
IFB NO. Y18-1046-TA

ISSUED: April 2, 2018

**INVITATION FOR BIDS
FOR
UTILITIES SITE RESTORATION**

**PART H
TECHNICAL SPECIFICATIONS**

**PART H
VOLUME II**

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**SECTION 01001
GENERAL REQUIREMENTS**

PART 1 - GENERAL

1.01 WORK UNDER THIS CONTRACT

In conformance with the requirements of the General Conditions, all notices or other papers required to be delivered by the Contractor to the County shall be delivered to the office of the Project Manager or Designee initiating said Work. The Work will be located at different sites within the County Service Area and will be assignment to the Contractor by Release Orders.

The Contractor shall furnish all labor, materials, equipment, tools services and incidentals to complete all work required by these specifications at a rate of progress which will ensure completion of the Work within the Contract Time stipulated in the associated Release Order.

All work performed, unless authorized by the County's Representative, shall take place between the hours of 7:00 A.M. and 7:00 P.M., Monday through Friday. This will effectively be known as a work day. No work is to be performed on Saturdays, Sundays or Federal, State, and County holidays, unless authorized by the County's Representative. If the Contractor desires to work on Saturdays, Sundays, or official County holidays (List to be provide upon request) he/she must obtain pre-approval from the County's Representative at least forty-eight (48) hours in advance of the work activities.

All materials, equipment, skills, tools and labor that is reasonably and properly inferable and necessary for the proper completion of the Work in compliance with the requirements stated or implied by these Specifications and/or Drawings shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not.

The Contractor shall perform the Work complete and the Work shall include restoration and clean up required as a result of damages caused during this construction as well as restoration, remediation, construction, repair or additions to sites as directed by the project Manager or designated representative. Sites shall include but are not limited to rights-of-way, easements, County Property, County Facilities, Pump stations and private property as required.

The Contractor shall comply with all City, County, State, Federal, and other codes that are applicable to the proposed construction work.

The Contractor shall supervise and direct the Work efficiently and with his best skills and attention. The Contractor shall have a Competent person(as defined by OSHA) and an English speaking superintendent or representative, who shall be on the site of the Project during all working hours, who shall have full authority by the Contractor to direct the performance of the Work and make arrangements for all necessary materials, equipment, and labor without delay.

The Contractor shall provide uniforms/shirts to employees with the Contractor's name on it. As a representative of the County, no apparel that would be offensive to the public shall be permitted. The Contractor shall provide and require the proper use of the appropriate Personal Protective Equipment (PPE) for each of its employees performing work under this agreement. If the Contractor's employees fail to properly wear the appropriate PPE they will be given an opportunity to immediately correct the issue. If they cannot correct the issue immediately or they are not in possession of their PPE they will not be authorized to work at the site.

The Equipment used by the contractor shall be mechanically sound and free from leaks. The Contractor shall be responsible for remediation of damages incurred by fuel and fluids from construction vehicles, equipment and tools. It is in the best interest of the Contractor to document the work site and surroundings prior to commencing each phase of the work their work. Repair may include removal and replacement of asphalt, concrete, sod or any other surface damaged or spotted by leaks. The County will direct the Contractor in the appropriate repair method for spills and spotting caused by the equipment used by the Contractor.

Contractor shall be responsible for providing adequate equipment of sufficient number and size to complete the Work within the time frame as required by the Project Manager.

The Contractor and it's employees shall conduct themselves in a professional manner at all times.

A. GENERAL

1. The Contract will be 12 months from the date of award.
2. It is understood that this is a unit price Contract and the Total Estimated Base Bid is the sum of all pay item totals from the Bid Item Schedule. It is also understood that all quantities are estimates only and the County is not obligated to purchase any minimum or maximum amount during the life of the Contract.
3. Each project will be authorized by issuance of a numbered Release Order. Each Release Order will specify the locations, description, and completion time for the project. In addition, the Release Order will be the effective Notice to Proceed.
4. The Delivery Order will be emailed to the Contractor with the hard copy to follow via U.S. Mail. The emailed copy of the Delivery Order, will serve as the Official Notice to Proceed for each project.

B. METHOD OF ORDERING

1. Routine Orders

- a. Delivery Orders will result from an approved **“Request for Quotation Form”** for each individual location. Project Manager or Designee will initiate a **“Request for Quotation Form”** and include the request date, sketch, required and estimated dimensions of job site.
- b. Project Manager or Designee will e-mail the request to the Contractor. Contractor shall visit the site, familiarize themselves with all conditions at the job site, confirm estimated quantities and dimensions, then submit estimated quantities and costs to user division. A completed and signed **“Request for Quotation Form”** shall be e-mailed to the requesting Division within three (3) business days following the receipt of the request. Project Manager or Designee will review Contractor submittal and process a Delivery Order based on the submittal or contact the Contractor to confirm quantities that are greater than or less than the estimated quantities submitted by the Project Manager or Designee before issuing the Delivery Order. Project Manager or Designee will e-mail a copy of the Delivery Order to the Contractor. The Work shall commence as soon as possible after issuance of Notice to Proceed. The Delivery Order will state the job location, type of work and a completion due date per the time requirement listed in Special Provisions Part G. After issuance of a Delivery Order, **no changes in the scope of Work will be permitted** unless reviewed and authorized by the requesting division, and documented by written Change Order.
- c. When the Project Manager or Designee initiates a change, the Contractor will submit a quote reflecting the requested changes.

2. Emergency Orders:

The Contractor shall be available to commence emergency restoration requests on an on-call basis. Emergency repairs shall commence within the timeframes specified under Special Provision Part G, after notification by the Project Manager or Designee.

3. Scheduling

The contractor shall provide a schedule for paving and concrete the week preceding the following weeks work, by listing on an electronic calendar the type of work taking place and what day the work is scheduled to take place. Each type of work should be clearly defined I.E; paving, concrete, etc. A. GENERAL

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 - a. There will be times when the Project Manager will prioritize work above and beyond Delivery Order time frames. The Contractor shall be flexible enough to assist the county in providing the best service for its customers.
 - b. The Contractor shall maintain constant communication with the Project Manager or designee whenever there is a change in the schedule or an addition of work for a particular day. This shall be accomplished by way of both phone call and email(s) to the Project Manager and their designee(s).

C. PROJECT SITE AND ACCESS

1. RIGHT-OF-WAY AND EASEMENTS

- a. The use of public streets and alleys shall be such as to provide a minimum of inconvenience to the public and to other traffic. The Contractor shall remove any earth or other excavated material spilled from trucks and the streets cleaned to the satisfaction of the County.
- b. The Contractor shall not enter or occupy private land outside of easements, except by written permission of the property owner.

2. ACCESS

- a. Neither the material excavated nor the materials or equipment used in the construction of the Work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.

- b. Access to businesses located adjacent to the project site must be maintained at all times. Contractor shall prearrange the closing of business or residential access with the property owner prior to impeding property owner's access.
- c. Contractor agrees that representatives of the County and any governmental agents will have access to the Work wherever it is in preparation or progress and that the Contractor shall provide facilities for such access and inspection.
- d. The contractor shall comply with the accessibility requirements of the Americans with Disability Act Accessibility Guidelines (ADAAG) and the Florida Accessibility Code (FACBC) when performing work impacting sidewalks. Index 660, Pedestrian Control for Closure of Sidewalks, of the current FDOT Design Standards shall be used.

D. FINAL INSPECTION

1. Inspection by Other Agencies: The Florida Department of Transportation, the Florida Department of Environmental Protection, and other authorized governmental agencies shall have free access to the site for inspecting materials and Work, and the Contractor shall afford them all necessary facilities and assistance for doing so. Any instructions to the Contractor resulting from these inspections shall be given through the Project Manager or Designee. These rights of inspections shall not be construed to create any contractual relationship between the Contractor and these agencies.
2. The Project Manager will make a final inspection to verify the status of Work after notification of completed Work from the Contractor by e-mail.
3. Should the Project Manager consider that the Work is incomplete or defective, he will promptly notify the Contractor in writing, listing the incomplete and defective work, to the best of the Project Manager's knowledge at that time. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written notification to the Project Manager that the Work is complete.

PART 2 – PRODUCTS – (NOT USED)

PART 3 – EXECUTION – (NOT USED)

END OF SECTION

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2. The Project Manager will make a final inspection to verify the status of Work after notification of completed Work from the Contractor by e-mail.
3. Should the Project Manager consider that the Work is incomplete or defective, he will promptly notify the Contractor in writing, listing the incomplete and defective work, to the best of the Project Manager's knowledge at that time. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written notification to the Project Manager that the Work is complete.

PART 2 – PRODUCTS – (NOT USED)

PART 3 – EXECUTION – (NOT USED)

END OF SECTION

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**SECTION 01025
MEASUREMENT AND PAYMENT**

PART 1 – GENERAL

1.01 SCOPE

- A. Payments to the Contractor shall be made on the basis of the Bid Item Schedule as full and complete payment for furnishing all materials, labor, tools and equipment, and for performing all operations necessary to complete the Work included in the Delivery Orders. Such compensation shall also include payments for any loss or damages arising directly or indirectly from the Work, or from any discrepancies between the actual quantities of work and those shown in the Delivery Orders.
- B. The prices stated in the Bid Item Schedule include all costs and expenses for mobilization, taxes, labor, licenses, equipment, materials, commissions, transportation charges and expenses, patent fees and royalties, labor for handling materials during inspection, maintenance of traffic, indemnification, together with any and all other costs and expenses for performing and completing the Work as described in the Delivery Order and specified herein. The basis of payment for an item at the price shown in the Schedule of Prices shall be in accordance with its description of the item in this Section and as related to the Work specified. Unit prices will be applied to the actual quantities furnished and installed in conformance with the Delivery Orders.
- C. The Contractor's attention is called to the fact that the quotations for the various items of Work are intended to establish a total price for completing the Work in its entirety.

1.02 MEASUREMENT

- A. The quantities for payment under each Delivery Order shall be determined by field measurement prior to the approval of the Delivery Order being issued. The County will witness all field measurements.
- B. When depths of cuts are indicated in the bid items, they shall be measured vertically from the edge of the existing grade to the sub-grade at several locations of the original cut and averaged.
- C. The quantities stated in the Bid Item Schedule are approximate only and are intended to serve as a basis for the comparison of bids and to fix the value of the Contract. The County does not expressly or implicitly agree that the actual amount of the Work to be done in the performance of the Contract will correspond with the quantities in the Bid Item Schedule. The amount of work to be done may be more or less than the said quantities and may be increased or decreased by

the County as circumstances may require. The increase or decrease of any quantity shall not be regarded as grounds for an increase in the unit price or in the time allowed for the completion of the Work, except as provided in the Contract Documents.

1.03 PAYMENT ITEMS

A. RESTORATION PAYMENT ITEMS

1. The County will not provide any space or place to store materials for this project. No payment will be made for stored materials. It is intended that all work required to complete this Contract will be included in the various bid items as follows:
2. Item No. 1 thru 14, 89 thru 102, and 175 thru 188 – Temporary Paving (Cold Mix Overlay):
 - a. The unit price for various thicknesses of cold mix asphaltic concrete overlay will be paid for at the unit price times the number of square yards of overlay installed and the price shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment and maintenance of traffic for a complete installation. Ramps can be used in lieu of complete cold mix overlay. Ramps need to be of sufficient slope to allow for regular vehicular traffic to traverse the ramp.
 - b. Temporary Paving will be paid for at the unit price times the number of square yards of ramping installed and the price shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment and maintenance of traffic for a complete installation.
3. Item No. 15 thru 34, 103 thru 122, and 189 thru 208 –Asphalt Roadway Replacement (Hot Mix Asphalt):
 - a. The unit price for Asphalt Roadway replacement shall meet FDOT Standard Specifications for Road & Bridge Construction, Section 300, 320 330 and / or Section 337, and the County's requirements. The unit price for Asphalt Roadway replacement shall provide full compensation for all work including, but not limited to mobilization; furnishing all labor, equipment and material required for cutting, removing, standard milling, protecting and replacing all existing asphalt paving and sub-grade removed or damaged under this Contract; limerock; prime coat; tack coat; asphalt; compaction and maintenance of traffic. Signal wiring shall be replaced if damaged under this pay item. All other replacement due to removal or

damage as a result of the Contractor's operation shall be at the Contractor's expense.

- b. The thickness of the pavement replacement over the repair trench excavation/backfill and the pavement replaced for the five feet (5') beyond the limits of the repair trench excavation shall be determined as follows: The thickness of the existing asphalt at the repair trench excavation/backfill edge shall be measured vertically from the existing grade to the sub-grade at the corners and midway between the corners and averaged. The pavement thickness for over the repair trench excavation will be adjusted if the County determines if the Pavement Replacement detail will be used in accordance with the Pavement Replacement Detail attached to these specifications (see Appendix A).
 - c. Payment for Asphalt Roadway Replacement will be made once and shall include both temporary and permanent Asphalt Roadway Replacement and will be made per square yard, based on base and asphalt thickness dimensions as shown on the Drawings, installed and accepted.
4. Item No. 35 thru 37, 123 thru 125, and 209 thru 211 – Concrete Base.
- a. Payment shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment, and maintenance of traffic for a complete installation of **high early** concrete base.
 - b. Payment for the concrete base will be made per square yard, based on thickness dimensions required by the County.
5. Item No. 38 thru 43, 126 thru 131, and 212 thru 217 – Lime Rock Base.
- a. Payment shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment and maintenance of traffic for a complete installation.
 - b. Payment for the lime rock base will be made per square yard, based on thickness dimensions required by the County and / or FDOT Specifications.
6. Item No. 44 thru 45, 132 thru 133, and 218 thru 219 – Saw Cutting
- a. Payment shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment for a complete installation.

- b. Payment for the saw cutting will be made per linear foot of asphalt and concrete saw cut for the outer limits of the pavement replacement.
- 7. Item Nos. 46 thru 55, 134 thru 143, and 220 thru 229 – Concrete Sidewalk or Driveway Replacement
 - a. The unit price for Concrete Sidewalk Replacement shall provide full compensation for all work including, but not limited to, mobilization, furnishing of all labor, equipment and materials required for cutting, removing, compaction of existing subgrade, formwork, reinforcing, conveying, placing, finishing, curing, and protecting all concrete driveways and sidewalks. Payment will only be made within the “Limits of Construction” as shown on the Request for Quotation Form. All other replacement due to removal or damage as a result of the Contractor’s operation shall be at the Contractor’s expense.
 - b. Payment for concrete sidewalk will be made per square foot installed and accepted as shown on the Drawings.
- 8. Item Nos. 56 thru 65, 144 thru 153, and 230 thru 239 – Pump Station Driveway Replacement and Additions
 - a. The unit price for Driveway Replacement and Additions shall provide full compensation for all work including, but not limited to, mobilization, furnishing of all labor, equipment and materials required for cutting, removing, compaction of existing subgrade, formwork, reinforcing, fibermesh crack control concrete, conveying, placing, finishing, curing, and protecting new driveways and additions to existing driveways. Payment will only be made within the “Limits of Construction” as shown on the Request for Quotation Form. All other replacement due to removal or damage as a result of the Contractor’s operation shall be at the Contractor’s expense.
 - b. Payment for this line item will be made per square foot installed and accepted as shown on the Drawings.
- 9. Item No. 66 thru 69, 154 thru 157, and 240 thru 243 – Concrete Curbing Replacement:
 - a. The unit price for Concrete Curb and Gutter Replacement shall provide full compensation for all work including, but not limited to mobilization, furnishing all labor, equipment and material required for cutting, removing, replacing all existing concrete curbs and gutters removed,

damaged and / or installed new as required by the Project Manager under this Contract. Payment will only be made if curbs and gutters are encountered within the "Limits of Construction" as shown on the Request for Quotation sketches. All other replacement due to removal or damage as a result of the Contractor's operation shall be at the Contractor's expense.

- b. Payment for Concrete Curb and Gutter Replacement will be made per linear foot installed and accepted as shown on the Drawing.
10. Item No. 70 thru 71, 158 thru 159, and 244 thru 245 – ADA Detectable Warnings on Walking Surfaces
- a. Payment shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment and maintenance of traffic for a complete installation of ADA Compliant Detectable Warning Pavers.
 - b. Payment for the ADA Compliant Detectable Warning Pavers will be made per square foot installed as per County and / or FDOT Specifications.
11. Item No. 72, 160, and 246 – Removal & Disposal of Subsurface Concrete
- a. Payment shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment required for cutting, removing, leveling, chipping and milling of existing concrete around structures or concrete utilized as base in repairs for the purposes of asphalt replacement.
 - b. Payment will be made per square foot to be removed as per County and / or FDOT Specifications.
12. Item No. 73, 161, and 247– Fill Dirt
- a. Payment shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment for a complete installation.
 - b. Payment will be made per cubic yard for fill that meets Orange County proctor and density standards.
13. Item No. 74, 162, and 248– 60 Mil Geotextile fabric
- a. Payment shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and

equipment for a complete installation.

- b. Payment for this line item will be made per square foot installed and accepted.

14. Item No. 75, 163, and 249 – FDOT 57 Stone

- a. FDOT 57 Stone will be paid for at the unit price and shall provide full compensation for all work including, but not limited to, mobilization, furnishing all labor, equipment and material required for removal of existing rock, soil, sod, or other material, installing new and additional 57 stone at above ground at pump stations or other sites. Measurement of payment shall be the number of square feet actually installed.
- b. Measurement of payment shall be the number of square foot actually installed.

15. Item No. 76 thru 79, 164 thru 167, and 250 thru 253 – Sod Replacement

- a. Sod replacement will be paid for at the unit price and shall provide full compensation for all work including, but not limited to, mobilization, furnishing all labor, equipment and material required for planting Zoysia, Bahia, and St Augustine cultivars. Measurement of payment shall be the number of square feet actually replaced. All other replacement due to removal or damage as a result of the Contractor's operation shall be at the Contractor's expense.
- b. Payment for sod replacement will be made per square foot installed and accepted.

16. Item No. 80, 168, 254 – Sod Preparation

- a. Sod Preparation will be paid for at the unit price and shall provide full compensation for all work including, but not limited to, mobilization, furnishing all labor, equipment and material required for replacing and planting new sod, scarifying or loosening and then raking smooth, prepping site to be free from debris, ensuring proper elevations with surrounding surfaces, removal and installation of materials for proper and seamless installation of sod. Measurement of payment shall be the number of square feet actually removed and/or replaced. All other replacement due to removal or damage as a result of the Contractor's operation shall be at the Contractor's expense.
- b. Payment for sod replacement will be made per square foot installed

and accepted.

17. Item Nos. 81 thru 82, 169 thru 170, and 255 thru 256 – Seeding
 - a. The unit price for Seeding shall meet FDOT Standards and Specifications for Road and Bridge Construction, Section 570. Payment shall provide full compensation for all work including, but not limited to mobilization, furnishing all materials, labor and equipment for a complete installation and application of seeding, mulch cover, and fertilizer application.
 - b. Payment for seeding will be made per square foot installed and accepted.
18. Item Nos. 83 thru 84, 171 thru 172, and 257 thru 258 – Asphalt and Concrete Facilities after hours.
 - a. Payment shall provide full compensation for asphalt and/or concrete plant facilities to open or remain open after hours to provide asphalt material for pavement replacement or concrete mixed for roadway base and/or bulk concrete.
 - b. Payment for Concrete and Asphalt Facilities after hour openings shall be made for each occurrence needed as authorized by the county.
19. Item No. 85, 173, and 259 – Emergency Mobilization
 - a. This lump sum item payment shall provide full compensation for the preparatory work and operation necessary for mobilizing and beginning Work on the project including, but not limited to, multiple operations necessary for the movement of personnel, equipment, supplies and incidentals to the Work and any other pre-construction expense necessary for the start of the Work within 4 hours of notification..
 - b. Payment for emergency mobilization shall be for all items and shall be included in the lump sum price.
20. Item No. 86, 174, and 260 – Asphalt Milling
 - a. The unit price for Asphalt Milling shall meet FDOT Standard Specifications for Road & Bridge Construction, Section 327 and Orange County requirements. Payment shall provide full compensation for all work including, but not limited to mobilization, labor and equipment for asphalt milling.

- b. Payment for asphalt milling will be made per square yard as shown on the **“Request for Quotation Form”**.

21. Item No.87 175, 261– Bulk Concrete

- a. The unit price for Bulk Concrete Payment shall provide full compensation for all work including, but not limited to, mobilization, delivery, off-loading, cleanup and demobilization.
- b. Payment for Bulk Concrete will be made per full cubic yard as shown on the **bid schedule**". No incremental units shall be ordered.

END OF SECTION

**SECTION 01570
MAINTENANCE OF TRAFFIC**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes identifying safety hazards and then furnishing all necessary labor, materials, tools, and equipment including, but not limited, to signs, barricades, traffic drums, cones, flashers, construction fencing, flag persons, warning devices, temporary pavement markings, delineators, etc., to control vehicular and pedestrian traffic through and adjacent to the project area. These measures and actions shall be taken to safely maintain the accessibility of public and construction traffic by preventing potential construction hazards. This Work shall also include all costs associated with the erecting, maintaining, moving, adjusting, cleaning, relocating, and storing the materials necessary to ensure safe movement of vehicular and pedestrian traffic throughout the project area. The Contractor may request that the County approve the detouring of traffic around the Construction area if it is in the best interest of public safety and the County. Detouring shall be limited to normal construction hours and two-way traffic patterns shall be re-established at the end of each workday.

1.02 REQUIREMENTS

- A. Traffic planning and control for the maintenance and protection of pedestrian and vehicular traffic affected by the Contractor's Work includes, but is not limited to:
- (1) Construction and maintenance of any necessary detour equipment and facilities.
 - (2) Providing necessary facilities for access to residences and businesses.
 - (3) Furnishing, installing, and maintenance of traffic control and safety devices (e.g. signage, barricades, barriers, message boards, etc.), and flag persons as appropriate during Construction.
- B. The Contractor shall provide a competent person (as defined by OSHA and FDOT) onsite throughout the duration of the Work.

- C. Control of water runoff, dust and any other special requirements for safe and expeditious movement of traffic.
- D. Planning, maintenance and control of traffic shall be provided at the Contractor's expense. The Contractor will bear all expense of maintaining the vehicle and pedestrian traffic throughout the work area.
- E. The Contractor will ensure all personnel involved in traffic control are properly trained and capable of communicating with the public during closures and detours. The Contractor may be required to hire off-duty uniformed police officers, in addition to flag persons, to direct and maintain traffic on heavily traveled thoroughfares on which traffic is subject to delays or detours caused by the Contractor's operations. Locations and conditions requiring such uniformed police officers shall be as directed by the County.
- F. The Contractor will remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - MATERIALS AND EQUIPMENT

3.01 The Contractor will furnish barricades, warning signs, delineators, pilot cars and other traffic control materials and equipment in accordance with the Manual of Uniform Traffic Control Devices for Streets and Highways published by the United States Government Printing Office.

3.02 FLAG PERSONS

- A. All flag persons used on this Project will adhere to the following requirements:
- B. Any person acting as a flag person on this Project will have attended a training session taught by a Contractor's qualified trainer before the start date of this Contract. The flagger shall be certified in the Work Zone Traffic Safety guidelines in accordance with the FDOT Maintenance of Traffic Standards.
- C. The Contractor's qualified trainer will have completed a "Flag person Train the Trainer Session" in the 5-years previous or before the start date of this Contract and will be on file as a qualified flag person trainer.

- D. The flag person trainer's name and Qualification Number shall be in accordance with the FDOT Maintenance of Traffic Standards and FDOT certification shall be furnished by the Contractor at the Pre-Construction meeting and as new staff is hired for such capacity.. The Contractor will provide all flag persons with the Flag Person Handbook and will observe the rules and regulations contained therein. This handbook will be in the possession of all flag person while flagging on the Project.
- E. Flag persons will not be assigned other duties while working as authorized flag persons.
- F. Any person replacing flag person for break shall have the same training.

PART 4 - EXECUTION

4.01 Notification

- A. The Contractor will notify individual owners, owner's agents, and tenants of buildings adjacent to worksite in writing, with copies to the county, 72-hours in advance of any disruption to their access to those buildings and/or use of public ways adjacent to the buildings or prohibiting the stopping and parking of vehicles.
- B. Before closing any vehicle or pedestrian thoroughfare, the Contractor will give written notice to the County. Notice will be given no less than 72-hours in advance of the proposed closure, or as may be otherwise provided in the accepted Traffic Control Plan, so that the final approval of such closings can be obtained at least 48-hours in advance.
- C. The Contractor is responsible for notifying Fire and Ambulance Departments whenever roads are impassable.
- D. The Contractor will immediately notify the County of any vehicular or pedestrian safety or efficiency problems incurred as a result of the construction of the Project.

4.02 GENERAL TRAFFIC CONTROL

- A. The Contractor will sequence and plan construction operations and will generally conduct Work in such a manner as not to unduly or unnecessarily restrict or impede normal traffic.
- B. Unless otherwise provided, all roads within the limits of the Work will be kept open to all traffic by the Contractor. The Contractor will keep the portion of the project being used by public traffic, whether it is through or local traffic, in such condition that traffic will be adequately accommodated.

- C. The Contractor will be responsible for installation and maintenance of all traffic control devices and requirements for the duration of the construction period. Necessary precautions for traffic control will include, but not be limited to, warning signs, signals, lighting devices, markings, barricades, canalizations and hand signaling devices.
- D. The Contractor will provide and maintain in a safe condition temporary approaches or crossings and intersections with trails, roads, streets, businesses, parking lots, residences, garages and farms.
- E. The Contractor will provide emergency access to all residences and businesses at all times. Residential and business access will be restored and maintained at all times outside of the Contractor's normal working hours.
- F. Traffic is to be maintained on one section of existing pavement, proposed pavement, or a combination thereof. Alternating one-way traffic may be utilized and limited to a maximum length of 500-feet during construction hours. Lane width for alternating one-way traffic will be kept to a minimum width of 10-feet, or as directed by the County.
- G. Travel lanes and pedestrian pass ways will be drained and kept reasonably smooth and in a suitable condition at all times in order to provide minimum interference to traffic consistent with the prosecution of the Work.
- H. The Contractor will make provisions at all "open cut" street crossings to allow for free passage of vehicles and pedestrians, either by bridging or other temporary crossing structures. Such structures will be of adequate strength and proper construction and will be maintained by the Contractor in such a manner as not to constitute an undue traffic hazard.

- I. The Contractor will keep all signs in proper position, clean, and legible at all times. Care will be taken so that weeds, shrubbery, construction materials, equipment, and soil are not allowed to obscure any sign, light, or barricade. Signs that do not apply to construction conditions should be removed or adjusted so that the legend is not visible to approaching traffic.
- J. The County may determine the need for, and extent of, additional striping removal and restriping.
- K. A current FDOT approved certification will be required for the person responsible for the setup and maintenance of the approved traffic control plan. The certification card shall contain the name, certificate number, course category (intermediate: BT-05-0078 or Advance: BT-05-0079), and certificate expiration date. An Intermediate Level Certification will be required for the FDOT Design Standards 600 series. An Advanced Level Certification Card will be required for all non-typical condition MOT plans and road closures that will be submitted.
- L. The MOT submittals must cover all phases of construction.
- M. A uniformed police officer will be required for all nighttime work activities that require lane or road closures.

END OF SECTION

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**SECTION 02100
SITE PREPARATION**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This Section covers traffic maintenance, dust, noise, and weed control within the construction sites or sites as determined by the Project Manager.

PART 2 - PRODUCTS – (NOT USED)

PART 3 – EXECUTION

3.01 TRAFFIC MAINTENANCE

- A. Maintain public highway traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of Work. Work shall also include construction and maintenance of any necessary detour facilities; furnishing, installing and maintaining of traffic control and safety devices during construction, control of dust; or any other special requirements for safe and expeditious movement of vehicular and pedestrian traffic.
- B. Contractor shall provide traffic control at the Contractor's expense by the Contractor's personnel or off-duty-uniformed police officer, depending on and as required by the applicable traffic control requirements applicable to the Work.
- C. At the request of any jurisdictional agency, the Contractor shall prepare and submit a Traffic Control Plan to the Project Manager or his Designee for review and acceptance prior to commencing any Work on the site. The Traffic Control Plan shall detail procedures and protective measures proposed by the Contractor to provide for protection and control of traffic affected by the Work consistent with the following applicable standards:
1. Standard Specifications for Road and Bridge Construction, Latest Edition including all subsequent supplements issued by the Florida Department of Transportation, (FDOT Spec.).
 2. Manual of Traffic Control and Safe Practices for Street and Highway construction, Maintenance and Utility Operations, FDOT.
 3. Right-of-Way Utilization Regulations, Orange County, Florida, latest edition.

All references to the respective agency in the above referenced standards shall be construed to also include the County for this Contract.

- D. Before closing any thoroughfare, the Contractor shall give written notice to and, if necessary, obtain a permit or permits from the duly constituted public authority having jurisdiction over the thoroughfare. Notice shall be given no less than 72 hours in advance of the time when it may be necessary in the process of construction to close such thoroughfare, or as

- may be otherwise provided in the accepted Traffic Control Plan.
- E. The Contractor shall sequence and plan construction operations and shall generally conduct his Work in such a manner as not to unduly or unnecessarily restrict or impede existing normal traffic through the streets of the local community.
 - F. Insofar as it is practicable, excavated material and spoil banks shall not be located in such a manner as to obstruct traffic. The traveled way of all streets, roads and alleys shall be kept clear and unobstructed insofar as is possible and shall not be used for the storage of construction materials, equipment, supplies, or excavated earth.
 - G. The Contractor shall make provisions at all "open cut" street crossings to allow a minimum of one lane to be open for vehicular traffic at all times. Lane closing shall be as permitted by the local governing authority and shall be repaired to a smooth, safe driving surface immediately following the installation of pipe or conduit by the County. Flagmen shall be required, in addition to barricades, signs and other protective devices at all lane closings.
 - H. The Contractor shall immediately remove all offensive material; exercising such precautions as may be directed by the Project Manager or his Designee. All material excavated shall be so disposed of as not to inconvenience the public and adjacent tenants and to prevent injury to trees, sidewalks, fences and adjacent property of all kinds.

3.02 BARRIERS AND LIGHTS

The Contractor shall exercise extreme care in the conduct of the Work to protect health and safety of the workmen and the public. The Contractor shall provide all protective measures and devices necessary, in conformance with applicable local, state and federal regulations regarding their need and use. Protective measures shall include but are not limited to barricades, warning lights/flashers and safety ropes.

3.03 DUST, NOISE AND EROSION CONTROL

- A. The Contractor shall prevent dust nuisance from his operations or from traffic by the use of water.
- B. Anytime a saw cut is made to asphaltic pavement and/or concrete, water shall be used to control dust. Any resulting slurry or spray shall be cleaned up. Care shall be taken as to not get any slurry spray on existing landscaping and/or structures when working in close proximity.
- C. Noise suppression:
 - 1. The Contractor shall eliminate noise to as great an extent as practical at all times. The Contractor shall strictly observe all local regulations and ordinances covering noise control.

3.04 PROTECTION AND RESTORATION

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every means of protection necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the Work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the County.

3.05 WEED CONTROL

- A. When requested, the contractor shall provide and place geotextile fabric and/or FDOT 57 Stone as indicated below at the pricing set forth in this agreement for weed control.
- B. The geotextile fabric shall be installed for weed control. The fabric shall be a heat bonded, non-woven, polypropylene, which is inert to biological degradation and resistant to naturally encountered chemicals, alkalis and acids. The fabric shall provide passage of air and liquids. The fabric shall be 60mils thick.
- C. Contractor shall be responsible for the removal of all existing rock, soil, sod, or other material need to properly place the geotextile fabrics.
- D. FDOT 57 Stone is a course aggregate that may be processed from gravels, granites, limestone, dolomite, sandstones, or other naturally occurring hard, sound, durable materials meeting the gradation requirements of Table 1, Section 901-1.4, of the Florida Department of Transportation's Standard Specification. SECTION 901-1.4, Table 1
- E. FDOT 57 stone shall be placed on the geotextile fabric at pump stations or areas as directed by the Project Manager.
- F. Contractor shall be responsible for the removal of all existing rock, soil, sod, or other material to gain a 4" depth for the installation of 57 stone and coordination for access to locked facilities.

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**SECTION 02575
PAVEMENT REMOVAL AND REPLACEMENT**

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Work included under this Section consists of cutting, milling, removing, protecting and replacing existing pavements of the various types encountered including roadways, driveways, sidewalks, curb and combination curb and gutter.
- B. Locates - The contractor will be responsible for locates of utilities prior to starting operations. Tickets shall be kept on site at all times. The Contractor shall immediately notify residents of any damages (irrigation, utilities, etc.) and shall repair damages immediately. The Contractor shall be responsible for these areas for a period of six (6) months after acceptance of the project and will be required to correct any damages related to such repairs. No additional compensation will be provided to the Contractor for locates or repairs to damages as specified above.
- C. Testing: Unless otherwise specified herein, the Contractor shall be responsible for any geotechnical testing required as per Orange County and Florida Department of Transportation Standard Specifications for Road and Bridge Construction at no additional cost to the County. The cost for geotechnical testing shall be included on the unit price for services provided.
- D. Permits: The County shall obtain the necessary permits prior to any work involving existing pavement removal or replacement to include a Right of Entry. The Contractor will be responsible for obtaining the Right of Entry if they need to enter private property if they need to enter private property out of necessity of their work. The Contractor shall provide advance notice to the appropriate authority, as required, prior to construction operations.
- E. Protection of Existing Improvements: The Contractor shall be responsible for the protection of all pavements, sidewalks and other improvements within the Work area. The Contractor at his expense as described herein shall repair all damage to such improvements, as a result of the Contractor's operations, beyond the limits of the Work of pavement replacement.
- F. Maintenance of Traffic: The Contractor shall furnish all labor, materials, equipment and incidentals required to maintain public vehicular and pedestrian traffic within the limits of this project, for the Work prescribed herein. Maintenance of traffic shall include all such detour facilities, safety devices, traffic control personnel, and operations as are required for the safety and convenience

of the public. If requested by the governing authority, the Contractor shall prepare a complete maintenance of traffic plan and submit for review and comment.

- G. Signalization: The Contractor shall be responsible for repair or replacement of all traffic signalization devices and loops damaged during construction. The Project Manager shall be notified a minimum of 48 hour prior to signalization disruption.
- H. Pavement Markings: All pavement markings damaged by removal and replacement of the respective permanent pavement areas shall be replaced to equal condition of the existing by the Contractor.

1.02 JURISDICTIONAL REQUIREMENTS

- A. Agency Compliance: Work within the rights-of-way of public thoroughfares shall conform to the requirements of the governmental agency or governing authority having jurisdiction. Specifically, work within state highway right-of-way shall be in full compliance with all requirements of the permit drawings, and to the satisfaction of the Florida Department of Transportation and work within Orange County right-of-way shall be in full compliance with all requirements of the Orange County Right-of-Way Utilization Regulations unless designated otherwise by the Project Manager.
- B. Applicable Standards:
 - 1. Portions of the Standard Specifications for Road and Bridge Construction of the Florida Department of Transportation, latest revision, and Supplement thereto hereinafter referred to as the FDOT Specifications, are referred to herein and amended, in part, and the same are hereby made a part of this Contract to the extent of such references, and shall be as binding upon the Contract as though reproduced herein in their entirety.
 - 2. Florida Department of Transportation Utility Accommodation Guide, latest revision.
 - 3. Manual of Traffic Control and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations, FDOT, Indexes 601 - 670.
 - 4. Right-of-Way Utilization Regulations, Orange County, Florida.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials, including limerock, bituminous prime and tack coat, and asphaltic concrete for the above Work shall meet the requirements established therefore by the FDOT Specifications.
1. Limerock shall be Miami or Ocala Limerock.
 2. Bituminous prime coat material shall be cutback asphalt Grade RC-70.
 3. Bituminous tack coat material shall be emulsified asphalt Grade RS-2.
 4. Asphaltic concrete shall be Type SP-9.5 or Type SP-12.5 for structural courses and Type FC-9.5 or Type FC-12.5 for friction courses, unless specified otherwise in the drawings.
 5. Concrete shall be Class B, 3,000 psi concrete in accordance with Division 3 - Concrete, unless specified otherwise in the drawings.

PART 3 - EXECUTION

3.01 GENERAL

- A. Pedestrian or School Crossings: Where the Work crosses or interferes with school or pedestrian crossings, extreme care shall be taken by the Contractor to insure the safety of school children or other pedestrians. Temporary road re-surfacing, sidewalks, signalization and markings shall be constructed or repaired immediately following excavation and backfilling.

3.02 PERFORMANCE

- A. Removals:
1. Pavement Removal: Where existing pavement is to be cut back and removed, the surfacing shall be mechanical saw cut prior to trench excavation, leaving a uniform and straight edge, with minimum disturbance to the remaining adjacent surface. The width shall be limited as shown on the Request for Quotation Form. The material shall be removed and disposed of by the Contractor.
 2. Sidewalk, Driveway, & Curb Removal: Asphalt and concrete sidewalks, curbs, combination curb and gutter, walks, drive ribbons, or driveways shall be removed by initially sawing the structure, with a suitable power saw, as specified above for pavement. When a formed joint in the concrete exists within 3 feet of the proposed saw cut and parallels the proposed saw cut, the removal line shall be

extended to the formed joint. After sawing, the material shall be removed and disposed of by the Contractor. Unless otherwise shown on the Request for Quotation Form, the limits of removal and replacement of asphalt and concrete driveways shall extend from the edge of the existing pavement to the right-of-way line.

B. Temporary Pavement Restorations:

1. General: Pavement cut and removed under this Contract that requires immediate re-surfacing shall be temporarily restored and maintained until permanently replaced by the Contractor as specified in the Request for Quotation.
2. Cold mix asphaltic concrete ramps may be used in lieu of a complete cold mix overlay when approved by Project Manager
3. Maintenance of traffic (MOT), as outlined in this contract, shall be maintained at all times during working hours. At no time shall it be permissible to leave in place, MOT overnight. All open cuts are to be maintained as set forth in these contract documents.
4. At no time shall the contractor store or leave any bulk cold mix asphalt on site or in the path of a traveled way, unless authorized by the project manager.
5. Cold Mix asphalt maybe be reused and does no need to be "new". The County reserves the right to instruct the contractor to remove and repalce cold mix asphalt that is not of an acceptable quality.

C. Permanent Pavement Replacement/Restoration:

1. General: Pavement cut and removed under this Contract that is designated to remain or roadway surface which are to receive asphalt overlay with no additional base course construction shall be restored in accordance with FDOT and/or Orange County Public Works (OCPW) specifications and specifications provided herein.
2. Asphalt Roadway Pavement Restoration:
 - a. Construction methods and equipment utilized for permanent pavement restoration shall meet the requirements established in the FDOT Standard Specifications.
 - b. Joints with existing surface and base shall be straight and neat. If necessary to obtain a straight neat joint, the Contractor shall cut out sufficient existing material or mill as required and replace it with new material.

- c. After compaction of the stabilized sub-grade, the Contractor shall install a replacement base course to match the existing or in conformance with the minimum requirements of FDOT when within their right-of way, and/or shall install a replacement base course consisting of a minimum 8", 3000 psi high early strength concrete when within Orange County right-of- way.
 - d. The surface of the base shall be tack-coated and an asphaltic concrete structural course consisting of matching type and thickness of that removed shall be constructed to match the undisturbed grade at all edges.
 - e. Do not use fuel or other petroleum distillates to prevent adhesion of asphalt to equipment, machinery, trucks and / or hand tools. Use release agents in accordance with the manufacturer's recommendations and per FDOT Standard Specifications Section 330.
 - f. Maintenance of traffic (MOT), as outlined in this contract, shall be maintained at all times during working hours. At no time shall it be permissible to leave in place, MOT overnight. All open cuts are to be maintained as set forth in these contract documents.
3. Asphalt Driveway Restoration: Driveway pavement with limerock base cut and removed in connection with trench excavation shall be replaced or restored with new limerock base course and shall equal the existing base course in thickness, except that in no case shall new driveway base course be less than 6 inches in thickness. Muck or unsuitable material found under existing driveway construction shall be removed and replaced as directed by the Project Manager or his Designee.
4. Concrete Sidewalk, Walkway, Driveways, Gutter, and Curb Restoration: Replaced portions of these items shall conform to the lines, grades and cross sections of the removed portions. Concrete sidewalks and walkways shall be of 4-inch thickness; concrete driveways shall be 6-inch thickness and be reinforced to match the existing concrete. Replaced concrete curb and/or gutter shall joint neatly to the remaining section.
5. Pump Station 6"x16" Curbing shall have a minimum 4" reveal above ground. Contractor shall be responsible for coordination of access to adjacent private property if required to complete the

work.

6. Concrete with Fibermesh for Driveway Replacement and Additions shall be 6 or 8-inch thickness as required shall be placed on sub-base sufficiently compacted to 95% Modified T-180 or equal. Replaced and added portions of these items shall conform to the lines, grades and cross sections of the removed portions or match existing grade. Replaced concrete curb and/or gutter shall joint neatly to the remaining section.

3.03 CLEAN-UP AND PROTECTION OF NEW WORK

- A. After each phase of repair and restoration has been completed, all excess asphalt, dirt, rock and other debris shall be removed from the roadways, gutters and storm systems. The Contractor shall be responsible for repairs of any defects caused by the Contractor, at no additional cost to the County.
- B. Do not permit vehicular or pedestrian traffic of any kind on any new asphalt or concrete surface until the surface has hardened sufficiently so as not to be distorted, marked or damaged.
- C. The Contractor shall maintain all temporary pavement surfaces until permanent pavement has been completed or until the temporary pavement has been removed to accommodate proposed work by others.
- D. The Contractor shall ensure all excess concrete and concrete clean-out is accomplished in an enclosed container and/or within the limits of the worksite done in a manner as to not negatively impact successive concrete pours. Once concrete from washout or excess in chute has hardened it needs to be removed no later than the next day. Precautions shall be taken so no contaminated liquids are allowed to drain from immediate washout area. Examples of Best Management Practices for concrete washout provided by EPA can be found here: <http://www.epa.gov/npdes/pubs/concretewashout.pdf>

3.04 WARRANTY

- A. The Contractor shall maintain permanent pavement under this Contract during the warranty period of one (1) year after acceptance or until removed by the roadway improvement construction, and shall promptly refill and repave areas which have settled, cracked or are otherwise unsuitable for traffic.

END OF SECTION

**SECTION 02578
SOLID SODDING, SEEDING, AND MULCH**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The Work specified in this section consists of establishing a stand of grass by furnishing and placing grass sod or seed.
- B. Solid sodding shall be placed in on all slopes greater than 4:1, within 10 feet of all proposed structures and in all areas where existing grass or sod was removed, regardless of its condition.
- C. All seed, sod and mulch shall be free of noxious weeds and exotic pest plants, plant parts or seed listed in the current Category I "List of Invasive Species" from the Florida Exotic Pest Plant Council (FLEPPC, <http://www.fleppc.org>). Any plant officially listed as being noxious or undesirable by any Federal Agency, any agency of the State of Florida or any local jurisdiction in which the project is being constructed shall not be used. Any such noxious or invasive plant or plant part found to be delivered in seed, sod or mulch will be removed by the Contractor at his expense and in accordance with the law.
- D. All materials shall meet plant quarantine and certification entry requirements of Florida Department of Agriculture & Consumer Services, Division of Plant Industry Rules.

1.02 SUBMITTALS

- A. A certification of sod quality by the producer shall be delivered to the County ten days prior to use.

PART 2 - PRODUCTS

2.01 GRASS SOD

- A. Grass sod for the road rights-of-way or restoration of repair sites shall be of variety to match the existing adjacent area and shall be well matted with grass roots. The sod shall be taken up in rectangles, preferably 12 inches by 24 inches, shall be a minimum of 2 inches in thickness and shall be live, fresh and uninjured at the time of planting.
- B. Grass sod for restoration of repair sites and/or areas disturbed by construction on existing sites shall match the existing sod. The sod shall be taken up in rectangles, preferably 12 inches by 24 inches, shall be a minimum of 2 inches in thickness and shall be live, fresh and uninjured at

the time of planting.

- E. Grass sod shall be reasonably free of weeds and other grasses and shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. The sod shall be planted as soon as possible after being dug and shall be kept shaded and moist until it is planted.

2.02 SEED

- A. The seed shall have been harvested from the previous year's crop. All seed bags shall have a label attached stating the date of harvest, LOT number, percent purity, percent germination, noxious weed certification and date of test. Each of the species or varieties of seed shall be furnished and delivered in separate labeled bags. During handling and storing, the seed shall be cared for in such a manner that it will be protected from damage by heat, moisture, rodents and other causes.
- B. All Bahia seed shall have a minimum pure live seed content of 95% with a minimum germination of 80%

2.03 MULCH

- A. Hydraulically applied wood fiber mulch, bonded fiber matrix (BFM) or straw for the establishment of turf material from seeding.

PART 3 - EXECUTION

3.01 SOD AND SEED PREPARATION

- A. The area over which the sod is to be placed shall be scarified, loosened, leveled and then raked smooth and made free of debris to match the existing grades for sod placement. Sod preparation shall include soil removal and disposal of excess soil required to prepare the site to match existing sod grades or the removal of existing sod that is damaged, injured or dead as determined by the County. Where the soil is sufficiently loose and clean, the Project Manager, at his discretion, may authorize the elimination of ground preparation.

3.02 PLACING SOD

- A. The sod shall be placed on the prepared surface and match the existing sod grades, with edges in close contact and shall be firmly and smoothly embedded by light tamping with appropriate tools.
- B. Where sodding is used in drainage ditches, or on slopes of 4:1 or greater, the setting of the pieces shall be staggered so as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas, the offsets of individual strips shall not exceed 6 inches. In order to prevent

erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped so as to produce a featheredge effect.

- C. On slopes greater than 2:1, the Contractor shall, if necessary, prevent the sod from sliding by means of wooden pegs driven through the sod blocks into firm earth, at suitable intervals.
- D. Sod that has been cut for more than 72 hours shall not be used unless specifically authorized by the Project Manager or his Designee after his inspection thereof. Sod that is not planted within 24 hours after cutting shall be properly maintained and moistened. Any pieces of sod which, after placing, show an appearance of extreme dryness shall be removed and replaced by fresh, uninjured pieces.
- E. Sodding shall not be performed when weather and soil conditions are unsuitable for proper results in the Project Manager or his Designee's opinion.
- F. Contractor shall leave notices for customer's sod care responsibilities as directed by the County.

3.02 PLACING SEED

- A. Seed shall be placed in accordance with the latest edition of the FDOT Standard Specifications for Road and Bridge Construction sections 570, 981 and 987.
- B. All fertilizer used shall comply with local and state fertilizer laws and/or ordinances, whichever is more stringent. Local ordinance can be found here: https://library.municode.com/fl/orange_county/codes/code_of_ordinances?nodeId=PTIIORCOCO_CH15ENCO_ARTXVIIFEMAOR

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**SECTION 02760
DETECTABLE WARNINGS ON WALKING SURFACES**

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Furnish and install Detectable Warning devices on newly constructed and/or existing concrete curb ramps and sidewalks constructed in accordance with the Design Standards, where indicated in the plans..

PART 2 - PRODUCTS

2.01 Materials.

- A. Provide Detectable Warnings in accordance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) Section 4.29.2 - Detectable Warnings on Walking Surfaces. Use Detectable Warnings of materials intended for exterior use applied to concrete and subject to routine pedestrian traffic and occasional vehicular traffic. Use Detectable Warnings with size and pattern shown in the plans comprised of truncated domes aligned in parallel rows in accordance with Index No. 304 of the Design Standards. Do not use detectable warnings with a diagonal pattern.
- B. Use Detectable Warnings consisting of weather-resistant tiles, pavers or mats that are adhered to concrete and have mechanical bond or fasteners, or torch-applied preformed thermoplastic. Preformed products may be used only if listed on the Qualified Products List in accordance with 527-2.4 of the FDOT Standard Specifications for Road and Bridge Construction.
- C. Use Detectable Warnings applied as a secondary application to cured concrete. Products applied as a secondary application on cured concrete, may be used only if listed on the Qualified Products List in accordance with 527-2.4.663 of the FDOT Standard Specifications for Road and Bridge Construction.
- D. Provide Detectable Warnings that meet the following minimum material property requirements when tested in accordance with the indicated Standard appropriate to the material.

PROPERTY	STANDARD	MINIMUM THRESHOLD
Slip Resistance	ASTM C1028F609, F1677, F1678, F1679; E303	Dry Coefficient of Friction – 0.8 min. and Wet Coefficient of Friction – 0.65 min.; Or 35 BPN (include recessed areas between truncated domes)

Wear Resistance	ASTM C501	Average wear depth on dome ≤ 0.030 " after 1000 abrasion cycles.
Water Absorption ¹	ASTM D570	Not to exceed 5%.
Adhesion/Bond Strength	ASTM C482	No adhesion failure
Non-Hazardous	RCRA Subtitle C	Non-Hazardous
Classification 1 Applies only to pavers and tiles consisting of concrete materials		

- E. Use Detectable Warnings providing a light-on-dark or dark-on-light color contrast with adjoining surfaces that meet a 70% contrast ratio as described in ADAAG Appendix Section A4.29.2. Acceptable colors include Brick Red and Safety Yellow The color must be integral with and consistent throughout the material. Do not use the color blue.
- F. Methods or products used to form Detectable Warnings in wet concrete will not be permitted. Use Detectable Warnings listed on the Florida Department of Transportation Qualified Products List (QPL). Manufacturers must demonstrate performance in accordance with the requirements of these Specifications and with the acceptance criteria detailed in 2010 FDOT Index No. 304 of the Design Standards. Submit Applications that include certified test reports from an independent laboratory that shows the Detectable Warning meets the material properties and all requirements specified herein. Application must include manufacturer's installation drawings that describe detailed quality control requirements for installation including, but not limited to: special materials and/or equipment; recommendations for cleaning/preparing substrate surfaces; bonding method describing thickness, spread rate and/or curing time(s) of grout or adhesive materials; mechanical anchorage; and protection of Detectable Warning materials during set-up/curing period.
- G. In addition, manufacturer's drawings must provide recommended quality control procedures for touch-up and repair of localized areas of installations, for compliance with the acceptance criteria provided in the 2010 FDOT Index No. 304 of the Design Standards.

PART 3 - EXECUTION

3.01 GENERAL

- A. Prepare the surface in accordance with the Detectable Warning manufacturer's recommendations. Install Detectable Warnings in accordance with the manufacturer's instructions, using materials and/or equipment recommended and approved by the Detectable Warning manufacturer for adherence to cementitious substrate surfaces. Ensure that all installations are made in accordance with the manufacturer's installation drawings referenced by the QPL.
- B. Detectable Warnings applied to newly constructed concrete sidewalk/curb ramps will be included in the cost of the concrete sidewalk/curb ramp.

Detectable Warnings applied to existing curb ramps will be paid per each Detectable Warning that is furnished, installed and accepted.

- C. Price and payment will be full compensation for all work specified in this Section, including all labor, surface preparation, materials and incidentals necessary to complete the work for Detectable Warnings installed on each curb ramp.

END OF SECTION

**SECTION 03300
CAST-IN-PLACE CONCRETE**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. **Scope of Work:** The Work included in this Section consists of providing cast-in-place concrete.

1.02 QUALITY ASSURANCE

- A. **Standards:** Unless otherwise indicated, all materials, workmanship and practices shall conform to the requirements of the following standards:
1. Standard Building Code.
 2. Local Codes and Regulations.
 3. ACI 318-83, Building Code Requirements for Reinforced Concrete.
- B. **Plant Qualification:** Plant equipment and facilities shall meet all requirements of the checklist for Certification of Ready Mixed Concrete Production Facilities of the National ready Mixed Concrete Association and ASTM C 94.
- C. **Evaluation and Acceptance of Concrete:** Evaluation and acceptance of concrete will be in accordance with ACI-318, Chapter 4.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. **Cement:**
1. Cement for all concrete shall be domestic Portland cement that conforms to the requirements of ASTM Designation C 150 Type I.
 1. Cement that has become damaged, partially set, lumpy or caked shall not be used and the entire contents of the sack or container that contains such cement will be rejected. No salvaged or reclaimed cement shall be used.
- B. **Aggregates:**
1. ASTM C 33. Coarse aggregates shall be size No. 57. Block cell fill shall be size No. 89.

- C. Water: Clean and free from injurious amounts of deleterious materials.
- D. Air Entraining Admixture: ASTM C 260.
- E. Water Reducing and Retarding Admixture: ASTM C 494, Type D. Admixture shall not contain calcium chloride.
- F. Epoxy Bonding Agent: Sikastix 370, Sikadur Hi Mod, Concresive 1001-LPL or acceptable equal.

2.02 MIXES

A. General Requirements:

- 1. Mix Design: Proportioning shall be on the basis of field experience and/or trial mixtures as specified in ACI 318, Section 4.3. Data on consecutive compression tests and standard deviation shall be submitted. Proportioning for small structures may be by the water/cement ratio under special review and acceptance by the Project Manager. Concrete mix design shall comply with the Standard Building Code requirements.
- 2. Air Content: 5 percent plus or minus 1 percent.
- 3. Slump: 4 inches plus or minus 1 inch.
- 4. Water cement ratio = 0.50 maximum.
- 5. Minimum Compressive Strength at 28 days:
 - a. Class B, 3,000 psi for slabs under pavement, driveways, curb and gutters, and sidewalks.

B. Production of Concrete:

- 1. General: Concrete shall be ready mixed and shall be batch, mixed and transported in accordance with ASTM C 94, except as otherwise indicated.
- 2. Air Entraining Admixture: Air entraining admixture shall be charged into the mixture as a solution and shall be measured by means of an accepted mechanical dispensing device. The liquid shall be considered a part of the mixing water.
- 3. Water Reducing and Retarding Admixture: Water reducing and retarding admixture shall be added and measured as recommended by the manufacturer. The addition of the admixture shall be separate from the air-entraining admixture. The addition of the admixture shall be completed within one minute after addition of water to the cement has been completed, or prior to the beginning of the last three-quarters of the required mixing, whichever occurs first. Admixtures shall be stored, handled and batched in accordance with the

recommendations of ACI 68.

- C. **Delivery Tickets:** In addition to the information required by ASTM C 94, delivery tickets shall indicate the cement content and the water/cement ratio.
- A. **Temperatures:** The temperature of the concrete upon delivery from the truck shall not exceed 90 degrees F.
- B. **Modifications to the Mix:** No modifications to the mix shall be made in the plant or on the job that will decrease the cement content or increase the water-cement ratio beyond that specified. A qualified and responsible representative of the concrete producer shall make except no modifications of any kind.

PART 3 - EXECUTION

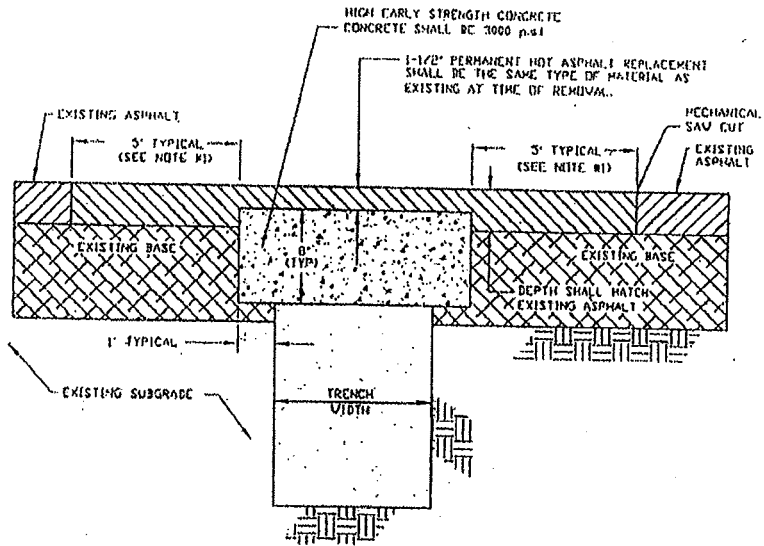
3.01 PREPARATION

- A. **Conveying:**
 - 1. **General:** Concrete shall be handled from the truck to the place of final deposit as rapidly as practical by methods that will prevent segregation or loss of ingredients to maintain the quality of the concrete. No concrete shall be placed more than 90 minutes after mixing has begun for that particular batch.

END OF SECTION

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APPENDIX A



NOTE

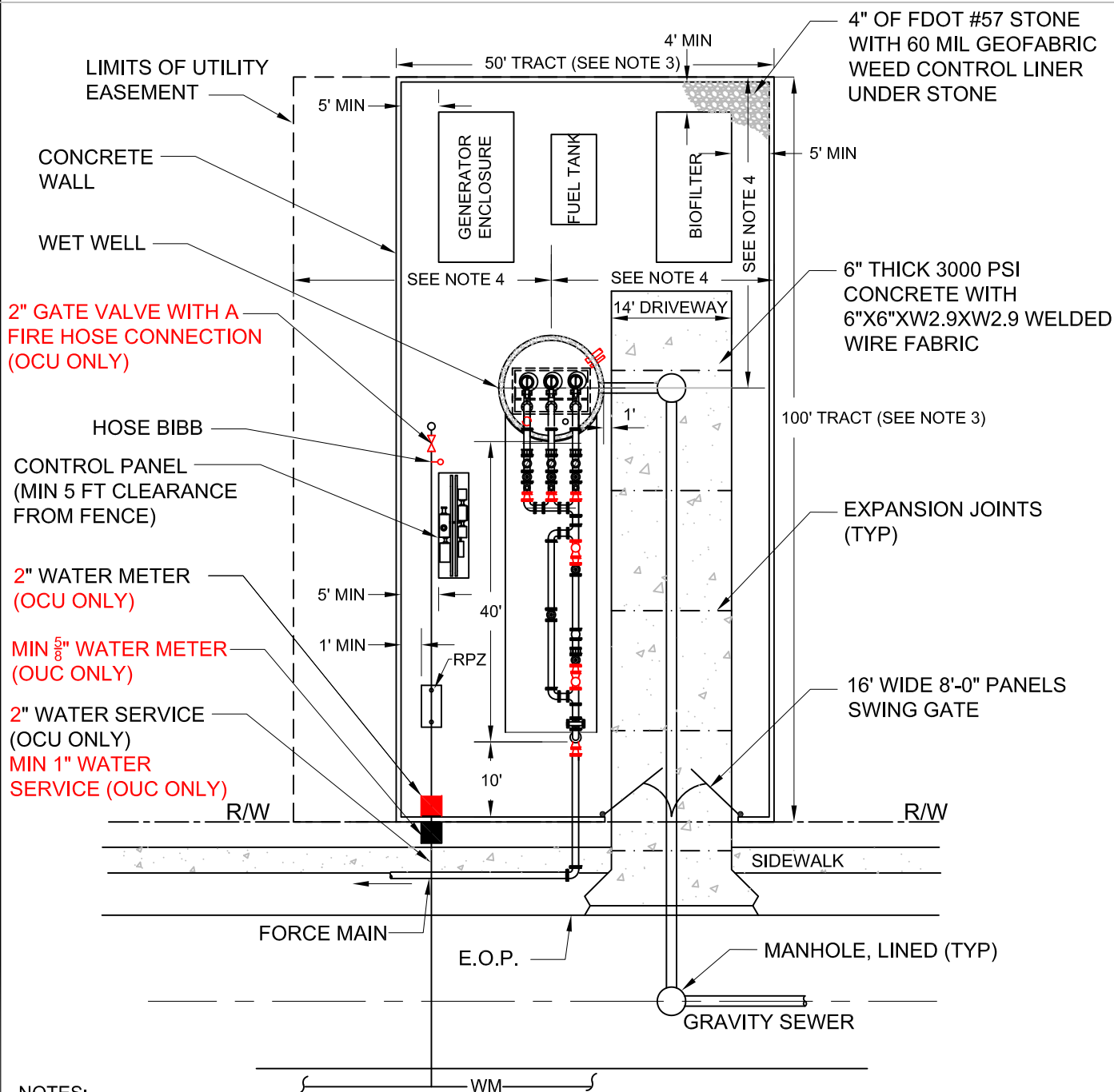
1. SAW-CUT AREA TO BE RESTORED WITH MATERIALS THAT MATCH THE MATERIALS IN PLACE BEFORE CUT.

ALTERNATE SURFACE RESTORATION

DATE: July 16, 2014

TRIPLEX PUMP STATION SITE PLAN

FIGURE A403-5



NOTES:

1. THIS DRAWING IS PROVIDED AS REFERENCE ONLY. DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DRAWING TO A SCALE OF 1"=10'.
2. FOR NON-RESIDENTIAL ROADS, DISTANCE BETWEEN EDGE OF PAVEMENT AND GATE SHALL BE 20' MINIMUM.
3. PUMP STATION TRACT (INCLUDING DRIVEWAY) AND UTILITY EASEMENT SHALL BE DEDICATED TO ORANGE COUNTY UTILITIES.
4. THIS DIMENSION, AS MEASURED FROM THE CENTER OF THE WET WELL TO THE PUBLIC UTILITY EASEMENT LIMIT, SHALL BE EQUAL TO OR GREATER THAN THE DEPTH OF THE WET WELL.
5. CONTROL PANEL DOOR HINGES TO BE LOCATED ON THE SIDE OF THE PANEL FARTHEST FROM THE WELL.
6. DRIVEWAY SUBGRADE TO BE 8" THICK. SUBGRADE TO BE COMPACTED TO A MINIMUM DENSITY 98% OF THE MAX DENSITY AS DETERMINED BY ASTM D1557.
7. THE BOUNDARY OF ALL NEW PUMP STATION TRACTS SHALL BE LOCATED A MINIMUM OF 50 FEET AWAY FROM ANY SINGLE FAMILY RESIDENTIAL LOT INCLUDING TOWNHOMES.

DATE: July 16, 2014

DUPLEX PUMP STATION SITE PLAN

FIGURE A402-5

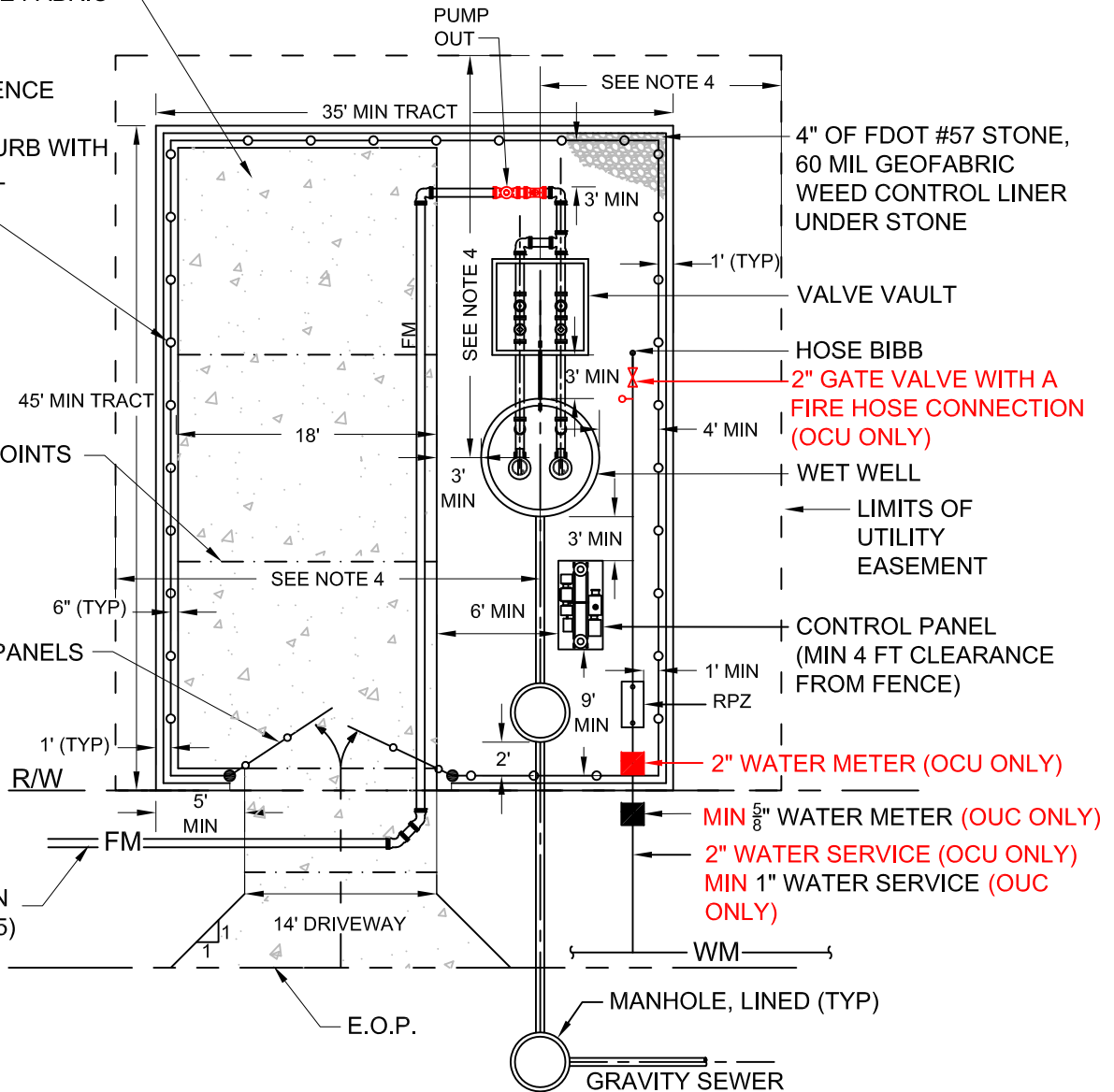
6" THICK 3000 PSI CONCRETE
WITH 6"X6"XW2.9XW2.9
WELDED WIRE FABRIC

CHAIN LINK FENCE
INSIDE 6"X18"
CONCRETE CURB WITH
4" REVEAL ALL
AROUND

EXPANSION JOINTS
(TYP)

16' WIDE 8'-0" PANELS
SWING GATE

FORCE MAIN
(SEE NOTE 5)



NOTES:

1. THIS DRAWING IS PROVIDED AS REFERENCE ONLY. DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DRAWING TO A SCALE OF 1"=10'.
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