

SECTION IV

GENERAL SPECIFICATIONS

1.0 SCOPE

- 1.1** The Work covered by the descriptions found in this section, detailed throughout the Contract Documents and Specification Sections, is generally described as (i) excavation of approximately 17,960 CY (to design depth) with an overdredge pay allowance of 3,785 CY from six distinct areas within the Port Royal Residential Canal system to the design elevation specified in the Construction Drawings, (ii) excavation and re-use of approximately 65 CY of oyster shell from within the entrance to Galleon Cove (iii) conveyance and dewatering of the excavated material for final placement and grading to create a habitat island approximately 1.7 acres in size and (iv) creation of a stabilized perimeter for the habitat island using a combination of sediment filled geotextile containers, oyster reef and rip rap for the base bid. Bid Option A, if awarded, requires the installation of vegetation on the habitat island.
- 1.2** The Contractor shall furnish all plant, labor, equipment, supplies and material and perform all operations in connection with completing the Work within the lines, grades and cross-sections within the lines, grades, and cross-sections specified in these Documents and on the Construction Drawings. The Contractor shall pay for all work items described in these Specifications and Contract Documents unless otherwise noted.
- 1.3** The Contractor shall have the opportunity to contract separately with individual property owners within the Port Royal residential canal system for individual private dredging beyond the scope of the City's project. All private dredging by the contractor by separate contract must not adversely affect the Contractor's ability to complete the City's work within the prescribed timeframe. No allowance for time extensions will be provided to the Contractor for private dredging. The private property owner and Contractor are responsible for procuring all regulatory permits required for private canal dredging. The

City's dredge permits do not provide for private dredging. In conducting private dredging, the contractor and private property owner shall hold the City employees and the Engineer and its employees harmless from any personal or property damage, or environmental violation from any local, state or federal regulatory agency.

2.0 CONTRACTOR QUALIFICATIONS

The Contractor or major sub-contractor shall have a minimum of five years experience in all facets of the Work, including but not limited to canal dredging, sediment conveyance, and handling and dewatering of fine sediments using polymers and geotextile containers. The Contractor shall submit the following qualification documentation with their bid: The Contractor must demonstrate satisfactory performance on a minimum of five (5) similar projects with at least three (3) of those projects having been completed in the last two (2) years. At least two (2) of these projects must demonstrate experience handling and dewatering fine sediments through the use of geotextile containers. The following documentation shall be provided for each project: Project name, description, dredge type, dredge size and pump distance, dredge material characteristics, sediment handling and dewatering methods, Client's contact information, Engineer's contact information, a summary of change orders, scheduled completion date, actual completion date, name of Contractor's supervisor and a summary of any unique aspect of the project.

3.0 CONSTRUCTION ACCESS, STAGING AND TRANSPORT OF MATERIALS

3.1 The Contractor is responsible for complying with all permits, laws, and regulations regarding weight limits for bridges and roads utilized for transport. The Contractor is likewise responsible for complying with all applicable traffic, safety, and speed laws. The Contractor shall notify, and coordinate with, local law enforcement and highway agencies regarding transport activities, which shall be undertaken for the work.

3.2 Contractor shall propose the plan of work and access and staging areas to be utilized to the Engineer and City within ten (10) days of the Notice of Award. The plan shall include a description of the routes and areas he intends to use to transport and store material and

equipment during construction. The plan shall also describe how the Contractor intends to access the project site and work areas. All transport routes, storage areas, and access areas are subject to the approval of the City. The final work plan and staging areas will be negotiated with the City prior to commencement of the Work.

- 3.3** All temporary vehicle access routes required for the construction of this project must be removed upon project completion, and the areas affected must be restored to their original condition before final acceptance of the Work.
- 3.4** The Contractor is responsible for any arrangements and fees associated with the use of vessel loading and mooring facilities at no additional cost to the City.
- 3.5** Expenses incurred by the Contractor relating to any pertinent road use and delivery expenses or loading fees shall be paid by the Contractor. All necessary transportation easements, accesses, and permission must be obtained by the Contractor prior to mobilizing equipment to the site.
- 3.6** The Contractor shall provide and maintain all signs, barricades, warning signals, and flagmen to safeguard pedestrian and vehicular traffic in the project area as required by Federal, State, and local regulations (if applicable). Any costs associated with this requirement shall be included in the total project cost, and shall not be specifically reimbursed.

4.0 PLANT FOR CANAL EXCAVATION

- 4.1 General.** All excavation of the channel shall be performed in accordance with the approved work plans and requirements specified herein and as shown on the Drawings. Excavation of the channel may be conducted using either hydraulic (cutterhead or dustpan) dredge equipment or mechanical (i.e. barge mounted clamshell) means as approved by the Engineer.

4.2 Dredge Plant Capacity. The Contractor agrees to keep on the job sufficient dredging plant and equipment which shall meet the requirements of the work. The plant shall be maintained in an operating condition capable of safely and efficiently performing the work as set forth in the Contract Documents in a timely manner. The plant shall be subject to inspection by the Engineer at all times. Following completion of mobilization, no reduction in the capacity of the plant employed on the work shall be made except by written permission of the Engineer. The measure of the "capacity of the plant" shall be its actual performance on the work to which these specifications apply. The plant shall be equipped (at a minimum) with GPS positioning equipment to ascertain dredge location at all times.

4.3 Hydraulic Dredge Plant.

4.3.1 The hydraulic dredge shall have a discharge line with an internal diameter of not less than ten (10) inches and a minimum dredge pumping requirement consistent with the nature of the project. The City and Engineer do not guarantee the Contractor that compliance with minimum dredge size requirements will result in satisfactory completion of the Work as described in these Contract Documents. The Contractor shall provide dredge performance, production, draft, and positioning equipment details to the Engineer as part of the Work Plan. If booster pumps are proposed in the Work Plan, the Contractor shall provide characteristic curves for each pump, along with the rated horsepower (HP) of each pump drive, maximum revolutions per minute (RPM) of the pump and the diameter of the impeller and its eye. The anticipated average daily production rate, in cubic yards, shall be clearly specified in the Work Plan submitted with the Contractor's bid.

4.3.2 All pipelines for hydraulic machines must be kept in good condition at all times and any leaks or breaks along their length must be promptly and properly repaired. Adequate floating pipeline shall be provided to allow maneuverability in the dredge areas, and all floating line and pipe connections shall be capable of withstanding the forces of the sea-state to which they will be exposed.

4.3.3 All pipelines must be either fully submerged (i.e., bottom resting) or floating at all times. Contractor is responsible for marking both submerged and floating pipelines and other equipment and maintaining these marks for the duration of the project. Gordon Pass, the inland navigable channel and adjacent waters are frequented by recreational and commercial vessel traffic on a daily basis and the Contractor shall take appropriate measures to ensure safety of all vessels traversing the project site.

4.3.4 All pipelines and other equipment must remain a minimum of twenty-five (25) ft from documented submerged environmental resources (i.e. seagrass). Pipeline plan shall be included in the Work Plan and is subject to approval of the Engineer, City and Regulatory Agencies.

4.4 Mechanical Dredge Plant.

4.4.1 The mechanical dredge shall have a clamshell bucket (or similar configuration) of not less than 3 CY capacity consistent with the nature of the project. The City and Engineer do not guarantee the Contractor that compliance with minimum bucket size requirements will result in satisfactory completion of the Work as described in these Contract Documents. The Contractor shall provide dredge performance, production, draft, and positioning equipment details to the Engineer as part of the Work Plan. Further, the anticipated average daily production rate, in cubic yards, shall be clearly specified in the Work Plan submitted with the Contractor's bid.

4.4.2 The Contractor shall provide specific details describing the transport and placement of the sediment excavated by mechanical means in the Work Plan.

4.4.3 The Contractor shall provide specific details describing the dredge/barge position and relocation methods (i.e. anchor/winch system, tug, movable sub system, etc.) in the Work Plan.

4.5 Support Vessels.

- 4.5.1 Crew boats, fuel barges and all other necessary work boats as required for the efficient operation of the dredge shall be provided by the Contractor. All scows must be maintained in a seaworthy condition, the coamings repaired, and the pickets provided with proper doors or appliances to prevent leakage of material.
- 4.5.2 All marine equipment shall be capable of operating in the sea-state conditions of Gordon Pass and Naples Bay. The Contractor shall have all appropriate U.S. Coast Guard (USCG) certifications for the equipment to be used and all USCG regulations must be strictly adhered to.
- 4.5.3 Caution must be exercised by the Contractor when moving plant and equipment to not damage or otherwise impact adjacent seagrass resources.

5.0 OBSTRUCTION OF NAVIGABLE WATERWAYS

The Contractor will be required to conduct the work in such manner as to obstruct navigation as little as possible, and in case the Contractor's plant or support vessels so obstructs the navigable waters as to make difficult or endanger the passage of any vessels, said plant or vessels shall be promptly moved on the approach of any vessel to such an extent as may be necessary to afford a practicable passage. Upon completion of the work the Contractor shall promptly remove his plant, including ranges, buoys, piles, and other marks placed by him under his contract in navigable waters or on shore.

6.0 NOTICE TO MARINERS

Prior to the commencement of work, the Contractor shall notify the Commander, Seventh Coast Guard District, of his intended operations and request that it be published in the Local Notice to Mariners. This notification must be given in sufficient time so that it appears in the Notice to Mariners at least two weeks prior to the commencement of the work. A copy of the notification shall be provided to the Engineer and City prior to commencement of work.

Further, the Contractor shall obtain approval from the U.S. Coast Guard for all buoys and dredging aid markers to be placed in the water prior to the installation. Dredging aid markers and lights shall not be colored or placed in a manner that they will obstruct or be confused with navigation aids.

7.0 MEASUREMENT OF QUANTITIES FOR UNIT PRICE WORK

7.1 Canal Excavation Quantity Measurements. The total estimated quantity of sediment to be removed from within the specified excavation limits shall be, for bidding and payment purposes, 21,745 cubic yards, which is the total quantity including a four (4) inch maximum pay overdredge depth estimated based on the pre-construction surveys. While a one foot overcut allowance has been permitted, the Contractor’s pay volume will be limited to a maximum of 100% of the dredge quantity based upon a four (4) inch overcut.

| Canal | Design Dredge Volume (CY) | Maximum Pay Volume (CY) |
|-------------------------------|---------------------------|-------------------------|
| Cutlass Cove | 2815 | 3275 |
| Doubloon Bay | 1520 | 1790 |
| Harbor Head | 3520 | 4325 |
| Galleon Cove | 5045 | 6195 |
| Champney Bay and Doubloon Bay | 5060 | 6160 |
| Total | 17960 | 21745 |

*Maximum pay volume assumes 100% overdredge of four inches below the design elevation

7.2 The total computed quantities of material required to be removed within the specified limits of the cross-sections are based on the pre-construction surveys performed by the Engineer. The Contractor is required to remove a minimum of 95% of the design dredge volume by canal.

7.3 The basis of measurement of quantities for payment shall be the comparison of the pre-construction surveys, dated March 2012 as shown on the Contract Drawings, and the post-construction acceptance surveys of the dredging. Quantities will be calculated based on the average end area method for volume computations at 100 ft baseline stations surveyed.

7.4 The Engineer shall be notified a minimum of forty-eight (48) hours in advance of each acceptance canal survey to allow for observation by a representative of the Engineer, unless waived by the Engineer. The Contractor may call for post-construction acceptance surveys on completed canals as follows:

- Cutlass Cove
- Doubloon Entrance
- Doubloon Bay
- Champney East and South
- Champney North
- Galleon Cove
- Harbor Head (two acceptance surveys permitted, each survey shall include not less than 500 linear ft of completed work)

7.5 A box cut will be allowed on the 1V:5H side slopes (1V:3H for Cutlass Cove) within the canal dredge areas provided that the amount of additional cut is equal to or greater than the amount of undercut.

7.6 The Contractor may elect to independently conduct pre-construction surveys to be used for payment. These surveys must be performed in accordance with the requirements for the acceptance surveys, be performed in the presence of the Engineer and be performed by a professional surveyor licensed in the State of Florida.

7.7 **Deduction for Non-Conforming Work.** The City will not pay for material excavated from areas unauthorized by this Contract. Excavation of such areas is a violation of the

regulatory permits and may result in Contractor fines. If it is determined that the Contractor has excavated outside of the approved excavation areas or below the allowable excavation limit, the quantity of material excavated from these areas will be computed and subtracted directly from the pay quantity.

8.0 PROTECTION OF EXISTING STRUCTURES (PRE- AND POST-CONSTRUCTION DOCUMENTATION)

8.1 Damages to Existing Structures. The Contractor shall be responsible for determining and documenting the pre-construction condition of existing structures and shoreline treatments (e.g. seawalls, revetments, docks) and assessing the vibration and dredging impact distance. The Contractor shall take all appropriate measures to prevent damage to any existing structures during construction and performing a post-construction verification inspection of those structures previously inspected. The Contractor shall assume all responsibility for damages to existing structures within and bordering the Project boundaries as a result of construction activities. This includes, but is not limited to, damages as a result of equipment impact and construction due to operation of equipment close to existing structures.

8.2 Pre-Construction Structural Inspection/Evaluation. Existing structures adjacent to any project work area shall be inspected for existing damage prior to commencement of Work. Any damage found shall be documented by the Contractor thoroughly by photographs, video footage, and field notes and shall include description of damage, extent (i.e., size, length, crack width, etc.), location on structure, and any other pertinent information. The Contractor shall be responsible for inspecting and documenting the structural integrity of all structures and for developing appropriate procedures, as necessary, to prevent damage. Copies of all documentation shall be provided to the Engineer and to the City at the time of inspection.

8.3 Post-Construction Structural Inspection/Evaluation. After completion of Work, the Contractor shall be responsible for conducting a post-construction structural

inspection/evaluation of structures previously inspected under the pre-construction structural inspection/evaluation. Documenting procedures shall be identical to those performed under the pre-construction conditions and any structure shall be identified and described clearly in the inspection documentation. The Contractor shall be responsible for remedying any damage resulting from construction activities to any structural features adjacent to the Project. Copies of all documentation shall be provided to the Engineer and the City.

9.0 LAYOUT OF WORK

9.1 General. Survey control monumentation and baseline stations have been established by the Engineer. The control monuments are shown on the Construction Drawings with a table to identify the coordinates and elevation of each control point. These control point coordinates are reported horizontally in State Plane Coordinates (NAD 83/07), Florida East Zone and vertically referenced to the North American Vertical Datum of 1988 (NAVD88). From these control points, the Contractor shall establish any intermediate benchmarks and additional horizontal control required for the completion of the work prior to commencing dredging. The Contractor shall employ a licensed professional surveyor to establish such additional control. The Contractor shall provide benchmark locations, coordinates, and elevations in plans to be delivered to the Engineer prior to commencement of construction. The Contractor shall immediately contact the Engineer if any discrepancies are discovered in any of the information presented concerning all control monumentation. If the Contractor does not contact the Engineer, it is understood that the Contractor agrees with all information presented in the Construction Drawings related to monumentation elevation and control information.

9.2 From the benchmarks, control data, and elevations established by the Engineer and Contractor, the Contractor shall complete the layout of work and shall be responsible for all measurements that may be required for the execution of the work, subject to modifications that the Engineer may require to meet changes in conditions at the work site.

- 9.3** The Contractor shall furnish, at his own expense, such stakes, templates, platforms, equipment, tools and material, and all labor as may be required in laying out any part of the work from the benchmarks, control data, and elevations established. All grade stakes shall be steel pipe that can be pulled intact after filling. It shall be the responsibility of the Contractor to protect and maintain all permanent and temporary benchmarks, stakes and other markers established by the Engineer and Contractor throughout the construction of the project unless authorized to remove them by the Engineer. If the benchmarks or temporary markers are destroyed or damaged by the Contractor prior to their authorized removal, at the Engineer's discretion the benchmarks or temporary markers shall be replaced and the cost deducted from any amounts due or to become due to the Contractor. All temporary markers and stakes placed by the Contractor must be removed upon completion of the project.
- 9.4** At a minimum, the Contractor shall establish a temporary survey benchmark in the vicinity of the habitat island to allow for progress grade checks by the Engineer during construction.
- 9.5** Prior to commencement of construction at the habitat island site, the boundaries of the State authorized Submerged Lands Lease shall be clearly marked in a manner approved by the Engineer.

10.0 PHYSICAL DATA

- 10.1** Data and information furnished or referred to below are for the Contractor's information. The City and Engineer shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.
- 10.2** The indications of physical conditions on the Construction Drawings and in the Appendix C are the result of site investigations by topographic surveys (March 2012), by jet probes (April 2012), by core borings (August 2012) and by biological survey (August 2012). When the indicated physical conditions are the result of site investigations by jet probes and

core borings, the locations thereof are shown on the Construction Drawings. While the Engineer's core borings results may be considered *representative* of subsurface conditions at their respective locations and vertical reaches, local variations of subsurface materials in this region are to be expected. The confirmation of all geotechnical, biological and topographic conditions shall be the responsibility of the Contractor. The material recovered from the Engineer's core borings is available for inspection by prospective bidders at Erickson Consulting Engineers, 7201 Delainey Court, Sarasota, Florida, 34240 during the entire bid period (by appointment), and prospective bidders are urged to examine the material.

10.3 Water levels in the project area are primarily affected by tidal fluctuations of the Gulf of Mexico. The project area is also subject to storm surges due to hurricanes, tropical storms and extratropical storms. The closest published NOS tidal benchmark data exist approximately 0.5 miles from the project site (benchmark ID #872-5110).

10.4 The project area is subject to tropical storms and hurricanes from June through November, and to windy and rainy weather, including severe electrical storms and other sudden and locally severe meteorological occurrences that approach hurricane conditions, during any time of the year. The Contractor shall maintain full-time monitoring of the available local marine weather broadcasts, and avail themselves of such other local and national weather forecasting services as may be available. It shall be the Contractor's responsibility to obtain information concerning rain, wind, and wave conditions that could influence dredging and habitat island construction operations. References are made to the following sources that contain climatological and meteorological observations and data.

- Summary of Synoptic Meteorological Observations: North American Coastal Marine Areas Atlantic and Gulf Coasts. Produced by Naval Weather Service, US Department of Commerce. Distributed by National Technical Information Service

- Atlas of Pilot Charts, North Atlantic Ocean. Prepared by the Defense Mapping Agency, United State Government. Available from the Navigation Center, Miami, Florida, USA (305) 358-1414
- Software is available based on the NOS tide tables that predict the tides and tidal currents in the project vicinity at discrete time intervals during the day. These packages can be obtained at a low cost. One such product is available from Nautical Software, Inc. in Beaverton, Oregon, USA, (503) 579-1414
- Services exist that provide email or telefax weather forecasts and sea conditions on a daily basis. One such service is Oceanweather, Inc. at www.oceanweather.com

11.0 HURRICANE AND SEVERE STORM PLANNING

11.1 The project area is subject to severe weather conditions such as hurricanes, tropical storms, tornados, strong winds, heavy rains, lighting, and the like. It is the Contractor's responsibility at all times to: (1) monitor current and developing weather conditions and (2) to develop and implement appropriate contingency plans to ensure proper storage of materials, supplies, and equipment, and to secure the Project site so as not to endanger public health and safety, environmental resources or public and private property.

11.2 Within ten (10) days of Notice of Award, the Contractor shall submit a Hurricane and Severe Storm Plan for review and acceptance. This plan shall include but not be limited to the following:

- Types of storms anticipated (winter storm, hurricane, and tornado)
- Time intervals before storms when action will be taken and details of the actions taken
- List of the equipment to be used on the job and its ability to handle adverse weather

- List of safe harbors and the distance from the work area to these harbors, the time required to move the equipment to these harbors, and equipment to be utilized to make this move to the safe harbor
- Methods of securing equipment not to be removed
- Plan of evacuation to include interim measures, i.e., immediate reaction plans to be taken for all storm occurrences, particularly sudden/flash storms
- Operating procedures to be undertaken when critical dredge equipment fails during sudden and severe adverse weather conditions, to include breaking of spuds, swing wires, anchor wires or other equipment

12.0 PRESERVATION OF HISTORICAL, ARCHEOLOGICAL AND CULTURAL RESOURCES

If any shipwreck, artifact, or other objects of antiquity that may have scientific or historical value, or may be of interest to the public are discovered, located and/or recovered, the Contractor shall immediately notify the Engineer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in the destruction of these resources and shall prevent employees from trespassing on, removing, or otherwise damaging such resources.

13.0 SITE OBSERVATION

13.1 The Engineer shall observe the establishment of horizontal control work (survey layout, ranges, station flags, shore-based control for GPS/RPS, etc.) and vertical control work (tide staff gauges), upland cross sections, construction elevations top/invert, maximum/minimum elevations of dredged materials within disposal area(s), etc.), but the presence of the Engineer's representative shall not relieve the Contractor of his responsibility for proper execution of work in accordance with the specifications. The Contractor will be required:

- To furnish, on the request of the Engineer, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and

crew of the dredging plant as may be reasonably necessary in observing the work

- To furnish, on the request of the Engineer, suitable transportation from all points on shore designated by the Engineer to and from the various pieces of plant, and to and from the beach placement areas

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

14.0 CONSTRUCTION OFFICE

The Contractor shall maintain a construction office in the general vicinity of the project work area for the duration of the project. This office shall be open and attended at least during working hours as specified in SSP-31 of these Contract Documents.

15.0 ALTERNATE CONSTRUCTION METHODS AND DESIGNS

The Contractor's bid shall be based on the Contract Documents. However, the Contractor is free to propose additional or alternate construction methods and designs, as long as they satisfy the technical, functional, and aesthetic requirements established in these Contract Documents. Any Contractor proposal for alternate or additional construction methods or designs shall be presented to the Engineer and City for consideration and approval. Contractor's submittal shall include drawings and specifications of sufficient detail and clarity to satisfy the Engineer of the validity of the alternate proposal. The City is under no obligation to accept alternative designs or methods submitted by the Contractor.