

July 3, 2018

BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA

Y18-770-EB / ADDENDUM # 1

LITTLE WEKIVA RIVER EROSION CONTROL PROJECT NORTH OF EDGEWATER DRIVE

New Bid Opening Date: July 12, 2018

This addendum is hereby incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions and/or revisions to and shall take precedence over the original documents. Underlining indicates additions, deletions are indicated by ~~strikethrough~~.

A. The following information is provided to answer questions received from prospective bidders:

1. **Question:** Please confirm that the existing CMP is not lined. **Answer:** Inspection and video of the pipe line from Control Structure #037 to Lake Gillooy showed no indication of being lined.
2. **Question:** Can you provide the B-14 Pipeline segments. **Answer:** See attached pdf file titled Y18-770-EB Add #1 Pipeline Segments.
3. **Question:** Under bid schedule, line # 13 Gabion Baskets, provide the definition for "quantity includes 10% overfill". **Answer:** Refer to sheet 19, note 4, Special Details Gabion Construction; these are twisted wire gabions and must be overfilled and pulled tight. If you don't over fill the baskets they will sag and bulge.
4. **Question:** Indicate/define/describe the crane set-up at the site. **Answer:** This is a contractor's means and methods question.
5. **Question:** Can we lay the ACB in the wet? **Answer:** No, because the contractor still must place the gabion baskets and select backfill at the bottom of the river.
6. **Question:** Can we get information/history of the flow rates in the canal? **Answer:** Click on the link herein for data available in this canal. Also click on the links inside the table for additional information:
https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=02234990
7. **Question:** Can we change the excavation, embankment and select fill all to unit price pay items in accordance with standard FDOT contracts. There are several obvious reasons for this such as the existing survey is 6 years old. The cross sections no longer depict the actual elevations/erosion of the canal banks nor the bottom. The overruns on the this Lump sum item would appear to be substantial as the existing bank is vertical in several areas throughout the project whereas the existing survey depicts it to be a gradual slope. The four photos that are supplied as part of the project are not the actual conditions observed during my site visit. **Answer:** No, the County will not consider changing this line from Lump Sum to Unit Price.

8. **Question:** Item 530-78 on the bid schedule calls for 3140 SY of articulating concrete block (Armorflex 45S or accepted equal). Would a poured in place articulating block mat with embedded revetment cables be an acceptable approved equal? **Answer:** Fabriform or Fabric Form Concrete mat will not be accepted.

- B. Part H, Technical Provisions of the solicitation (24) pages is hereby made a part of this IFB in its entirety. This part was inadvertently not posted on June 6, 2018 when the IFB was posted originally.
- C. All other terms and conditions of the IFB remain the same.
- D. The Bidder shall acknowledge receipt of this addendum by completing the applicable section in the solicitation or by completion of the acknowledgement information on the addendum. Either form of acknowledgement must be completed and returned not later than the date and time for receipt of the bid.

Receipt acknowledged by:

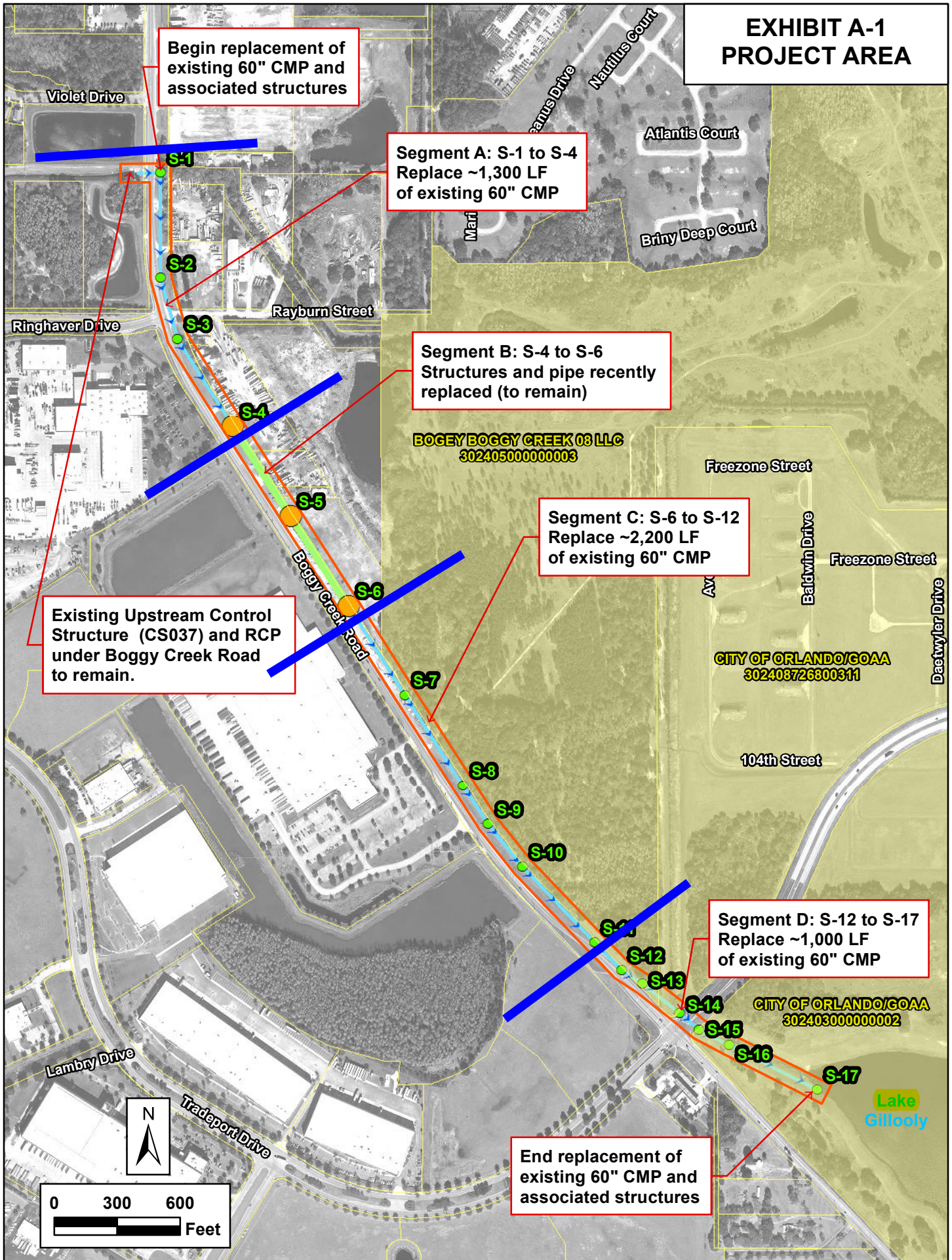
Authorized Signature

Date Signed

Title

Name of Firm

EXHIBIT A-1 PROJECT AREA



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TP 101

MOBILIZATION

Mobilization shall include all items detailed in Article 101 of the “Standard Specifications”, the Special Provisions and on the plans, except as directed by the Engineer.

Preservation of Property Corners including all items detailed in Section 7-11 of the Standard Specifications shall be included in the contract price for mobilization.

BASIS OF PAYMENT

The work and incidental costs covered under Mobilization will be paid for at the contract lump sum price and will be paid in partial payments in accordance with the following:

Percent of Original Contract Amount Earned	Allowable Percent of the Lump Sum Price for the Items*
5	25
10	50
25	75
50	100

Payment includes all efforts necessary to construct and dismantle a temporary staging area to be used by the Contractor for transport of materials to and from the construction area. Mobilization shall also include the survey of existing conditions.

Mobilization / Demobilization and Administration will be limited to 5% of Pay Items 2 through 13.

Payment shall be made under:

Item No. 101-1	Mobilization	Lump Sum
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TP 102

MAINTENANCE OF TRAFFIC

All Maintenance of Traffic work shall conform to the requirements of Section 102 of the Standard Specifications, Index 600 of the FDOT Design Standards, the plans, and/or as herein modified, except as directed by the Engineer.

The road shall be kept open to two-way traffic on a paved surface during construction except when full closures are allowed by the plans or by the Engineer. The Contractor shall not be permitted to isolate residences or places of business. Access shall be provided to all residences and all places of business whenever construction interferes with the existing means of access.

The Contractor shall furnish, erect and maintain all necessary traffic control devices, including flagmen and pilot cars, in accordance with the *Manual of Uniform Traffic Control Devices for Streets and Highways*, published by the U.S. Department of Transportation, Federal Highway Administration. The Contractor shall provide and maintain in a safe condition the entire project limits included, but not limited to pre-existing conditions, driving lanes, temporary approaches, crossings, and intersections with trails, roads, streets, business parking lots, residences, garages and completed work. The Contractor shall take all necessary precautions for the protection of the work and the safety of the public in accordance with Section 102.

The Contractor shall present his signed and sealed Maintenance of Traffic Plan that is approved by Orange County Traffic Engineering to the Engineer at the preconstruction conference, and shall be fully and solely responsible for the adequacy of the Maintenance of Traffic plan regardless of the source. The plan shall be signed and sealed by a professional engineer licensed in the State of Florida.

The Contractor shall be responsible for installation of signs for all business along the project corridor. Signs should be manufactured and installed in accordance with FDOT design standards. No special compensation will be made to the contractor to defray costs of any of the work or delays for complying with the requirements of installing business signs, but such costs shall be considered as having been included in the price stipulated for the Maintenance of Traffic pay item.

Basis of Payment

All materials, work and incidental costs related to Maintenance of Traffic will be paid for at the contract lump sum price. All material, labor and equipment necessary for the construction and maintenance of the entire project limits included, but not limited to pre-existing conditions, driving lanes, temporary approaches, crossings, intersections with trails, roads, streets, business parking lots, residences, garages, temporary driving lanes, side streets, driveway connections, and completed work, as may be directed by the Engineer shall be included in the contract price.

Payment shall be made under:

Pay Item:

102-1	Maintenance of Traffic	Lump Sum
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TP 104

PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION

Prevention, control and abatement of erosion and water pollution shall conform to the requirements of Section 104 of the "Standard Specifications", National Pollution Discharge Elimination System (NPDES) requirements, except as modified by these Technical Provisions or as directed by the Engineer.

The Contractor shall present the Stormwater Pollution Prevention Plan (SWPPP), and a separate schedule to manage erosion and water pollution. This schedule shall include a complete outline of the proposed construction of all erosion and pollution control and abatement items required. The Contractor shall be responsible for implementing the schedule after the Engineer's acceptance.

The Contractor shall be responsible for the preparation and submittal of the Notice of Intent (NOI) and Notice of Termination (NOT) to the Florida Department of Environmental Protection (FDEP) and shall obtain the FDEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities.

BASIS OF PAYMENT

All work and incidental costs required to comply with the prevention, control and abatement of erosion and water pollution as herein specified will be paid for at the contract lump sum price. Payment includes the cost of all items required for erosion control including, but not limited to, hay bales, turbidity barriers, silt fence, and temporary grassing, as shown in the plans or as directed by the County.

Payment will be made under:

Item No. 104-14	Prevention, Control And Abatement Of Erosion And Water Pollution	Lump Sum
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TP 110

CLEARING AND GRUBBING

All clearing and grubbing shall be performed in accordance with the requirements of Section 110 of the "Standard Specifications" and the "Orange County Specifications", except as directed by the Engineer.

BASIS OF PAYMENT

All work and incidental costs required to perform clearing and grubbing as herein specified will be paid for at the contract lump sum price. Payment includes, but is not limited to, the cost of removal and disposal of trees, shrubs, bushes, vegetation (assumes 4 inches of surface scraping), various types of fences, capping wells, and trimming of trees and shrubs as required to construct the project. Removal of existing gabions and riprap is also included. It is the Contractor's responsibility to protect and/or replace in-kind (or better) any removed or damaged fencing, mailboxes or any other private property disturbed during construction at the Contractor's expense. Also includes removal of existing storm sewer system and transport to an approved Orange County disposal site or as directed by the County.

Payment shall be made under:

Item No. 110-1-1	Clearing and Grubbing	Lump Sum
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TP 120

EXCAVATION, EMBANKMENT AND GRADING

All excavation, embankment and grading work shall conform to the requirements of Section 120 of the "Standard Specifications" and the provisions of this section, except as directed by the Engineer.

BASIS OF PAYMENT

Excavation, Embankment and Grading will be paid for at the contract lump sum price.

Payment shall constitute full compensation for all work described herein and in the Special Provisions and shall include grading, slopes, compaction, final dressing, subsoil excavation and replacement material, excavation of unsuitable material, ditch excavation, embankment fill, and all work required for completing the project that is not paid for under the other pay items. Also included are removal and off-site disposal or on-site utilization of all materials, structures, abandoned utilities and obstructions as directed by the Engineer.

Payment shall be made under:

Item No. 120-14	Excavation, Embankment and Grading	Lump Sum
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TP 430

PIPE CULVERTS AND STORM SEWERS

Construction of Pipe Culverts, Storm Sewers and Mitered End Sections shall conform to the requirements of Section 430 of the Standard Specifications, except as modified herein or as directed by the Engineer. All round and elliptical pipes shall be steel reinforced concrete pipe (SRCP).

Lifting holes in reinforced concrete pipe are prohibited.

Proposed storm sewer pipe to be connected to existing structures shall have openings cut into the existing structure without permanently damaging the structure. All structure openings shall be grouted watertight, with non-shrink grout, after pipe installation, and the structure shall be restored as approved by the Engineer.

The cost of connections to existing structures shall be included in the price bid for the pipe.

Final pipe inspection requirements shall conform to Section 430-4.8 of the Standard Specifications. All culverts and storm sewer pipes shall be videoed by the contractor and inspected and approved by the Engineer prior to final paving.

The only acceptable repair method shall be remove and relay / replace, or as otherwise directed by the Engineer. The repair cost shall be borne solely and completely by the Contractor.

All pipe culvert designated in the plans to be desilted shall be videoed in accordance to Section 430-4.8 of the Standard Specifications and approved by the Engineer prior to payment.

Concrete Pipe Joints

Each joint in a concrete pipe culvert or storm sewer shall be wrapped on the exterior of the pipe with a band of filter fabric measuring 3 feet wide centered on the joint and lapped a minimum of 2 feet. The filter fabric shall meet the requirements of Section 985 of the Standard Specifications and shall be secured against the outside of the pipe by stainless metal or plastic strapping or by other methods approved by the Engineer. These costs shall be included in the per linear foot price for the pipe.

Method of Measurement

Quantities measured for payment under this Section shall be the length in linear feet of pipe culvert or storm sewer measured in place, completed and accepted. Measurements shall be from the inside face of structure wall to inside face of structure wall.

For mitered end sections the quantity measured for payment shall be the number completed and accepted.

Basis of Payment

Pipe Culverts and Storm Sewers will be paid for at the contract unit price completed and accepted. The unit price shall include connection of proposed pipes to existing structures and the replacement of the backfill, base course, and pavement removed for pipe trenching. Payment shall be full compensation for all work and materials described herein, including excavation (in whatever material is encountered), dewatering, removing unsuitable material and replacing with select bedding material, backfilling, compaction, furnishing and installing all pipe, disposing of surplus materials, and other work as may be required for an acceptable installation.

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TP 430

Payment shall be made in accordance with the Bid Item Schedule under:

Item No. 430-175-115	Pipe Culv, SRCP, Round, 15" S/CD	Linear Foot
Item No. 430-175-118	Pipe Culv, SRCP, Round, 18" S/CD	Linear Foot
Item No. 430-175-124	Pipe Culv, SRCP, Round, 24" S/CD	Linear Foot
Item No. 430-175-136	Pipe Culv, SRCP, Round, 36" S/CD	Linear Foot
Item No. 430-982-138	Mitered End Sect, Optional Rd, 36" CD	Each

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TP 524

CONCRETE DITCH AND SLOPE PAVEMENT

Work specified in this Section consists of the construction of Concrete Ditch and Slope Pavement. Conform to the requirements of Section 524 of the "Standard Specifications", except as amended herein.

MATERIALS

Class NS Concrete meeting the requirements of Section 347 shall be used.

METHOD OF MEASUREMENT

The quantities to be paid for under this Section shall be the area in square yards of Concrete Ditch and Slope Pavement completed and accepted. No deduction shall be made for any areas occupied by manholes, inlets, or other drainage structures or by public utility appurtenances within the pavement area.

Basis of Payment

Payments shall constitute full compensation for furnishing all materials and completing all work described herein or shown on the plans, including all disposal of surplus material. Furnishing and placing of all concrete, and any other necessary fittings as shown in the plans, required for acceptable construction, or as directed by the Engineer.

Payment shall be made under:

Item No. 524-1-49	Concrete Ditch Pavement (3,000 PSI), 6", Reinforced	SY
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TP 530

RUBBLE RIPRAP (DITCH LINING)

All rubble riprap work shall conform to the requirements of Section 530 of the “Standard Specifications” and/or as modified herein. The work shall include the construction of riprap consisting of broken stone or broken concrete, free from all reinforcing bar, as called for on the plans. Bedding Stone shall be in accordance with this Technical Provision.

MATERIAL

Fine aggregate shall conform to Section 902 of the “Standard Specifications”.

Geotextile fabric shall conform to Section 514 of the “Standard Specifications”.

Rubble Riprap (Ditch Lining) shall consist of broken stone with a specific gravity of at least 1.90 and shall be sound, hard, durable, and free of open or incipient cracks, soft seams, or other structural defects. Stones shall be rough and angular. Broken stone for this application shall conform to the gradation and thickness requirements specified in Section 530 of the “Standard Specifications” for Ditch Lining rubble.

Control of the gradation of the riprap will be by visual inspection either at the course or the project site at the Engineer’s option. Any difference in opinion between the Engineer and the Contractor shall be resolved in accordance with the method in FM 5 538 with all equipment, labor, and sorting site for this check being provided by the Contractor at his expense.

Rubble riprap shall be dumped in place forming a compact layer conforming to the neat lines and thickness specified in the plans. Rubble shall be placed in such a manner that the small pieces are not segregated but are evenly distributed filling the voids between the larger pieces.

METHOD OF MEASUREMENT

The quantities of rubble riprap shall be measured by the ton, in surface-dry natural state, by railroad scales, truck scales, or barge displacement.

BASIS OF PAYMENT

The quantity of rubble riprap shall be paid at the contract unit price per ton for rubble riprap, which price and payment shall be full compensation for all the work and shall include all materials, hauling, excavation, geotextile fabric, bedding stone and backfill. The cost of dressing and shaping the existing fills for placing rubble shall be included in the contract unit price for rubble riprap.

Payment shall be made under:

Item No. 530-3-4	Rubble Riprap (Ditch Lining)	Ton
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TP 530-77

GABION BASKETS

The work specified under this section consists of furnishing, assembling, filling, and tying woven wire mesh baskets to form gabions to the lines, grades and dimensions shown on the plans, or as directed by the Engineer.

MATERIAL

Gabion Baskets

Wire Mesh: All gabion baskets shall be manufactured by Maccaferri Gabions, Inc., Terra Aqua Gabions, or accepted equal.

All baskets shall be made from hexagonal double twisted PVC coated woven steel wire mesh in accordance with the requirements of ASTM A975-97. The mesh type shall be hexagonal 8 x 10, with a nominal mesh opening size of 3.25". The mesh shall have the ability to resist pulling apart at the twists or connections forming the mesh when a single wire in a mesh section is cut.

Wire: Wire used in the fabrication of the gabions shall comply with the requirements of ASTM A975-97, style 3 coating, galvanized and PVC coated steel wire diameters in accordance with the following table. The PVC coating shall be in compliance with ASTM A975-97 Section 8.2.

Application	Internal Diameter	External Diameter
Mesh Wire	0.106 inches	0.146 inches
Selvedge Wire	0.134 inches	0.174 inches
Lacing Wire	0.087 inches	0.127 inches
Connecting Wire	0.087 inches	0.127 inches
Pre-formed Stiffener	0.134 inches	0.174 inches

Mechanical Fasteners: Mechanical fasteners may be used in lieu of, or to complement, lacing wire for basket assembly and installation. Spacing of the fasteners during all phases of assembly and installation shall be based on 1,200 lbs/ft pull apart resistance when tested in accordance with ASTM A975-97, and a nominal spacing of 4 inches and not to exceed 6 inches. Stainless steel wire used in the manufacture of the fasteners shall have a diameter of 0.120 inches and shall conform to ASTM A975-97, Section 6.3, with a tensile strength of 222,000 to 253,000 psi.

Tolerances: Tolerances on nominal wire diameters shall be 0.004 inches in accordance with ASTM A641. Tolerances on zinc coating shall be in accordance with ASTM A641/A641M-03, Class III soft temper coating. Dimensional tolerances for heights, lengths, and widths shall be in accordance with ASTM A975.

Fabrication: Gabion baskets shall be manufactured and shipped with all components mechanically connected at the production factory. The baskets shall be of single unit

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construction; i.e., the front, base, back and lid shall be either woven into a single unit, or one edge of these members shall be connected to the base section of the basket in such a manner that strength and flexibility are in accordance with ASTM A975. Ends and diaphragms shall be factory connected to the base. All perimeter edges of the mesh forming the basket and top, or lid, shall be selvedged with wire having a larger diameter.

Where the length of the basket exceeds 1.5 times its horizontal width, it shall be equally divided by diaphragms made of the same type mesh as the body into cells in which the length does not exceed the horizontal width. The diaphragms shall be secured in position to the base so no additional lacing is necessary at the jobsite.

Standard Dimensions:

Nominal Width (ft) =	3, 4.5, 6, or 7.5
Nominal Height (ft) =	1, 1.5, 2 or 3
Nominal Length (ft) =	3, or field determined and accepted by the Engineer

Gabion Stone Fill

General: Stone fill shall consist of broken stone of a quality and durability sufficient to ensure permanency in the structure and climate in which it is to be used. No concrete shall be used. Individual stones shall be free of open or incipient cracks, soft seams, sharp edges, or other structural defects that can promote deterioration from natural causes, cause damage to the steel wire or PVC coating, or which might reduce the stones to sizes that could not be retained in the baskets. Stone fill shall be uniform in material type, color and appearance throughout the project. Stone material shall be subject to approval by the Engineer.

Approval of Source of Supply: The sources from which the Contractor proposed to obtain the material shall be selected well in advance of the time that the material will be required in the work. Unless otherwise specified, samples of stone fill material and copies of test reports on advance samples taken and submitted by the producer shall be submitted to the Engineer at least 30 days prior to the time placement of the stone is expected to begin. The samples and test reports will be used to determine the acceptability of the stone. In the event test reports are not available, the material shall be subject to such tests by the Engineer by means of samples and after delivery as necessary to determine acceptability. The Contractor shall furnish and deliver to the Engineer at no cost the required material necessary to take test samples. All tests shall be done by an accepted testing laboratory.

Specific Requirements:

Gradation: Stone fill shall be a well-graded mixture with sizes ranging between 4 and 8-inches in diameter, based on U.S. Standard square-mesh sieves. No stone shall have a minimum dimension of less than 3 ½ inches.

Bulk Specific Gravity.....	Minimum 2.40
Absorption.....	Maximum 5%
Los Angeles Abrasion.....	Maximum loss of 45% [FM 1-T096]
Soundness (Sodium Sulfate).....	Maximum loss of 12% [FM 1-T104]

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Flat & Elongated Pieces: Materials with least dimension less than one-third of greatest dimension shall not exceed 10% by weight.

Dirt & Fines: The inclusion of objectionable quantities of dirt, sand, clay, and rock fines will not be permitted. Materials less than 1/2 inch in maximum dimension shall not exceed 5% by weight.

Filter Fabric: Filter fabric shall be Type D-2 filter fabric and shall be in compliance with Design Standards Index No. 199 and Section 985.

Select Backfill: Granular material meeting the AASHTO classification for A-2-4, A-3, or A-2-6 with a Plasticity Index not exceeding 20 percent. The Contractor is responsible for providing geotechnical test results confirming the select backfill meets the above criteria.

CONSTRUCTION REQUIREMENTS

General: The Contractor shall have on-site for a minimum of two (2) days during the initial first week of installation of the gabion baskets a representative of the manufacturer of the gabion baskets who is skilled in the assembly and installation of gabions to provide assistance to the Contractor. The Contractor shall have the representative visit for two (2) days every four (4) weeks (maximum time between visits) during the entire installation of gabions.

Foundation Preparation: After excavation or stripping to the extent indicated on the Plans, remaining loose or otherwise unsuitable materials shall be removed, and all depressions shall be carefully backfilled using suitable materials and shall be compacted as specified in Section 120-9.2. Any buried debris protruding from the foundation that will impede the proper installation and final appearance of the gabion baskets shall also be removed and the voids carefully backfilled and compacted. Filter fabric shall be placed on the prepared foundation immediately prior to placing basket units.

Assembling: Basket units shall be assembled individually by erecting the sides, ends, and diaphragms in such a manner to insure that all panels are in the correct position and that the tops of all sides are aligned. The four corners of the unit shall be connected first, followed by connecting the internal diaphragms to the outside walls. All connections shall be accomplished using lacing wire or mechanical fasteners.

The procedure for using lacing wire shall consist of cutting a sufficient length of wire, and first looping and/or twisting to secure the lacing wire to the wire mesh. Lacing shall proceed with alternating double and single loops through every mesh opening, pulling each loop tight and finally securing the end of the lacing wire to the wire mesh by looping and/or twisting the wire onto the mesh to prevent loosening.

If mechanical fasteners are used, they shall be applied at 4 inch to 6 inch intervals on all seams, with no less than three fasteners per foot on any given vertical or horizontal seam.

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Installation: After assembly, the initial line of basket units shall be placed on the articulating block on the prepared surface and set to the lines and grades as shown on the Plans. All adjoining empty baskets must be securely joined together along the vertical and top edges of their contact surfaces using the same connecting procedure described in Section 531-3.3. After the adjoining empty basket units are set to line and grade and common sides with adjacent units thoroughly fastened together, they may be placed in tension and stretched to remove any kinks from the mesh and to a uniform alignment. The stretching of empty basket units shall be accomplished in such a manner as to prevent any possible unraveling. Each upper layer of empty baskets shall be securely joined together along the vertical and top edges of their contact surfaces and shall be connected to the top of the lower layer of filled baskets along the front and back edges of the contact surface using the same connecting procedures described in Section 531-3.3.

Filling: Stone filling operations shall carefully proceed, with placement by hand or machine so as not to damage the PVC wire coating, to assure a minimum of voids between the stones, to give a neat, flat and compact appearance, and to maintain alignment throughout the filling process. The cells shall be filled in stages consisting of courses of a maximum thickness of 12 inches so that local deformation or bulging may be avoided. At no time shall any cell be filled to a depth exceeding 12 inches above the depth of an adjoining cell.

All 2-foot and 3-foot high baskets shall have cross ties (connecting wires or preformed stiffeners) installed after the placement of each 12-inch deep layer of stone fill. Connecting wires are to be fabricated using lacing wire to connect the exposed face of each cell to the opposite side or to an adjacent cell. An exposed face is any side of a basket unit that will be exposed or unsupported after the installation is completed. Connecting wires shall be looped around three mesh openings at each basket face. Each connecting wire terminal shall be double looped around the mesh and securely tied to itself to prevent its loosening. If used, preformed stiffeners shall be installed at 45-degree angles from the exposed face to the adjacent side, extending an equal distance along each side to be braced. Refer to details on the plans for connecting wires and preformed stiffener options.

Backfill material shall be placed and compacted behind the gabion baskets simultaneously with filling the baskets to the same level as the filled baskets. The baskets shall be uniformly overfilled by 2 to 3 inches to allow for settlement of the stone fill.

Closing: After the basket is completely filled, the lid shall be stretched tight over the stone fill using appropriate closing tools, until the lid meets the perimeter edges of the front and end panels. The lid shall then be tightly fastened along all edges, ends, and internal cell diaphragms with lacing wire or with mechanical fasteners. Lids covering a single cell of gabion mat shall be fastened with lacing wire. Lids made from rolls of mesh material covering multiple cells of gabion mat may be closed using mechanical fasteners.

Mechanical fasteners shall not be used when tying across more than three selvedge wires. The spacing between mechanical fasteners shall not exceed four inches. Lacing wire must be used when tying across four or more selvedge wires. When lacing wire is used, it shall be continuously stitched and looped tightly around every other mesh opening alternating single and

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double loops. Special care shall be taken to see that all projections or wire ends are turned into the baskets.

Cutting Baskets: Where a complete basket unit cannot be installed because of space limitations or where modification of a basket unit is shown on the plans or directed by the Engineer, the unit shall be cut, folded, and fastened together. The mesh must be cleanly cut, and the surplus mesh must be folded back or overlapped so that it can be securely fastened together with lacing wire or mechanical fasteners. All reshaped baskets shall be assembled, installed, filled and closed as specified above.

Select Backfill: Select backfill shall be placed in accordance with Section 125-8, and compacted to a density of not less than 95% of the maximum density as determined by AASHTO T 99, Method C.

Quality Control: Horizontal deflection (bulge) shall not exceed 6% of basket height. Baskets that exceed this maximum shall be removed and replaced at the Contractor's expense.

METHOD OF MEASUREMENT

The quantities to be paid for under this Section shall be the volume in cubic yards of the baskets in their final position, completed and accepted. No deduction will be made for any areas occupied by pipes, manholes, inlets, or other drainage or public utility structures.

BASIS OF PAYMENT

Prices and payments will be full compensation for all work and materials specified in this Section, including shotcrete, grout around pipes and along seams as called for on the plan, and all excavation except the volume included in the items for the grading work on the project and except for such work as is specifically stipulated to be paid for separately.

Payment shall be made under:

Item No. 530-77	Gabion Basket	Cubic Yard
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TP 530-78

ARTICULATING CONCRETE BLOCK

The work specified in this Section consists of the installation of Articulating Concrete Block in accordance with the lines, grades, design, and dimensions shown on the plans.

MATERIAL

Articulating block shall be Contech Engineered Solutions Armorflex 45S or accepted equal. All Articulating Concrete Block shall be prefabricated as an assembly of cellular concrete blocks, with specific hydraulic capacities, laced with revetment cables. Articulating Concrete Block mats may be assembled on-site by hand-placing the individual units with subsequent insertion of cables. Individual units in the system shall be staggered and interlocked for enhanced stability. The mats shall be constructed of open cell units. The revetment cable shall be constructed of high tenacity, low elongating, and continuous filament polyester fibers (Armorflex General Specification – Option 1: Polyester Revetment Cable and Fittings).

The Articulating Concrete Block shall be placed on Type D-2 filter fabric in compliance with Design Standards Index No. 199 and Section 985, as specified herein and on the plans. Under no circumstances shall the filter fabric be affixed (i.e. chemically bonded) to the mattress in a manner which would jeopardize the functionality of the filter fabric. Specifically, the filter fabric shall be independent of the block system.

The Contractor shall furnish the manufacturer's certificates of compliance for Articulating Concrete Block including the cellular concrete blocks, revetment cable, and any revetment cable fittings and connectors. The Contractor shall also furnish the manufacturer's specifications, literature, shop drawings for the layout of the mats, and any recommendations, if applicable, that are specifically related to the project.

INSTALLATION

Foundation Preparation: Areas on which filter fabric and Articulating Concrete Blocks are to be placed shall be constructed to the lines and grades shown on the plans. The ground shall be graded to a smooth plane surface to ensure that intimate contact is achieved between the soil and the geotextile (filter fabric), and between the geotextile and the entire bottom surface of the Articulating Concrete Blocks. All grading deformities, roots, grade stakes, and stones which project normal to the local face must be re-graded or removed. No holes, "pockmarks", slope board teeth marks, footprints, or other voids greater than 1.0 inch in depth normal to the local face shall be permitted. No grooves or depressions greater than 0.5 inches in depth normal to the local face with a dimension exceeding 1.0 foot in any direction shall be permitted. Where such areas are evident, they shall be brought to grade by placing compacted homogeneous material. The area shall be uniformly compacted, and the depth of layers, homogeneity of soil, and amount of compaction shall be as required by the Engineer.

Immediately prior to placing the filter fabric and Articulating Concrete Blocks, the prepared subgrade shall be inspected by the Engineer as well as the owner's representative. No fabric or blocks shall be placed thereon until that area has been accepted by each of these parties.

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Placement of Geotextile Fabric: Filter fabric shall be placed within the limits shown on the plans. The geotextile fabric shall be placed directly on the prepared area, in intimate contact with the subgrade, and free of folds or wrinkles. The geotextile shall not be walked on or disturbed when the result is a loss of intimate contact between the Articulating Concrete Block and the geotextile or between the geotextile and the subgrade.

The geotextile filter fabric shall be placed so that the upstream strip of fabric overlaps the downstream strip by at least two (2) feet. The geotextile shall extend at least one foot beyond the termination points. If Articulating Concrete Blocks are assembled and placed as large mattresses, the top lap edge of the geotextile should not occur in the same location as a space between mats unless the space is concrete filled.

Placement of Articulating Concrete Block: Articulating Concrete Block shall be constructed within the limits shown on the plans. The Articulating Concrete Blocks shall be placed on the filter fabric in such a manner as to produce a smooth plane surface in intimate contact with the filter fabric. No individual cellular concrete block within the plane of placed Articulating Concrete Blocks shall protrude more than one-half inch or as otherwise specified by the Engineer. To ensure that the Articulating Concrete Blocks are flush and develop intimate contact with the subgrade, the blocks shall be "seated" with a roller or other means as accepted by the Engineer.

If assembled and placed as large mattresses, the Articulating Concrete Block mats shall be attached to a spreader bar or other approved device to aid in the lifting and placing of the mats in their proper position by the use of a crane or other approved equipment. The equipment used should have adequate capacity to place the mats without bumping, dragging, tearing or otherwise damaging the underlying fabric. The mats shall be placed side-by-side and/or end-to-end, so that the mats abut each other. Mat seams or openings between mats greater than two (2) inches shall be filled with 4000 psi. non-shrink grout. Whether placed by hand or in large mattresses, distinct changes in grade that results in a discontinuous revetment surface in the direction of flow shall require a grout seam at the grade change location so as to produce a continuous surface.

Anchor trenches and side trenches shall be backfilled and compacted flush with the top of the blocks. The integrity of the trench backfill must be maintained so as to ensure a surface that is flush with the top surface of the Articulating Concrete Blocks for its entire service life. Toe trenches shall be backfilled as shown on the plans. Backfilling and compaction of trenches shall be completed in a timely fashion. No more than 500 linear feet of placed Articulating Concrete Block with non-completed anchor and/or toe trenches shall be permitted at any time.

The manufacturer of the Articulating Concrete Block shall provide design and construction advice during the design and initial installation phases of the project.

METHOD OF MEASUREMENT

The quantity to be paid for under this section shall be the final plan area, in square yards, completed and accepted.

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BASIS OF PAYMENT

Price and payment shall constitute full compensation for furnishing all the labor, equipment, grout, incidentals, and materials necessary to complete the work.

Payment shall be made under:

Item No. 530-78	Articulating Concrete Block (Armorflex 45S Closed Cell or Accepted Equal)	Square Yard
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TP 550

FENCING (TYPE B)

Installation of fencing shall conform to the requirements of Section 500 of the “Standard Specifications” and Florida Department of Transportation Index No. 802.

METHOD OF MEASUREMENT

Quantities measured for payment under this Section shall be the length in feet of Type B fence, as measured along the bottom of the fabric and out-to-out of end posts, and by the number of fence gates (each).

BASIS OF PAYMENT

Type B fencing and gates will be paid for at the contract unit prices, completed and accepted. Electrical grounds, corner post assemblies, and pull and end post assemblies shall be included in the unit price. Payment shall be full compensation for work specified, including all materials, labor, and appurtenances.

Payment shall be made under:

Item No. 550-10-220	Fencing, Type B (6', Aluminum Coated)	Linear Foot
Item No. 550-60-223	Fence Gate, Type B (Double, 16' Opening, Aluminum Coated)	Each

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TP 570

PERFORMANCE TURF

Establishing a stands of grass in the areas called for on the plans by furnishing and installing sod, Millet/Rye grass, fertilizing, watering, and maintaining the sodded areas shall be in accordance with Section 570 of the "Standard Specifications" and the "Orange County Specifications" (Article 16), and/or as herein modified.

No fertilizer containing phosphorus shall be applied to turf. No fertilizer shall be applied within ten (10) feet of any lake, pond, stream, water body, water course, wetland, or canal per Section 15-805 of Orange County Ordinance 2009-26.

There must be at least 90% coverage of healthy grass prior to acceptance by the Engineer. The Engineer, at any time, may require replanting of any areas in which the establishment of the grass stand does not appear to be developing satisfactorily. The Contractor shall not mow until one month after sod is lain or as directed by the Engineer. Mowing shall be done twice monthly, or as required by the Engineer, until final acceptance of the work.

In established areas, replacement sod shall be of the same type as the existing sod, unless otherwise accepted by the Engineer.

METHOD OF MEASUREMENT

Quantities measured for payment under this Section shall be the area in square yards of satisfactorily installed sodding.

BASIS OF PAYMENT

Sodding will be paid for at the contract unit price per square yard, completed and accepted. Payment shall constitute full compensation for all work described herein, including the cost of ground preparation, pegging, FDOT TRM Type 1 as called for on the plans and all 1:2 slopes or steeper, fertilizing, furnishing and installing sod, millet, and/or rye grass, stakes, water as required for establishment of permanent sodding, and mowing and complete maintenance of the sodded area until final completion.

Payment shall be made under:

Item No. 570-1-2	Performance Turf, Sod (Match Existing)	Square Yard
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TP 900-1

AS-BUILT PLANS

The As-Built Plans shall incorporate all the changes made to the red line As-Built plans. They shall show locations and elevations of paving, swales, ditches, pipe inverts and structures constructed and all relocated or reset property corners, section corners and 1/4 section corners.

Upon the completion of the project, the Contractor shall submit to the County one (1) set of 24"x36" paper Full Size Drawings with Statement of Certifications, certifying that the project was constructed according to the Construction Plans and Specifications, and that the AS BUILT PLANS are correct representation of what was constructed. The plans shall delineate all red line information contained on the As-Built Plans.

The Contractor shall include the Statement of Certification on either the cover sheet certifying all of the sheets or certify each individual sheet. The Statement of Certifications shall be signed and sealed by a Professional Engineer and/or a Professional Surveyor and Mapper, both registered in the State of Florida.

Before final acceptance of all project improvements by Orange County, the Contractor's Professional shall prepare and submit on behalf of Orange County the As-Built Certification Form 40C-1.181 (13) or 40C-1.181(14) and a written statement of completion as required by Condition 10 of the WMD Permit. A copy of the aforementioned certification form is included following Part G. The Contractor shall also provide Orange County with a copy of the certification submittal to the WMD.

BASIS OF PAYMENT

As-Built Plans will be paid for at the contract lump sum price, completed and accepted.

Payment shall be made under:

900-1	As-Built Plans	Lump Sum
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TP 900-2

INDEMNIFICATION

The Contractor shall familiarize himself and comply with all Federal, State, County and City laws, by-laws, ordinances and regulations which control the action or operation of those engaged or employed in the work or which affect materials used. The Contractor shall indemnify, defend and save harmless Orange County and all of its officers, agents and employees, in the amount of the Contract price, against any claims or liability arising from or based on the violation of any such laws, by-laws, ordinances, regulations, order of decrees; whether by himself or his employees.

The Contractor shall take all precautions necessary for the protection of life, health and general occupational welfare of all persons, including employees of both the Contractor and Orange County, until the Work required under the Contract has been completed. The Contractor shall comply at all times with applicable Federal, State, and local laws, provisions and policies governing safety and health, including Title 29, Code of Federal Regulations, Part 1926, Occupational Safety and Health Regulations for Construction including any subsequent revisions and updates.

BASIS OF PAYMENT

All materials, work and incidental costs related to Permits and Indemnification will be paid for at the Contract lump sum price. The Lump Sum amount for Indemnification shall be \$100.00. Not an FDOT pay item.

Payment shall be made under:

Item No. 900-2	Indemnification	Lump Sum
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TP 900-3

GROUNDWATER – TREATMENT & DISPOSAL

If concentrations of tested groundwater quality parameters exceed those allowable in the Florida Department of Environmental Protection (FDEP) Generic Permit for the Discharge of Produced Groundwater from any Non-Contaminated Site Activity (62-621.300(2), F.A.C.), treatment may be required under this technical provision.

The term treatment as used in this technical provision means the application of all FDEP approved techniques and/or methods available to remove the exceedances out of dewatering effluent except impounding. Impounding is not considered a treatment method for purposes of compensation under this technical provision.

The CONTRACTOR shall include in his/her bid all applicable costs, including monitoring, resulting from treatment and disposal of contaminated groundwater with concentration levels that exceed the allowable limits of the FDEP generic permit, and shall not be entitled to any adjustment in the Contract Price as a result of any change in the permit fees or unanticipated treatment and disposal costs.

Prior to any work commencing, and for the duration of the work, the CONTRACTOR is responsible for meeting all the conditions of the applicable permits and submitting any required reports to the appropriate agencies.

The CONTRACTOR shall dewater only in relation to the location and relocation of facilities owned by the COUNTY. No compensation shall be provided for dewatering performed for facilities that are not owned by the COUNTY.

PERMITTING

If exceedances are found in the dewatering effluent, the CONTRACTOR will be required to:

1. Immediately notify the COUNTY and report the exceedances that are encountered.
2. Meet with the FDEP to determine any and all alternatives that are acceptable.
3. Obtain prior COUNTY approval of treatment and disposal alternatives.
4. Obtain prior written COUNTY authorization to use pay item TP 900-3-1.
5. Apply and obtain any and all permits and/or treatment approvals that FDEP requires including, but not limited to:
 - a. Generic Permit for Discharges from Petroleum Contaminated Sites (62-621.300(1), F.A.C.). Allows discharges from sites with automotive gasoline, aviation gasoline, jet fuel, or diesel fuel contamination.
 - b. Permit for all Other Contaminated Sites (62-04; 62-302; 62-620 & 62-660, F.A.C.). The coverage is available only through the individual NPDES permit issued by FDEP. Allows discharges from sites with general contaminant issues, i.e. ground water and/or soil contamination other than petroleum fuel contamination.

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- c. Generic Permit for the Discharge of Produced Ground Water from Any Non Contaminated Site Activity (62-621.300(2), F.A.C.).
 - d. Generic Permit for Stormwater Discharge from Large or Small Construction Activities (62-621.300(4) (a), F.A.C.).
6. Apply and obtain any and all permits and/or treatment approvals that the Water Management District requires including, but not limited to:
- a. No-Notice Short-Term Dewatering Permit (40E-20.302(3), F.A.C.) If the CONTRACTOR'S proposed work is expected to exceed 90 days in duration, or does not meet any of the other requirements listed with the requirements of Rule 40E-20.302(3), the CONTRACTOR must apply for and obtain a Dewatering General Water Use Permit (40E-20.302(2) F.A.C.).

The CONTRACTOR shall not be entitled to file, or recover under, any delay claim based on preparation of permit applications and the time required for obtaining the applicable permits. If, prior to or during the dewatering, it is determined that the disposal or discharge of the dewatering effluent is not authorized by the FDEP's Generic Permit for the Discharge of Produced Ground Water from Any Non-Contaminated Site Activity, the CONTRACTOR shall diligently pursue further required permit(s) from FDEP or other agencies without resort to delay claims or recompense from the COUNTY for either permit application activities or the time required to obtain such permits.

The CONTRACTOR shall consider and anticipate the potential need to obtain the herein discussed permits in developing his schedule, and shall make every effort to avoid or minimize potential impacts to his critical path that might result from delays in dewatering activities due to the time necessary for the CONTRACTOR to obtain the necessary permits. The CONTRACTOR shall make every effort to schedule activities requiring dewatering as late as possible during his schedule, and shall schedule activities not impacted by dewatering as early as possible. For each day, up to a maximum of one hundred eighty (180) days that the CONTRACTOR diligently pursues such permit(s) and is unable to avoid adversely impacting his critical path, a day will be added to the time allotted to the CONTRACTOR to complete performance of the Project

TREATMENT

The CONTRACTOR shall implement the appropriate treatment that is acceptable to FDEP, COUNTY, and, if necessary, the Water Management District to attain compliance for all exceedances encountered during dewatering activities. Treatments may include, but are not limited to: chemical treatment, ion exchange treatment, filtration, and disposal of discharged groundwater in a properly permitted facility.

The CONTRACTOR shall:

- 1. Make every effort to minimize the spread of contamination into uncontaminated areas;

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2. Provide for the health and safety of all workers at the job site and make provisions necessary for the health and safety of the public that may be exposed to any potentially hazardous conditions;
3. Ensure such provisions adhere to all applicable laws, rules or regulations covering hazardous conditions in a manner commensurate with the level of severity of the conditions;
4. If necessary, provide contamination assessment and remediation personnel to handle site assessment, determine the course of action necessary for site security, and perform the necessary steps under applicable laws, rules, and regulations for additional assessment and/or remediation work to resolve the contamination issue;
5. Delineate the contamination area(s), any staging or holding area required, and develop a work plan that will provide the schedule of projected completion dates for the final resolution of the contamination issue;
6. Maintain jurisdiction over activities inside any delineated contamination areas and any associated staging or holding areas;
7. Be responsible for the health and safety of workers within the delineated areas; and
8. Provide continuous access to representatives of regulatory or enforcement agencies having jurisdiction.

METHOD OF MEASUREMENT

Quantities to be paid for under this Section shall be the actual number of calendar days, when Groundwater Treatment & Disposal occurs. This does not include preparation of permit application(s) or time to obtain the permit(s).

BASIS OF PAYMENT

Groundwater Treatment & Disposal will be paid for at the contract unit price per day. The price and payment for groundwater treatment and disposal shall constitute full compensation for cost of permitting and providing all labor, materials, tools, equipment, monitoring, reporting, treating and disposing of groundwater produced from dewatering systems.

Payment shall be made under:

Item No. 900-3	Groundwater – Treatment & Disposal	Per Day
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