers shall be trade gallon in size. An acceptable trade gallon container shall have dimensions that are not less than five and three quarter (5-3/4) inches nor more than six and one-half (6-1/2) inches across the top (outside diameter) and not less than six (6) inches nor more than seven (7) inches in height (outside dimension). Containers shall be constructed of rigid plastics. Paper, polystyrene (Styrofoam), peats, or other biodegradable materials are not acceptable.

B. Each trade gallon container of Smooth Cordgrass shall have a minimum of six (6) live and actively growing stems per container and have a minimum stem height of eight (8) inches from the stem-root interface to the stem (not leaf) tip.

C. Smooth Cordgrass stems longer than thirty six (36) inches shall be cut to facilitate transportation and planting; however, plant stems may not be cut shorter than thirty six (36) inches from the cut end to the stem-root interface. Stems cannot be broken or physically damaged during transportation or planting.

3.0 <u>EXECUTION</u>

3.01 PLANTING PERIOD

A. Planting may only occur between April 15 and August 31, unless otherwise authorized in writing by the Engineer.

3.02 EXAMINATION

A. Verify that marsh area is ready to receive work of this Section.

B. Beginning of installation measn acceptance of existing conditions.

3.3 PLANT INSTALLATION

A. Plants shall be planted the same day they are delivered to the site if possible. Plants shall not become water stressed prior to planting. Plants shall retain their stem and leaf rigidity at all times indicating adequate moisture is being received. Plants shall be watered with water within the salinity ranges they were grown. The Contractor must take the necessary precautions to insure that plant materials received adequate water during all phases of the contract prior to actual planting; that is, transplants must stay moist during mobilization and while on site prior to planting. Plants appearing discolored, shriveled, dehydrated, or otherwise stressed shall be rejected.

B. Vegetative plug transplants shall be planted in a dug hole. Depth of the planting hole will be fixed so that the stem-root interface shall be positioned slightly below normal ground. The stem-root interface shall not be more than four (4) inches below normal ground. The planting hole shall be tightly closed around the plant and plants must remain erect after planting.(See Typical Planting Details)

C. All gallon containerized plants shall be planted in a dug hole. The plant shall be removed from the container immediately prior to planting and placed into the hole. Hole depth should be fixed so that the top surface of the root ball is even with or slightly below normal ground. The top surface of the plant root ball should not protrude above, or be more than one (1) in. below normal ground. (See Typical Planting Details)

D. The Engineer reserves the right to reject any plant material not meeting minimum specifications.

3.04 PLANTING LAYOUT

A. The Engineer shall assist the Contractor in planting layout. The specific location of planting boundaries, rows, and baselines shall be marked on site by the Contractor as directed by the Engineer. The Engineer reserve the right to alter the boundaries, rows, and plant spacing, if necessary; such mod)fications shall be accomplished through Change or Field Orders where appropriate.

B. All plants shall be planted in rows unless otherwise directed by the Engineer. The Smooth Cordgrass shall be planted four (4) ft on center as shown on the Plans and located in planting layout. The Engineer reserves the right to modify the spacing and location of plants and rows; such mod)fications shall be accomplished through Change or Field Orders where appropriate.

END OF SECTION