

TECHNICAL SPECIFICATIONS
COLLIER COUNTY
CENTRAL MARCO ISLAND BEACH RE-GRADE 2018
SEPTEMBER 18, 2018

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TS-1.0 Definitions.

TS-1.1 The following terms and abbreviations used in these Technical Specifications shall be defined as:

CONTRACT DRAWINGS	Construction Plans as approved by DEP, also defined as Plans.
CONTRACTOR	Those parties selected and duly authorized by the COUNTY to conduct the WORK described herein.
COUNTY	Collier County, its employees or designees as appropriate. The project will be administered by the Collier County Coastal Zone Management Department on behalf of the Collier County Board of County Commissioners.
DEP	State of Florida Department of Environmental Protection.
ENGINEER	Humiston & Moore Engineers, its employees or designees as appropriate.
OWNER	The City of Marco Island c/o Collier County.
PROJECT	Central Marco Island Beach Re-Grade
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
WORK	Excavation of sand from beach near the swash zone and placement of that sand along the upland beach profile seaward of the dune to create a smooth, continuous, positive slope to the beach in accordance with the project CONTRACT DRAWINGS and these Specifications.

Throughout the Technical Specifications, the COUNTY will remain the main contact for the CONTRACTOR. In some cases, at the discretion of the COUNTY, ENGINEER may be called upon as a responsible entity for specific tasks on behalf of the COUNTY.

TS-2.0 Scope of WORK.

TS-2.1 The WORK consists of furnishing all labor, materials, and equipment, and performing all tasks necessary for the regrading of the Central Marco Beach ranging from approximately monument R-135.5 south to R-141.5. The regrading will be conducted through relocating approximately 155,000 to 175,000 cubic yards of sand from the swash zone along this area (above -5.0 feet NAVD) landward creating a gradual slope from the dune area at approximately +6.5 feet NAVD (+0.5/-0.0 feet) at the most landward point to existing grade along the beach upland of the area of excavation. The fill region will be constructed in 1-foot lifts. Throughout these specifications the terminology *excavation* and *dredging* are used interchangeably. The beach fill shall meet the specific design elevations and locations shown on the plans within the tolerances specified herein. The seaward slope and grades of the beach fill area is shown on the plans for reference. The excavation area is to have a foreshore slope of 1V:20H or flatter to an elevation of -5.0 feet NAVD.

TS-2.2 This WORK must be completed according to the plans and these specifications within the time specified in the contract and within compliance with the conditions of the Department of Environmental Protection (DEP) 0235209-008-JM, US Army Corps of Engineers (USACE) SAJ-2016-01224, and all local permits including permits from the City of Marco Island and Collier County such as but not limited to a Vehicle(s) on the Beach Permit and a Marine Permit.

TS-2.3 The CONTRACTOR is solely responsible for all construction means, methods, techniques, and procedures including construction layout and staking, and the sequence of the WORK, except as provided for in section TS-3.0, Order of WORK. It is anticipated that this WORK will be done mechanically.

TS-2.4 All WORK must start after sea turtle nesting season which ends October 31st, and all WORK is to be completed and all equipment removed from the beach immediately after completion to minimize WORK during shorebird nesting season beginning February 15th. CONTRACTOR shall be prepared to document progress and take all necessary steps to ensure the project is completed prior to the completion date provided by the COUNTY.

TS-3.0 Pre-Construction Meeting and Submittals

TS-3.1 Prior to commencement of construction, CONTRACTOR shall meet with ENGINEER and OWNER. CONTRACTOR's designated superintendent, as required under the General Terms and Conditions shall be present at the pre-construction meeting.

TS-3.2 A minimum of three days prior to the pre-construction meeting, the CONTRACTOR shall submit to ENGINEER, for the OWNER's approval, an Operations Plan which shall describe in detail, as a minimum, the CONTRACTOR's proposed:

1. Order of WORK,
2. Anticipated schedule, including estimated start and completion dates, and anticipated daily production or sand placement along the beach profile (i.e. cubic yards per day),
3. Vessels and heavy equipment to be used,
4. Water transportation for OWNER and ENGINEER if barge or other floating equipment is to be used,
5. Confirmation of construction access to be used for equipment mobilization and demobilization; Sheet 3 of the Plans shows one potential construction access available at Residents' Beach,
6. Specific method of excavating, transporting, placing, and rolling the beach fill material. Details will include staging of any equipment, procedures for removing the material from the approved excavation area, method of material transport to the fill area, and any and all safety precautions and procedures to minimize conflicts between the general public and construction activities.
7. Number and qualifications of personnel to be used,
8. Specific methods to be used in establishing horizontal and vertical control and for staking out the WORK. Due to the gradual slopes and precise WORK required for this project it is imperative the CONTRACTOR utilize accurate instrumentation to establish the specific beach berm elevations called for on the Plans and to maintain smooth transition slopes and elevations throughout the construction such as the use of laser levels in conjunction with professional survey information. Surveyor must stake out project. Equipment used during construction, such as mounted GPS laser levels, is not approved for use in lieu of surveyor's staking of the project site.

9. Subcontractors, including the registered professional surveyor and mapper in the state of Florida (PSM) conducting progress and payment surveys, and the anticipated frequency of surveys. In order to reduce travel time and costs associated with multiple progress surveys, surveyor to have an office located within Collier County and surveyor to be approved by the COUNTY.
10. A form to be used for reporting daily operations. This form shall include a place to record the number of personnel and equipment at the site, quantities of material excavated and placed on the beach fill area during the reporting period, a description of the character of the material excavated, the locations excavated during the reporting period, number of truckloads of material hauled or other means of tabulating and measuring material transported, the beach stations where material was placed during the reporting period, weather and sea conditions, the extent of and reason for any delays, visits from regulatory agencies, and any instructions received from the COUNTY or any County representative, including the ENGINEER. If a hydraulic dredge is used for any part of the WORK, the daily reports of operation shall include the start and stop stations of both the dredge and the end of the discharge pipe. If Contractor proposes to use a hydraulic dredge, the Contractor shall provide a Dredged Materials Management Area plan and details of the disposal containment area. At a minimum, the following information will be provided on the Daily Report Forms:
 - a) Hours of operation including start times, stop times, and description of the reason for stoppage,
 - b) The beginning and ending position stationing of the WORK,
 - c) An estimate of the quantity of sand in cubic yards (cy) placed along the beach profile from the designated area of excavation during the reporting period,
 - d) All equipment and materials on the job site including number of personnel on the job site,
 - e) Weather and sea conditions,
 - f) Manatee sightings,
 - g) Confirmation of daily clearance from endangered species monitors, when required,
 - h) Any materials or equipment delivered to the site,
 - i) The results of turbidity monitoring when required in the Regulatory Permits,
 - j) Visits from staff of regulatory agencies, COUNTY, or ENGINEER, and
 - k) Any instructions received from regulatory agencies, COUNTY or ENGINEER.

The Daily Quality Control Report shall be submitted by 12:00 noon on the day following the day for which the activity is being reported. Mobilization, progress and/or final payment to the Contractor shall be withheld until all of the required CONTRACTOR's Daily Report of Construction Operations has been submitted to the COUNTY. The preferred method of submittal is by e-mail. COUNTY reserves the right to suspend construction if the CONTRACTOR's Daily Report of Construction Operations is incomplete or overdue.

11. Description of all transport routes and areas to be used during construction,
12. Description of a public safety plan describing methods to be used by contractor to maintain a safe WORK area and keep the public out of the WORK Area, such as erection of fencing and having a spotter ahead of any heavy equipment working and traversing the beach outside the immediate WORK area, such as when mobilizing and demobilizing and transporting material. All heavy hauling equipment used transporting sand on the beach to have an escort vehicle for safety.
13. Specific procedure to account for all grade stakes and control markers, including the use of a log and numbering system for all grade stakes so that removal of all grade stakes can be documented prior to completion of the project,
14. Turbidity monitor qualifications from an independent contractor are to be submitted and

- approved by the DEP prior to the pre-construction meeting and project commencement.
15. Turbidity measurements as required by the regulatory permits may be included on the daily reports of operation or may be submitted on a separate form. Reporting forms shall be provided to OWNER or ENGINEER by noon on the day following the day covered by the daily Report of Operations. Turbidity measurements in excess of the maximum stated in the DEP permit must be addressed immediately as specified in the permit.
 16. If a hydraulic dredge is to be used for any part of the WORK, in addition to the information listed under item 10 above, CONTRACTOR shall provide information on the size of the dredge, including horsepower on the main engine and the size of the intake and discharge pipelines, draft required by the dredge barge, minimum depth to which the dredge is capable of excavating, and the estimated daily production rates.

The Daily Quality Control Report shall be submitted by 12:00 noon on the day following the day for which the activity is being reported. Mobilization, progress and/or final payment to the Contractor shall be withheld until all of the required CONTRACTOR's Daily Report of Construction Operations has been submitted to the COUNTY. The preferred method of submittal is by e-mail. COUNTY reserves the right to suspend construction if the CONTRACTOR's Daily Report of Construction Operations is incomplete or overdue.

Acceptance of the plan by the OWNER indicates an acknowledgement of receipt and a general understanding of the CONTRACTOR's proposed approach to the WORK; acceptance is not an endorsement of the CONTRACTOR's means and methods.

TS-3.3 CONTRACTOR shall designate a competent superintendent who will attend the pre-construction conference as well as be on site during construction activities, and who will be responsible for seeing the WORK is in compliance with the Contract Documents, which includes the Contract Drawings, Technical Specifications and regulatory permits. This person must remain as the superintendent during the entire duration of the project, unless a written request is made by the CONTRACTOR for a change and is approved by the COUNTY. The COUNTY can temporarily cease WORK if no superintendent, approved by the COUNTY, is working on the project.

TS-3.4 CONTRACTOR's superintendent shall attend all scheduled progress meetings to be held on site with the COUNTY and the ENGINEER to review progress of the WORK, work schedule, and submittals. Initially, progress meetings will be held weekly and will be subject to change based on instructions from the COUNTY or ENGINEER.

TS-3.5 CONTRACTOR shall provide a cell phone number, or other reliable means of contacting the Superintendent, by which the Superintendent may be reached at any time of day during construction as well as a backup contact in case the Superintendent is not available.

TS-4.0 Order of Work

TS-4.1 CONTRACTOR shall obtain any necessary marine construction permits from the City of Marco Building Department.

TS-4.2 The Order of WORK shall generally be: proof-roll the fill area prior to fill placement, excavation where called for on the Construction Drawings then grading and rolling in one-foot lifts prior to progress survey. OWNER reserves the right to revise the fill template pending availability of sand at the time of construction.

TS-4.3 Excavation shall proceed across the beach face from waterward to landward so as to maintain a natural beach profile from the Gulf of Mexico to upland. At the end of each WORK day, prior to any WORK stoppages and after WORK in a segment of excavation area has been completed, CONTRACTOR shall level any ruts and create a smooth beach face at 1V:20H as shown on the plans. The CONTRACTOR may not leave remnant islands of sediment between the excavation and

the Gulf of Mexico. Following construction, the beach and nearshore are used by the general public, and it is required that the CONTRACTOR leave the WORK area including all areas of excavation, filling and grading smooth without ruts. It is understood that the CONTRACTOR cannot control the final grade below Mean High Water; however, CONTRACTOR shall make every effort to leave this area as natural and close to the conditions specified herein by use of machinery to grade at Lower Low tide conditions.

TS-4.4 CONTRACTOR shall be responsible to establish trafficways, pedestrian control, fencing, and signage meeting all County, City, State and Federal standards as necessary to ensure public safety. CONTRACTOR shall be responsible for all equipment stored on the beach and WORK areas throughout the duration of the project. The CONTRACTOR shall not close the entire beach or WORK area. The CONTRACTOR shall phase the WORK to accommodate public transport routes and consider interactions of the general public within the WORK area in determining the order of WORK. Phasing plan must be approved by the COUNTY.

TS-4.5 The means and methods of excavation shall be determined by the CONTRACTOR. CONTRACTOR shall conduct the excavation in a manner to minimize turbidity in the Gulf of Mexico.

TS-4.6 February 15th is the beginning of shorebird nesting season. Should Contractor obtain approval by the COUNTY to WORK beyond February 15th, then no WORK may commence each day until clearance is provided by the shorebird monitor for this project. All WORK, including demobilization and clean-up, must be completed prior to sea turtle nesting season beginning April 15, 2019.

TS-5.0 Layout of the Work

TS-5.1 The CONTRACTOR shall complete layout (initial stake out) of WORK per the construction plans. The stake out shall include laying out the project by placing vertical stakes as necessary to complete the WORK. The CONTRACTOR may elect to only stake out a portion of the job initially to reduce potential displacement or loss of stakes. The CONTRACTOR shall furnish such stakes, equipment, tools and qualified personnel as may be necessary for maintaining such staking for completion of the WORK. CONTRACTOR will be responsible for documenting the placement of all stakes placed on the beach through a graduated numbering of the stakes, and to use that list to ensure all stakes are removed and accounted for upon completion of the project.

TS-5.2 A vertical tolerance shall be limited to +0.5 / -0.0 feet and in no cases shall there be a negative slope along the beach profile or a rut deeper than 0.2 feet which would result in ponding along the beach profile face within the area of filling and grading. In all cases the design elevations shown on the plans shall be achieved or greater within the +0.5 / -0.0 foot tolerance.

TS-5.3 The CONTRACTOR must utilize quality control measures to maintain tolerance and the seaward slope during construction, such as the use of laser levels and/or other means of assuring the WORK will be within the tolerance outlined on the construction plans. The positive seaward slope as shown on the construction plans must be maintained as positive and smooth without ruts or areas prone to ponding.

TS-6.0 Record Drawings and Daily Reports

TS-6.1 During the course of construction, the CONTRACTOR shall record all information required to complete a set of Record As-Built Drawings. Information to be included on the Record Drawings shall be recorded on one working set of construction drawings during the course of the WORK, and shall include excavation dimensions and elevations, and beach fill dimensions and elevations.

TS-6.2 The information recorded on the working set of construction drawings shall include a surveyed cross section for each station in the excavation. These cross sections shall be surveyed

by a PSM registered in the State of Florida. CONTRACTOR shall notify ENGINEER 24 hours in advance of conducting progress surveys. The information recorded on the working set of construction drawings shall also include a profile for each completed station on the beach fill which is shown on the plans. CONTRACTOR shall also provide ENGINEER with survey data in x, y, z format, and a copy of all survey notes. CONTRACTOR must proof-roll fill placement area and roll each fill section at 1 foot lifts and advise the COUNTY upon acceptance by COUNTY or ENGINEER may continue with fill placement above the rolled section. No surveying is conducted by drone.

TS-6.3 During the course of construction, CONTRACTOR shall submit a Daily Report of Operations to include the information listed under TS-3.0. The report shall be submitted on a form to be provided by the CONTRACTOR and approved by the COUNTY or ENGINEER, and shall be submitted by noon on the day following the day covered by the report.

TS-6.4 If field changes are made to modify the WORK in any way, such field changes shall be documented on the Record Drawings by dimension, detail, and date and also noted on the daily report form by the CONTRACTOR. The working set of Construction Drawings shall be kept at the site and be available for review by OWNER and ENGINEER at all times during the progress of the WORK. Prior to Substantial Completion of the WORK, the CONTRACTOR shall coordinate with the ENGINEER to transfer the information to a final Project Record set of reproducible drawings, and submit the working construction and Project Record drawings to the OWNER through the ENGINEER, along with a certification as to the accuracy and completeness of the drawings. Prior to final payment, the Record Drawings shall be revised by the CONTRACTOR through coordination with the ENGINEER to reflect any changes which have occurred since the submittal for Substantial Completion.

TS-7.0 Site Conditions

TS-7.1 The construction site is on Central Marco Beach from approximately DEP Reference monument R-135.5 south to R-141.5 extending from the dune area seaward to the approximate -5 feet NAVD contour. The WORK includes the nearshore environment of the Gulf of Mexico. The site is therefore exposed to weather conditions which at times may include storms and rough sea conditions necessitating temporary suspension of marine construction operations. The CONTRACTOR is responsible for being familiar with these conditions and to take them under consideration in the cost of the WORK. Although there may be temporary suspension of WORK due to weather conditions at times, the WORK will be conducted from the upland and therefore delays due to poor weather conditions are expected to be minimal. Time extensions for WORK will only be granted for extreme weather conditions precluding upland construction and must be documented immediately. This documentation shall be submitted to the COUNTY within 24 hours to be eligible for consideration for a contract time extension.

TS-7.2 The CONTRACTOR is responsible to take appropriate precautions to ensure that partially completed WORK is not subject to displacement or damage due to natural site and storm conditions. Should any such damage or displacement of partially completed WORK occur, the CONTRACTOR is responsible for repairing any such damage or displacement of partially completed WORK at no additional cost to the OWNER if no progress survey information is available and area accepted in advance. The CONTRACTOR is encouraged to perform progress surveys to document completed WORK, and the survey must be completed by a professional surveyor as described in TS-6.2. Should there be any changed site conditions due to storm effects, the CONTRACTOR's progress surveys along with any data collected by the ENGINEER, including photographs, will be the basis for documenting the nature and magnitude of any such changes.

TS-7.3 Information and data furnished or referred to herein are for the CONTRACTOR's information, however it is expressly understood that the OWNER and ENGINEER shall not be responsible for any interpretation or conclusion drawn therefrom by the CONTRACTOR. It is the CONTRACTOR's

responsibility to be familiar with local conditions that may in any manner affect performance of the WORK.

TS-8.0 Excavation

TS-8.1 The WORK covered by this section consists of furnishing all labor, materials, and equipment and performing all tasks necessary for the excavation and transport of the excavated material from the designated area to be excavated to the designated beach fill area. The material to be excavated has accumulated sand within the excavation area from the littoral system over the past 10 years and is expected to be compatible with the beach environment and suitable for placement on the beach. It is anticipated that the CONTRACTOR will be excavating this material mechanically. Due to the time constraints and site conditions, COUNTY has the right to not award the Contract to a Bidder proposing to excavate the material by use of hydraulic dredging or similar equipment.

TS-8.2 The maximum depth of dredging is -5.0 feet NAVD. Due to inaccuracies inherent in excavating and dredging in the nearshore and underwater, overdepth of one foot shall be used in determining an acceptance tolerance of the WORK involving excavation. Any over dredging beyond what is shown in the plans or these specifications shall be corrected by CONTRACTOR by immediately grading and filling the area. Daily reports shall indicate the depth and location of excavation based on vertical control established by a PSM.

TS-8.3 If material other than beach quality sand is encountered, CONTRACTOR shall immediately notify the OWNER and the ENGINEER and reduce the dredging depth and positioning, in the immediate vicinity where unsuitable material was encountered, to avoid dredging material that is unsuitable for beach placement. Should any material unsuitable for beach placement be excavated, CONTRACTOR shall separate such material from the beach compatible material to the maximum extent practical and dispose of the non-compatible material as directed by the OWNER. Since the CONTRACTOR is expected to conduct the excavation with mechanical equipment, it is expected that the CONTRACTOR will only remove beach quality material from the area of excavation.

TS-8.4 The CONTRACTOR shall erect such barricades, fences and signs around the construction area as necessary to prevent public access to the construction area. CONTRACTOR shall also be responsible to post appropriate warnings within and around the construction area to prevent pedestrians, boaters, and swimmers from entering the area affected by the construction project. It is the CONTRACTOR's responsibility to ensure that the construction project area is sufficiently posted and monitored to prevent swimmers, boaters and pedestrians from injury from the construction. The CONTRACTOR is to phase the WORK and pedestrian control when preparing the WORK Plan.

TS-9.0 Beach Fill

TS-9.1 The WORK covered by this section consists of furnishing all labor, materials, and equipment and performing all tasks necessary for the placement of sand on the beach fill area within the lines and grades shown on the Construction Plans.

TS-9.2 In order to utilize low tides, dredging and stockpiling of sand within the dredge template is permissible 24 hours per day, six days per week (Monday through Saturday). WORK within the fill template is permissible 6:00 am to 8:00 pm, 6 days per week (Monday through Saturday). WORK must comply with all lighting requirements.

TS-9.3 The CONTRACTOR shall establish lines and grades for the beach fill phase of the WORK. Based on the Construction Plans, CONTRACTOR shall provide COUNTY and ENGINEER with their computed layout of the fill along the 200-foot stationing for review including all range and elevation information along each station. The tolerances in the beach fill grade are plus 0.5 / -0.0 feet on all grades above 0.0 NAVD. CONTRACTOR will be responsible for the removal of all stakes prior to completion of the project. Upon completion of all filling operations, the fill shall be graded, dressed

and rolled in one-foot lifts to eliminate any undrained pockets and abrupt humps and depressions. Fill must have a smooth, continuous, seaward slope as specified on the plans.

TS-9.4 After the beach has been graded, the CONTRACTOR shall roll the WORK area with a 10-ton smooth roller to smooth the surface and remove any ruts. All the fill shall be rolled.

TS-9.5 CONTRACTOR is required to place only beach fill from the area of excavation that comply with the criteria established in the State approved *Sediment Quality Assurance/Quality Control Plan* date January 20, 2016 for this project.

TS-9.6 Rock Rubble, Debris or Shell Hash. Should rock, rubble, or any other debris larger than two (2) inches in diameter or shell hash (visually more than 5%) be encountered during excavation, the CONTRACTOR will relocate or reduce the excavation depth to avoid placing such material on the beach. CONTRACTOR shall be responsible for removing any such rock or shell hash which is placed on the beach. CONTRACTOR shall remove from the site of the WORK all snags, driftwood and similar debris lying within the limits of the beach fill section, as directed by COUNTY or ENGINEER, before placement of the fill. All materials removed shall be disposed of in an area provided by and at the expense of the CONTRACTOR and approved by the COUNTY or ENGINEER. Grading and other construction equipment will not be permitted outside the construction limits except for ingress or egress to and from the site by way of construction access easements approved by OWNER or ENGINEER. CONTRACTOR shall grade all areas smooth used by the CONTRACTOR on the beach including those areas used for access to and from the WORK area.

TS-9.7. The CONTRACTOR shall continuously visually monitor the sediment being excavated and placed on the beach. If noncompliant sediment is encountered, the CONTRACTOR will immediately cease dredging, relocate dredging operations into compliant sediment, and verbally notify the COUNTY and ENGINEER, providing the time, location, and description of the noncompliant sediment. The CONTRACTOR will also report any encounters with noncompliant sediment in the Contractor's Daily Report, providing depth and location in State Plane Coordinates of said materials. The CONTRACTOR will take the appropriate remediation actions as directed by the COUNTY or ENGINEER.

TS-10.0 Surveys and Payment

TS-10.1 Payment will be based upon quantities of rolled sand placed within and achieving the fill template boundaries and grades as specified on the construction plans, as documented by the CONTRACTOR's progress surveys, conducted by a PSM registered in the State of Florida.

TS-10.2 Notwithstanding required production rates, the CONTRACTOR will need to achieve completion of the WORK within the specified time, and with an understanding that full production may not be achieved at the outset of construction, CONTRACTOR shall be eligible for 60% payment of mobilization/demobilization upon demonstrating the capability of excavating a minimum of 1,000 cubic yards of sand and placement of that sand in the designated fill area within a 24 hour period. In general, daily production rates are expected to be much higher than 1,000 cubic yards per day. Payment for the remaining 40% of the mobilization/demobilization shall be eligible upon determination of final completion and acceptance of the completed WORK by OWNER.

TS-10.3 Pay quantities will be computed based upon comparison of a pre-construction survey conducted by the CONTRACTOR's surveyor within at least 30 days prior to construction. The surveyor, and progress surveys to be conducted by CONTRACTOR's surveyor shall be in accordance with paragraph TS-6.2, provided that ENGINEER determines the CONTRACTOR's surveys are adequate for determining pay quantities and percentage of project completion. The scope of the survey, along stations spaced 200 feet apart, is shown on the construction drawings (Stations 00+00 to 62+00). If the ENGINEER determines that additional surveys are needed to determine or verify

pay quantities, additional surveys may be conducted by the CONTRACTOR with ENGINEER present, or independent surveys may be conducted at the discretion of the OWNER. Survey profiles deemed unacceptable by the ENGINEER will not be paid. Survey profiles will be reviewed by the ENGINEER for the following, but not limited to: tolerance acceptability, slope, placement location, elevation, survey spacing, and horizontal location of spot elevations.

TS-10.4 The CONTRACTOR shall perform and provide his own volume calculations for determination of material placed, as required for payment purposes, at the time of each pay request, if applicable. The volumes shall be determined through comparison of surveys. The CONTRACTOR shall be paid by quantified percent completion of fill placement if Lump Sum is the basis for payment, or alternative bid price basis, if any, acceptable to the COUNTY.

TS-10.5 Material which is not deemed beach compatible which was excavated and separated from the beach compatible material and stockpiled for disposal off of the beach will be measured by truck size and quantities when removing from the beach. That CONTRACTOR will provide the ENGINEER and OWNER with an estimated quantity of the non-beach compatible material based on the truck hauling data and those costs associated with the removal will be the responsibility of the CONTRACTOR and shall not result in any additional expense to the OWNER.

TS-11.0 General Notes

TS-11.1 Location of Storage Facilities

The WORK is to be completed on the beach and in the nearshore area on Marco Beach including the staging area designated on plans. CONTRACTOR shall be responsible for restoring these areas to their pre-project condition, including native vegetation outside of the fill template, before the project will be considered to be substantially complete. If additional storage is required for construction equipment and materials, arrangements for such storage facilities shall be the responsibility of the CONTRACTOR.

TS-11.2 Spillage

Special measures shall be taken to prevent any effluent, chemicals, fuels, oils, greases, and bituminous materials from entering the water or spilled on the beach.

TS-11.3 Disposal

Disposal of any materials, wastes, effluent, trash, garbage, oil, grease, chemicals, etc., in and adjacent to the project site shall not be permitted. If any waste materials are dumped in unauthorized areas, the CONTRACTOR shall remove the material and restore the area to the original condition that existed before the area was disturbed. If necessary, contaminated ground shall be excavated, disposed of as directed by the OWNER through the ENGINEER, and replaced with suitable fill material. Any restoration measures required under this section of the Specifications will be the responsibility of the CONTRACTOR, and shall not result in any additional expense to the OWNER.

TS-12.0 Environmental Protection

TS-12.1 CONTRACTOR shall exercise due caution so as not to damage existing native vegetation along the shoreline within and around the project sites, access ways, and staging areas. Any native vegetation damaged by CONTRACTOR during the course of the WORK shall be restored by CONTRACTOR at CONTRACTOR's expense.

TS-12.2 CONTRACTOR shall perform all WORK in accordance with all City, County, State and Federal requirements and permits issued for this WORK.

TS-12.3 Turbidity: CONTRACTOR shall retain an independent firm to conduct turbidity monitoring as required in the DEP permit. It is the CONTRACTOR's responsibility to conduct the excavation activities so that the project remains in compliance with the DEP water quality standards with regard to turbidity.

Turbidity monitoring shall be conducted twice daily whenever in-water WORK occurs. A background measurement will be taken 500 meters upstream of the project site outside of any visible turbidity plume, at mid depth. A compliance measurement will be taken at 150 meters downstream of the in-water WORK, within the densest portion of any visible turbidity plume.

Information required to be filed by DEP regarding the calibration and certification of the equipment to be used in the turbidity monitoring shall be the responsibility of the CONTRACTOR, and copies of all such filings with the DEP shall be provided electronically to the COUNTY and ENGINEER at the time of filing with DEP.

All monitoring data shall be submitted to DEP and ENGINEER within one week of analysis on a form approved by DEP. The form shall include all information required by permit, and at minimum the following information: (1) permit number; (2) dates of sampling and analysis; (3) a statement describing the methods used in collection, handling, storage and analysis of the samples; (4) a map indicating the sampling locations; and (5) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection, and accuracy of the data. TS-12.4 Turbidity Violations: Report of any violations are required by the DEP permit. If monitoring reveals an apparent violation of the State Water Quality Standard for turbidity, all in-water construction activities must cease immediately. The occurrence of the violation must be reported to the ENGINEER. In consultation with ENGINEER, CONTRACTOR shall proceed according to the process outlined in the DEP permit. Corrective measures as approved by the ENGINEER shall be undertaken immediately.

If a turbidity violation has occurred, turbidity sampling after the corrective measures have been taken shall resume in the same locations. The samples shall be taken in the same manner as the routine monitoring and at the same locations. If sampling still indicates that State Water Quality Standards are being violated, sampling shall occur at two hour intervals until the samples indicate no violation is present. In no case shall the dredging operation resume until a set of samples indicate that the State Water Quality Standard for turbidity is no longer being violated.

TS-13.0 Permits.

CONTRACTOR is responsible for obtaining any and all local permits, including any application fees associated with the City, roadway permits, and County Building Permit(s). CONTRACTOR shall comply with all conditions of these Technical Specifications, federal, state and local permits and approvals that have been obtained by COUNTY, including those listed below.

1. Florida DEP JCP Permit
2. USACE Individual Permit
3. U.S. Fish and Wildlife Service Biological Opinion