

APPENDIX B

TECHNICAL SPECIFICATIONS FOR PALM BEACH COUNTY

ANNUAL DUNE AND WETLANDS RESTORATION PROJECT NO. 2013ERM01

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TECHNICAL SPECIFICATIONS FOR
PALM BEACH COUNTY
ANNUAL DUNE AND WETLANDS RESTORATION
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TECHNICAL SPECIFICATIONS (Continued)

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TECHNICAL SPECIFICATIONS (Continued)

1.1 **Scope of Work:** The objective of this *Invitation for Bid* and associated prospective construction Contract Documents is to identify and secure a contract necessary for the restoration of beach dunes and wetland/submerged aquatic habitats in Palm Beach County.

The work entails providing and/or excavating, transporting, placement and grading of material within project areas designated by the COUNTY under specific Work Orders to be issued by the COUNTY – consistent with the lump sum and unit costs cited in the Bid Schedule. Bidders shall furnish all labor, materials, equipment, and services necessary to complete the scope of work outlined in these specifications.

Anticipated Work Order(s) under the initial one-year Contract includes the Coral Cove Dune Restoration (Figure 1), the Grassy Flats Estuarine Habitat Restoration Project (Figure 2) and the Bryant Park Living Shoreline Project (Figure 3) as depicted on the Schedule of Estimated Quantities (Table 1). The timing of these Work Order approvals is contingent on site conditions, grant funding and agency permitting. The estimated expenditure under the remaining two-year Contract period, if renewed, would be an amount not to exceed the amount of the first year's contract for each subsequent year.

GOVERNING SPECIFICATIONS: Under this Contract the CONTRACTOR shall have the capacity (necessary equipment and operators available) to: provide and/or excavate, transport, deliver, place, and grade no less than a total of 300,000 tons (250,000 yd³) of material at a daily rate of no less than 3,000 tons (2,500 yds³) of sand per 10 hour day of work. The CONTRACTOR shall begin to supply or excavate, transport and deliver material within 48 hours of faxed or emailed receipt of a Work Order and shall be at full operating capacity within 5 calendar days of receipt of a Work Order.

Material Placement: It is expected that the CONTRACTOR shall employ bulldozers, front-end loaders, off-road dump trucks, excavators, conveyors and other equipment as necessary to move the material from the staging area to the project area for excavation/placement. Grading and other construction equipment will not be permitted outside the designated work areas except when specifically defined in the associated Work Order. The site conditions are subject to change; grade elevations may vary from the elevations shown on the plans. The County reserves the right to vary the grade from the grades shown on the plans. The fill cross sections shown on the drawings are for the purpose of permitting and estimating the amount of fill needed and will be used by the COUNTY in making any change in the grades. The CONTRACTOR shall monitor the excavation and fill operations and shall notify the COUNTY if and when the quantity to be placed may exceed the Contract quantities. The quantity of material specified on a Work Order is the maximum quantity the CONTRACTOR will be paid for, unless otherwise authorized by the COUNTY.

Grade Tolerance: Final dressing shall not take place until all filling activity is completed at which time the fill shall be graded and dressed so as to eliminate any abrupt humps and

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depressions in the fill surfaces. Final grades and elevations shall be as indicated on the plans unless otherwise instructed by the County. Any grade stakes used in the placement of the fill shall be removed intact, without breaking.

Misplaced or Non-compliant Materials: Materials deposited above the maximum tolerance elevation or outside designated project area shall be classified as misplaced material and shall result in a suspension of operations. Sand deposited which does not meet the specifications outlined in Section 2.1 shall be classified as non-compliant material and shall result in a suspension of operations. The CONTRACTOR shall provide immediate notice to the COUNTY including a description of the incident and specific location of either misplaced or non-compliant material. The CONTRACTOR shall remove and redeposit such materials at no added cost to the COUNTY and with no project time extensions. The CONTRACTOR shall not resume operations until approved by the COUNTY.

Measurement of Fill Quantity: Measurement of fill quantity must be approved in advance by the COUNTY. If the CONTRACTOR opts to use front-end loaders with an integrated weighing system, the system shall be capable of printing weight slips and maintaining a daily cumulative total. The CONTRACTOR shall provide documentation demonstrating that the integrated weighing system has been calibrated within 48 hours of commencing work and shall zero the weighing system at the beginning of each work day. Payment shall be based on the cumulative weight as documented by the integrated weighing system.

Weight to Volume Conversion: The weight to volume conversion for measurement and payment shall be 1.2 Ton = 1 yd³ for well drained sand and fill material with a moisture content less than ten percent (10%).

The following describes the work and associated Bid Items:

2.0 **BASE BID (DUNE RESTORATION)**

2.1 **Provide Sand (Bid Item 1):** Under Bid Item 1, the CONTRACTOR shall provide COUNTY approved sand meeting the following technical specifications and load the sand into trucks. Said trucks may be the COUNTY's trucks or the CONTRACTOR's trucks; the transport of sand is addressed under Bid Items 2 and 3.

2.1.1 All sand shall meet the following **Technical Standards:**

- a) be obtained from a source further than 800ft landward of the coastal construction control line
- b) be similar in color to the native beach material [The predominant Munsell Color Value in Palm Beach County for moist (5% - 10%) native beach material is 10YR 7/2 (light gray). An acceptable range of Munsell Color Values for sand is from 10YR 8/1 (white) to 10YR 7/3 (very pale brown), excluding Munsell Color Values with a chroma greater than 3, 2.5Y 8/1 (white) to 2.5 Y 8/3 (pale yellow) or 5Y 8/1(white), 5y 8/2 (pale yellow)]

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- c) be free of construction debris, rocks, clay, or other foreign matter
- d) have less than 1% organic material (TOC)
- e) be free of coarse gravel or cobbles, defined by Unified Soils as anything greater than 19mm in diameter
- f) have a particle size distribution ranging predominantly between 0.074mm (3.75 ϕ) and 4.76mm (-2.25 ϕ) – and shall **not** contain:
 - greater than 1 percent, by weight, silt, clay or colloids passing the #200 sieve and greater than 0.6 percent, by weight, silt, clay or colloids passing the #230 sieve (4.0 ϕ) as determined by wet sieve analysis ASTM method D1140;
 - greater than 5 percent, by weight, fine gravel retained on the #4 sieve (-2.25 ϕ)

The acceptable range of the mean grain size of sand shall be from 0.30mm to 0.70mm with a sorting coefficient/standard deviation no greater than 0.9 ϕ .

- g) be well-drained and free of excess water, and have a moisture content of less than ten percent (10%). Immediately upon request of the COUNTY representative, the CONTRACTOR shall collect a representative sample from the loading site, seal the sample in an air tight container and deliver the sample on the same day to a COUNTY approved testing laboratory for analysis of the moisture content using ASTM method D2216. Verbal results of the moisture content shall be made available to the COUNTY within 72 hours after the sample is delivered to the laboratory. Deliverables shall include a hard copy and electronic files in a format acceptable to the COUNTY. All costs associated with the sampling and analysis shall be the sole responsibility of the CONTRACTOR.

Quality Assurance Protocols:

- a) the CONTRACTOR shall provide daily geotechnical analysis of core samples taken from the stockpile at the source. The core samples shall be a composite of four (4) samples taken around the stockpile using a 6' tube that is 1.5" in diameter. The four samples shall be combined and quartered per ASTM D75-03, AAHSTO T2-91. The analysis shall consist of a wet sieve method using ASTM C-117 procedures.
- b) the COUNTY may collect random sand samples of delivered sand to assess grain size, Munsell color and silt content using ASTM D422-63, AAHSTO T-27 procedures. Each sample shall be archived with the date, time load number of the sample and beach placement location. A record of these sand evaluations will be provided within the COUNTY'S inspection reports.
- c) in addition to the field samples, the CONTRACTOR shall visually compare each load to the acceptable sand criteria to ensure compliance with the quality requirements. If determined necessary by the COUNTY, additional assessments of the sand shall be conducted for grain size, Munsell color and silt content for any load sample that does not pass the visual inspection. All costs associated with the additional assessments shall be the sole responsibility of the CONTRACTOR.