PINELLAS COUNTY

SAND KEY FENDER SYSTEM

Special Provisions and Supplemental Technical Specifications

December 2017

PREPARED BY:

KISINGER CAMPO & ASSOCIATES CORP.
One Tampa City Center
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Patrick D. Mulhearn, P.E.
FL 71456

SECTION 00 75 00

SPECIAL PROVISIONS AND SUPPLEMENTAL TECHNICAL SPECIFICATIONS

These Special Provisions provide additional information and modify the Pinellas County Standard Technical Specifications (PC-STS) for Utilities Construction. Unless noted herein, all conditions of the (STS) apply.

ARTICLE SP-1 SUMMARY OF WORK

The work to be performed is comprised of fender installation, asphalt lot reconstruction, and other incidental construction at the artificial reef loading lot in Sand Key Park in Pinellas County.

Sand Key Park is a public park owned by Pinellas County that is open from 7:00 am to Sunset. Pinellas County Parks Department is responsible for the operation of the facility. Within the park, at the north end, is a lot Pinellas County uses to load barges which take material to create artificial reefs. The Pinellas County Solid Waste Department operates the artificial reef lot. The seawall at the northern end of Sand Key Park is maintained by the City of Clearwater. Any fines or other damages for permit condition violations, or otherwise damage to any other part of the park system will be borne solely by the Contractor.

The following items comprise the work to be performed:

1. Install a new 190’ fender system adjacent to the City of Clearwater seawall, including a 1” gap between the City of Clearwater and Pinellas County sections of the fender.
2. Reconstruct approximately 4,800 square feet of asphalt lot to install drainage swale which directs runoff away from the seawall and towards the west of the artificial reef lot.
3. Remove four (4) existing bollards to below the proposed asphalt elevation.
4. Install four (4) new bollards in accordance with manufacturer’s recommendations.
5. Remove and store chain link of fence parallel to water.
6. Reinstall chain link on existing fence posts.

ARTICLE SP-2 SPECIAL PROVISIONS

ARTICLE SP-3 ADDITIONAL INFORMATION AND STUDIES

ARTICLE SP-4 SUPPLEMENTAL TECHNICAL SPECIFICATIONS

Note: The Supplemental Technical Specifications presented herein are project specific, are only related to this project and are not part of Pinellas County Standard Technical Specifications (STS). All STS will be designated as such in lower right hand corner of document by Pinellas County-STS. All Supplemental Technical Specifications will have a **(S)** designation following the section title in the Table of Contents and each specification will be designated in lower right hand corner as PCU-XXXX, where XXXX designates the specific Project Job Number.

00 75 00	Special Provisions **(S)**
01 01 00	Mobilization **(S)**
01 02 00	Maintenance of Traffic **(S)**
01 10 01	Clearing and Grubbing **(S)**
01 20 01	Measurement and Payment **(S)**
32 12 02	Optional Base Group **(S)**
32 12 03	Type SP Structural Course **(S)**
35 60 01	Fender System, Plastic Marine Lumber **(S)**
35 60 02	Fender System, Polymeric Piles **(S)**
35 70 01	Bollards **(S)**
35 80 01	Riprap **(S)**

ARTICLE SP-5 MODIFICATIONS TO THE STANDARD TECHNICAL SPECIFICATIONS

1. 01 42 01 Reference Standards and Definitions
   - A. Paragraph 1.03.A, Add:
     FDOT Florida Department of Transportation
     605 Suwannee Street
     Tallahassee, FL 32399

2. 01 57 00 Control of Work
   - A. Paragraph 1.11.C, Not Applicable.
   - B. Paragraph 1.13.A, Replace:
     "Specification 01 55 26, Traffic Control." with "Supplemental Technical Specification 01 02 00, Maintenance of Traffic (S)."
   - C. Part 3 – Execution, Add:
     Working hours: 7am to 6pm, Monday through Friday. Holiday work requires written approval. The Contractor shall make the request to work holidays at least 24 hours in advance. Weekday (M-F) overtime work acceptable if the work performed does not

require immediate inspection and the County has granted approval.

3. 01 78 39 Project Record Documents
   A. Remove Paragraphs 1.03.C.2 and 1.03.C.7 through 1.03.C.10
   B. Paragraph 1.04, Not Applicable
   C. Paragraph 1.05, Not Applicable
   D. Paragraph 1.06, Not Applicable
   E. Paragraph 1.07, Not Applicable

TECHNICAL SPECIFICATION CHECKLIST

Project Name: Proposed Sand Key Fender System
Project Number: 002582A

The following sections of the Standard Technical Specifications will apply to this contract if marked "X" as shown below:

00 75 00	☒	Special Provisions
01 32 33	☐	Color Audio-Video Construction Records
01 35 00	☐	Special Project Procedures
01 42 01	☒	Reference Standards and Definitions
01 45 17	☐	Pipeline Testing Requirements
01 55 26	☐	Traffic Regulation
01 57 00	☒	Control of Work
01 57 13	☒	Erosion and Sedimentation Control
01 58 01	☐	Project Identification Signs
01 78 39	☒	Project Record Documents
03 10 01	☒	Concrete Materials
09 91 00	☐	Painting and Protective Coatings
31 23 33	☐	Excavation and Backfill for Pipes
31 23 34	☐	Excavation and Backfill for Structures
32 12 01	☐	Stabilized and Asphalt Roadway Restoration
32 13 01	☐	Concrete Sidewalks, Driveways and Gutters
32 92 01	☐	Seeding and Sodding
33 01 31	☐	Sanitary Sewer Cured in Place Pipelining
33 01 32	☐	Sanitary Sewer Cleaning and Televising
33 01 33	☐	Manhole Rehabilitation
33 01 34	☐	Sanitary Sewer Pipe Repairs
33 01 35	☐	Multi-Component Stress Panel Liner System
33 01 36	☐	Urethane/Epoxy, Polyurea Manhole Liner System
33 01 37	☐	Polyurethane Manhole Liner System
33 01 38	☐	Polymorphic Resin Manhole Liner System
33 01 39	☐	Calcium Aluminate Manhole Liner System
33 01 40	☐	CIPP Structural Lateral Connection Lining
33 05 20	☐	Jacking and Boring
33 05 21	☐	Horizontal Directional Drilling
33 05 22	☐	Horizontal Directional Drilling – Subaqueous Crossings and Large Diameter Installations
33 11 01	☐	Potable Water Main Piping and Appurtenances
33 13 01	☐	Disinfection of Potable Water Mains
33 32 00	☐	Submersible Wastewater Pumping Stations
33 33 01	☐	Gravity Sewers
33 34 00	☐	Sanitary Sewage Force Mains and Appurtenances
33 35 01	☐	Reclaimed Water Main Piping and Appurtenances

33 39 00	☐	Sanitary Utility Sewerage Structures
40 95 01	☐	Wastewater Pump Station SCADA Remote Telemetry Unit (RTU)
48 11 30	☐	Standby Diesel Generators
13 34 19	☐	Metal Building Systems

SECTION 01 01 00

MOBILIZATION

PART 1 – GENERAL

1.01 SCOPE OF WORK

1. The work specified under this Section shall be in accordance with Pinellas County Standard Technical Specifications for Roadway and Related Construction, Section 101-0100, as amended herein.
2. The Contractor is not required to furnish, install, or maintain station boards or provide door hangers to adjacent properties.

PART 2 – PRODUCT (Not Used)

PART 3 – EXECUTION (Not Used)

SECTION 01 02 00

MAINTENANCE OF TRAFFIC

PART 1 – GENERAL

1.01 SCOPE OF WORK

Maintain pedestrian, marine, and vehicle traffic for the duration of the construction period, including any temporary suspensions of the work. Furnish, install and maintain traffic control and safety devices during construction. Do not impede the safe and expeditious movement of traffic adjacent to the project site. MOT includes all facilities, devices and operations as required for safety and convenience of the public adjacent to the work zone.

Do not maintain traffic over those portions of the project where no work is to be accomplished or where construction operations will not affect existing roads. Do not obstruct or create a hazard to any traffic during the performance of the work. Repair any damage to existing pavement open to traffic.

Include the cost of any work that is necessary to meet the requirements of the Contract Documents under the MOT pay item.

PART 2 – PRODUCT (Not Used)

PART 3 – EXECUTION (Not Used)

SECTION 01 10 01

CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 SCOPE OF WORK

1. The work specified under this Section shall be in accordance with Pinellas County Standard Technical Specifications for Roadway and Related Construction, Section 110

PART 2 – PRODUCT (Not Used)

PART 3 – EXECUTION (Not Used)

SECTION 01 20 01

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 SCOPE OF WORK

A. Separate payment will be made only for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work, shall be considered to be included in the scope of the appropriate listed work items unless specifically called out as a separate Pay Item. No separate payment will be made for the following items and the cost of such work shall be included in the applicable Pay Items or work:

1. Excavation, including necessary pavement removal
2. Sheeting, shoring and/or dewatering
3. Structural fill
4. Backfill materials, except as herein after specified
5. Grading
6. Clean-up and restoration
7. Refill materials except as hereinafter specified
8. Traffic control and all safety precautions required by local, County, State, and Federal statute and/or regulatory agencies

A. BID ITEM NO. 1 MOBILIZATION

1. Description - The work specified in this item consists of the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, and sanitary and other facilities, as required by these Specifications, special provisions, and State and local laws and regulations.

Include the costs of bonds, permits, and any required insurance, and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials.

Include the cost of demobilization, and any other post construction expense necessary to remove all temporary facilities, equipment, etc. from the site, excluding the cost of material disposal.

The price to be paid for this item shall be based on such work being completed and accepted, and the lump sum price stated in the Bid Schedule. The standard retainage will be applied to this item. The amount allowed for mobilization shall be based on the total cost of the project.

2. Measurement - The quantity of mobilization to be paid for under this item shall be measured as per Lump Sum (LS) mobilization.

3. Payment - The quantity to be paid for under this item shall be paid as per Lump Sum (LS) quantity as indicated on the Bid Form.

B. BID ITEM NO. 2 MAINTENANCE OF TRAFFIC

1. Description – Maintain pedestrian, marine, and vehicle traffic for the duration of the construction period, including any temporary suspensions of the work. Furnish, install and maintain traffic control and safety devices during construction. Do not impede the safe and expeditious movement of traffic adjacent to the project site. MOT includes all facilities, devices and operations as required for safety and convenience of the public adjacent to the work zone.

Do not maintain traffic over those portions of the project where no work is to be accomplished or where construction operations will not affect existing roads. Do not obstruct or create a hazard to any traffic during the performance of the work. Repair any damage to existing pavement open to traffic.

Include the cost of any work that is necessary to meet the requirements of the Contract Documents under the MOT pay item.

2. Measurement – The quantity of maintenance of traffic to be paid for under this item shall be measured as per Lump Sum (LS) maintenance of traffic.

3. Payment - The quantity to be paid for under this item shall be paid as per Lump Sum (LS) quantity as indicated on the Bid Form.

C. BID ITEM NO. 3 SEDIMENT BARRIER

1. Description – Provide and install silt fence sediment barriers according to details shown in the Plans, as directed by the Engineer, or per FDOT Section 985 to protect against downstream accumulation of sediment. Reusable barriers that have had sediment deposits removed may be reinstalled on the project as approved by the Engineer.

2. Measurement - The quantity of sediment barrier to be paid for under this item shall be measured as per length, in feet (LF), of sediment barriers placed and accepted.

3. Payment – Prices and payments will be full compensation for all work specified in this Section, including construction and routine maintenance of temporary sediment barriers.

Any additional costs resulting from compliance with the requirements of this Section, other than construction, routine maintenance, and removal of sediment barriers, will be included in the Contract unit prices for sediment barriers.

Additional temporary sediment barriers constructed as directed by the Engineer will be paid for as unforeseeable work. Sediment Barriers include, but are not limited to synthetic bales, silt fence, fiber logs and geosynthetic barriers.

In case of repeated failure on the part of the Contractor to control erosion, pollution, or siltation, the Engineer reserves the right to employ outside assistance or to use the County's own forces to provide the necessary corrective measures. Any such costs incurred, including engineering costs, will be charged to the Contractor and appropriate deductions made from the monthly progress estimate.

D. BID ITEM NO. 4 FLOATING TURBIDITY BARRIER

1. Description – Install, maintain, and remove floating turbidity barriers to contain turbidity that may occur as the result of pile driving, hole pre-forming, or other construction activities which may cause turbidity to occur in the waters of the State. The Contractor may need to deploy turbidity barriers around isolated areas of concern such as seagrass beds, coral communities, etc. both within as well as outside the right-of-way limits. The Engineer will identify such areas. Place the barriers prior to the commencement of any work that could impact the area of concern. Install the barriers in accordance with the details shown in the Plans or as approved by the Engineer. Ensure that the type of barrier used and the deployment and maintenance of the barrier will minimize dispersion of turbid waters from the construction site. The Engineer may approve alternate methods or materials.

Operate turbidity barriers in such a manner to avoid or minimize the degradation of the water quality of the surrounding waters and minimize damage to areas where floating barriers installed.

2. Measurement - The quantity of floating turbidity barrier to be paid for under this item shall be measured as per length, in feet (LF), of floating turbidity barriers placed and accepted.

3. Payment – Prices and payments will be full compensation for all work specified in this Section, including construction, moving, and routine maintenance of floating turbidity barriers.

Any additional costs resulting from compliance with the requirements of this Section, other than construction, routine maintenance, moving, and removal of floating turbidity barriers, will be included in the Contract unit prices for floating turbidity barriers.

Additional floating turbidity barriers constructed as directed by the Engineer will be paid for as unforeseeable work.

In case of repeated failure on the part of the Contractor to control erosion, pollution, or siltation, the Engineer reserves the right to employ outside assistance or to use the County's own forces to provide the necessary corrective measures. Any such costs incurred, including engineering costs, will be charged to the Contractor and appropriate deductions made from the monthly progress estimate.

E. BID ITEM NO. 5 CLEARING AND GRUBBING

1. Description – Clear and grub within the areas shown in the plans required to be cleared and grubbed for construction operations. Remove and dispose of all stumps, roots and other such protruding objects, buildings, structures, appurtenances, existing flexible asphalt pavement, and other facilities necessary to prepare the area for the proposed construction and not identified to be protected. Remove and dispose of all product and debris not required to be salvaged or not required to complete the construction.

Remove roots and other debris to a depth of 12 inches below the ground surface.

Protect and do not displace property obstructions which are to remain in place, such as buildings, sewers, drains, water or gas pipes, conduits, poles, walls, posts, poles, electrical equipment, etc.

Remove and dispose of existing rigid pavement where shown in the Plans or ordered by the Engineer to be removed or where required because of construction operations.

Except as otherwise specified, the Contractor shall take ownership of all buildings, structures, appurtenances, and other materials removed by him and shall dispose of them in accordance with local, state, and federal regulations. Do not block waterways by the disposal of debris.

2. Measurement – The quantity of clearing and grubbing to be paid for under this item shall be measured as per Acre (AC) of clearing and grubbing performed and accepted.

3. Payment – Price an payment will be full compensation for all clearing and grubbing indicated, or required for the construction of the entire project, including all necessary hauling, furnishing equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain, as specified herein, except for any areas designated to be paid for separately or to be specifically included in the costs of other work under the Contract. The quantity to be paid for under this item shall be paid as per Acre (AC) quantity as indicated on the Bid Form.

F. BID ITEM NO. 6 OPTIONAL BASE GROUP 09

1. Description, Measurement, and Payment shall be in accordance with Pinellas County Standard Technical Specifications for Roadway and Related Construction, Section 285.

G. BID ITEM NO. 7 TYPE SP STRUCTURAL COURSE, TRAFFIC A

1. Description, Measurement, and Payment shall be in accordance with Pinellas County Standard Technical Specifications for Roadway and Related Construction, Section 334.

.

H. BID ITEM NO. 8 FENDER SYS, PLASTIC MARINE LUMBER, REINFORCED

1. Description – Construct fiber reinforced polymer (FRP) fender systems using components in accordance with this Section and the Plans.

2. Measurement – The quantity of the fender system reinforced plastic marine lumber to be paid for under this item shall be measured as per Lump Sum (LS) fender system plastic marine lumber.

3. Payment – Price and Payment for fender system reinforced plastic marine lumber will be full compensation for the work specified in this Section including all material, storage costs, disposal of unused material and waste, transportation costs, labor, equipment, fasteners and other necessary items required for completing the work. No separate payment will be made for plates, bolts, screws or other hardware necessary to complete the work.

I. BID ITEM NO. 9 FENDER SYS, PLASTIC MARINE LUMBER, NON-REINFORCED

1. Description – Construct fiber reinforced polymer (FRP) fender systems using components in accordance with this Section and the Plans.

2. Measurement – The quantity of the fender system non-reinforced plastic marine lumber to be paid for under this item shall be measured as per Lump Sum (LS) fender system plastic marine lumber.

3. Payment – Price and Payment for fender system non-reinforced plastic marine lumber will be full compensation for the work specified in this Section including all material, storage costs, disposal of unused material and waste, transportation costs, labor, equipment, fasteners and other necessary items required for completing the work. No separate payment will be made for plates, bolts, screws or other hardware necessary to complete the work.

J. BID ITEM NO. 10 FENDER SYS, POLYMERIC PILES

1. Description – Construct fiber reinforced polymer (FRP) fender systems using components in accordance with this Section and the Plans.

2. Measurement – The quantity of the fender system polymeric piles to be paid for under this item shall be measured as per Each (EA) fender system polymeric piles.

3. Payment – Price and Payment for fender system polymeric piles will be full compensation for the work specified in this Section including all material, storage costs, disposal of unused material and waste, transportation costs, labor, equipment, fasteners and other necessary items required for completing the work. No separate payment will be made for plates, bolts, screws or other hardware necessary to complete the work.

K. BID ITEM NO. 11 BOLLARDS

1. Description – The work specified in this item consists of all costs associated with furnishment and installation of bollards according to the Plans and Specifications.

2. Measurement – The quantity of bollards to be paid for under this item shall be measured as per each (EA) bollard.

3. Payment – The quantity to be paid for under this item shall be paid as per each (EA) quantity as indicated on the Bid Form.

L. BID ITEM NO. 12 RIPRAP, RUBBLE, DITCH LINING

1. Description – The work specified in this item consists of all work, labor, material, and site preparation required to construct riprap according to the Plans and Specifications.

2. Measurement – The quantities to be paid for will be the weight, in tons, in surface dry natural state, by railroad scales, truck scales, or barge displacement. The Contractor shall determine the weights as follows:

a. Railroad weights: The Contractor shall weight railroad cars on railroad scales, before and after loading or before and after unloading. If weighed by other than the Engineer, a certified statement of weights will be required. Certificates of weight, furnished by the railroad company, will be acceptable without further certification.
b. Truck Weights: The Contractor shall weigh trucks on certified scales, loaded and empty, as prescribed above for railroad weights. The Contractor shall weight trucks in the presence of the Engineer, or submit certificates of weights.
c. Barge Displacement: The Engineer will measure each barge. The Contractor shall fit each barge with gauges graduated in 0.10 foot increments. The Contractor shall locate a gauge at each corner of the barge near the lower end of the rake. The Contractor shall furnish additional gauges amidships if the Engineer deems necessary. The Engineer will compute all weights.

3. Payment – Price and Payment for rubble will be full compensation for all work specified in this Section, including all materials, hauling, excavation, and backfill. Include the cost of dressing and shaping the existing fills (or subgrade) for placing riprap in the Contract unit price for riprap (rubble).

Price and Payment for bedding stone will be full compensation for all work specified in this Section, including all materials and hauling. Include the cost of dressing and shaping the existing fills (or subgrade) for placing bedding stone in the Contract unit price for riprap (rubble).

M. BID ITEM NO. 5 MEASUREMENT AND PAYMENT OF UNSPECIFIED WORK

1. Description - The work under this Section includes an allowance for any unspecified work that may be associated with the work in this contract or as otherwise identified by the Engineer. Any amount of extra work and/or alternations to this contract charged to the allowance "Contingency" shall be fully documented and approved in writing, in advance, by the Director of Utilities Engineering or designee. All work performed under the allowance of "Unspecified Work" shall be completed in accordance with all conditions and requirements of this contract and shall include the work to be done by all necessary subcontractors and/or suppliers.

"Contingency" shall mean the stated fixed sum of money to be used only at the Engineer's specified direction. The particular requirements and items for the allowances will be provided to the Contractor at the appropriate time and shall apply only to additional items over and above those specified/indicated in the plans for this contract.

For equipment under the control of the Contractor through direct ownership, leasing, renting or other method of acquisition not included in the bid, the Contractor shall furnish cost data, which may assist the Engineer in the establishment of an equitable rate.

2. Measurement – The work in this Section shall be paid for by a portion of the allowance under "Contingency" in the Schedule of Values of this contract. Use of any portion of this pay item shall require written pre-approval by the Director of Utilities Engineering or designee. This work, materials, and equipment, when required, will be ordered in writing by the Engineer, at a lump sum price or at a non lump sum price.

Lump Sum/Unit Price

When a lump sum/unit price is used, the lump sum/unit price will be determined by negotiation, and only require written pre-approval by the Director of Utilities Engineering or designee as backup documentation for payment purposes. The total compensation for work negotiated under a unit price will be a measurement (i.e. linear feet) or a count (i.e. each) of the item as installed.

Non Lump Sum

When a non lump sum price is used, compensation shall be limited to the Contractor's reasonable costs plus markup percentages stipulated in this contract. The basis of the non lump sum negotiated prices and subcontractor invoices will be included in pay application; copies of invoices, equipment cost estimations and other supporting documentation will be included

3. Payment - The quantities of contingency work to be paid for under this Item shall be measured in units of pay as agreed and approved in writing, the total of which shall not exceed the amount listed on the Bid Form for work in place, completed and accepted. The value of a unit shall be One and 00/100 Dollars ($1.00).

END OF SECTION

SECTION 32 12 02

OPTIONAL BASE GROUP

PART 1 – GENERAL

1.01 SCOPE OF WORK

1. The work specified under this Section shall be in accordance with Pinellas County Standard Technical Specifications for Roadway and Related Construction, Section 285.

PART 2 – PRODUCT (Not Used)

PART 3 – EXECUTION (Not Used)

SECTION 32 12 03

Superpave Asphalt Concrete

PART 1 – GENERAL

1.01 SCOPE OF WORK

1. The work specified under this Section shall be in accordance with Pinellas County Standard Technical Specifications for Roadway and Related Construction, Section 334.

PART 2 – PRODUCT (Not Used)

PART 3 – EXECUTION (Not Used)

SECTION 35 60 01

FENDER SYSTEM, PLASTIC MARINE LUMBER

PART 1 – GENERAL

1.01 SCOPE OF WORK

Construct fiber reinforced polymer (FRP) fender systems using components in accordance with this Section and the Plans.

PART 2 – PRODUCT

Fiber reinforced polymer composites (Piles, Wales, Spacer-blocks, Decking, and Splice Plates) shall meet the requirements of FDOT Specifications Section 973.

Use only SAE Type 316 stainless steel metallic fastening and connection hardware.

Submit the fiber reinforced polymer manufacturer's certification that the fender system components meet the material requirements of FDOT Specifications Section 973.

Submit shop drawings that include, at a minimum, the following:

1. General Notes
2. Minimum Pile Tip Elevation
3. The name and address of the manufacturer for each component, including the physical address where the fabrication is performed.
4. Pile configuration and layout based on, and compatible with, the geometry shown in the Plans
5. Pile and wale material properties.
6. Pile-to-wale and pile-to-pile connection details.
7. Sections, views, details and dimensions required to successfully complete the construction and review of the fender system
8. Any supplier required limitations regarding pile installation techniques or other typical construction practices

PART 3 – EXECUTION

Unless otherwise shown in the manufacturer's approved field construction manual, use the following construction details.

Protect materials at all times against exposure to extreme heat of impact. Transport products in a manner that will minimize scratching or damage to the outer surfaces, stack on dunnage above ground so that it may be easily inspected and store in a manner that will avoid damage. Handle and lift products with nylon slings. Do not use sharp instruments in handing the product. Products damaged in shipping or handling will be rejected.

Products containing cracks in the reinforcing rods, or cracks or splits (partial of full depth) across the section will be rejected.

Cut, bevel, drill, countersink and otherwise install products in accordance with the manufacturer's recommendations. Set all material accurately to required levels and lines, with members plumb and true and accurately cut and fitted. Securely attach all materials to substrate by anchoring and fastening as shown in the shop drawings. Perform all cutting and drilling in a manner that allows for the collection of all debris and dispose of properly.

SECTION 35 60 02

FENDER SYSTEM, POLYMERIC PILES

PART 1 – GENERAL

1.01 SCOPE OF WORK

Construct fiber reinforced polymer (FRP) fender systems using components in accordance with this Section and the Plans.

Furnish and install FRP piling including driving, preformed pile holes, cutting off, and splicing.

PART 2 – PRODUCT

Fiber reinforced polymer composites (Piles, Wales, Spacer-blocks, Decking, and Splice Plates) shall meet the requirements of FDOT Specifications Section 973.

Submit the fiber reinforced polymer manufacturer's certification that the fender system components meet the material requirements of FDOT Specifications Section 973.

Submit shop drawings that include, at a minimum, the following:

1. General Notes
2. Minimum Pile Tip Elevation
3. The name and address of the manufacturer for each component, including the physical address where the fabrication is performed.
4. Pile configuration and layout based on, and compatible with, the geometry shown in the Plans
5. Pile and wale material properties.
6. Pile-to-wale and pile-to-pile connection details.
7. Sections, views, details and dimensions required to successfully complete the construction and review of the fender system
8. Any supplier required limitations regarding pile installation techniques or other typical construction practices

PART 3 – EXECUTION

Unless otherwise shown in the manufacturer's approved field construction manual, use the following construction details.

Protect materials at all times against exposure to extreme heat of impact. Transport products in a manner that will minimize scratching or damage to the outer surfaces, stack on dunnage above ground so that it may be easily inspected and store in a manner that will avoid damage. Handle and lift products with nylon slings. Do not use sharp instruments in handing the product. Products damaged in shipping or handling will be rejected.

Products containing cracks in the reinforcing rods, or cracks or splits (partial of full depth) across the section will be rejected.

Cut, bevel, drill, countersink and otherwise install products in accordance with the manufacturer's recommendations. Set all material accurately to required levels and lines, with members plumb and true and accurately cut and fitted. Securely attach all materials to substrate by anchoring and fastening as shown in the shop drawings. Perform all cutting and drilling in a manner that allows for the collection of all debris and dispose of properly.

Use an Air/stream or Diesel pile hammer approved by the pile manufacturer for pile installation and per FDOT Specifications Sections 455-5.2.1 and 455-5.2.2. Provide a Pile Cushion during installation per FDOT Specifications Section 455-5.3.

Provide pile leads constructed in a manner which offers freedom of movement to the hammer and that have the strength and rigidity to hold the hammer and pile in the correct position and alignment during driving.

Provide templates for pile installation per FDOT Specifications Section 455-5.6.

Drive the pile to the minimum pile tip elevation embedment. Use methods and equipment for installation that does not damage the piles. If the method or equipment used causes damage to the pile, modify the methods or equipment at no expense to the County.

Ensure that the final position of the pile head at cut-off elevation is no more than 3 inches laterally in the X or Y coordinate from the Plan position indicated in the Plans. Ensure that the axial alignment of the driven piles does not deviate by more than ¼ inches per foot from the vertical. Cut off piles at the elevation shown in the Plans to a tolerance of plus 0.0 inches to minus 2.0 inches using sawing or other means as approved by the Engineer to provide a smooth level cut. Meet these tolerances to free standing piles without lateral restraint (after the template is removed). After the piles are driven, do not move the piles laterally to force them to be within the specified tolerances. When the Contractor has failed to meet these tolerances, the Contractor may propose a redesign to incorporate out of tolerance piles into fender system at no expense to the County. Ensure the Contractor's Engineer of Record performs any redesign and signs and seals the redesign drawings and computations. Do not begin any proposed construction until the redesign has been reviewed for acceptability and approved by the Engineer.

Upon completion of all work under the Contract in connection with piling, take ownership of any unused cut-off lengths remaining, and remove them from the right-of-way. Provide areas for their disposal.

Provide a Pile Driving Installation Plan to the Engineer at the preconstruction conference or no later than 30 days before driving the first pile. Ensure the Pile Driving Installation Plan information includes the following:

1. List and size of proposed equipment including cranes, barges, driving equipment, compressors, and preformed pile hole equipment. Include manufacturer's data sheets on hammers.
2. Detailed drawings of templates.
3. Sequence of driving piles.
4. Details of proposed features and procedures for protection of existing structures.
5. Required shop drawings for piles, cofferdams, etc.
6. Methods and equipment proposed to prevent displacement of piles during placement and compaction of fill within 15 feet of the piles.

Notify the Engineer of any pile driving at least one week prior to beginning the installation operations of any pile.

All equipment and procedures are subject to satisfactory field performance. Make any required changes that may result from unsatisfactory field performance. The Engineer will give final acceptance after the Contractor makes necessary modifications. Do not make any changes in the driving system after acceptance without authorization from the Engineer. A hammer repaired on site or removed from the site and returned is considered to have its performance altered (efficiency increased or decreased), which is considered a change in the driving system and is subject to a reevaluation at no additional compensation.

SECTION 35 70 01

BOLLARDS

PART 1 – GENERAL

1.01 SCOPE OF WORK

Construct steel bollard barge anchoring system using components in accordance with this Section and the Plans.

Furnish and install steel bollards including anchoring into ground.

PART 2 – PRODUCT

Provide single bitt steel bollard which have a 10 ton working load capacity.

Bollard shall be constructed of Ductile Cast Iron which meets all requirements of ASTM A536 Grade 65/45/12.

Anchor bolts shall be galvanized according to ASTM F1554 Grade 105. There shall be a minimum of 8 anchor bolts.

Coat bollards to meet extremely aggressive coastal marine environment requirements according to manufacturer's specifications.

Anchor bollard in Class V concrete, f'c=5.5 ksi. Concrete shall meet all requirements of FDOT Specifications Section 400.

PART 3 – EXECUTION

Excavate required area to pour bollard anchor concrete. Ensure no foreign debris will incase in concrete anchor. Install bollard so anchor plate is flush with concrete.

SECTION 35 80 01

RIPRAP, RUBBLE, DITCH LINING

PART 1 – GENERAL

1.01 SCOPE OF WORK

Construct riprap composed of rubble (consisting of broken stone or broken concrete) as shown in the FDOT Design Standards and in the Plans.

PART 2 – PRODUCT

Use sound, hard, durable rubble, free of open or incipient cracks, soft seams, or other structural defects, consisting of broken stone or broken concrete with a bulk specific gravity of at least 1.90. Ensure that stones or broken concrete are rough and angular. Use broken stone or broken concrete meeting the following gradation and thickness requirements:

Weight Maximum Pounds	Weight 50% Pounds	Weight Minimum Pounds	Minimum Blanket Thickness in Feet
75	30	4	1.5
Ensure that at least 97% of the material by weight is smaller than Weight Maximum pounds. Ensure that at least 50% of the material by weight is greater than Weight 50% pounds. Ensure that at least 90% of the material by weight is greater than Weight Minimum pounds.			

Use broken stone and broken concrete meeting the following physical requirements:

Absorption (FM 1-T85)	Maximum 5%
Los Angeles Abrasion (FM 1-T096)	Maximum loss 45%*
Soundness (Sodium Sulphate) (AASHTO T104)	Maximum loss 12%** (after five cycles)
Flat and elongated pieces	Materials with least dimension less than one third of greatest dimension not exceeding 10% by weight.
Dirt and Fines	Materials less than ½ inch in maximum dimension accumulated from interledge layers, blasting or handling operations not exceeding5% by weight
Drop Test*** (EM 1110-2-2302)	No new cracks developed, or no existing crack widened additional 0.1 inch, or final largest dimension greater than or equal to 90% original largest dimension of dropped piece.

*Ensure that granite does not have a loss greater than 55% and that broken concrete does not have a loss greater than 45%.

**The Engineer may accept rubble exceeding the soundness loss limitation if performance history shows that the material will be acceptable for the intended use. The Engineer will waive the soundness specification for rubble riprap (broken stone and broken concrete) when project documents indicate it will be placed in or adjacent to water or soil with a sulfate content less than 150 parts per million and pH greater than 5.0.

***The Engineer will waive the Drop Test unless required to ensure structural integrity. Provide all equipment, labor and testing at no expense to the County. EM refers to the US Army Corps of Engineer's Specification Engineering Method.

Use Bedding Stone of either a durable quality limestone or other quarry run stone, with a bulk specific gravity of not less than 1.90 and that is reasonable free from thin, flat and elongated pieces. Ensure that the bedding stone is also reasonable free from organic matter and soft, friable particles. Meet the following gradation limits:

Standard Sieve Sizes – Inches	Individual Percentage by Weight Passing
12 inches	100
10 inches	70 to 100
6 inches	60 to 80
3 inches	30 to 50
1 inch	0 to 15

PART 3 – EXECUTION

Dump rubble in place forming a compact layer conforming to the neat lines and thickness specified in the Plans. Ensure that rubble does not segregate so that smaller pieces evenly fill the voids between larger pieces.

Place a minimum one foot thick layer of bedding stone under all rubble riprap without puncturing or tearing the geosynthetic material. The Engineer will allow an in place thickness tolerance of plus or minus one inch.

Remove and replace geosynthetic material damages as a result of operations at no expense to the County.