PERDIDO KEY FIRE STATION TECHNICAL SPECIFICATIONS

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# PUBLIC WORKS DEPARTMENT
# Engineering Division

## Escambia County
## Technical Specifications

**GENERAL EXCEPTIONS*:** Any reference to FDOT *Standard Specifications for Road and Bridge Construction, Latest Edition, Division I General Requirements & Covenants* shall be excluded and not applicable to any specification referred herein or otherwise listed in this document.

Work shall comply with requirements of FDOT *Standard Specifications for Road and Bridge Construction*, latest edition, as modified herein.

**Note: The General Exception above does not apply when utilizing Federal Highway Administration (FHWA) funding.*

County Engineer
Joy D. Blackmon, P.E.

Effective Date: February 01, 2015

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SECTION 01000 – DEFINITIONS

PART 1 - GENERAL

The following terms, when used in the Contract Documents, have the meaning described

Advertisement
The public announcement, as required by law, inviting bids for work to be performed or materials to be furnished, usually issued as “Notice to Contractors,” or “Notice to Bidders.”

Bidder
An individual, firm, or corporation submitting a proposal for the proposed work.

Bridge
A structure, including supports, erected over a depression or over an obstruction such as water, highway or railway, or for elevated roadway, for carrying traffic or other moving loads, and having a length, measured along the center of the roadway, of more than 20 feet between the inside faces of end supports. A multiple-span box culvert is considered a bridge, where the length between the extreme ends of the openings exceeds 20 feet.

Calendar day
Every day shown on the calendar, ending and beginning at midnight.

Contract
The term “Contract” means the entire and integrated agreement between the parties there under and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract Documents form the Contract between the County and the Contractor setting forth the obligations of the parties thereunder, including, but not limited to, the performance of the Work and the basis of payment.

Contract Documents
The term “Contract Documents” includes: Advertisement for Proposal, Proposal, Certification as to Publication and Notice of Advertisement for Proposal, Appointment of Agent by Nonresident Contractors, Noncollusion Affidavit, Warranty Concerning Solicitation of the Contract by Others, Resolution of Award of Contract, Executed Form of Contract, Performance Bond and Payment Bond, Specifications, plans (including revisions thereto issued during construction), Addenda, or other information mailed or otherwise transmitted to the prospective bidders prior to the receipt of bids, work orders and supplemental agreements, all of which are to be treated as one instrument whether or not set forth at length in the form of contract.

Contract Bond
The security furnished by the Contractor and the surety as a guaranty that the Contractor shall fulfill the terms of the Contract and pay all legal debts pertaining to the construction of the project.

Contract Letting
The date that the County opened the bid proposals.

Contract Time
The number of calendar days allowed for completion of the Contract work, including authorized time extensions.

Contractor
The individual, firm, joint venture, or company contracting with the County to perform the work.

Contractor's Engineer of Record
A Professional Engineer registered in the State of Florida, other than the Engineer of Record or his subcontracted consultant, who undertakes the design and drawing of components of the permanent structure as part of a redesign or Cost Savings Initiative Proposal, or for repair designs and details of the permanent work. The Contractor's Engineer of Record may also serve as the Specialty Engineer. The Contractor's Engineer of Record must be an employee of a pre-qualified firm. Any Corporation or Partnership offering engineering services must hold a Certificate of Authorization from the Florida Department of Business and Professional Regulation.

As an alternate to being an employee of a pre-qualified firm, the Contractor's Engineer of Record may be a pre-qualified Specialty Engineer. For items of the permanent work declared by the State Construction Office to be "major" or "structural", the work performed by a prequalified Specialty Engineer must be checked by another pre-qualified Specialty Engineer. An individual Engineer may become pre-qualified in the work groups listed in the Rules of the Department of Transportation, Chapter 14-75, if the requirements for the Professional Engineer are met for the individual work groups. Pre-qualified Specialty Engineers are listed on the State Construction Website. Pre-qualified Specialty Engineers will not be authorized to perform redesigns or Cost Savings Initiative Proposal designs of items fully detailed in the plans.

Controlling Work Items
The activity or work item on the critical path having the least amount of total float. The controlling item of work will also be referred to as a Critical Activity.

County
Escambia County Public Works Department

Culverts
Any structure not classified as a bridge that provides an opening under the roadway.

Delay
Any unanticipated event, action, force or factor which extends the Contractor's time of performance of any controlling work item under the Contract. The term "delay" is intended to cover all such events, actions, forces or factors, whether styled "delay", "disruption", "interference", "impedance", "hindrance", or otherwise, which are beyond

the control of and not caused by the Contractor, or the Contractor's subcontractors, materialmen, suppliers or other agents. This term does not include "extra work".

Department
State of Florida Department of Transportation.

Developmental Specification
See definition for Specifications.

Engineer of Record
The Professional Engineer or Engineering Firm registered in the State of Florida that develops the criteria and concept for the project, performs the analysis, and is responsible for the preparation of the Plans and Specifications. The Engineer of Record may be County in-house staff or a consultant retained by the County.

The Contractor shall not employ the Engineer of Record as the Contractor's Engineer of Record or as a Specialty Engineer.

Equipment
The machinery and equipment, together with the necessary supplies for upkeep and maintenance thereof, and all other tools and apparatus necessary for the construction and acceptable completion of the work.

Extra Work
Any "work" which is required by the Engineer to be performed and which is not otherwise covered or included in the project by the existing Contract Documents, whether it be in the nature of additional work, altered work, deleted work, work due to differing site conditions, or otherwise. This term does not include a "delay".

Highway, Street, or Road
A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

Holidays
Days designated by the Board of County Commissioners as holidays, which include, but are not limited to, New Year's Day, Martin Luther King's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and the following Friday, and Christmas Day.

Inspector
An authorized representative of the County, assigned to make official inspections of the materials furnished and of the work performed by the Contractor.

Laboratory
The testing laboratory used by the Contractor.

Major Item of Work
Any item of work having an original Contract value in excess of 5% of the original

Contract amount.

Materials
Any substances to be incorporated in the work under the Contract.

Median
The portion of a divided highway or street separating the traveled ways for traffic moving in opposite directions.

Plans
The approved plans, including reproductions thereof, showing the location, character, dimensions, and details of the work.

Proposal (Bid, Bid Proposal)
The offer of a bidder, on the prescribed form, to perform the work and to furnish the labor and materials at the prices quoted.

Proposal Form
The official form or the expedite program generated bid item sheets on which the County requires formal bids to be prepared and submitted for the work.

Proposal Guaranty
The security furnished by the bidder as guaranty that the bidder will enter into the Contract for the work if the County accepts the proposal.

Right-of-Way
The land that the County has title to, or right of use, for the road and its structures and appurtenances, and for material pits furnished by the County.

Roadbed
The portion of the roadway occupied by the subgrade and shoulders.

Roadway
The portion of a highway within the limits of construction.

Section
A numbered prime division of these Specifications.

Special Provisions
See definition for Specifications.

Specialty Engineer
A Professional Engineer registered in the State of Florida, other than the Engineer of Record or his subcontracted consultant, who undertakes the design and drawing preparation of components, systems, or installation methods and equipment for specific temporary portions of the project work or for special items of the permanent works not fully detailed in the plans and required to be furnished by the Contractor such as but not limited to pot bearing designs, nonstandard expansion joints, MSE wall designs and

other specialty items. The Specialty Engineer may also provide designs and details for items of the permanent work declared by the State Construction Office to be “minor” or “non-structural”. The Specialty Engineer may be an employee or officer of the Contractor or a fabricator, an employee or officer of an entity providing components to a fabricator, or an independent consultant. For items of work not specifically covered by the Rules of the Department of Transportation, a Specialty Engineer is qualified if he has the following qualifications:

(1) Registration as a Professional Engineer in the State of Florida.
(2) The education and experience necessary to perform the submitted design as required by the Florida Department of Business and Professional Regulation.

Specifications
The directions, provisions, and requirements contained herein, together with all stipulations contained in the Contract Documents, setting out or relating to the method and manner of performing the work, or to the quantities and qualities of materials and labor to be furnished under the Contract.

A. Standard Specifications: “Standard Specifications for Road and Bridge Construction” a bound book, applicable to all FDOT Contracts containing adopted requirements, setting out or relating to the method or manner of performing work, or to the quantities and qualities of materials and labor.

B. Supplemental Specifications: Approved additions and revisions to the Standard Specifications, applicable to all Department Contracts.

C. Special Provisions: Specific clauses adopted by the Department that add to or revise the Standard Specifications or supplemental specifications, setting forth conditions varying from or additional to the Standard Specifications applicable to a specific project.

D. Technical Special Provisions: Specifications, of a technical nature, prepared, signed, and sealed by an Engineer registered in the State of Florida other than the State Specifications Engineer or his designee, that are made part of the Contract as an attachment to the Contract Documents.

E. Developmental Specification: A specification developed around a new process, procedure, or material.

Standard Specifications
See definition for Specifications.

State
State of Florida.

Subarticle
A headed and numbered subdivision of an Article of a Section of these Specifications.

Subgrade
The portion of the roadbed immediately below the base course or pavement, including below the curb and gutter, valley gutter, shoulder and driveway pavement. The subgrade limits ordinarily include those portions of the roadbed shown in the plans to be constructed to a design bearing value or to be otherwise specially treated. Where no limits are shown in the plans, the subgrade section extends to a depth of 12 inches below the bottom of the base or pavement and outward to 6 inches beyond the base, pavement, or curb and gutter.

Substructure
All of that part of a bridge structure below the bridge seats, including the parapets, backwalls, and wingwalls of abutments.

Superintendent
The Contractor's authorized representative in responsible charge of the work.

Superstructure
The entire bridge structure above the substructure, including anchorage and anchor bolts, but excluding the parapets, backwalls, and wingwalls of abutments.

Supplemental Agreement
A written agreement between the Contractor and the County, and signed by the surety, modifying the Contract within the limitations set forth in these Specifications.

Supplemental Specifications
See definition for Specifications.

Surety
The corporate body that is bound by the Contract Bond with and for the Contractor and responsible for the performance of the Contract and for payment of all legal debts pertaining thereto.

Technical Special Provisions
See definition for Specifications.

Traveled Way
The portion of the roadway providing for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Unilateral Payment
A payment of money made to the Contractor by the Department pursuant to Section 337.11(12), Florida Statutes (2009), for sums the Department determines to be due to the Contractor for work performed on the project, and whereby the Contractor by acceptance of such payment does not waive any rights the Contractor may otherwise have against the Department for payment of any additional sums the Contractor claims are due for the work.

Work
All labor, materials and incidentals required to execute and complete the requirements of the Contract including superintendence, use of equipment and tools, and all services and responsibilities prescribed or implied.

Work Order
A written agreement between the Contractor and the County modifying the Contract within the limitations set forth in these Specifications. Funds for this agreement are drawn against the Initial Contingency Pay Item or a Contingency Supplemental Agreement.

Working Day
Any calendar day on which the Contractor works or is expected to work in accordance with the approved work progress schedule.

END OF SECTION 01000

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and General and Supplemental Provisions of the Contract, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including, but not limited to the following:

1. Submittal Procedures
2. Contractor's Construction Schedule
3. Daily Construction Reports
4. Shop Drawings
5. Product Data
6. Samples
7. Quality Assurance Submittals
8. Licenses
9. Pictures, Video of Pre-Construction Conditions

B. Administrative Submittals: Refer to other Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

1. Permits
2. Applications for Payment
3. Performance and Payment Bonds
4. Insurance Certificates
5. List of Subcontractors
6. Licenses

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, inspections, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need

to review submittals concurrently for coordination. The County reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

3. Processing: To avoid the need to delay construction as a result of the time required to process submittals, allow sufficient time for submittal review, including time for re-submittals. Allow 2 weeks for initial review. Allow additional time if the County must delay processing to permit coordination with subsequent submittals.

    a. If an intermediate submittal is necessary, process the same as the initial submittal.
    b. Allow 2 weeks for reprocessing each submittal.
    c. No extension of Contract Time will be authorized because of failure to transmit submittals to the County sufficiently in advance of the Work to permit processing.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4 by 5 inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.

2. Include the following information on the label for processing and recording action taken.

    a. Project Name.
    b. Date.
    c. Name and Address of the Engineer.
    d. Name and Address of the Contractor.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Four copies of each submittal (three hard copy and one digital) shall be transmitted. Transmit each submittal from the Contractor to the County, (copy Engineer) using a transmittal form. The County will not accept submittals received from sources other than the Contractor. Submittals must be approved by Contractor prior to review by County. On the transmittal, record relevant information and requests for data. On the form or on a separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that the information complies with Contract Document requirements on each submittal.

## 1.4 CONSTRUCTION SCHEDULE/DOCUMENTATION

A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 10 days of the issuance of the Notice to Proceed. The contractor shall submit an updated schedule at least once per month, showing any schedule changes. This may be requested up to three times per month by the County. Include dates of shop drawing submittals.

B. Cost Correlation: At the head of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of Work performed as of the dates used for preparation of payment requests.

C. Pre-Construction Site Conditions Photos/Video: Contractor shall submit a DVD of photos and video of the site conditions prior to the performance of any work.

D. Licenses: All required licenses to perform work shall be submitted prior to the commencement of construction.

## 1.5 DAILY CONSTRUCTION REPORTS

Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the County at weekly intervals including, but not limited to:

1. Work performed.
2. Approximate count of personnel at the site.
3. Count and type of major equipment at the site.
4. High and low temperatures, general weather conditions, including daily rainfall amount from gauge installed on site jointly recorded by contractor and county representative.
5. Accidents and unusual events.
6. Meetings and significant decisions.
7. Stoppages, delays, shortages, and losses.
8. Emergency procedures.
9. Orders and requests of governing authorities.
10. Change Orders received, implemented.
11. Material Expenditures.

## 1.6 SHOP DRAWINGS

A. Submit shop drawings for structures unless FDOT approved structures are used.

B. Shop Drawings – Including, but not limited to the following information:

1. Dimensions.
2. Identification of products and materials included by sheet and detail number.
3. Compliance with specified standards.

1.7 PRODUCT DATA

Product Data - Include the following information:

1. Manufacturer's printed recommendations.
2. Compliance with trade association standards.
3. Compliance with recognized testing agency standards.
4. Application of testing agency labels and seals.

1.8 SAMPLES

Submit samples as specified in the technical specifications.

1.9 QUALITY CONTROL (QC) / QUALITY ASSURANCE (QA) SUBMITTALS

A. Submit the QC Plan to the County for approval within 21 calendar days after the Notice to Proceed. The County will review the QC Plan and respond to the Contractor within 21 calendar days of receipt.

If at any time the Contractor is not in compliance with the approved QC Plan, or a part thereof, affected portions of the plan will be disapproved. The contractor shall cease work in the affected operation(s) and submit a revision to the County. If the QC Plan, or a part thereof, must be revised, submit the revision to the County. The County will review the revision and respond within seven calendar days of receipt.

Continue to work on operations that are still in compliance with the approved sections of the QC Plan.

B. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit to the County a certification from the manufacturer certifying compliance with specified requirements.

C. Inspection and Test Reports: Requirements for specific testing are included in the technical specifications.

1. Submit to the County: Two (2) copies (one hard copy and one digital) of the inspection and test reports from a qualified, independent, geotechnical engineering testing agency, under the direction of a Professional Engineer, licensed in the State of Florida.

2. All testing required by the specifications or the County shall be at the contractors expense.

3. No additional work within/upon the tested area shall proceed until submitted test results confirm compliance with specification requirements.

4. Areas where submitted test results indicate non-compliance shall be removed, replaced, and retested. Extents of area out of compliance shall be determined by testing at 25’ increments, in each direction within the construction area, until passing results are achieved.

5. Variations from testing requirements and frequency of testing may be authorized by the County and will be documented in writing.

1.10 ENGINEER'S ACTION

Except for submittals for the record or information, where action and return is required, the County will review each submittal, mark to indicate action taken, return to contractor within the timeframe allotted herein. Compliance with specified characteristics is the Contractor's responsibility.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01300

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

B. Florida Department of Transportation*, Standard Specifications for Road and Bridge Construction, Latest Edition*.

1.2 SUMMARY

A. This Section includes preparing and grading for pavement, curb, subgrades, drainage features, and general site work.

B. Related Sections: The following Sections contain requirements that relate to this Section.

1. Section 2230 "Clearing & Grubbing" for clearing, grubbing, and tree protection.

2. Section 2600 “Stormwater System” for installation of stormwater systems.

1.3 DEFINITIONS

A. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed.

B. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, base, drainage fill, or topsoil materials.

C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from on-site excavations.

D. Subbase Course: The layer placed between the subgrade and base course in a paving system.

E. Base Course: The layer placed immediately beneath the surface pavement in a paving system.

F. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the County. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.

H. Utilities include on-site above ground utilities, overhead utilities and underground utilities including: pipes, conduits, ducts, and cables, as well as related appurtenances and underground services within building lines.

I. Unsuitable Material: Any material such as muck, wood, rock, peat, garbage, non-compactable soils in dry condition, and any other material that is considered by the County Engineer to be unsuitable.

J. Topsoil: Topsoil is defined as the surface layer of soil found normally to a depth of at least 4 to 8 inches that typically contains organic materials. Satisfactory topsoil is reasonably free of roots, clay lumps, stones, other objects over 2 inches in diameter, and any other objectionable or deleterious material.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Section 1300, "Submittals."

B. Product Data and Samples of the following:

1. 1-lb representative samples of each proposed fill and backfill soil material from borrow sources as selected by the County.

2. 12-by-12-inch sample of filter fabric.

3. Representative samples of the proposed base and sub-base materials.

C. Test Reports: In addition to test reports required under field quality control, submit the original directly to the County from the testing services, with a copy to the Contractor:

1. Laboratory analysis as specified in 1.1 (Related Documents) of each soil material proposed for fill and backfill from borrow sources.

2. One optimum moisture-maximum density curve for each soil material.

3. Report of actual unconfined compressive strength and/or results of bearing tests of each stratum tested.

## 1.5 QUALITY CONTROL / QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork complying with all requirements of authorities having jurisdiction.

B. Testing and Inspection Service: A qualified independent geotechnical engineering testing agency, under the direction of a Professional Engineer, licensed in the State of Florida to classify, perform soil tests, and provide inspection services for quality control. All proposed borrow soils will require the testing agency to verify that soils comply with specified requirements and to perform required field and laboratory testing. Contractor shall replace materials removed for testing purposes. Should any work or materials fail to meet the requirements set forth in the plans and specifications, contractor shall reimburse for additional and re-testing.

## 1.6 PROJECT CONDITIONS

A. Site Information: Data in the subsurface investigation Report, if available, is used for the basis of the design and is available to the contractor for information only. Conditions are not intended as representations or warranties of accuracy or continuity between soil borings. The County will not be responsible for interpretations or conclusions drawn from this data by the Contractor.

B. Existing Utilities: After location of utilities by the appropriate utility company, it is the Contractor's responsibility to protect all such utility lines, including service lines and appurtenances, and to replace at his own expense any that may be damaged by the Contractor's equipment or forces during construction of the Project.

1. Provide a minimum of 48-hours notice to the County and receive written notice to proceed before interrupting any utility.

2. The contractor is responsible for contacting all utility companies to verify locations of all existing utilities, utility-related obstructions, or utility relocations that he may encounter during construction.

3. Adequate provision shall be made for the flow of existing sewers, drains, and water courses encountered during construction, and structures which may be disturbed shall be satisfactorily restored by the Contractor at his expense.

C. Should uncharted, or incorrectly charted, piping or other utilities be encountered during the course of the work, consult the County immediately for directions. Cooperate with the County and utility companies in keeping respective services and facilities in operation.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Soils used as fill shall be clean sands, similar to existing site soil, with less than 5% passing the number 200 sieve when existing subgrade conditions are considered wet as per the County. Soils as described above with less than 15% passing the number 200 sieve and meeting the requirements of Section 902-6 of the FDOT Specifications may be used when existing subgrade conditions are considered dry as per the County. The sand shall have a maximum dry density of at least 100 pounds per cubic foot, according to the Standard Proctor compaction test, AASHTO T-99, ASTM D698. Provide approved borrow soil materials from off-site when sufficient satisfactory soil materials are not available from on-site excavations.

If the Contractor elects to import any materials, then he will do so only with the approval of the County and at his own expense, unless separate payments for such items are called for in these specifications. Provide laboratory certification that soils meet requirements of specifications.

B. Sub-Base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, or sand. The material shall be stabilized in accordance with FDOT Standard Specification Section 160-5.4. ASTM D 2940, with at least 95 percent passing a 1-1/2-inch sieve, and not more than 8 percent passing a No. 200 sieve.

PART 3 - EXECUTION

3.1 DEWATERING

A. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on sub-grades in work areas, and from flooding project site and surrounding area.

B. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

C. The Contractor shall prevent the accumulation of water in excavated areas, and shall remove, by pumping or other means, any water that accumulates in the excavation. The Contractor shall prevent the accumulation of water in both structural and trench excavations and shall remove, by well point system or by other means, water which accumulates. The Contractor shall provide, install and operate a suitable and satisfactory dewatering system, when needed to dry sub-grades or other work areas. The Contractor shall comply with the latest testing requirements as set forth by the applicable regulatory agency. At a minimum, the contractor shall test once prior to dewatering, once within

the first week of dewatering, and once every thirty (30) days while dewatering.

D. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collection or runoff areas. Do not use trench excavations as temporary drainage ditches. Discharged water shall be clean, not silt or sediment laden, prior to discharge to untreated system and/or waters of the State.

## 3.2 EXCAVATION

A. Explosives: Not permitted.

B. Strip topsoil and significant root systems to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root systems.

## 3.3 STABILITY OF EXCAVATIONS

A. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.

B. All excavation work shall conform to all applicable OSHA Publications, Latest Editions. The Contractor's method of providing protective support to prevent cave-ins shall conform to OSHA requirements. Slope excavations, shoring, and trench box usage in the field must be based on tabulated data and designed by the Contractor. The contractor is solely responsible for job site safety and shall not be compensated for required safety equipment/devices.

## 3.4 EXCAVATION FOR STRUCTURES

Excavate to indicated elevations and dimensions within a tolerance of plus or minus 0.10 foot. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, maintaining a safe slope, installing services and other construction, and for inspections.

A. Footings and Foundations: Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

B. Pile Foundations: After piles have been installed, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.

C. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Appurtenances: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot.

## 3.5 EXCAVATION FOR WALKS AND PAVEMENTS

Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades. Consider Dewatering and other sections as applicable.

## 3.6 EXCAVATION FOR STORMWATER SYSTEMS

Excavate and compact the backfill of trenches to the densities specified for embankment or subgrade, as applicable, and in accordance with the requirements of Section 2600. Consider Dewatering and other sections as applicable.

## 3.7 STORAGE OF SOIL MATERIALS

Stockpile excavated materials acceptable for backfill, fill soil, and topsoil materials, including acceptable borrow materials. Stockpile soil materials without intermixing. Stockpiles shall be placed, graded, and shaped to drain surface water and prevent erosion. Cover to prevent wind-blown dust and/or erosion. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

## 3.8 BACKFILL

A. Backfill excavations promptly, but not before completing the following:

1. Acceptance of construction below finish grade including, where applicable, filter fabric installation and gravel bedding.

2. Surveying locations of underground utilities for record documents.

3. Testing, inspecting, and approval of underground utilities.

4. Removal of trash and debris from excavation.

5. Removal of temporary shoring, bracing, and sheeting unless specified to remain.

B. No backfill material shall be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by heavy rain, backfill operations shall not be resumed until the moisture content of the fill is as previously specified to achieve proper compaction.

## 3.9 FILL

A. Preparation: Remove vegetation, topsoil, debris, wet and unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placing fills. Plow strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing surface. In order to insure proper bond and prevent slipping between the original ground and fill, the surface of the original ground shall be scarified to a depth of at least three inches. Each layer of fill material shall be compacted until the required density is achieved, and the density achieved should be verified in accordance with specifications using in-place density testing.

B. When subgrade or existing ground surface is to receive fill and has a density less than that required for fill, break up ground surface to depth required, pulverize, moisture condition or aerate soil and re-compact to required density.

C. Place fill material in layers to required elevations for each location listed below.

1. Under grass, subbase or base material, use satisfactory excavated or borrow soil material.

2. Under walks and pavements, curbs, steps, ramps, building slabs, footings and foundations use subbase and/or base material.

3.10 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

B. Do not place backfill or fill material on surfaces that contain excessive moisture.

C. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density. Stockpile or spread and dry removed wet satisfactory soil material.

3.11 COMPACTION

A. Place backfill and fill materials in layers or lifts not more than 12 inches in loose depth for material compacted by heavy compaction equipment, and not more than 8 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.

C. Percentage of Maximum Dry Density Requirements: Compact soil to not less than the following percentages of maximum dry density according to ASTM Modified Proctor):

1. Under structures, building slabs, steps, and pavements, compact each layer of backfill or fill material at a minimum of 98% Modified Proctor of the material's maximum dry density.

2. Under lawn or unpaved areas, compact each layer of backfill or fill material at 95% Modified Proctor maximum dry density.

## 3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between existing adjacent grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 0.10 foot.

2. Walks: Plus or minus 0.10 foot.

3. Pavements: Plus or minus ½ inch.

## 3.13 STABILIZED SUBGRADE

A. For stabilized subgrade the type of materials, commercial or local, is at the Contractor's option and no separate payment for stabilizing materials will be made (other than as may be paid for as borrow).

B. When stabilizing is designated as Type B, compliance with the bearing value requirements will be determined by the Limerock Bearing Ratio Method. Minimum LBR shall be 40.

C. It is the Contractor's responsibility that the finished roadbed section meets the bearing value requirements, regardless of the quantity of stabilizing materials necessary to be added. Also, full payment will be made for any areas where the existing subgrade materials meet the design bearing value requirements without the addition of stabilizing additives, as well as areas where the Contractor may elect to place select high-bearing

materials from other sources, within the limits of the stabilizing.

D. After the roadbed grading operations have been substantially completed, the Contractor shall make his own determination as to the quantity (if any) of stabilizing material, of the type selected by him, necessary for compliance with the bearing value requirements. The contractor shall notify the Engineer of the approximate quantity to be added, and the spreading and mixing-in of such quantity of materials shall meet the approval of the County as to uniformity and effectiveness.

3.14 FIELD QUALITY CONTROL

A. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.

1. Perform field in-place density tests according to ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), ASTM D 293 (drive cylinder method), or ASTM D 2922 (nuclear method), as applicable.

a. Field in-place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. With each density calibration check, check the calibration curves furnished with the speedy moisture meter according to ASTM D 3017.

b. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and speedy moisture meter at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.

2. Paved Areas: Make at least one field density test of subgrade, base, and each compacted fill layer for every 300 linear feet of roadway or equivalent area, but in no case less than two tests. Tests shall be staggered to ensure representative sampling.

3. Unpaved Areas: Make at least one field density test of each compacted fill layer or subgrade for every 1000 square yards of area, but in no case less than two tests.

4. Other tests may be required at County’s discretion.

B. If, in the opinion of the County, based on testing service reports and

inspection or the Engineer's observations, subgrades, fills, or backfills are below specified density, scarify and moisten or aerate as needed, or remove and replace soil to the depth required, re-compact, and re-test until required density is obtained at no additional expense.

3.15 REPAIR & CORRECTIONS

A. Protecting Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction due to subsequent construction operations or weather conditions. Scarify or remove and replace material to depth directed by the Engineer; reshape and re-compact at optimum moisture content to the required density.

B. Settling: Where settling occurs, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

C. When traffic must cross open trenches, the contractor shall provide suitable bridge of graded aggregate base or temporary asphalt paving as directed by County at no additional expense. (See Section 4060 for additional requirements.)

D. Erosion Control: The Contractor shall be responsible for the prevention of erosion from the site and for maintaining filled and graded surfaces for the duration of the project. This includes, but is not limited to, the erection of a silt fence and hay bale barricade as per Florida Stormwater Erosion and Sedimentation Control Inspector's Manual and/or as shown in the construction plans. The Contractor shall take whatever steps necessary to prevent erosion and sedimentation, and will be responsible for any damages which might occur to down-land properties as a result of run-off from the site during sitework construction at no additional cost. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

Surplus excavated material becomes the property of the Contractor unless otherwise noted. Waste materials, including unsatisfactory soils, trash and debris shall be removed and legally disposed of, off the Owner's property.

3.17 CLEAN-UP AND FINAL INSPECTION

Before final inspection and acceptance the Contractor shall clean ditches, shape

shoulders and restore all disturbed areas, including street crossings, grass plots, re-grassing if necessary, to as good a condition as existed before work started.

## PART 4 - MEASUREMENT/PAYMENT

### 4.1 METHOD OF MEASUREMENT

A. No measurement will be made for Earthwork. Payment for earthwork will be subsidiary to each Bid Item that requires excavation of fillas part of the work.

### 4.2 BASIS OF PAYMENT

The Lump Sum Payment for the various work items included in this section will be full compensation for all work described herein, including excavating, dewatering, dredging, hauling, placing, and compacting.

END OF SECTION 02300

SECTION 02340 - RIPRAP

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Specification Sections, apply to work of this Section.

B. Florida Department of Transportation, *Standard Specifications for Road and Bridge Construction*, *Section 530*, and *Design Standard Index 281*, *Latest Edition*.

1.2 DESCRIPTION OF WORK

This section shall cover the work of furnishing and constructing the Riprap which shall consist of a protective course of stone or other approved materials on embankment slopes, in channels, or other work as shown on the plans or directed, with or without a Filter Blanket, all in accordance with these Specifications and in conformity with the lines and grades noted in the plan details.

PART 2 - PRODUCTS

2.1 MATERIALS

Rubble\Stone Riprap shall comply with Florida Department of Transportation *Standard Specification 530-2.2*

A. Banks and shore protection shall comply with Florida Department of Transportation *Standard Specification 530-2.2.1*.

B. Ditch lining shall comply with Florida Department of Transportation *Standard Specification 530-2.2.2*.

C. Broken stone and broken concrete shall comply with Florida Department of Transportation *Standard Specification 530-2.2.3*.

D. Geotextile fabric shall comply with Florida Department of Transportation *Standard Specification 514* and Florida Department of Transportation *Design Standards, Index No. 199* according to its application.

E. Bedding stone shall comply with Florida Department of Transportation *Standard Specification 530-2.3*.

F. Sand/Cement Riprap: Materials and placement shall comply with Florida Department of Transportation *Standard Specification 530-2.1*.

PART 3 - EXECUTION

3.1 EXECUTION

A. Construction Requirements:

General: All slopes to be treated with riprap shall be trimmed to the lines and grades indicated by the plans or directed, such that the plan grades are the top of the placed riprap, unless otherwise noted. Loose material shall be compacted by methods approved by the Engineer or removed.

Slopes which require a filter blanket under the riprap shall, in addition to the above, be prepared as noted below.

1. Placement of any riprap on a filter blanket shall be by such means that will not damage or destroy the blanket. Any damage to the blanket shall be repaired without additional compensation.

2. Unless directed otherwise by the Engineer or shown by plan details, all outer edges and the top of riprap where the riprap terminates shall be formed so that the surface of the riprap will be embedded and even with the surface of the ground and/or slope.

3. All riprap construction shall begin at the bottom of the slope and progress upward.

4. Filter Blanket: Unless otherwise specified by the plans or ordered in writing, a fabric blanket will not be allowed for soils with 85% by weight passing the No. 200 sieve (U.S. Std.)

5. The bedding stone shall be constructed in accordance with Florida Department of Transportation Specification 530-3.3.

6. Foundation Preparation: Areas on which filter fabrics are to be placed shall be uniformly trimmed and dressed to conform to cross-sections shown by the plans.

B. Plastic Filter Fabric (Geotextile):

Plastic filter fabric shall be placed in the manner and at the locations shown in the plans or as directed by the Engineer. At the time of installation, fabric shall be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacturer, transportation or storage. The fabric shall be placed with the long dimension parallel to the centerline of the channel or shoreline unless otherwise directed by the Engineer, and shall be laid smooth and free of tension, stress, folds, wrinkles or creases. The strips shall be placed to provide a minimum

width of 24 inches of overlap for each joint with the upstream strip of fabric overlapping the downstream strip. Overlap joints and seams shall be measured as a single layer of cloth. Securing pins with washers shall be inserted through both strips of overlapped cloth as recommended by the manufacturer, but no greater than the following intervals along a line through the midpoint of the overlap.

| Pin Spacing | Slope |
|---|---|
| 2 ft. | Steeper than 3:1 |
| 3 ft. | 3:1 to 4:1 |
| 5 ft. | Flatter than 4:1 |

The fabric shall be turned down and buried two feet at all exterior limits except where a stone-filled key is provided below natural ground.

Additional pins regardless of location shall be installed as necessary to prevent any slippage of the filter fabric. Overlaps in the fabric shall be placed so that any upstream strip of fabric will overlap the downstream strip. Should the Engineer direct that the fabric be placed with the long dimension perpendicular to the centerline of the channel or shoreline, the lower strip of fabric shall underlap the next higher strip. Each securing pin shall be pushed through the fabric until the washer bears against the fabric and secures it firmly to the foundation. The fabric shall be protected at all times during construction from contamination by surface runoff and any fabric so contaminated shall be removed and replaced with uncontaminated fabric. Any damage to the fabric during its installation or during placement of riprap shall be replaced by the Contractor. The work shall be scheduled so that the manufacturer's recommendation for UV exposure is not exceeded or 5 days does not expire between placement of the fabric and the covering of the fabric with riprap, whichever is less.

## 3.2 STONE AND CONCRETE RUBBLE RIPRAP

General: Unless otherwise shown by plan details or directed, stone or concrete shall not be placed on slopes steeper than the natural angle of repose of the riprap material.

Placement of stone or concrete may, unless otherwise noted hereinafter, be placed by methods and equipment suitable for the purpose of placing the riprap in accordance with the requirements for the class riprap involved without damaging any existing facility or construction material.

The stone or concrete shall be placed in such a manner as to produce a reasonably well graded mass of rock with the minimum practical percentage of voids. Stone or concrete shall be laid with close broken joints and resting on the embankment slope. The top of the riprap shall be constructed to the lines, grades and thickness shown by the plans or as directed. Riprap shall be placed

to its full course thickness in one operation and in such a manner as to avoid displacing or damaging the filter blanket material. The larger stone or concrete shall be well distributed and the entire mass of stone or concrete, in their final position, shall conform to a reasonable uniform gradation. The finished riprap shall be free from objectionable pockets of small stone or concrete and clusters of larger stone or concrete. Open joints shall be filled with spalls, or small stone or concrete in such manner that all stone or concrete are tightly wedged or keyed. Placing riprap by dumping into chutes or by other methods likely to cause segregation of sizes will not be permitted. The desired distribution of the various sizes of stone or concrete throughout the mass shall be obtained by selective loading of the material at the source, by controlled dumping of successive loads during final placing, or by other methods of placement which will produce the specified results. The individual pieces of stone or concrete in each horizontal course shall be laid so that they will not break away from embankment. Rearranging of individual stone or concrete by mechanical equipment, or by hand, will be required to the extent necessary to obtain a reasonably well graded distribution of stone or concrete as specified above.

3.3 SAND/CEMENT RIPRAP

A. Placing: Immediately following mixing, the mixture shall be placed in the bags, tied (so that when laid in position, they will flatten out and give a thickness of not less than six inches) and placed flat on the area designed. Use only one type of bag per structure. Bags shall be layered and wedged against each other to form closed joints, with tied ends of sacks all laid in the same direction. Sacks ripped or torn in placing shall be removed and replaced with sound, unbroken sacks. When required to be placed under water, special care shall be taken to see that bags are closely jointed to give the same tight joints as required on dry slopes. After the riprap is placed, it shall be sprinkled with water as directed and kept damp for not less than three days. No sand/cement riprap shall be mixed in freezing weather.

B. Grouting: Immediately after watering, all openings between sacks shall be filled with dry grout composed of one part Portland cement and five parts sand.

C. Pinned/Staked Bags: Bags shall be pinned/staked when called for on drawings.

3.4 CLEAN UP

Before final inspection and acceptance, the Contractor shall remove all excess material from site and restore all disturbed areas to as good a condition as existed before work started.

3.5 MAINTENANCE

The Contractor shall maintain all riprap until the contract work is accepted, and shall replace, without additional compensation, any damaged or missing riprap.

PART 4 – MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT

A. No measurement will be made of the riprap. Removal and replacement of the riprap will be Subsidiary to the Bid Item for Sheet Piling Retaining Wall SG 950.

4.2 BASIS OF PAYMENT

A. The Lump Sum Payment for Sheet Pile Retaining Wall SG 950 will be full compensation for all work specified in this Section, including all materials, labor, hauling, excavation, and backfill. The Contractor shall include the cost of dressing and shaping the existing fills (or subgrade) for placing riprap.

END OF SECTION 02340

SECTION 02400 - GRADED AGGREGATE BASE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including General and Supplementary Conditions and other Specification Sections, apply to the work of this section.

1.2 DESCRIPTION OF WORK

This item shall consist of a base course of graded aggregate constructed on a subgrade prepared in accordance with the specifications and in conformity with the line, grades and typical cross-section as shown on the drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

Use graded aggregate material which yields a satisfactory mixture meeting all the requirements of these Specifications after it has been crushed and processed as a part of the mining operations.

The Contractor may furnish the material in two sizes of such gradation that, when combined in a central mix plant pugmill, the resultant mixture meets the required specifications.

Use graded aggregate base material of uniform quality throughout, substantially free from organic matter, shale, lumps and clay balls, and having a Limerock Bearing Ratio value of not less than 98. Use material retained on the No. 10 sieve composed of aggregate meeting the following requirements:

Soundness Loss, Sodium, Sulfate: AASHTO T 104.....15%
Percent Wear: AASHTO T 96 (Grading A)
Group 1 Aggregates..... 45%
Group 2 Aggregates..... 65%
Group 1 : This group of aggregates is composed of limestone, marble, or dolomite.
Group 2: This group of aggregates is composed of granite, gneiss, or quartzite.
Use graded aggregate base material meeting the following gradation:

| Sieve Size | Percent by Weight Passing |
|---|---|
| 2 inch | 100 |
| 1 1/2 inch | 95 to 100 |
| 3/4 inch | 65 to 90 |
| 3/8 inch | 45 to 75 |
| No. 4 | 35 to 60 |

| | |
|---|---|
| No. 10 | 25 to 45 |
| No. 50 | 5 to 25 |
| No. 200 | 0 to 10 |

For Group 1 aggregates, ensure that the fraction passing the No. 40 sieve has a Plasticity Index ( AASHTO T 90) of not more than 4.0 and a Liquid Limit (AASHTO T 89) of not more than 25, and contains not more than 67% of the weight passing the No. 200 sieve.

For Group 2 aggregates, ensure that the material passing the No. 10 sieve has a sand equivalent (AASHTO T 176) value of not less than 28.

The Contractor may use graded aggregate of either Group 1 or Group 2, but only use one group on any Contract. (Graded aggregate may be referred to hereinafter as "aggregate".)

2.2 EQUIPMENT

The aggregate shall be spread by mechanical rock spreaders, equipped with a device which strikes off the aggregate uniformly to laying thickness, and capable of producing an even distribution of the aggregate. For crossovers, intersections and ramp areas; for roadway widths of 20 feet or less; for the main roadway area when forms are used and for any other areas where the use of a mechanical spreader is not practicable; spreading may be done by bulldozers or blade graders. All equipment for proper construction of this project shall be in first-class working condition.

PART 3 - EXECUTION

3.1 TRANSPORTING GRADED AGGREGATE

The graded aggregate shall be transported to the point where it is to be used, over aggregate previously placed if practical, and dumped on the end of the preceding spread. Hauling over the subgrade and dumping on the subgrade will be permitted when, in the County's opinion, these operations will not be detrimental to the subgrade.

3.2 SPREADING GRADED AGGREGATE

A. Method of Spreading: The graded aggregate shall be spread uniformly. All segregated areas of fine or coarse aggregate shall be removed and replaced with properly graded aggregate.

B. Number of Courses: When the specified compacted thickness of the base is greater than six inches, the base shall be constructed in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional material added to bear the weight of the construction equipment without disturbing the

subgrade. When compacted thickness is six inches or less, graded aggregate shall be placed in one lift.

3.3 COMPACTING AND FINISHING BASE

A. Single-Course Base: For single-course base, after the spreading is completed, the entire surface shall be scarified and then shaped so as to produce the required grade and cross-section, free of scabs and laminations, after compaction.

B. Multiple-Course Base: For multiple-course base, the first course shall be cleaned of foreign material and bladed and brought to a surface cross-section approximately parallel to that of the finished base. Prior to the spreading of any material for the upper course, the density tests for the lower course shall be made, and the County shall have proof that the required compaction has been obtained. After the spreading of the material for the second course is completed, its surface shall be finished and shaped so as to produce the required grade and cross-section after compaction, and free of scabs and laminations.

C. Moisture Content: When the material does not have the proper moisture content to ensure the required density, wetting or drying will be required. When water is added, it shall be uniformly mixed-in by disking to the full depth of the course which is being compacted. Water shall be added before beginning compaction operations. Wetting or drying operations shall involve manipulation, as a unit, of the entire width and depth of the course which is being compacted. This shall be performed utilizing the speedy moisture meter.

3.4 DENSITY REQUIREMENTS

As soon as proper conditions of moisture are attained, the material shall be compacted to a density of not less than 98% of the modified proctor maximum density as determined by AASHTO T-180 (Modified Proctor.)

3.5.1 TESTING SURFACE, PROTECTION, AND MAINTENANCE

A. Density Tests: A minimum of at least one field density test on each course of compacted base shall be performed for every 500 square yards, or every 300 linear feet of road pavement, or as directed by the Engineer. Additional tests may be made if deemed necessary by the Engineer and/or County/CEI.

B. During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross-section, the compacting operations for such areas shall be completed prior to making the density tests on the finished base.

C. Correction of Defects: Contamination of Base Material: If, at any time, the subgrade material should become mixed with the base course materials, the Contractor shall, without additional compensation, dig out and remove the mixture, reshape and compact the subgrade and replace the materials removed with clean base material, which shall be shaped and compacted as specified above.

D. Cracks and Checks: If cracks or checks appear in the base, either before or after priming, which in the opinion of the County, would impair the structural efficiency of the base, the Contractor shall remove the cracks or checks by re-scarifying, reshaping, adding base material where necessary, and re-compacting, without additional compensation.

E. Compaction of Widening Strips: Where base construction consists of widening strips and the trench width is not sufficient to permit use of standard base compaction equipment, compaction shall be accomplished by use of vibratory compactors, trench rollers, mechanical plate tampers, or other special equipment which will achieve the density requirements specified herein. When multiple-course base construction is required by the plans or specifications, the required compaction shall be achieved in each course prior to spreading material for the overlaying course.

F. Testing Surface: The finished surface of the base course shall be checked from the required crown and ensure longitudinally a smooth, consistent surface for the placement of the asphalt course(s). All irregularities, greater than 1/4 inch per 15' straight edge test, shall be corrected, after which the entire area shall be re-compacted and tested as specified herein before. In the testing of the surface, the measurements will not be taken in small holes caused by individual pieces of rock having been pulled out by the grader.

G. Priming and Maintaining:

Priming: The prime coat shall be applied only when the base meets the specified density requirements and the moisture content in the top half of the base does not exceed 90 % of the optimum moisture of the base material. At the time of priming, the base shall be firm, unyielding and in such condition that no undue distortion will occur. See FDOT Prime Coat Specification.

Maintaining: The Contractor will be responsible for assuring that the true crown and template are maintained, with no rutting or other distortions, and that the base meets all the requirements, at the time the surface course is applied.

H. Thickness Requirements:

Measurements: Thickness of the base shall be measured at intervals in

such a manner that each test represents 500 square yards, or every 300 linear feet of road pavement, or as otherwise directed by the County. Measurements shall be taken at various points on the cross-section, through holes not less than three inches in diameter.

Areas Requiring Correction: Where the compacted base is deficient by more than ½ inch from the thickness called for in the plans, the Contractor shall correct such areas. The affected areas shall then be brought to the required state of compaction and to the required thickness and cross-section.

PART 4 - MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT:

No measurement will be made for Graded Aggregate Base. The payment will be by Lump Sum for each Graded Aggregate Base Bid Item.

4.2 BASIS OF PAYMENT:

The Lump Sum Payment will be full compensation for all work specified in this section, including dust abatement, correcting all defective surfaces and deficient thickness, removing cracks and checks, and the additional aggregate required for such crack elimination.

END OF SECTION 02400

SECTION 02600 - STORMWATER SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Specification Sections, specifically 2300, 3300, and *Design Standard Indexes*, apply to this Section.

B. Florida Department o f Transportation, *Standard Specifications for Road and Bridge Construction, Sections 425, 430 and 530*, *Latest Edition*.

1.2 SUMMARY

This Section includes stormwater system piping and appurtenances. All labor, material, equipment, appurtenances, services, and other work or costs necessary to construct the facilities and place them into operation shall be furnished by the Contractor.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract.

B. Shop drawings for drainage pipe, pre-cast concrete storm drainage manholes and catch basins, including frames, covers, and grates.

C. Shop drawings f or cast-in-place concrete or field-erected masonry storm drainage manholes and catch basins, including frames and covers.

1.4 QUALITY ASSURANCE

A. Environmental Compliance: Comply with applicable portions of local, state, and federal environmental agency regulations pertaining to stormwater systems impacts.

B. Utility Compliance: Comply with local utility regulations and standards pertaining to relocation, clearances, etc related to installation of stormwater systems.

C. Quality control to adhere to QA/QL Plan.

1.5 PROJECT CONDITIONS

Site Information: Perform site inspection, research public utility records, and verify existing utility locations. Verify that stormwater system piping may be installed in compliance with design plans and referenced standards. Locate existing stormwater system piping and structures that are out of service and

closed as per 3.8 this section.

1.6 SEQUENCING AND SCHEDULING

A. Notify the County Inspector assigned to the subdivision or project coordinator assigned to project prior to pouring backfilling or form work.

B. Coordinate connection to existing private and public drainage system with Owner and/or County.

C. Coordinate with adjacent utilities work.

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 PIPE

Meet the following requirements of *FDOT Specifications*, *Latest Edition*:

| | |
|---|---|
| Reinforced Concrete Pipe | Section 449 |
| Round Rubber Gaskets | Section 942 |
| Corrugated Steel Pipe & Pipe Arch | Section 943 |
| Corrugated Aluminum Pipe & Pipe Arch | Section 945 |
| Corrugated Polyethylene Pipe | Section 948 |
| Polyvinyl Chloride (PVC) | Section 948 |

2.1.2 MANHOLES

A. Precast Concrete Manholes: Per FDOT Standard Specification 425-5 and ASTM C 478, precast reinforced concrete, of depth indicated with provision for rubber gasket joints.

B. Cast-in-Place Manholes: Per FDOT Standard Specification 425 Cast reinforced concrete of dimensions and with appurtenances indicated.

C. Manhole Frames and Covers: Construct Per FDOT Standard Specification 42 5-3.2 and Standard Indexes. All units shall bear the lettering "STORM SEWER" cast into cover. All proposed substitutes must have equal or greater opening sizes and weights.

2.1.3 INLETS

A. Precast Concrete Catch Basins Inlets: Construct per FDOT Standard Specification 425-5.

B. Cast-in-Place Inlets: Construct per FDOT Standard Specification 425 to dimensions and with appurtenances indicated.

1. Bottom, Walls, and Top: Reinforced concrete.
2. Channel and Bench: Concrete.

C. Inlet Frames and G rates: Per FDOT Standard Specification 42 5-3.2 & Standard Indexes. All units shall bear the lettering "STORM SEWER" cast into cover.

2.1.4 END TREATMENT

General: Head wall, apron, and mitered ends, per FDOT Standard Specification 430-4.6.

2.2 CONCRETE AND REINFORCEMENT

A. Concrete: Portland cement mix, 3, 000 psi; shall be in accordance with Section 03300.

1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Reinforcement: Steel conforming to the following:

1. Fabric: ASTM A 185, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615, Grade 60, deformed.

C. Forms:

1. Form Materials: Plywood, metal, metal-framed plywood, or ot her acceptable pan el-type materials to provide full-depth, continuous, straight, smooth exposed surfaces without distortion or defects. Material s hall be of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal.

2. Form Release Agent: Provide commercial formulation form-release agent with a maximum of 350 mg/l volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces. Release agent to be within allowable volatile limits according to applicable local, state and federal codes.

2.3 MASONRY

Materials for accessories shall be per FDOT Standard Specification 949. Mortar shall be one part Portland cement and three parts masonry sand to which shall

be added lime putty in the amount of 50% of the volume of cement. Special commercial mortar mixes may be used if approved by the Engineer. All masonry materials shall conform to the latest applicable ASTM specifications. Set all masonry units in full beds of mortar, with full joints and strike all joints flush. Masonry reinforcements shall be galvanized Dur-O-Wal, or approved equal, and shall be installed at every other bed joint. Hollow block shall be poured solid with re-bar as designed.

2.4 CURING MATERIALS

Conform to FDOT Standard Specification 520-8.

2.5 BEDDING STONE

Subbase or base materials meeting requirements of FDOT Standard Specification 530-2.3.

PART 3 - EXECUTION

3.1 EXCAVATIONS FOR MANHOLES, INLETS, AND PIPE

Excavation shall be sufficient enough to leave at least 12 inches in the clear between their outer surfaces and the embankment. Excavation for all structures shall be made to the dimensions and elevations indicated on the drawings. Where the excavation is made below the indicated elevations, the excavation shall be restored to the proper elevation with compacted suitable material without extra compensation.

3.2 PREPARATION OF FOUNDATION FOR BURIED STORMWATER SYSTEMS

A. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation, throughout the length of the pipe.

B. Remove unstable, soft, and unsuitable materials at the surface upon which pipes are to be laid, and backfill with bedding stone per FDOT Standard Specification 530-2.3 to indicated level.

C. Shape bottom of trench to fit bottom of pipe. Fill unevenness with tamped sand backfill. Dig bell holes at each pipe joint to relieve the bells of all loads and to ensure continuous bearing of the pipe barrel on the foundation.

3.3 PIPE INSTALLATION

A. Drawings (plans and details) indicate the general location and arrangement of the underground stormwater system piping. Location and arrangement of piping layout takes into account many design considerations. Install the piping as indicated, to the extent practical.

Deviations shall be approved by the County.

B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. When installing gaskets, seals, sleeves, and couplings, follow manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.

The pipe shall be carefully examined for defects and the inside cleaned. After placing pipe in the ditch, the ends shall be wiped free from all dirt, sand and foreign material. All pipe and joints shall be made, handled, and installed in strict accordance with the manufacturer's recommendations and instructions. Install pipe in accordance with FDOT Standard Specification 430.

C. Install piping pitched down in direction of flow, at minimum slope per plans and in accordance with manufacturer's recommendations, specifications, and design plans.

D. Boring: Install pipe under streets or other obstructions that cannot be disturbed, by boring, jacking, or a combination of both. These methods of installation are not allowed for newly paved roadways. Utility conduit should be installed prior to paving.

E. All RCP joints shall be sock/filter wrapped prior to backfilling unless a manufacturer recommended coupling is used.

F. Field repairs of pipeline shall be in strict accordance with manufacturer's recommendations and specifications.

G. Only conventional concrete pipe shall be allowed under dedicated County roads.

H. Pipe Cover: Cover shall be a minimum of 12", unless approved by the County.

I. Pipe Size: Minimum Pipe size shall be 18" diameter or equivalent, unless approved by the County.

## 3.4 MANHOLES

A. General: Install manholes complete with accessories as indicated. Form continuous concrete or split pipe section channel and benches between inlets and outlet. Set tops of frames and covers flush with finish surface where manholes occur in pavements. Elsewhere, set tops 3 inches above finished grade, unless otherwise indicated.

B. Place precast concrete manhole sections as indicated, and install in accordance with ASTM C 891.

C. Construct cast-in-place manholes as indicated.

D. Provide rubber joint gasket complying with A STM C 443 at joints of sections; or apply bituminous mastic coating at joints of sections.

3.5 INLETS

A. Construct inlets to sizes and shapes indicated per FDOT Standard Specification 425-6, or as modified in the plans.

B. Set frames and grates to elevations indicated.

3.6 OUTFALL STRUCTURES

A. Pipe systems shall be utilized for primary out fall of retention/detention areas.

B. Weirs and flumes will not be acceptable for use as primary pond out fall structures or to primarily route stormwater to retention/detention areas at the end of down-gradient roadways.

3.7 END TREATMENT

Construct End Treatment per FDOT Standard Specification 430-4.6.

3.8 STORMWATER SYSTEM BACKFILL

Place and compact backfill material in accordance with Section 02300 and FDOT specification 125-8.

3.9 CLOSING OUT-OF-SERVICE STORMWATER SYSTEMS

A. Out-of-Service Piping: Close open ends of out of service underground piping that is indicated to remain in place. Provide sufficiently strong closures to withstand hydrostatic or earth pressure that may result after pipe ends have been closed and grout filled with non-shrink grout.

1. Close open ends of concrete pipe or structures with not less than 8-inch-thick brick masonry bulkheads and grout fill.

2. Close open ends of other piping with plastic plugs, or other acceptable methods suitable for size and type of material being closed. Wood plugs are not acceptable.

B. Out-of-Service Structures: Remove structure and close open ends of the

remaining piping or remove top of structure down to not less than 3 feet below final grade; fill structure with stone, rubble, gravel, compacted dirt, or flowable fill to within 1 foot of top of structure remaining, and fill with concrete.

3.10 FIELD QUALITY CONTROL

A. Refer to Section 03300 for Concrete Testing and 02300 for Earthwork Testing.

B. Cleaning: Interior of piping and structures shall be cleared of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.

1. In large, accessible piping, brushes and brooms may be used for cleaning.

2. Place plugs in ends of uncompleted pipe at end of day or whenever work stops.

3. Flush piping between manholes, to remove collected debris.

C. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.

1. Make inspections after pipe between manholes has been installed, cleaned and approximately 2 feet of backfill is in place, and again at completion of project. Each section of pipe between structures is to show from either end on examination, a full circle of light. Each appurtenance to the system shall be of the specified size and form, to be neatly and substantially constructed, with the top set permanently to exact position and grade.

2. If inspection indicates poor alignment, debris, displaced pipe, infiltration, or other defects, correct such defects and re-inspect. All repairs shown necessary by the inspections are to be made, broken, cracked, or punctured pipe replaced, all deposits removed and the pipe left true to line and grade as herein specified, or shown on the plans, entirely clean and free from abnormalities and ready for use at no additional expense to the County.

3. All storm pipes will be subject to video camera inspection by County staff.

D. Trench Backfill Around and Above Pipe:

1. In each compacted backfill layer, perform density test as specified in Section 02300.

2. Other tests may be required at County's discretion.

E. Clean Up: Before final inspection and acceptance, the Contractor shall clean ditches, shape shoulders and restore all disturbed areas, including street crossings, grass plots, to as good as condition as existed before work started. All trenches shall be leveled and loose material removed from pavement gutters, sidewalks, pipelines, an inlet sediment traps, employing hand labor, if necessary.

## PART 4 - MEASUREMENT/PAYMENT

### 4.1 METHOD OF MEASUREMENT

No measurement will be made for Stormwater Systems. The payment will be subsidiary to the Video Underdrain Bid Item.

### 4.2 BASIS OF PAYMENT

The Lump Sum Payment will be full compensation for finishing all materials and completing all work described herein or shown in the plans, including all excavation necessary to expose the header pipe, remove the header pipe, replace the header pipe and backfill as necessary to return the stormwater system to its original condition, the furnishing and placing of all the gratings, frames, covers, and any other necessary fittings.

END OF SECTION 02600

SECTION 03300 – PORTLAND CEMENT CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

B. Florida Department of Transportation (FDOT), *FDOT Material's Manual, Chapter 9.2, Volume II, FDOT Standard Specifications for Road and Bridge Construction, Section 346, 347, 350, 400, 522, & 925, Latest Edition.*

1.2 SUMMARY

This Section includes concrete work for the following:

1. Roadways
2. Parking lots
3. Curbs and gutters
4. Walkways
5. Pads
6. Flumes
7. Curb Ramps
8. Cast in Place Structures

1.3 SUBMITTALS

A. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, joint systems, curing compounds, dry-shake finish materials, and others if requested by the County.

B. Design mixes for each class of concrete. Include revised mix proportions when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

C. Material certificates in lieu of material laboratory test reports when permitted by the County. Material certificates shall be signed by manufacturer and Contractor certifying that each material item complies with or exceeds requirements. Provide certification from admixture manufacturers that chloride content complies with requirements.

1.4 PROJECT CONDITIONS

A. Traffic Control: Comply with requirements of Escambia County Specification, Section 04060, "Maintenance of Traffic."

B. Utilize flagmen, barricades, warning signs and warning lights as required, as shown on plans, or as directed by the County.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Concrete shall conform to requirements of FDOT Standard Specification, Sections 346, 347, & 522 for curbs, gutters, sidewalks, structures and miscellaneous concrete.

B. Concrete for pavement shall conform to requirements of FDOT Standard Specification, Section 350.

C. Curb Ramps shall conform to FDOT Standard Index 304.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars and Tie Bars: ASTM A 615, Grade 60, deformed.

B. Welded Steel Wire Fabric: ASTM A 185.

1. Furnish in flat sheets, not rolls.

C. Deformed-Steel Welded Wire Fabric: ASTM A 497.

D. Fabricated Bar Mats: Welded or clip-assembled steel bar mats, ASTM A 184. Use ASTM A 615, Grade 60 steel bars, unless otherwise indicated.

E. Joint Dowel Bars: Stainless Steel bars, ASTM A 615, Grade 60. Cut bars true to length with ends square and free of burrs.

F. Hook Bolts: ASTM A 307, Grade A bolts, internally and externally threaded. Design hook bolt joint assembly to hold coupling against pavement form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

G. Supports for Reinforcement: Chairs, spacers, dowel bar supports and other devices for spacing, supporting, and fastening reinforcing bars, welded wire fabric, and dowels in place. Use wire bar-type supports complying with CRSI specifications. Use supports with sand plates or horizontal runners where base material will not support chair legs.

2.3 CONCRETE MATERIALS

A. Portland Cement: Type I, Type IP, Type IS, Type IP (MS), Type II, or Type III.

1. Use one brand of cement throughout Project.

2. All concrete shall develop a 28-day compressive strength of 3000 psi for non-structural (NS). If any concrete should fail to meet the strength requirement the structure shall be removed as necessary to remove the defective concrete and shall then be rebuilt at the Contractor's expense.

B. Fly Ash: ASTM C 618, Class C or Class F.

C. Normal-Weight Aggregates: ASTM C 33, Class 4, and as follows. Provide aggregates from a single source.

1. Maximum Aggregate Size: 1-1/2 inches.

2. Do not use fine or coarse aggregates that contain substances that cause spalling.

3. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Engineer.

D. Water: Potable.

E. Fiber Reinforcement: Synthetic fibers engineered and designed for secondary reinforcement of concrete slabs, complying with ASTM C 1116, Type III.

2.4 ADMIXTURES

A. Provide concrete admixtures that contain not more than 0.01 per cent chloride ions.

B. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

C. Water-Reducing Admixture: ASTM C 494, Type A.

D. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.

E. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.

F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

2.5 CONCRETE MIX

A. Prepare design mixes for each type and strength of normal-weight concrete

per FDOT Standard Specification, Section 346-6.2 and FDOT Material's Manual, Chapter 9. 2, Volume I I. Use a qualified independent testing laboratory for preparing and reporting proposed mix designs. Do not use the Owner's field quality-control testing laboratory as the independent testing laboratory.

B. Fiber Reinforcement: Add t o m ix at r ate of 1. 5 l b per cu. yd., unless manufacturer recommends otherwise.

C. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, project conditions, weather, test results, or other circumstances warrant.

2.6 CONCRETE MIXING

Ready-Mixed Concrete: Comply with requirements of FDOT Standard Specification, Section 346-7 and FDOT Material's Manual, Chapter 9.2, Volume II.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION FOR CONCRETE PAVEMENT

A. Proof-roll prepared base or subgrade surface to check for unstable areas and verify need for additional compaction. Do not begin concrete work until such conditions have been corrected and are ready to receive paving.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install sufficient forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

B. Check completed formwork and screeds for grade and alignment to following tolerances:

1. Top of Forms: Not more than 1/8 inch in 10 feet.

2. Vertical Face on Longitudinal Axis: Not more than 1/4 inch in 10 feet.

C. Clean forms after each use and coat with form release agent as required ensuring separation from concrete without damage.

## 3.3 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars" for placing and supporting reinforcement. Comply with FDOT Standard Specification, Section 350-7.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces. Maintain minimum cover to reinforcement.

D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction. Use of chairs is required. Welded wire fabric shall not be “pulled” to center of slab.

E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities or replace units as required before placement. Set mats for a minimum 2-inch overlap to adjacent mats.

## 3.4 JOINTS

A. General: Construct control (contraction) joints, construction, and isolation joints true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to the centerline, unless indicated otherwise. When joining existing paving, place transverse joints to align with previously placed joints, unless indicated otherwise.

B. Control (Contraction) Joints: Control joints are grooved, formed, or sawed into sidewalks, driveways and concrete pavements so that cracking will occur in these joints randomly. If not specified on drawings, intervals shall be not greater than 10 feet or less than 5 feet. Construct control joints for a depth equal to at least 1/4 of the concrete thickness, as follows:

1. Tooled Joints: Form contraction joints in fresh concrete by grooving and finishing each edge of joint with a radiused jointer tool.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into hardened concrete when cutting action will not tear, abrade, spawl or otherwise damage surface and before development of

random contraction cracks.

3. Inserts: Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strips into fresh concrete until top surface of strip is flush with paving surface. Radius each joint edge with a jointer tool. Carefully remove strips or caps of two-piece assemblies after concrete has hardened. Clean groove of loose debris.

C. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than ½ hour, unless paving terminates at isolation joints.

1. Provide preformed galvanized steel or plastic keyway-section forms or bulkhead forms with keys, unless indicated otherwise. Embed keys at least 1-1/2 inches into concrete.

2. Continue reinforcement across construction joints unless indicated otherwise.

D. Expansion Joints: Form expansion joints of preformed joint filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 30 feet, unless indicated otherwise or directed by County.

2. Extend joint fillers full width and depth of joint, not less than ½ inch or more than 1 inch below finished surface where joint sealant is indicated. Place top of joint filler flush with finished concrete surface when no joint sealant is required.

3. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required, lace or clip joint filler sections together.

4. Protect top edge of joint filler during concrete placement with a metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

E. Filler and Sealants: Submit specifications to Engineer for approval.

F. Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one half of dowel length to prevent concrete bonding to one side of joint.

## 3.5 CONCRETE PLACEMENT

A. Comply with requirements of FDOT Standard Specification, Sections 350-8

and 400-7 for placing concrete.

B. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place. No concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. Deposit concrete as nearly as practical to its final location to avoid segregation. When concrete placing is interrupted for more than ½ hour, place a construction joint.

C. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

D. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, floating, or tamping. Use equipment and procedures to consolidate concrete complying with FDOT Standard Specification, Section 350-9.

E. Screed paved surfaces with a straightedge and strike off. Use bull floats or darbies to form a smooth surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces prior to beginning finishing operations.

F. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed. Remove and replace portions of bottom layer of concrete that have been placed more than 15 minutes without being covered by top layer or use bonding agent if acceptable to County.

G. Curbs and Gutters: Shall be constructed in accordance with FDOT Specs. When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete.

H. Slip-Form Pavers: When automatic machine placement is used for paving, submit revised mix design and laboratory test results that meet or exceed requirements. Produce paving to required thickness, lines, grades, finish, and jointing as required for formed paving. Compact subgrade of sufficient width to prevent displacement of paver machine during operations.

I. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength, or sufficient strength to carry loads without damage or injury. Maturity Method Testing, as outlined in FDOT Standard Specification, Section 353-10.2, should be used to determine concrete

strength.

J. Cold-Weather Placement: Comply with provisions of FDOT Standard Specification, Sections 346-7.4 and 400-7.1.1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

K. Hot-Weather Placement: P lace concrete complying with FDOT Standard Specification, Sections 346-7.5 and 400-7.1.2, and as specified when hot weather conditions exist.

## 3.6 CONCRETE FINISHING

A. Float Finish: Begin floating when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand -floating if area is small or inaccessible to power units. Finish surfaces to true planes within a tolerance of 1/8 inch in 10 feet as determined by a 10-foot-long straightedge placed anywhere on the surface in any direction. Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular texture.

1. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across concrete surface perpendicular to line of traffic to provide a uniform fine line texture finish.

2. Tine Finishes: Apply to curb cut ramps and other areas as noted on the drawings. Finish shall be applied by an approved hand method and shall consist of transverse grooves which are 0.03 to 0.12 inch in width and 0.10 to 0.15 inch in depth, spaced at approximately ½ inch center to center.

B. Final Tooling: Tool edges of paving, gutters, curbs, and j oints formed in fresh concrete with a jointing tool to the following radius. Repeat tooling of edges and j oints after applying surface f inishes. Eliminate tool marks on concrete surfaces. Radius: ½ inch.

## 3.7 CONCRETE PROTECTION AND CURING

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with the recommendations of FDOT Standard Specification, Sections 350-11 and 925.

## 3.8 QUALITY CONTROL TESTING

A. A qualified, accredited testing and inspection laboratory, under the direction of a Professional Engineer, licensed in the State of Florida, shall sample materials, perform tests, and submit test reports during concrete placement as follows:

1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94. All concrete should be sampled by ACI certified technicians.

    a. Slump: ASTM C 143; one test at point of placement for each compressive-strength test but no less than one test for each day's pour of each type of concrete. Additional tests will be required when concrete consistency changes.

    b. Air Content: ASTM C 231, pressure method; one test for each compressive-strength test but no less than one test for each day's pour of each type of air-entrained concrete.

    c. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.

    d. Compression Test Specimens: ASTM C 31; one set of four standard cylinders for each compressive- strength test, unless directed otherwise. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

    e. Compressive-Strength Tests: ASTM C 39; one set for each day's pour of each concrete class, plus one set for each additional 50 cu. yd. Test one specimen at 7 days, two specimens at 28 days, and retain one specimen in reserve for earlier or later testing if required. Class I Concrete NS compression test specimens cylinders are not required, except as directed by County.

    f. Contractor shall repair the area to the satisfaction of the Engineer where material was removed for testing purposes. Should any work or materials fail to meet the requirements set forth in the plans and specifications, contractor shall pay for retesting of same.

2. Basis for acceptance of concrete will be per FDOT Standard Specification, Sections 346-8 through 346-11.

B. Test results will be reported in writing to the County, within 24 hours of testing. Reports of compressive strength tests shall contain the Project identification name and number, date and location of concrete placement, name of concrete testing laboratory, concrete type and class, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day and 28-day tests.

C. Nondestructive Testing: Non-destructive test methods may be used with approval of the Engineer, but shall not be used as the sole basis for acceptance or rejection.

D. Additional Tests: The testing laboratory will make additional tests of the concrete when test results indicate slump, air entrainment, concrete strengths, or other requirements have not been met, as directed by Engineer. Testing laboratory may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete work that is broken, damaged, or defective, or does not meet the requirements of this Section.

B. Drill test cores where directed by the County when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory concrete areas with Portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from concrete pavement for at least 14 days after placement. When construction traffic is permitted, maintain concrete as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete work free of stains, discoloration, dirt, and other foreign material. Sweep concrete paving not more than 2 days prior to date scheduled for Substantial Completion inspections.

PART 4 - MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT

No measurement will be made for Pavement Marking. The payment will be by Lump Sum for each RC Paving Bid Item.

4.2 JOINTS AND CRACKS

The Contractor shall include the cost for Cleaning and Sealing Joints in the cost of the newly constructed pavement for: (1) transverse and longitudinal joint construction for new pavement; and (2) abutting joints between existing pavement and new pavement.

For replacing joint seals and sealing random cracks in existing Portland cement concrete pavement, the payment will be included in the Lump Sum payment for 8” RC Paving.

## 4.3 BASIS OF PAYMENT

The Lump Sum Payment for each RC Paving Bid Item will be full compensation for all work specified in this Section, including any preparation of the subgrade not included in the work to be paid for under another Contract item; all transverse and longitudinal joint construction, including tie-bars and dowel bars; the furnishing of test specimens; repair of core holes; and all incidentals necessary to complete the work.

END OF SECTION 03300

SECTION 04000 - TRAFFIC CONTROL SIGNS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Specifications Sections, apply to work of this section.

B. Unless otherwise specified on the work orders, plan sheets, or in other sections of this contract, all materials and work shall conform to the applicable requirements in the following document:

1. USDOT, Federal Highway Administration, *Manual on Uniform Traffic Control Devices for Streets and Highways*, *Latest Edition*.

2. USDOT, Federal Highway Administration, *Standard Alphabets for Highway Signs and Pavement Markings*, *Latest Edition.*

3. Florida Department of Transportation, *Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System*, *Latest Edition*.

4. Florida Department of Transportation, *Standard Specifications for Road and Bridge Construction*, section 700, *Latest Edition*.

1.2 DESCRIPTION OF WORK

The work under this section includes the fabrication and installation of standard and special traffic control signs (warning, regulatory, and guide). The Contractor shall furnish all labor, materials, tools, supplies, equipment, and machinery necessary to fully complete the work shown in the plans and in these specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

All materials shall be new and of good quality unless otherwise specified. The Contractor, at his own expense and if requested by the County, shall furnish samples of material and/or shall certify that the material meets all FDOT requirements. All material or work that has been rejected shall be remedied by the Contractor at his own expense and without delay. If the Contractor fails to promptly remove and/or dispose of rejected material and replace the same, the County may remove and replace the same and deduct the cost of the work from the contract amount.

If the Contractor chooses to use material other than specified herein, a sample of the material with supporting manufacturer's literature and specifications must be submitted to the County for prior approval.

## PART 3 - EXECUTION

### 3.1 UTILITY SPOTS

All street name signs shall be fabricated and installed in accordance with the plans and related documents. Contractor shall contact Sunshine State One Call of Florida (811 o r 800 -432-4770) at least 48 h ours prior to digging or driving posts.

### 3.2 SIGN INSTALLATION

A. Signs shall be placed at the locations illustrated and/or specified in the plans or r elated documents. The soil around the post shall be solidly tamped so that the sign will stand vertically.

B. If a sign cannot be placed where indicated due to a conflict, the Contractor shall immediately notify the County for an alternate location.

C. The date when each sign is installed shall be marked in permanent ink on the rear side of each sign.

## PART 4 - MEASUREMENT/PAYMENT

### 4.1 METHOD OF MEASUREMENT

No measurement will be made for Traffic Control Signs. The payment will be subsidiary to Maintenance of Traffic.

### 4.2 BASIS OF PAYMENT

Payment will be included in the cost for Maintenance of Traffic and payment will constitute full compensation for all work specified in this section. Payment for all items relating to traffic control signs will be included in the lump sum Maintenance of Traffic pay item.

END OF SECTION 04000

SECTION 04040 – PAVEMENT MARKINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Specifications Sections, apply to work of this section.

B. Unless otherwise specified on the plan sheets or in other sections of this contract, all materials and work shall conform to the applicable requirements in the following documents:

1. Florida Department of Transportation *Roadway and Traffic Design Standards*, Indices 17344 through 17359, *Latest Edition*.

2. Florida Department of Transportation *Standard Specifications for Road and Bridge Construction*, Sections 701, 705, 706, 710, 711, 970, 971, and 993, *Latest Edition*.

3. USDOT, Federal Highway Administration *Manual on Uniform Traffic Control Devices for Streets and Highways*, *Latest Edition*.

1.2 DESCRIPTION OF WORK

The work under this section includes the installation and removal of temporary and permanent pavement markings, textured pavement, reflective markers, galvanized posts, flex posts, delineators, wheel stops, and audible and vibratory pavement markings. The Contractor shall furnish all labor, materials, tools, supplies, equipment, and machinery necessary to fully complete the work shown in the plans and in these specifications. Pavement marking notes on plan sheets shall take precedence over and modify conflicting Technical Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

All materials shall be new and of good quality unless otherwise specified. The Contractor, at his own expense and if requested by the County, shall furnish samples of material and/ or shall certify that the material meets all FDOT requirements. All material or work that has been rejected shall be remedied by the Contractor at his own expense and without delay. If the Contractor fails to promptly remove and/or dispose of rejected material and replace the same, the County may remove and replace the same and deduct the cost of the work from the contract amount.

2.2 TEMPORARY PAVEMENT MARKINGS

Materials for temporary pavement marking shall meet all requirements of FDOT Specs, Section 710, *Latest Edition.*

2.3 PERMANENT PAVEMENT MARKINGS

Materials for permanent pavement markings shall meet all requirements of FDOT Specs, Section 711, *Latest Edition*.

2.4 REFLECTIVE PAVEMENT MARKERS

Materials for reflective pavement markers shall meet all requirements of FDOT Specifications, Sections 706, *Latest Edition*.

2.5 OBJECT MARKERS AND DELINEATORS

Materials for object markers shall meet all requirements of FDOT Specifications, Sections 705, *Latest Edition*.

2.6 AUDIBLE AND VIBRATORY PAVEMENT MARKINGS

Materials for audible and vibratory pavement markings shall meet all requirements of FDOT Specifications, Sections 701, *Latest Edition*.

PART 3 – EXECUTION

3.1 GENERAL

All pavement markings shall be applied in accordance with FDOT requirements.

3.2 TEMPORARY PAVEMENT MARKINGS

Temporary pavement markings shall be installed at the end of each day on new pavement surfaces and shall be maintained until permanent markings are installed.

3.3 PERMANENT PAVEMENT MARKINGS

Permanent pavement markings, including painted stripes, thermoplastic stripes, and reflective pavement markers, shall be installed as shown in the plans. Materials and installation shall conform to applicable standards in the documents referenced in Section 1.1. Installation of permanent markings on all final asphaltic concrete surfaces shall not be accomplished prior to 14 calendar days, nor later than 30 calendar days, after placement of the final surfaces.

3.4 RETROREFLECTIVITY

The Contractor shall, within thirty days of completion, furnish retroreflectivity

readings certifying the materials meet all FDOT requirements as per Part I, 1.1.B.2, Sections 710 and 711.

## PART 4 – MEASUREMENT/PAYMENT

### 4.1 METHOD OF MEASUREMENT

No measurement will be made for Pavement Marking. The payment will be by Lump Sum.

### 4.2 BASIS OF PAYMENT

The Lump Sum Payment will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

END OF SECTION - 04040

SECTION 04060 - MAINTENANCE OF TRAFFIC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specifications Sections, apply to work of this section.

B. Unless otherwise specified on the plan sheets or in other sections of the specifications, all materials and work shall conform to the applicable requirements in the following documents:

1. *Florida Department of Transportation Design Standards*, *Latest Edition*.

2. *Florida Department of Transportation Standard Specifications for Road and Bridge Construction*, Section 102, *Latest Edition*.

3. USDOT, Federal Highway Administration *Manual on Uniform Traffic Control Devices for Streets and Highways*, *Latest Edition*, Part 6 Temporary Traffic Controls.

4. *FDOT Minimum Specifications for Traffic control and Devices*, *Latest Edition*.

1.2 SUMMARY OF WORK

The work under this section includes the maintenance of traffic within the limits of the project for the duration of construction. The Contractor shall coordinate with the Visitor Center and Fire Department staff to insure access to the site is available at all times for visitors, staff and Emergency equipment.

PART 2 – PRODUCTS - Not Used.

PART 3 - EXECUTION

3.1 RESPONSIBILITIES OF CONTRACTOR

A. Control and maintain traffic and provide for the safety of the work area in accordance with Maintenance of Traffic (MOT) Plan included in the contract documents. Contractor shall comply with all aspects of said plan. Conduct operations in a manner that will not interrupt pedestrian and vehicle traffic except as approved by the County Engineer/Traffic Division. Confine the work area to the smallest area practical to allow the maximum use of the street and sidewalk and to reduce any hazard to vehicles and pedestrians to a minimum.

B. Maintain access to properties that adjoin the work. Contact property owners

and assure that access is coordinated prior to commencing work that may block access.

C. Furnish all labor, materials, tools, supplies, equipment, and machinery needed to fully comply with the specifications described on the plan sheets and in this Section. At all times, the Contractor shall use workers and traffic control devices necessary to comply with all applicable provisions contained in the reference documents listed in Section 1.1.

D. The Contractor shall notify the agencies and media listed below in writing, 48 hours in advance, of any work within the road right-of-way that may interfere with vehicle and/or pedestrian traffic.

1. WCOA Radio – Tel: 478-6011; Fax: 478-3971

2. Pensacola News Journal Tel: 435-8500; Fax: 435-8633; Email: news@pensacolanewsjournal.com

3. Escambia County Emergency Management Tel: 471-6315; Fax: 471-6322; Email: bob_boschen@co.escambia.fl.us

4. Escambia County Engineering Tel: 595-3440

5. Escambia County Sheriff Tel: 436-9630; Fax: 436-9128; Email: traffic@escambiaso.com

6. Florida Highway Patrol Tel: 484-5000; Fax: 393-3405; Email: stevepreston@flhsmv.gov

7. Escambia County School District Tel: 469-5591; Fax: 469-5661; Email: transportation@escambia.k12.fl.us and rdoss@escambia.k12.fl.us

8. Escambia County Administration Tel: 595-4900; Fax: 595-4908; Email: Cheryl_Lively@co.escambia.fl.us

9. Escambia County Area Transit Tel: 595-3228; Fax: 595-3222; Email: Ted_Woolcock@co.escambia.fl.us

## 3.2 PENALTIES AND SUSPENSION OF WORK

The County may verbally direct the Contractor to immediately suspend work if appearance of violation of safety regulations is found. In such an event, Contractor shall immediately stop work and secure any potential hazards from the public until the potential violation is confirmed and/or corrected to satisfaction of the County. Law enforcement officers may be called to assist the County in suspending work if the Contractor is not responsive. Suspension of work for violation of safety

regulations shall not be grounds for a contract time extension or additional payment.

## PART 4 - MEASUREMENT/PAYMENT

### 4.1 METHOD OF MEASUREMENT

A. Maintenance of Traffic: Where the plans require the use of trucks and truck mounted impact attenuators, these items will not be paid for separately but shall be included in the cost of Maintenance of Traffic. Only use those attenuators that have been tested by a facility approved by the Engineer and certified as meeting the requirements as specified in NCHRP 350 and that have been properly maintained.

B. No measurement will be made for Maintenance of Traffic. Payment will be by Lump Sum.

### 4.2 BASIS OF PAYMENT

A. MAINTENANCE OF TRAFFIC (GENERAL WORK): The Lump Sum Price will be full compensation for all work and costs specified under this Section except as may be specifically covered for payment under other items.

END OF SECTION 04060

# Section 04091

# Television Inspection

## PART 1: General

1.1 *Description* – Provide all labor, materials, tools, equipment and incidentals as shown, specified, and required to perform television (TV) inspection of existing storm drain underground retention system located in the northeast corner of the facility. See the Perdido Key Fire Station and Community Center Bid Documents in the specifications section for the best available data about the construction details of the underground stormwater retention system. The work will require the header pipe to be removed and each of the eleven (11) pipes to be videoed. The retention system will then be repaired back to its original condition if all pipes are satisfactory. The Contractor will schedule the television with the Engineer for the Engineer to be onsite to observe the video inspection.

1.2 *Definitions* –

1.2.1 *Pre-Construction Inspection* – TV inspection of stormwater retention system pipes to determine the location of construction, structural and O&M features and to ascertain that the condition of the pipe meets acceptable standards and has not been damaged by the pavement failures.

1.3 *Requirements* – The Contractor shall be aware that this Contract requires work in active sewers and shall follow all federal, state and local requirements for safety in confined spaces.

1.4 *Performance Requirements* –

1.4.1 Inspection shall be performed by a National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) certified operator and shall meet the coding and reporting standards and guidelines as set by PACP. These same standards shall also be used for lateral inspections regardless of whether conducted using cleanout launched or mainline launched lateral camera. All report annotations, pipe conditions and pipe defects shall be identified properly using PACP codes as defined by PACP, and severity ratings shall be calculated according to PACP.

1.4.2 Quality of inspection recording shall be acceptable to ENGINEER when viewed on a standard computer monitor.

1.5 *Submittals* –

1.5.1 CCTV equipment, including make, model, age of video systems and tractors, and documentation that CCTV software is PACP v4.2 -certified. PACP-compliant software will not be accepted.

1.5.2 Copies of PACP certificate for inspectors completing the work.

1.6 *Reference Standards* – NASSCO prepared Pipeline Assessment and Certification Program, Second Edition Reference Manual, 2001. This manual includes a standard TV inspection form and sewer condition codes.

## PART 2: Products

2.1 *Television Equipment* –

2.1.1 *Closed Circuit TV Equipment* – Select and use closed-circuit television equipment that will produce a color recording. The camera and video system components shall have the following properties:

2.1.1.1 Equipped with footage counter accurate to two tenths of a foot that displays on the TV monitor the exact distance of the camera from the starting point of the recording.

2.1.1.2 Lighting system that allows the features and condition of the pipe to be clearly seen. Lighting shall not cause shadows or loss of color within the field of view of the camera.

2.1.1.3 Capable of operating in 100 percent humidity conditions.

2.1.1.4 Capable of producing a minimum 470 lines of vertical resolution color video picture. Picture quality and definition shall be to the satisfaction of the Engineer.

2.1.2 *Pipe Inspection Camera* – The pipe inspection camera and video components shall have the following additional properties:

2.1.2.1 Capable of producing a video recording using a pan-and-tilt, radial viewing, pipe inspection camera that pans ± 275 degrees and rotates 360 degrees.

2.1.2.2 Camera height adjustment so that the camera lens is always centered at one-half the inside diameter, or higher, in the pipe being televised.

2.1.2.3 Include a reflector in front of the camera if necessary to provide acceptable video image quality in large diameter pipe.

2.1.3 *TV Studio* – TV studio is to be contained in an enclosed truck, trailer or van. It shall have room and seating for the operator and the ENGINEER and also room for at least one standing visitor with the doors closed. The studio shall have air conditioning and heating. Normal operation of all equipment, including the TV camera, monitor, and winches is to be from a control panel in the studio. When joint testing and sealing is to be performed, the equipment shall be contained in the same unit as its TV equipment and shall be operated from the same control panel.

2.1.4 *Recording* – All recordings are to be in digital format.

2.1.4.1 *Image Capture* – Digitized picture images shall be stored and be exportable as JPEG formats.

2.1.4.2 *Video Capture* – Full time live video and audio files shall be captured for each pipe segment and lateral inspected. The files shall be delivered in MPEG format on a USB 2.0 external hard drive and viewable at real time and fast forward speeds on an external personal computer that utilizes MicroSoft Media Player, version 9.0. Alternate digital formats will not be accepted unless approved by the Engineer in advance of submittal. The video shall have a minimum resolution of 640 pixels (x) by 480 pixels (y) and an encoded frame rate of 29.97 frames per second. System

shall perform an automatic disk image/file naming structure to allow saved video/data sections to be "Burned" to digital format. It shall have the capability of "burning" a minimum of 120 minutes of recording to the DVDR media. The video recording shall be free of electrical interference and shall produce a clear and stable image. The audio recording shall be sufficiently free of background and electrical noise as to produce an oral report that is clear and discernable. The digital recordings and inspection data shall be cross-referenced to allow instant access to any point of interest within the digital recording.

## PART 3: Execution

3.1 *Television Inspection* –

3.1.1 Prior to TV inspection, clean sewer lines, laterals and manholes. Re-clean any sewer line or manhole found to be dirty during the TV inspection process.

3.1.2 Perform Post-construction Inspections of cured-in-place mainline liners no sooner than 30 days after the completion of the lining work.

3.1.3 Televise the sewer line to document the condition of the line. Notify the Engineer 48 hours in advance of any TV inspection so that the ENGINEER may observe inspection operations. Provide a color recording showing the completed Work.

3.1.4 For mainline sewer inspections, inspections shall be from center of the starting manhole to the center of the ending manhole. Record the condition of the entire circumference of the pipe penetration. Measure distances along the pipe from the center of the upstream manhole.

3.1.5 Prior to recording the location of defects, construction features and service connections, remove slack in the cable of the television inspection camera to ensure metering device is designating proper footage. Check accuracy of the measurement meters daily by use of a walking meter, roll-a-tape, or other suitable device.

3.1.6 Perform the preset before starting to record the inspection (i.e. the counter should not suddenly reset or jump during the recording). If a preset point on the CCTV cable is used to set the counter, Contractor shall back up the camera after setting the preset and record the entry to the pipe.

3.1.7 Center the camera in the middle of the pipe.

3.1.8 Move the camera through the line (in the downstream direction whenever possible) at a uniform rate not to exceed 30 feet per minute.

3.1.9 Stop at every joint for three seconds. When infiltration or other defects are evident, use pan and tilt to document pipe condition. Stop elsewhere when necessary to ensure proper documentation of the sewer's condition.

3.1.10 Stop at every lateral connection. Center the camera so that the lighting and the pan and tilt view can be used to inspect as far into the lateral connection as possible. Pan the circumference of the tap, recording all defects found in the service connection. Where lateral flow is observed, observe flows from service connections for approximately two

minutes to ascertain if the flow is sanitary or extraneous flow. The video recording may be paused during observation. Record results of the flow observed on video recording and inspection logs.

3.1.11 Capture color still shots of video recordings for all defects encountered.

3.1.12 Use manual winches, power winches, TV cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions to move the camera through the sewer line.

3.1.13 TV inspection recordings shall be continuous for each pipe segment.

3.1.14 Adjust light levels, clean fouled or fogged lens, and allow vapor to dissipate from camera lights in order to produce acceptable recordings. All TV inspection recordings that do not meet the specified requirements shall be retelevised at no additional cost to the Owner.

3.2 *Flow Control* –

3.2.1 Adequately control the flow in the section being televised. Plugging or bypassing of the flows may be used to accomplish this. Recordings made where the depths of wastewater flow shown below are exceeded will be rejected:

| **Flow Control During Television Inspection** | |
|---|---|
| **Pipe Diameter (Inches)** | **Depth of Flow (% of Pipe Diameter)** |
| 6-10 | 10 |
| 12-24 | 15 |
| Over 24 | 20 |

3.2.2 Whenever flows in a sewer line are blocked, plugged, pumped, or bypassed, take sufficient precautions to protect the sewer lines from damage that might be inflicted by excess sewer surcharging. Further, take precautions to ensure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved. No overflows are permitted. The Contractor is responsible for all damages.

3.2.3 Contractor is responsible for all damages to Contractor owned and operated equipment, Owner facilities, and privately owned facilities caused by malfunction of plugs, pumps or other Contractor equipment. In the event of a failure or malfunction of Contractor equipment, Contractor is responsible for all work necessary to restore facilities to pre-construction condition including but not limited to excavation and restoration of sewer lines and roadways required to retrieve malfunctioning or stuck cameras, plugs and hoses.

3.2.4 It is anticipated that portions of the sanitary sewer are bowed or bellied and as a result the camera will be submerged. Wherever the camera encounters a submerged condition, or where the wastewater flow depth exceeds the maximum allowable, reduce the flow depth to an acceptable level by performing the survey TV inspection during minimum flow hours, or by pulling a camera with swab, high-velocity jet nozzle or other acceptable dewatering device. Recordings made while floating the camera are not acceptable unless approved by Engineer.

3.3 *Passage of TV Camera* – If during TV inspection of a pipe segment the camera is unable to pass an obstruction even though flow is unobstructed, televise the pipe segment from the opposite

direction in order to obtain a complete recording of the line. Measure the distance between the manholes (centerline to centerline) with a tape or wheel to accurately determine the total length of the manhole segment.

3.4 *Inspection Deliverables* –

3.4.1 *Written Inspection Reports* – Provide printed location records to clearly identify the location of each defect, or lateral connection, in relation to adjacent manholes, using a standard stationing system zeroed on the upstream manhole. Record all information requested using proper NASSCO PACP defect codes. The reports shall include at least the minimum amount of information required by PACP, including required PACP header information. Color still shot images of all defects encountered shall be included with each pipe segment.

3.4.2 *Electronic Inspection Reports* –

3.4.2.1 Provide a NASSCO PACP v4.2 certified database listing all PACP required data fields for each pipe segment. The provided database shall be in ".mdb" format with no password protection on the file.

3.4.2.2 For each type of CCTV deliverable (Pre-Construction, Post-Construction, Warranty), provide a single database containing all the inspections for the Project.

3.4.2.3 Post Construction deliverables will contain a single inspection for each asset, inspected upon completion of all non-warranty Work on the asset.

3.4.2.3.1 Submit two inspection records for a single asset only if the asset cannot be completely inspected from one side due to the physical condition of the pipe. Properly use the PACP "MSA" coding for each such inspection record.

3.4.3 *Inspection Recordings* –

3.4.3.1 Provide digital inspection recordings for all recordings, unless otherwise specified in paragraph 3.4.4.

3.4.3.2 Recording shall be of a quality sufficient for Engineer to evaluate the condition of the sewer, locate the sewer service connections, and verify cleaning. If Engineer determines that the quality is not sufficient, re-televise the sewer segment and provide a new recording and report at no additional compensation. Camera distortions, inadequate lighting, dirty lens, or blurred/hazy picture will be cause for rejection. Payment for televised inspection will not be made until Engineer approves the recordings and reports.

3.4.3.3 Only pipe segments from the same Project shall be included on a given hard drive. Multiple deliverable types may be included on a given hard drive, but the files must be organized in individual project folders. TV Inspection recordings shall not be edited.

3.4.3.4 Digital recordings*:* Each pipe segment must be its own electronic file. Electronic recording file must allow snap scrolling to allow easy and quick access of the entire recording.

3.4.3.5 Each hard drive must have a file index whose name contains the pipe segment reference number.

3.4.3.6 Maintain a master copy of all recordings and Inspection Reports for two years after delivery of reports and recordings.

3.4.3.7 Label each hard drive with the following information:

3.4.3.7.1 File Number

3.4.3.7.2 Contractor's Name

3.4.3.7.3 Project Name

3.4.3.7.4 Contract Number

3.4.3.7.5 Drawing Number

3.4.3.7.6 Inspection Type: Post Cleaning, Repair

3.4.3.7.7 Date Televised

3.4.3.7.8 Pipe Segment Asset Identification Number

3.4.4 *Inspection* – Inspection deliverables for different types of inspections are defined below:

3.4.4.1 *Pre-Construction Inspection* – One copy on a 400mbs USB 2.0 external hard drive of PACP formatted database including, but not limited to, digital inspection recordings, defect call-out tables, defect snapshots, notes fields and asset condition reports.

3.4.4.2 *Post-Construction Inspection* –

3.4.4.2.1 Two copies of Written Inspection Reports in bound report with project name on binder spine. Reports to be filed in ascending order by upper manhole number.

3.4.4.2.2 One copy on a 400mbs USB 2.0 external hard drive of the PACP formatted database including, but not limited to, digital inspection recordings, defect call-out tables, defect snapshots, notes fields and asset condition reports.

SECTION 04092 RECORD DRAWINGS

PART 1 GENERAL

The contractor shall prepare As-Built drawings of the project for the Engineer of Record (EOR) to use to prepare the Record Drawings of the project.

PART 2 CONTRACTOR'S AS-BUILT DRAWING REQUIREMENTS

2.1 Prior to backfilling the contractor shall make and record measurements to all underground features. The Contractor shall assemble all of the required information in a legible format on a clean set of plans in red ink. As-Builts that are illegible will be rejected by the EOR.

2.2 Title Sheet of the As-Builts shall include:

2.2.1 Title: Contractor's As-Builts"

2.2.2 Name of the Project

2.2.3 Contractors Company Name, address and telephone number

2.2.4 Sttement: "These As-Built Drawings have been prepared per the specification

_____

Signature

_____

Printed Name

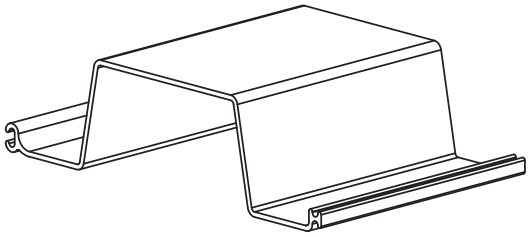
_____

Date

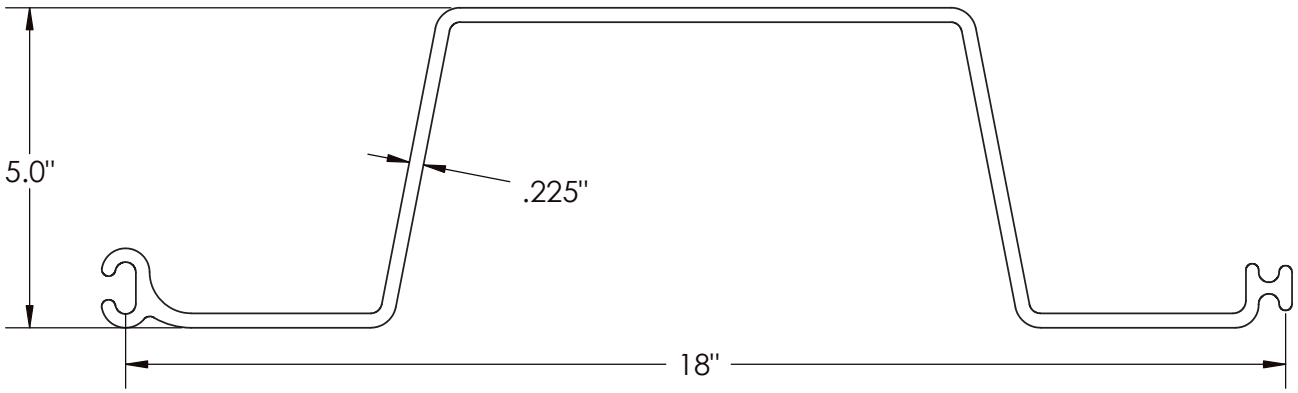
2.3 Provide as a separate documents photographs of the project during construction (photographs can be digital files).

2.4 Contractor shall submit As-Built Drawings to the EOR, and shall be available to answer questions related to the drawings as well as supply additional information should there be missing/incorrect information. Insufficient As-Built Drawings as determined by the EOR of the Owner will delay Final Acceptance of the project.

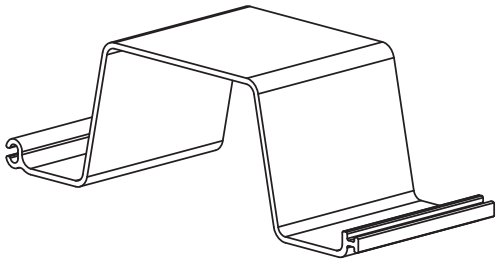
# SG-225



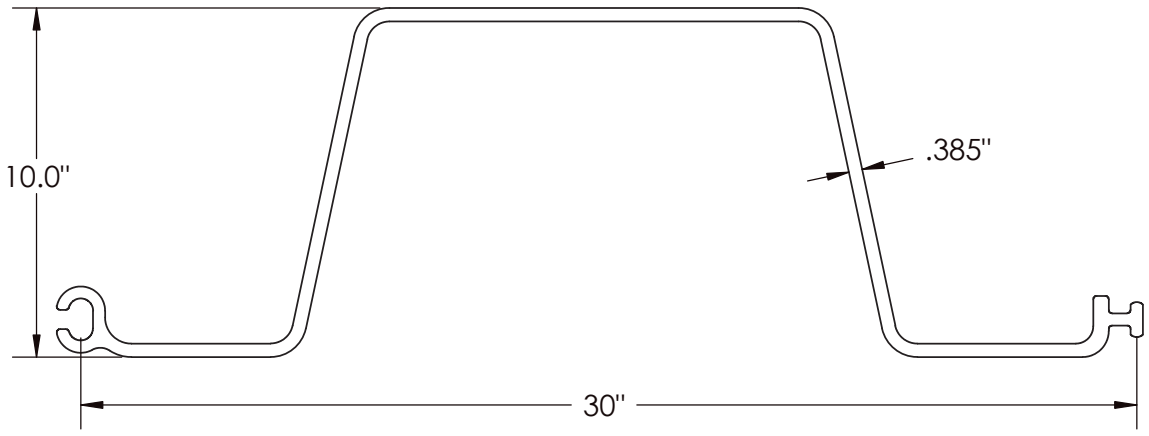
| | | |
|---|---|---|
| **Allowable Moment (M)** | 1,920 ft-lb/ft | 8.54 kN-m/m |
| **Section Modulus (Z)** | 7.2 $in^3$/ft | 387 $cm^3$/m |
| **Moment of Inertia (I)** | 18 $in^4$/ft | 2,458 $cm^4$/m |
| **Impact Strength** | 11,000 in-lbs/$in^2$ | 1,925 N-mm/$mm^2$ |
| **Thickness (t)** | 0.225 in | 5.7 mm |
| **Section Depth** | 5.0 in | 127 mm |
| **Section Width** | 18 in | 457 mm |
| **Material** | Weatherable Rigid Vinyl | |
| **Standard Colors** | Grey, Clay | |
| **Technology** | Box Profile, I-Beam Lock, XCR™ | |
| **Standard Packaging** | 15 sheets/bundle | |



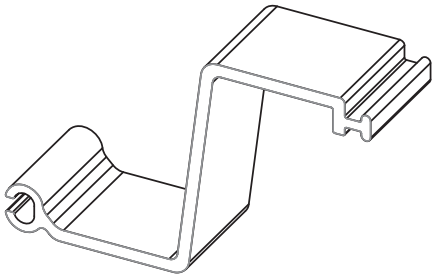
# SG-625



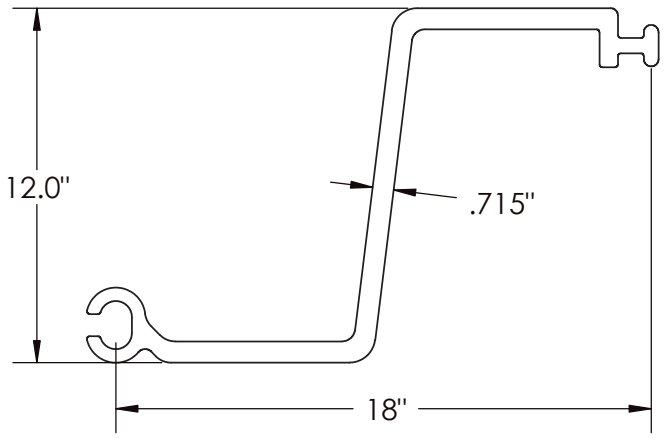
| | | |
|---|---|---|
| **Allowable Moment (M)** | 6,507 ft-lb/ft | 28.94 kN-m/m |
| **Section Modulus (Z)** | 24.4 $in^3$/ft | 1,312 $cm^3$/m |
| **Moment of Inertia (I)** | 122 $in^4$/ft | 16,660 $cm^4$/m |
| **Impact Strength** | 15,000 in-lbs/$in^2$ | 2,625 N-mm/$mm^2$ |
| **Thickness (t)** | 0.385 in | 9.8 mm |
| **Section Depth** | 10.0 in | 254 mm |
| **Section Width** | 30 in | 762 mm |
| **Material** | Weatherable Rigid Vinyl | |
| **Standard Colors** | Grey, Clay | |
| **Technology** | Box Profile, I-Beam Lock, XCR™ | |
| **Standard Packaging** | 6 sheets/bundle | |



# SG-950



| | | |
|---|---|---|
| **Allowable Moment (M)** | 15,147 ft-lb/ft | 67.37 kN-m/m |
| **Section Modulus (Z)** | 56.8 $in^3$/ft | 3,054 $cm^3$/m |
| **Moment of Inertia (I)** | 341 $in^4$/ft | 46,567 $cm^4$/m |
| **Impact Strength** | 17,500 in-lbs/$in^2$ | 3,063 N-mm/$mm^2$ |
| **Thickness (t)** | 0.715 in | 18.1 mm |
| **Section Depth** | 12 in | 305 mm |
| **Section Width** | 18 in | 457 mm |
| **Material** | Weatherable Rigid Vinyl | |
| **Standard Colors** | Grey, Clay | |
| **Technology** | Z Profile, I-Beam Lock, XCR™ | |
| **Standard Packaging** | 6 sheets/bundle | |



# APPENDIX A

# GEOTECH REPORT

# Geotech Report

Since 1976 Geotechnical Engineering Construction Materials Testing Drilling Services

Summary | Project Info | Pavement | Wall | Earthwork | Borings | Lab | Appendix

## Perdido Key Fire Station Pavement Repair

Escambia County, Florida
LMJ File #: 19-149E
May 31, 2019

### Prepared for

**Fabre Engineering & Surveying, Inc.**
Attn: Mr. Frank Fabre, PE
frank.fabre@fabreinc.com

### Prepared by

**Larry M. Jacobs & Associates, Inc.**
328 East Gadsden Street, Pensacola, Florida 32501
Florida Certificate of Authorization #2184

**Keith V. Jacobs, PE**
Principal Engineer
FL Reg. #66577

KEITH VICTOR JACOBS LICENSE No 66577 STATE OF FLORIDA PROFESSIONAL ENGINEER

*This document has been electronically signed and sealed by Keith V. Jacobs (license # 66577) on May 31, 2019. Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.*

## General Summary

- LMJ cored the concrete in eight locations. A 76-foot SPT boring was drilled in one core hole, and hand auger/probe borings were drilled in the other core holes. Four auger borings were also drilled along the bottom of the MSE wall at an angle under the wall.
- The existing concrete pavement shows excessive cracking mostly at the northeast corner and around the drainage inlets.
- Our cores were 4⅞ to 6 inches thick with an average thickness of 5⅓ inches.
- The average compressive strength of the concrete cores was 6,000 psi.
- The soils under the concrete pavement were sand that varied in density from firm to loose to the bottom of these borings at 6 feet.
- The deeper SPT boring encountered mostly sand with some shell and silt with a very loose clayey sand/sandy clay layer from 34-54 feet.
- Groundwater was encountered in the deep boring at 7 feet.
- Based on the results of the consolidation test and the provided grading plan, we estimated about 2½ inches of settlement from the fill placed at the northeast corner. Most of this settlement is estimated to have occurred during construction.
- The consolidation test results indicated that the samples compressed rather quickly, and we anticiapte the settlement from consolidation of this layer to be mostly complete.
- The auger borings drilled under the existing MSE wall indicated roughly 12-18 inches of native sand cover over the limerock leveling pad supported the block, and the conditions under the leveling pad were fairly loose. Groundwater was present 1.5-4 feet below grade.
- The existing MSE retaining wall shows signs of movement/settlement.

## Recommendations

- We recommend rebuilding the pavement since it has lost support in many areas.
- We recommend that the pavement be reinforced with rebar in areas with fire truck traffic to provide additional stifness, load transfer, and rigidity over the exfiltration system.
- We recommend a minimum of 8 inches of graded aggregate base under the pavement.
- After removing the existing pavement, we recommend a thorough evaluation of the underlying soils and then the exfiltration system.
- The MSE retaining wall is not well suited for this application. Specifically, this wall type is easily damaged with a flood or moving water along the toe.
- A cantileaver sheetpile wall would be the best wall type for this application because it would offer protection from flooding and scour.

**Note:** The above summary is an overview of the report and should not be used by itself for planning, design, and/or construction. See the relevant sections for further details.

## Existing Site Conditions

The site is the Perdido Key Fire Station (Station #19) located at 15500 Perdido Key Drive on Perdido Key, Florida. The site contained two buildings with the fire trucks parking on the ground floor of the north building. Concrete driveways ran down the west and east sides of the site and along the south side, and concrete parking areas were present east and south of the buildings. A MSE retaining wall ran along portions of the north and east sides of the site.

The existing concrete pavement was significantly cracked, with the worst cracking at the northeast corner and around the drainage inlets. A small area east of the truck bays had been repaired, and we understand that the concrete in this area had dropped due to a void under the pavement. It appears that the cracks are continuing to worsen as evidenced by crack sealant pulling apart in the cracks, new cracking, and statements by Fire Station personnel. NOVA performed a pavement evaluation for this project, and their evaluation found voids under the concrete in about half of their cores, and the voids were located under the west and south drive aisles.

### Review of Existing Information

*Civil Drawings*

Based on the provided civil drawings for the project, most of the site was at elevation 8 feet prior to construction, dropping down to near elevation 1 foot at the northeast corner. Finished floor elevations for the buildings were 13 feet and 9 feet for the south and north buildings respectively. Finished grades for the pavement were between 8 and 9 feet. A majority of the pavement area is underlain by a stormwater exfiltration system with top and bottom elevations of 7 and 5 feet respectively according to the plans. The concrete paving section on the civil plans consists of 6 inches of 3,000 psi concrete over 4 inches of clean sand underlain by 12 inches of in-place soils compacted to 98% of Modified Proctor Test density. Geothermal wells are shown on the drawings at the northeast corner of the site between the fire truck bays and the exfiltration system.

*NOVA Reports*

We briefly reviewed the NOVA geotechnical report for this project dated 5.18.09, and the Report of An Existing Pavement Evaluation dated June 14, 2016. The original Geotech report indicated very soft to soft clay from about 38-54 feet, but no laboratory test results were shown on this clay. The pavement evaluation indicated voids under the concrete in cores located on the west and south drives near the stormwater inlets.

*MSE Wall Plans*

We reviewed the MSE wall plans for this project dated April 20, 2012, and the plans indicate that no hydrostatic loading was accounted for in the design. The plans also state:

> *Surface water flow either temporary or permanent should not be allowed to run along the toe of earth structure at any time. Concentrated water flow along the wall toe can undermine & damage the earth structure foundation.*

The MSE plans also indicate that the design had minimum factors of safety against sliding, geogrid pullout, and global stability.

### Pavement Coring

We cored the existing asphalt in eight locations and drilled a hand auger boring in seven of the core holes to evaluate the underlying soils. A SPT boring was drilled in one of the core holes. The concrete cores were 4⅞ to 6 inches thick with an average thickness of 5⅓ inch. Wire mesh was observed near the bottom of all but two of the cores (C-5 and C-6). The concrete cores were packaged for compressive strength testing in the lab. Results of the compressive strength tests are here.

### Subsurface Exploration

The auger borings drilled in the core holes encountered sand soils. The soils were probed down to a boring depth of 6 feet or until obstructions were encountered. Obstructions were encountered in C-3, C-6, and C-7 at depths of 14-18 inches below the concrete surface that were likely the top of the exfiltration system. The soil density in these auger borings was erratic and varied from firm to loose.

To evaluate the subgrade conditions at the northeast corner of the site where the large fill was placed, we drilled one Standard Penetration Test (SPT) boring to 76 feet in one core hole using a truck mounted drill rig. The boring was drilled using the mud rotary drilling method and an SPT auto hammer. Due to the presence of some limerock, shell, and grout in the original boring, and adjacent boring was drilled to create a hole big enough to collect two Shelby tube samples for laboratory consolidation testing. The subsurface conditions encountered in the borings can be found here. A general summary of the deep boring is below.

The deep boring encountered loose and medium dense sand in the upper 4 feet and medium dense and dense sand below 4 feet down to 34 feet where very loose clayey sand/sand clay with shell was encountered to 55 feet. Thereafter, loose to medium dense slightly silty sand was encountered to 59 feet underlain by very dense and dense sand to 74 feet over medium dense sand to the bottom of the boring at 76 feet. Groundwater was encountered at 7 feet below the pavement surface at the time of drilling.

We also drilled four auger borings roughly 12-18 inches from the face of the MSE wall at an approximate 45 degree angle to attempt to probe the soils under the wall to evaluate their firmness. These borings indicated roughly 12-18 inches of native sand cover over the limerock leveling pad, and the conditions under the leveling pad were fairly loose.

The information in this section is the basis of our recommendations. If this information changes or is incorrect, our office should be notified, and changes to our report may be needed.

## Pavement Recommendations

- We recommend rebuilding the pavement since it has lost support in many areas. This will also allow for achiveing consistent, well-compated conditions under the pavement.
- After demolishing the existing pavement, we recommend a thorough evaluation of the underlying soils and exfiltration system as discussed in the earthwork section of this report.
- We recommend reinforcing the pavement with rebar in areas with fire truck traffic in order to provide additional stifness, load transfer, and rigidity over the exfiltration system.
- We recommend providing a minimum of 8 inches of graded aggregate base material meeting the requirements of FDOT Section 204.
- The graded aggregate base should extend to the top of the exfiltration system in areas where exfiltration is present.
- A sample of the proposed base material should be submitted to our lab for testing and approval prior to shipment to the site.
- The concrete reinforcement and joints should be designed in accordance with industry standards for heavy duty concrete pavement.
- The concrete should have a minimum compressive strength of 4,000 psi at 28 days and a minimum flexural strength of 630 psi.
- We recommend sampling the concrete during each placement and making one set of cylinders for each 50 cubic yards of concrete placed. Temperature, air content, and slump should also be tested.
- The concrete could also be tested for flexural strength using beams.

## Wall

The MSE retaining wall is not well suited for this application because this wall type is easily damaged with a flood or moving water along the toe. Furthermore, a review of the retaining wall plans indicates that the wall was not designed for hydrostatic pressure. This means that the wall could fail during a flood or heavy rain event due to insufficient geogrid reinforcement.

The MSE wall shows signs of movement, and this could be due to the effects of hydrostatic forces behind the wall and/or settlement. It's also possible that the separator fabric behind the block is torn or missing or has shifted from settlement in areas allowing loss of material through the block on the face of the wall. The auger borings drilled under the existing wall indicated roughly 12-18 inches of cover over the limerock leveling pad supporting the block face, and the conditions under the leveling pad were fairly loose.

Because of the above concerns with the MSE wall and the potential impact of a wall failure during a hurricane on the shallow founded buildings, we would advise installing sheetpiles along the outside of the existing MSE wall and filling the space between walls with sand with less than 5% fines that meets any local color restrictions. The sand between the walls should be flooded several times to consolidate it, and additional sand should be added as needed up to the top of the wall.

Installing a sheet piles creates vibrations which would be a concern for the shallow founded structures, and vibration monitoring and crack surveys of the existing structures are recommended. Sheets should be driven prior to any repair work for the concrete pavement since the vibrations could also cause settlement/disturbance to the pavement, especially if it was newly poured.

Leaving the MSE wall in place would risk damage of the wall, pavement, and potentially the building during a hurricane. An option to protect the buidling from a failure of the MSE wall would be to underpin the building with helical piers or a similar system. If the MSE wall is left in place, providing scour protection for the toe such as heavy duty fabric and graded rip rap would help.

## Site Preparation

- After stripping off the existing pavement, we recommend a thorough evaluation of the underlying soils by LMJ staff to look for loose areas and any signs of loss of material.
- The exposed soils should be evaluated by a geotechnical engineer or his representative by probing the soils on a grid. Any loose areas should be further evaluated for underlying voids or deleterious materials or other causes of material loss.
- All loose spots would need to be completely removed and backfilled per the table below.
- A thorough evaluation of the existing exfiltration system should also be performed including the fabric, the type and condition of the stone around the pipes, and the condition of the pipes themselves and any joints.
- We recommend a visual observation of the interior of each pipe to see if any material has raveled into the pipes and to check for failed joints.
- The exfiltration system should be repaired where necessary, and then the gravel and fabric should be replaced with the fabric completely lapped on top of the drain.

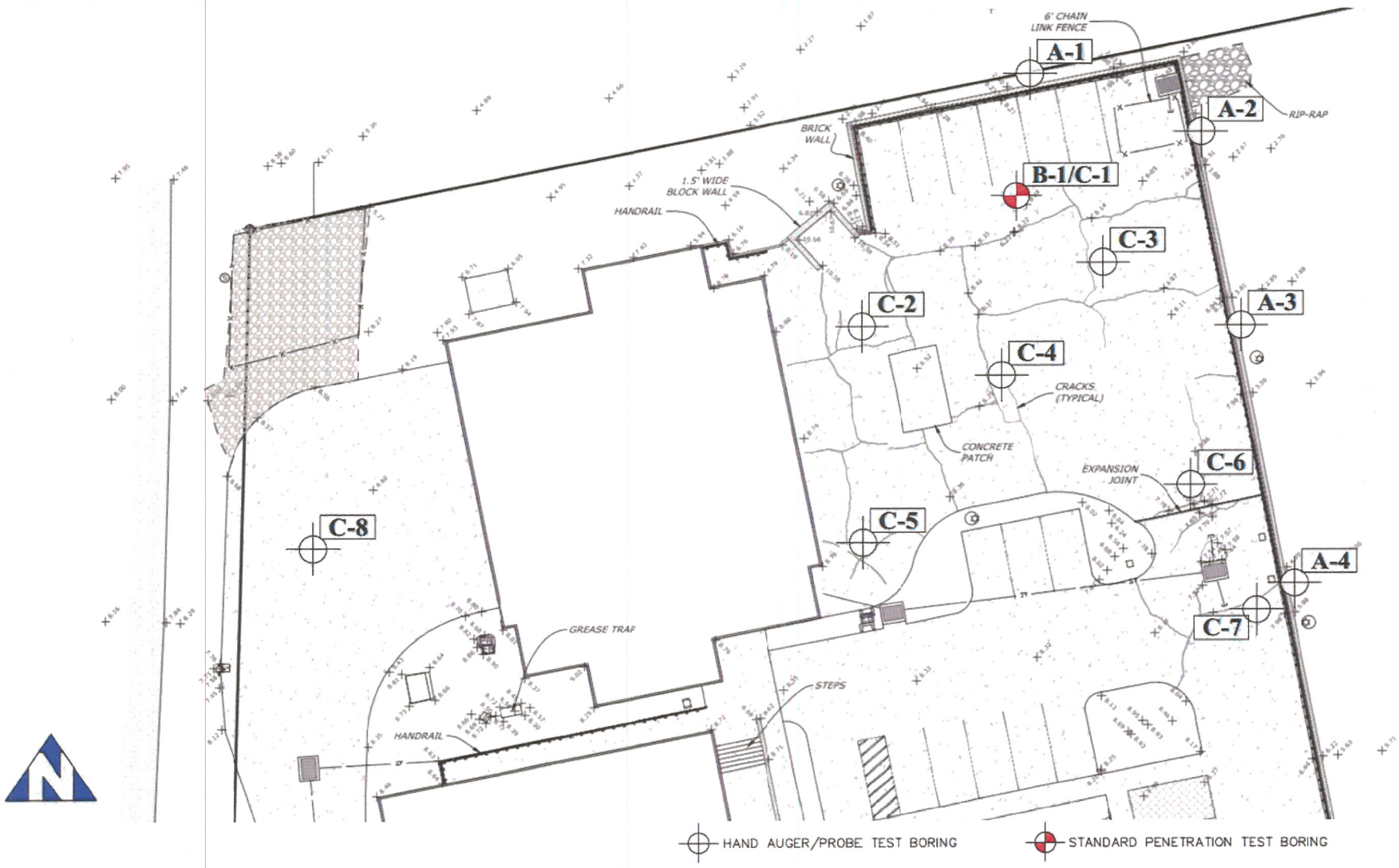
## Compaction

- Compaction of any loose or disturbed areas, pavement subgrades, and any backfill of excavated areas under the pavement should be per the requirements in the table below. We recommend 6-inch loose lifts for backfill.
- Compaction of the top 12 inches of pavement subgrade where applicable should be per the table below and should extend 5 feet beyond edges where practical.
- The sand subgrade will require substantial moisture to achieve compaction, and these soils will need to remain wet until placing the next lift of fill or placing the base material.
- The base material should be pushed out onto the compacted native soils in front of a bulldozer or other low ground pressure tracked equipment.
- Although the native sand soils would be best compacted using a large vibratory roller, this would cause a concern with damaging the shallow founded buildings and is therefore not recommended.
- Compaction should be achieved using a large mechanical plate tamper with a minimum dead weight of 300 lb or a small vibratory roller.
- Compaction of the pavement subgrade and base should be verified by using in-place density testing at a minimum frequency of one test on each per 5,000 $ft^2$ of pavement area. Each 12-inch increment of backfill should also be tested.

**Compaction Recommendations**

| Site Element | Minimum Compaction | Proctor Type | ASTM |
|---|---|---|---|
| Under top 12 inches of Pavement Subgrade | 95% | Modified | D1557 |
| Top 12 inches of Pavement Subgrade | 98% | | |
| Graded Aggregate Base Material | 100% | | |

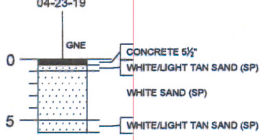
## Boring Locations




ALL BORING LOCATIONS ARE APPROXIMATE

# Borings

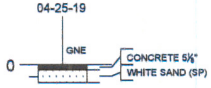
## C-2
04-23-19




NOTE: ½" VOID
WIRE MESH 1" FROM BOTTOM

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 5½ | 2½ |
| 12 | 1 |
| 24 | 15 |
| 48 | 3 |
| 54 | 1 |
| 60 | 1 |

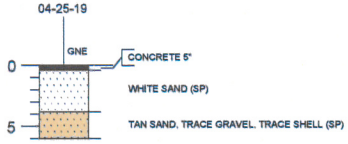
## C-3
04-25-19




NOTE: BORING TERMINATED AT 1½ FEET DUE TO PIPE
WIRE MESH ⅝"-¾" FROM BOTTOM

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 5⅝ | 2½ |
| 12 | 2½ |

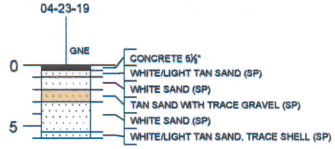
## C-4
04-25-19




NOTE: LIME ROCK LEVELING PAD APPROXIMATELY 8" BELOW SURFACE
WIRE MESH ¾"-1¼" FROM BOTTOM

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 5 | ¼ |
| 12 | ¼ |
| 18 | ¼ |
| 24 | ¼ |
| 30 | ¼ |
| 36 | ¼ |
| 42 | ¼ |

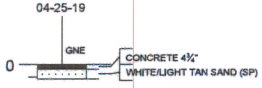
## C-5
04-23-19




NOTE: NO VISIBLE MESH

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 5½ | 6 |
| 12 | 12 |
| 18 | 1 |
| 24 | 1 |
| 30 | 1 |
| 36 | 1 |
| 42 | 1 |
| 48 | ⅞ |

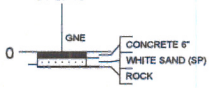
## C-6
04-25-19




NOTE: BORING TERMINATED AT 14", FABRIC ENCOUNTERED
NO VISIBLE MESH WIRE

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 4¾ | 4 |

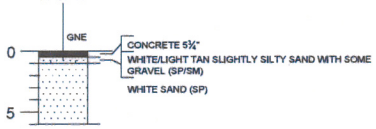
## C-7
04-25-19




NOTE: BORING TERMINATED AT 14" DUE TO ROCK
WIRE MESH 1¼"-1½" FROM BOTTOM

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 6 | ¼ |

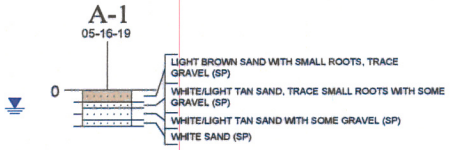
## C-8
04-25-19




NOTE: WIRE MESH 1¼" FROM BOTTOM

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 5¼ | ¼ |
| 36 | 2 |
| 42 | 2 |
| 48 | 2 |
| 54 | 12 |

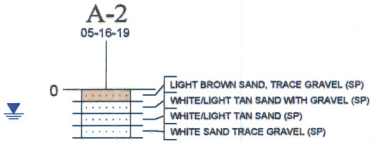
## A-1
05-16-19




NOTE: LIME ROCK LEVELING PAD APPROXIMATELY 14" BELOW SURFACE

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 0 | 18 |
| 18 | 0.5 |
| 24 | 4 |
| 36 | 2 |

## A-2
05-16-19




NOTE: LIME ROCK LEVELING PAD APPROXIMATELY 16" BELOW SURFACE

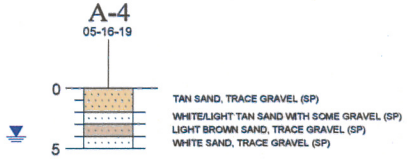
| DEPTH (IN) | PROBE (IN) |
|---|---|
| 0 | 20 |
| 24 | 2 |
| 30 | 2 |
| 36 | 3 |
| 42 | 3 |

## A-3
05-16-19


NOTE: LIME ROCK LEVELING PAD NOT ENCOUNTERED

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 0 | 12 |
| 12 | 5 |
| 18 | 5 |
| 24 | 3 |
| 30 | 3 |
| 36 | 4 |
| 42 | 4 |

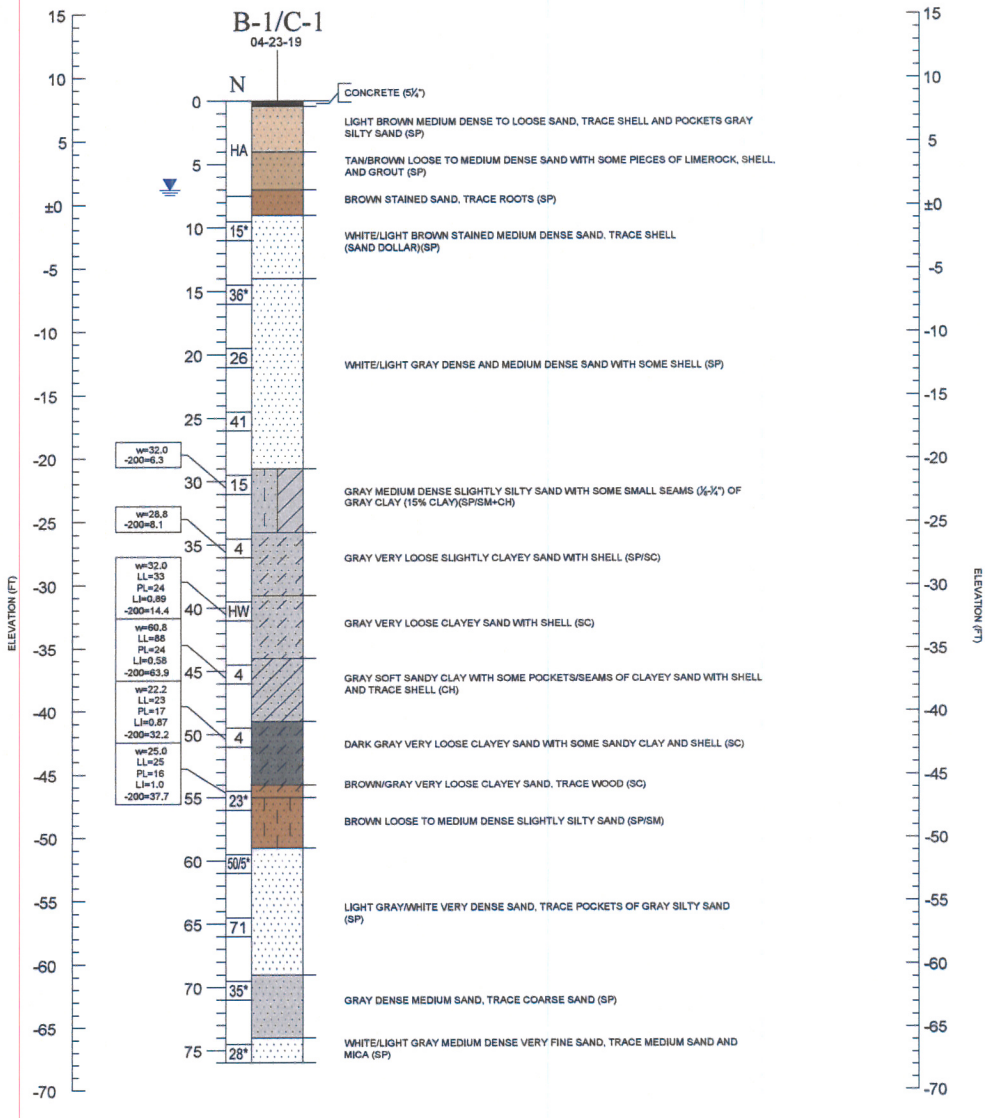
## A-4
05-16-19




NOTE: LIME ROCK LEVELING PAD APPROXIMATELY 8" BELOW SURFACE

| DEPTH (IN) | PROBE (IN) |
|---|---|
| 0 | 12 |
| 12 | 3 |
| 18 | 3 |
| 24 | 2 |
| 30 | 2 |
| 36 | 2 |
| 42 | 1 |
| 48 | 1 |

NOTE: BORINGS A-1 THROUGH A-4 DRILLED APPROXIMATELY 12-18" OFF OF MSE WALL FACE AND DRILLED AT APPROXIMATELY 45 DEGREE ANGLE UNDER THE WALL.




| DEPTH (IN) | PROBE (IN) |
|---|---|
| 5¼ | 0 |
| 12 | 0 |
| 18 | 1 |
| 24 | 1 |
| 30 | 4 |
| 36 | 6 |
| 42 | 6 |
| 48 | 2 |
| 54 | 1 |
| 60 | 1 |
| 66 | 1 |
| 72 | 1 |
| 78 | 1 |
| 84 | 1 |
| 90 | 1 |

*HAMMER BLOWS:
10 FT SAMPLE: 11/9/6
15 FT SAMPLE: 10/13/23
55 FT SAMPLE: 2/5/18
60 FT SAMPLE: 23/38/50/5"
70 FT SAMPLE: 8/16/19
75 FT SAMPLE: 8/13/15

NOTE: WIRE MESH ON BOTTOM

## Test Results

Laboratory testing for this project included compressive strength testing of the concrete cores, two consolidation tests on Shelby tube samples, and basic properties tests on the split spoon samples. The basic properties testing included natural moisture content, Atterberg Limits, and wash #200 sieve testing, and these results are shown on the boring logs adjacent to the samples tested. The results of the Atterberg limits tests are summarized in the following table.

**Atterberg Limits Test Results**

| Boring | Sample Depth (ft) | Sample Description | Natural Moisture Content (%) | Liquid Limit | Plastic Limit | Liquidity Index | % Fines |
|---|---|---|---|---|---|---|---|
| B-1 | 39.5-41 | Gray Clayey Sand with Shell | 32.0 | 33 | 24 | 0.89 | 14.4 |
| B-1 | 44.5-46 | Gray Sandy Clay | 60.8 | 88 | 24 | 0.58 | 63.9 |
| B-1 | 49.5-51 | Dark Gray Clayey Sand with Shell | 22.2 | 23 | 17 | 0.87 | 32.2 |
| B-1 | 54.5-55 | Brown/Gray Clayey Sand, Tr. Wood | 25.0 | 25 | 16 | 1.0 | 37.7 |

The results of the consolidation tests are shown in the consolidation test reports included in the Appendix. The in situ or in place current overburden soil pressure ($P_o$) was estimated using the results of the boring and our experience with similar soils. The consolidation test results are summarized in the following **Table.**

**Consolidation Test Results Summary**

| Boring | Sample Depth (ft) | Sample Description | Overburden Pressure, $P_o$ (Ton/ft$^2$) | Preconsolidation Pressure $P_c$, (Ton/ft$^2$) | Compression Index, $C_c$ |
|---|---|---|---|---|---|
| B-1 | 43-45 | Gray Sandy Clay w/ Shell | 1.1 | 1.3 | 0.35 |
| B-1 | 49-51 | Dk Gray Clayey Sand w/ Shell | 1.4 | 1.4 | 0.23 |

Based on the results of the consolidation tests, the samples tested were *normally consolidated.*

The results of the compressive strength testing of the cores are summarized in the following table. The compressive strengths were corrected to account for the length/diameter ratio.

**Core Compressive Strength Test Results**

| Core | Thickness (in) | | Diameter (in) | Area (in$^2$) | Total Load (lb) | Length Diameter Ratio | Correction Factor | Compressive Strength (psi) |
|---|---|---|---|---|---|---|---|---|
| | Original | Trimmed | | | | | | |
| C-1 | 5 1/4 | 4.78 | 3.68 | 10.6 | 53685 | 1.30 | 0.92 | 4640 |
| C-2 | 5 1/2 | 5.1 | 3.69 | 10.7 | 57265 | 1.38 | 0.94 | 5030 |
| C-3 | 5 1/8 | 4.45 | 3.71 | 10.8 | 66565 | 1.20 | 0.91 | 5600 |
| C-4 | 5 | 4.25 | 3.71 | 10.8 | 74860 | 1.15 | 0.9 | 6230 |
| C-5 | 5 1/8 | 4.69 | 3.70 | 10.8 | 57610 | 1.27 | 0.92 | 4930 |
| C-6 | 4 7/8 | 3.89 | 3.70 | 10.8 | 101120 | 1.05 | 0.84 | 7900 |
| C-7 | 6 | 5.02 | 3.71 | 10.8 | 82715 | 1.35 | 0.93 | 7110 |
| C-8 | 5 3/4 | 5.26 | 3.69 | 10.7 | 76445 | 1.43 | 0.94 | 6720 |

## Basis of Recommendations

Recommendations rendered herein are based on assumed and/or design information available at the time of this report, the subsurface conditions encountered in the test borings, generally accepted geotechnical engineering principles and practices, and our experience with similar soil and groundwater conditions. Should final project information or existing conditions differ from the information used in this report, or should any soil conditions not discussed in this report be encountered during construction, our office should be notified and retained so that this report can be modified as needed. LMJ should be provided the final plans and specifications for review to determine if any changes to our report are needed based on the final design and that our recommendations have been properly interpreted.

This report and any correspondence are intended for the exclusive use of our client for the specific application to the project discussed. LMJ is not responsible for the interpretations, conclusions, or recommendations made by others based on the information in this report.

Regardless of the care exercised in performing a Geotechnical Exploration, the possibility always exists that soil and/or groundwater conditions will differ from those encountered at the specific boring locations. In addition, construction operations may alter the soil conditions. Therefore, it is recommended that a representative from LMJ be involved during the construction phases discussed in this report.

## Test Methods

### Standard Penetration Test

The Standard Penetration Test (SPT) consists of driving a 2-inch diameter split spoon sampler into the ground using a 140-pound hammer dropped 30 inches. The number of blows required to drive the sampler one foot (after seating it 6 inches) is referred to as the blow count or "N" value and represents the relative density of subsurface soils. "N" values can be found on the boring logs. The SPT boring was drilled in general accordance with ASTM D1586 using a truck mounted drill rig and was advanced between sampling using the "mud" rotary drilling method. Each sample was removed from the sampler, classified in the field by the driller, and packaged for visual classification by our engineering staff and laboratory testing. An SPT Auto hammer was used.

### Auger Borings

The auger borings were drilled by manually turning a 3-inch diameter, 6-inch long sampler/auger into the soil until it was full. The auger borings were probed using a steel probe rod to approximate the in-place soil density. The procedure was repeated until the final boring depth of 5 feet was reached. Samples were packaged for visual classification by our engineering staff and for laboratory testing.

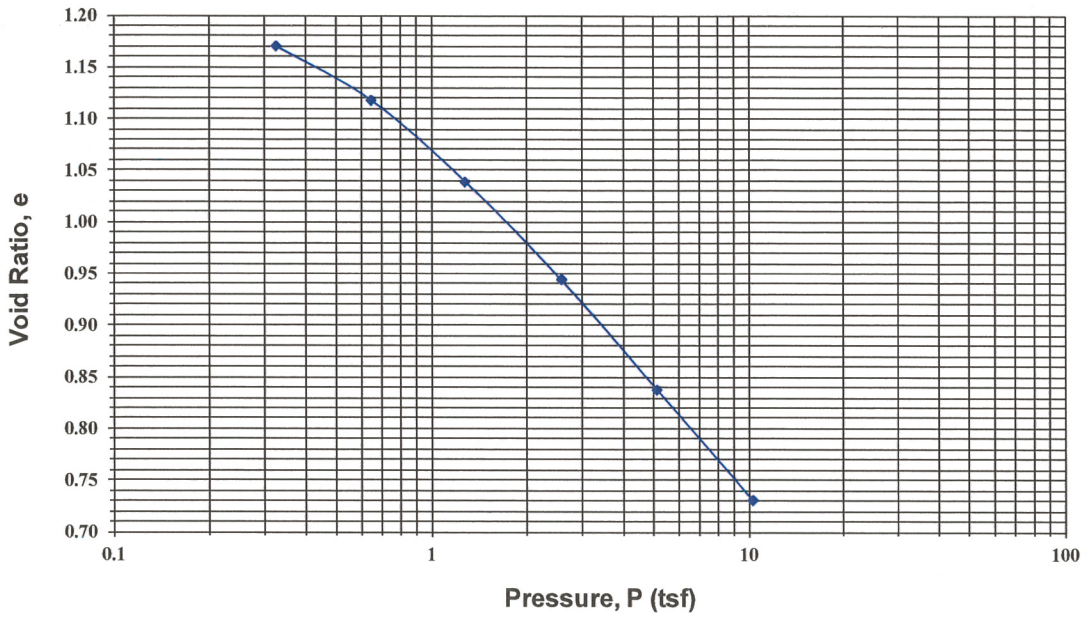
## Test Methods (cont.)

### Consolidation Test

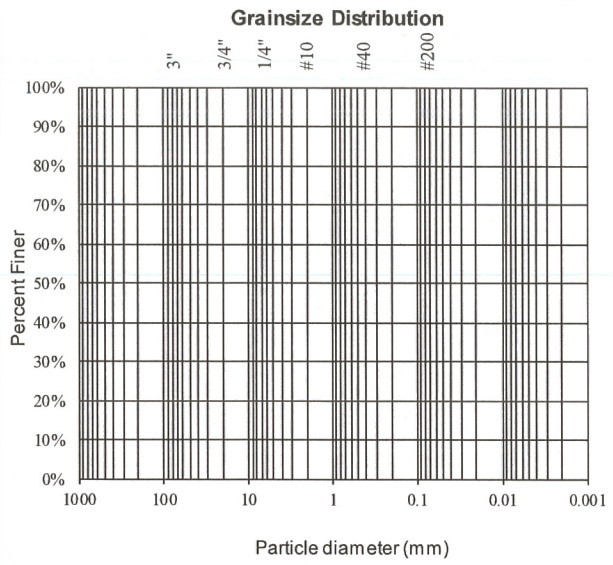
The consolidation tests were performed in general accordance with ASTM D2453. The samples were extruded from the Shelby tubes using a hydraulic ram, and the test specimens were obtained by carefully pushing a beveled ring into the extruded samples. The ring and specimens were placed into the consolidation machine with a porous stone placed on the top and bottom of each specimen. The specimens were then loaded axially, and corresponding deflection readings were taken at specific increasing time increments for a minimum period of about 24 hours. The load on the specimens was then doubled, deflection readings were taken, and the procedure was repeated until the desired limit of stress on the clay was reached. At all times during the test, the specimens were kept submerged in water.

### Other Test Methods

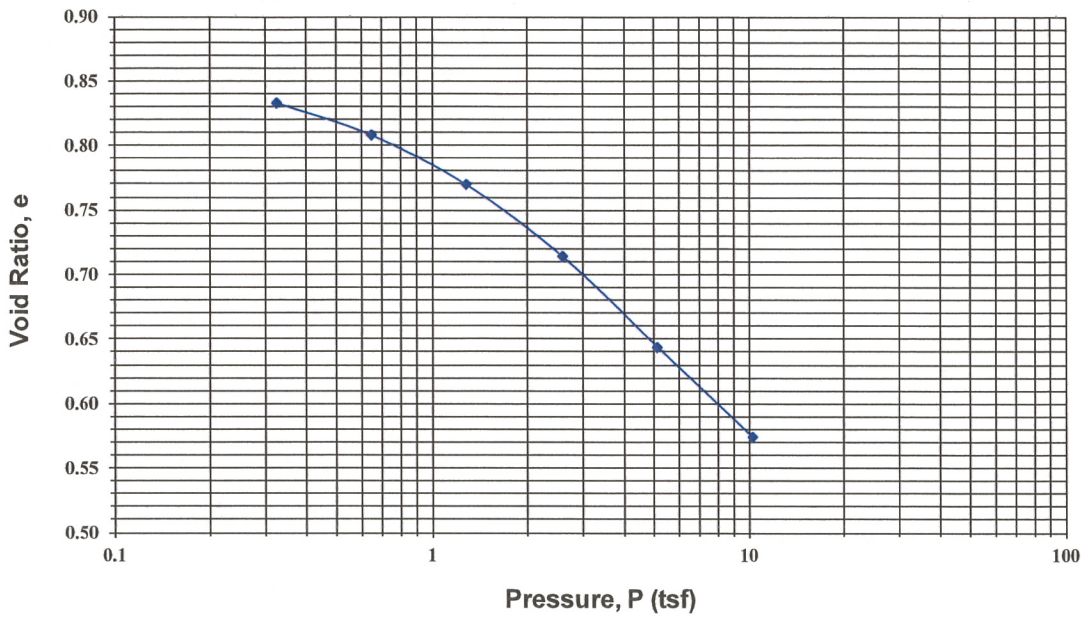
Atterberg Limits (ASTM D4318), Wash #200 Sieve (ASTM D1140), Moisture (ASTM D2216), and Compressive Strength of Concrete Cores (ASTM C42).



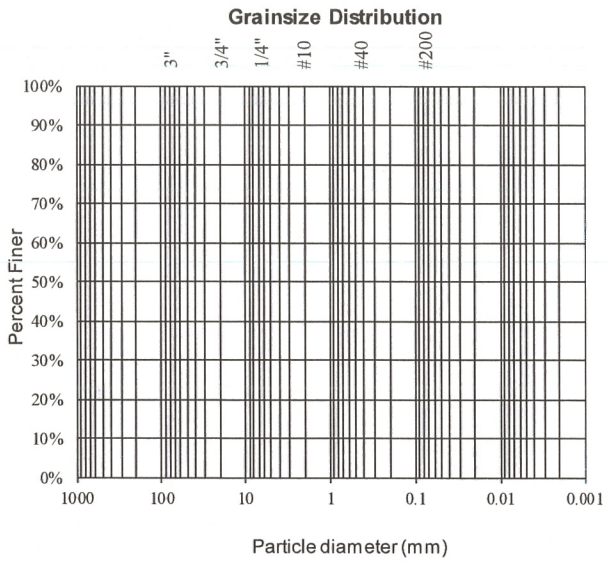

| Test Data | |
|---|---|
| Type of Specimen: Gray Clayey Sand w/ Shell (43'-45 | |
| Overburden Pressure, $P_O$ (tsf): 1.3 | |
| Preconsol Pressure, $P_C$ (tsf): 1.1 | |
| Compression Index Cc: 0.35 | |
| Permeability at Initial e | |
| $K_{20}$ _____ x $10^{-}$ cm/s | |
| _____ ft/min | |
| Initial Ht (in): 1.0 | Diam. (in): 2.5 |
| Initial Saturation, $S_O$: | |
| Initial Saturation, $S_F$: | |
| Initial Dry Density (pcf): 74.3 | |
| Initial Water Content $W_O$ (%): 42.1 | |
| Remarks: | |




| | | | |
|---|---|---|---|
| | | Project: Perdido Key Fire Station | |
| | | File #: 19-149 | |
| | | Location: Escambia County | |
| | | Boring: B-1 (43-45') | Sample Type: UD |
| Classification: SC | | Date: 05/27/19 | Sample Depth (ft): 43-45 |
| LL: 35 | Gs: 2.68 | CONSOLIDATION TEST REPORT | |
| PL: 21 | LI: 1.51 | | |

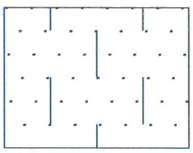


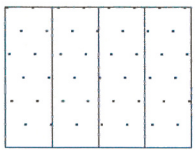

| TEST DATA |
|---|
| Type of Specimen: Dk Gray Clayey Sand w/ Shell (49 |
| Overburden Pressure, $P_O$ (tsf): 1.4 |
| Preconsol Pressure, $P_C$ (tsf): 1.4 |
| Compression Index Cc: 0.23 |
| Permeability at Initial e |
| $K_{20}$ _____ x $10^{-}$ cm/s |
| _____ ft/min |
| Initial Ht (in): 1.0 Diam. (in): 2.5 |
| Initial Saturation, $S_O$: |
| Final Saturation, $S_F$: |
| Initial Dry Density (pcf): 88.2 |
| Initial Water Content $W_O$ (%): 31.8 |
| Remarks: |

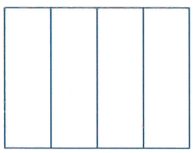



| | |
|---|---|
| | Project: Perdido Key Fire Station |
| | File #: 19-149 |
| | Location: Escambia County |
| | Boring: B-1 (49-51') Sample Type: UD |
| Classification: SANDY CLAY | Date: 05/29/19 Sample Depth (ft): 49-51 |
| LL: 31 Gs: 2.65 | CONSOLIDATION TEST REPORT |
| PL: 21 LI: 1.1 | |


SAND


SLIGHTLY SILTY SAND


SILTY SAND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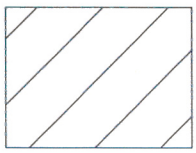
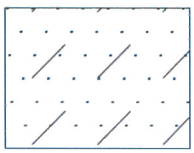
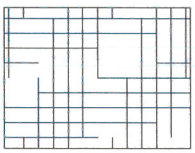
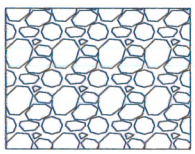

CLAY


CLAYEY SAND


PEAT


GRAVEL

**GRANULAR SOILS**

| SPT BLOWS/FOOT (N) | RELATIVE DENSITY |
|---|---|
| 0-4 | VERY LOOSE |
| 5-10 | LOOSE |
| 11-30 | MEDIUM DENSE |
| 31-50 | DENSE |
| GREATER THAN 50 | VERY DENSE |

**COHESIVE SOILS**

| SPT BLOWS/FOOT (N) | RELATIVE DENSITY |
|---|---|
| 0-2 | VERY SOFT |
| 3-4 | SOFT |
| 5-8 | MEDIUM STIFF |
| 9-16 | STIFF |
| 17-32 | VERY STIFF |
| GREATER THAN 32 | HARD |

**NOTES**

1) SPT BORINGS PERFORMED IN GENERAL ACCORDANCE WITH ASTM D1586
2) SUBSURFACE CONDITIONS ARE AT BORING LOCATIONS AND ACTUAL CONDITIONSBETWEEN BORINGS MAY VARY
3) ALL CLASSIFICATIONS ARE BASED ON VISUAL EXAMINATION UNLESS ACCOMPANIED BY LABORATORY TEST RESULTS
4) BOUNDARIES BETWEEN SOIL LAYERS SHOULD BE CONSIDERED APPROXIMATE AS THE ACTUAL TRANSITION MAY BE GRADUAL
5) DEPTH OF BORING IS BELOW EXISTING GRADE AT TIME OF DRILLING
6) ELEVATIONS, IF SHOWN, WERE ESTIMATED FROM PROVIDED TOPOGRAPHIC SURVEY

GNE
GROUNDWATER NOT ENCOUNTERED AT TIME OF DRILLING

N
STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT

ENCOUNTERED GROUNDWATER LEVEL

ENCOUNTERED PERCHED WATER LEVEL

50/2"
NUMBER OF BLOWS REQUIRED (50) TO ADVANCE SPLIT SPOON SAMPLER A SPECIFIC DISTANCE (2) INCHES

HW
SPLIT SPOON SAMPLE ADVANCED UNDER WEIGHT OF ROD AND HAMMER

HA
HAND AUGER

SHELBY TUBE SAMPLER

**w**
NATURAL MOISTURE CONTENT (%)

-200
FINES PASSING #200 SIEVE (%)

O.C.
ORGANIC CONTENT (%)

LL
LIQUID LIMIT

PL
PLASTIC LIMIT

LI
LIQUIDITY INDEX

C≈
APPROXIMATE COHESION VALUE (PSF) BASED ON POCKET PENETROMETER READINGS

**$K_v$**
SATURATED VERTICAL HYDRAULIC CONDUCTIVITY (FT/DAY)

$\gamma_d$
DRY UNIT WEIGHT (PCF)

$\gamma_m$
ESTIMATED MOIST UNIT WEIGHT (PCF)

$\gamma_b$
ESTIMATED BUOYANT UNIT WEIGHT (PCF)

$\phi$
ESTIMATED ANGLE OF INTERNAL FRICTION (DEGREES)

# APPENDIX B

# 2011 CIVIL BID DOCUMENTS

# CONSTRUCTION PLANS
# FOR
# PERDIDO KEY FIRE STATION

## SECTION 33 – T3S – R32W, ESC. CO., FLA.

## GENERAL NOTES

* CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING SPILLS OF POTENTIALLY HAZARDOUS SUBSTANCES (ie. GASOLINE, DIESEL FUEL, HYDRAULIC FLUID ETC.) TO THE APPROPRIATE STATE (FDEP STATE WARNING POINT 1-800-320-0519) AND LOCAL (ESCAMBIA COUNTY HEALTH DEPT./ENVIRONMENTAL HEALTH 595-6712) AGENCIES.
* ALL DISTURBED AREAS (NOT PAVED) TO BE STABILIZED WITH SEED, FERTILIZER AND MULCH, HYDROSEED AND/OR SOD.
* ALL LANDSCAPE AND SOD/GRASS AREAS SHALL BE FULLY IRRIGATED. SEE ARCHITECTURAL DRAWINGS FOR LANDSCAPE PLAN.
* TREES NOT BEING REMOVED SHALL BE PROTECTED PER COUNTY ORD. 7.01.04
* ALL TREE PROTECTION BARRICADES SHALL BE PLACED PRIOR TO COMMENCEMENT OF ANY SITE WORK, INCLUDING LAND CLEARING, AND SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT.
* ALL SITE DRAINAGE INCLUDING ROOF DRAINS, DOWN SPOUTS, OR GUTTERS ARE TO BE ROUTED TO CARRY ALL STORMWATER TO RETENTION/DETENTION AREAS.
* THE LOCATIONS OF KNOWN UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
* THE CONTRACTOR SHALL INSTALL PRIOR TO THE START OF CONSTRUCTION AND MAINTAIN DURING CONSTRUCTION ALL SEDIMENT CONTROL MEASURES AS REQUIRED TO RETAIN ALL SEDIMENTS ON THE SITE. IMPROPER SEDIMENT CONTROL MEASURES MAY RESULT IN CODE ENFORCEMENT VIOLATION.
* RETENTION SYSTEM AREAS SHALL BE SUBSTANTIALLY COMPLETE PRIOR TO ANY CONSTRUCTION ACTIVITIES THAT MAY INCREASE STORM WATER RUNOFF RATES. THE CONTRACTOR SHALL CONTROL STORMWATER DURING ALL PHASES OF CONSTRUCTION AND TAKE ADEQUATE MEASURES TO PREVENT THE RETENTION SYSTEM FROM BLINDING DUE TO SEDIMENTS.
* DEVELOPER/CONTRACTOR SHALL CLEAN OUT ACCUMULATED SILT AND STABILIZE RETENTION SYSTEM AT THE END OF CONSTRUCTION WHEN ALL DISTURBED AREAS HAVE BEEN STABILIZED AND PRIOR TO REQUEST FOR INSPECTION.
* CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS DURING CONSTRUCTION WHICH SHOWS AS BUILT CONDITION OF ALL WORK INCLUDING PIPING, DRAINAGE BASINS, STRUCTURES, ETC. THESE RECORD DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO REQUESTING A FINAL INSPECTION.
* ALL COMBINATIONS OF FREE STANDING AND/OR WALL MOUNTED SIGNS SHALL NOT EXCEED 1.5 x LENGTH OF PROPERTY FRONTAGE x 50%. SEE SITE DATA. TOTAL WALL SIGN AREA IS ADDITIONALLY LIMITED TO 10% OF THE AREA OF WALL SURFACE FACING PERDIDO KEY DRIVE AND MAY NOT EXCEED 200 SF. FREESTANDING SIGNAGE IS ADDITIONALLY LIMITED TO ONE (1) SIGN PER STREET FRONTAGE, A MAXIMUM 20 FEET IN HEIGHT AND 100 SF FOR LAFITTE REEF AND A MAXIMUM 35 FEET IN HEIGHT AND 200 SF FOR PERDIDO KEY DRIVE. THERE MUST BE A MINIMUM 10 FOOT SETBACK FROM RIGHTS-OF-WAY, AND MUST MAINTAIN VISUAL CLEARANCE ALONG RIGHTS-OF-WAY AND AT INTERSECTIONS. ALL SIGNS MUST HAVE A MINIMUM SPACING OF 200 FEET. A VALID ESCAMBIA COUNTY SIGN PERMIT MUST BE OBTAINED PRIOR TO ERECTING, CONSTRUCTING, ALTERING, OR RELOCATING ANY SITE SIGNAGE.
* SOLID WASTE SHALL BE KEPT IN AN APPROVED DUMPSTER.
* ANY DAMAGE TO EXISTING ROADS DURING CONSTRUCTION WILL BE REPAIRED BY THE DEVELOPER PRIOR TO FINAL "AS-BUILT" SIGN-OFF FROM THE COUNTY.
* THE OWNER OR HIS AGENT SHALL ARRANGE/SCHEDULE WITH THE COUNTY A FINAL INSPECTION OF THE DEVELOPMENT UPON COMPLETION AND ANY INTERMEDIATE INSPECTIONS AT (850) 595-3434. AS-BUILT CERTIFICATION IS REQUIRED PRIOR TO REQUEST FOR FINAL APPROVAL.
* THE PROJECT ENGINEER MUST PROVIDE TO ESCAMBIA COUNTY RETENTION/ DETENTION POND AS-BUILT RECORD DRAWINGS FOR VERIFICATION AND APPROVAL BY ESCAMBIA COUNTY ONE WEEK PRIOR TO REQUESTING A CERTIFICATE OF OCCUPANCY, OR PROVIDE "AS-BUILT CERTIFICATION" THAT THE PROJECT CONSTRUCTION ADHERES TO THE PERMITTED PLANS AND SPECIFICATIONS. AS-BUILT DRAWINGS SHALL INCLUDE TOPO OF POND VERIFYING VOLUME, OUTLET STRUCTURE DETAILS, AND HYDROLOGY STUDY ON AS-BUILT DATA. BOTH AS-BUILT CERTIFICATION AND AND AS-BUILT RECORD DRAWINGS MUST BE SIGNED SEALED AND DATED BY A REGISTERED FLORIDA PROFESSIONAL ENGINEER.
* THE CONTRACTOR SHALL NOTIFY F.D.O.T. 48 HOURS IN ADVANCE PRIOR TO ANY WORK IN THE STATE RIGHTS-OF-WAY.
* THE "CONTRACTOR'S NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION" FORM MUST BE DELIVERED OR FAXED TO THE E.C.U.A. ENGINEERING DEPT. AT LEAST 2 (TWO) E.C.U.A. BUSINESS DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION. FAILURE OF THE CONTRACTOR TO PROVIDE PROPER INFORMATION PRIOR TO COMMENCEMENT OF CONSTRUCTION IS A VIOLATION OF E.C.U.A.'S RULES AND REGULATIONS, AND IS SUBJECT TO FINES AND PENALTIES.
* THIS PROJECT SHALL BE BUILT IN ONE PHASE.
* NOTIFY SUNSHINE UTILITIES 48 HOURS IN ADVANCE PRIOR TO DIGGING WITHIN R/W; 1-800-432-4770.
* ALL ASPECTS OF THE STORMWATER/DRAINAGE COMPONENTS AND/OR TRANSPORTATION COMPONENTS SHALL BE COMPLETED PRIOR TO ISSUANCE OF A FINAL CERTIFICATE OF OCCUPANCY.
* NO DEVIATIONS OR REVISIONS FROM THESE PLANS BY THE CONTRACTOR SHALL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND NOTIFICATION OF THE ESCAMBIA COUNTY ENGINEERING SERVICES DIVISION. ANY DEVIATIONS MAY RESULT IN DELAYS IN OBTAINING A CERTIFICATE OF OCCUPANCY.
* CONTRACTOR IS TO PROVIDE PERFORMANCE BOND FOR ALL WORK PERMITTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. (F.D.O.T.)
* NO LANE CLOSURES BETWEEN THE HOURS OF 6:00 a.m. AND 8:00 p.m. NO LANE CLOSURES ON HOLIDAY WEEKENDS, INCLUDING THE DAY PRECEDING AND FOLLOWING.
* THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL AND STATE REGULATIONS CONCERNING NOTIFICATION TO THE REGULATORY AUTHORITIES OF ANY AND ALL BUILDING RENOVATIONS AND/OR DEMOLITION.
* THE OWNER AND CONTRACTOR(S) WILL BE REQUIRED TO FILE NPDES GENERAL PERMIT WITH THE FDEP AT LEAST 30 DAYS PRIOR TO CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE EROSION AND SEDIMENTATION BEST MANAGEMENT PRACTICES DURING CONSTRUCTION. THOSE SHOWN ON THE PLANS ARE THE MINIMUM CONTROL MEASURES TO BE TAKEN. THE CONTRACTOR SHALL INSPECT AND REPAIR, DURING CONSTRUCTION, ALL EROSION/SEDIMENT CONTROL STRUCTURES PER FDEP AND EPA STANDARDS. THE CONTRACTOR SHALL EMPLOY A CERTIFIED FLORIDA STORM WATER EROSION/SEDIMENTATION INSPECTOR AND MAKE ANY AND ALL REQUIRED INSPECTIONS AS NECESSARY PER FDEP AND EPA STANDARDS.
* ALL NEW SEWER EXTENSIONS TO THE ECUA SYSTEM MUST UNDERGO ACCEPTANCE TESTING IN ACCORDANCE WITH SECTION 2570, PARAGRAPH 4.1 OF THE ECUA ENGINEERING MANUAL.
* THE CONTRACTOR SHALL COMPLY WITH "THE CONTRACTOR QUALITY CONTROL GENERAL REQUIREMENTS" FOUND IN SECTION 105 OF THE "2007 FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".
* PROPERTY SHOWN HEREON LIES IN ZONE AO DEPTH 1'. FLOOD DEPTHS OF 1 TO 3 FEET (USUALLY SHEET FLOW ON SLOPING TERRAIN); AVERAGE DEPTHS DETERMINED. FLOOD ZONE LINES AND BOUNDARY LINES DELINEATING "OTHERWISE PROTECTED AREAS (OPAs)" AND "OTHER FLOOD AREAS" DEPICTED ON THIS SURVEY WERE SCALED FROM NATIONAL FLOOD INSURANCE RATE MAP FOR ESCAMBIA COUNTY, FLORIDA, AND UNINCORPORATED AREAS, MAP NUMBER 12033 C 0511 G, REVISED SEPTEMBER 29, 2006.
* ALL MATERIAL TO BE INTRODUCED TO PERDIDO KEY MUST BE APPROVED BEFORE BEING RELOCATED (LDC 12.05.03.A.B.C.). ALL UNCOVERED OR EXPOSED "PROHIBITED MATERIAL" MUST BE IMMEDIATELY REMOVED FROM THE SITE AND RELOCATED OFF PERDIDO KEY, USING SUCH SAFEGUARDS AS ARE PROMULGATED BY THE DEPARTMENT TO PREVENT THE RELEASE OF SUCH MATERIALS BY WIND, WATER, OR OTHERWISE WITHIN THE PARCEL OR ONTO ADJACENT PARCELS OR WATERS (LDC 12.05.04.A). THE REMOVAL OF "PROHIBITED MATERIALS" SHALL BE REQUIRED TO A DEPTH OF TWO (2) FEET BENEATH THE PLANE OF LAND SURFACE. PROHIBITED MATERIALS ARE DEFINED IN LDC 12.05.02.
* AN ESCAMBIA COUNTY LAND DISTURBANCE PERMIT IS REQUIRED WHENEVER SAND, LIMESTONE, WHITE DOLOMITE OR OTHER CONSTRUCTION AGGREGATE IS PROPOSED TO BE IMPORTED ONTO OR TRANSFERRED ON PERDIDO KEY (LDC 12.05.00). A PERMIT APPLICATION MAY BE OBTAINED FROM ESCAMBIA COUNTY (850) 595-3475.
* ALL CURB DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
* WORK PROPOSED NEXT TO THE RIGHT-OF-WAY WITH EXISTING SWALE SYSTEMS MAY REQUIRE ADDITIONAL PROVISIONS TO REPAIR/RESTORE EXISTING DRAINAGE SWALES AS NEEDED TO ENSURE ADEQUATE DRAINAGE. RIGHT-OF-WAY SHOULDER STABILIZATION SHOULD BE IN ACCORDANCE WITH THE 2010 FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
* ALL CONSTRUCTION IN F.D.O.T. RIGHT-OF-WAY WILL BE IN ACCORDANCE WITH 2010 FDOT DESIGN STANDARDS, SPECIFICATIONS, AND UAM OR LATEST EDITION.
* CONTRACTOR SHALL OBTAIN A REQUIRED ESCAMBIA COUNTY LAND DISTURBANCE PERMIT PRIOR TO CONSTRUCTION.

## OWNER

ESCAMBIA COUNTY
100 E. BLOUNT STREET
PENSACOLA, FLORIDA 32502
PH: (850) 595-3190

## LEGAL DESCRIPTION

LEGAL DESCRIPTION OF THE LEASED PREMISES
BCC MINUTES BOOK 125 PAGE 1747

BEGINNING AT THE SOUTHEAST CORNER OF PERDIDO KEY COVES, UNIT NO. 1, A SUBDIVISION OF A PORTION OF SECTION 32, TOWNSHIP 3 SOUTH, RANGE 32 WEST, ESCAMBIA COUNTY, FLORIDA, AS RECORDED IN PLAT BOOK 7 AT PAGE 26 OF THE PUBLIC RECORDS OF SAID COUNTY, SAID POINT ALSO BEING ON THE WESTERLY LINE OF SECTION 33, TOWNSHIP 3 SOUTH, RANGE 32 WEST, ESCAMBIA COUNTY, FLORIDA; THENCE RUN NORTH 00°05'21" WEST ALONG SAID WESTERLY LINE OF SECTION 33 FOR 300.00 FEET; THENCE RUN NORTH 77°07'54" EAST FOR 300.00 FEET; THENCE RUN SOUTH 00°05'21" EAST FOR 300.00 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF S. R. 292 (100' R/W); THENCE RUN SOUTH 77°07'54" WEST ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF S. R. 292 FOR 300.00 FEET TO THE POINT OF BEGINNING. ALL LYING AND BEING IN SECTION 33, TOWNSHIP 3 SOUTH, RANGE 32 WEST, ESCAMBIA COUNTY, FLORIDA, AND CONTAINING 2.00 ACRES, MORE OR LESS.


engineering services provided by:

jhi jehle-halstead, inc.
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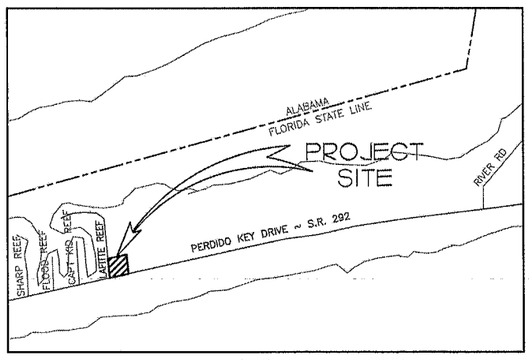



VICINITY MAP
SECTION 33, TOWNSHIP 3-S, RANGE 32-W

| SHEET | DESCRIPTION |
|---|---|
| C-1 OF 10 | CIVIL COVER SHEET/INDEX |
| C-2 OF 10 | CIVIL SITE PLAN |
| C-3 OF 10 | CIVIL DEMOLITION PLAN |
| C-4 OF 10 | CIVIL GRADING PLAN |
| C-5 OF 10 | CIVIL UTILITY PLAN |
| C-6 OF 10 | CIVIL CONSTRUCTION DETAILS |
| C-7 OF 10 | CIVIL CONSTRUCTION DETAILS |
| C-8 OF 10 | CIVIL EROSION CONTROL PLAN |
| C-9 OF 10 | CIVIL CONSTRUCTION DETAILS |
| C-10 OF 10 | CIVIL M.O.T. PLAN & CONSTRUCTION DETAILS |

AUGUST, 2011

REGISTERED FLORIDA ENGINEER #43979 DATE


dag
DAG ARCHITECTS INC.
40 S. PALAFOX PLACE - STE 201
PENSACOLA, FL 32502
TELEPHONE: 850-429-9004 FAX: 850-429-9005
AA-C000745




BID DOCUMENTS

Perdido Key Fire Station and Community Center

NOT FOR CONSTRUCTION

Revision

| Date: | No. | Description: |
|---|---|---|
| 8-5-10 | | Escambia County Review Comments |
| 8-12-10 | | F.D.O.T. Comments |

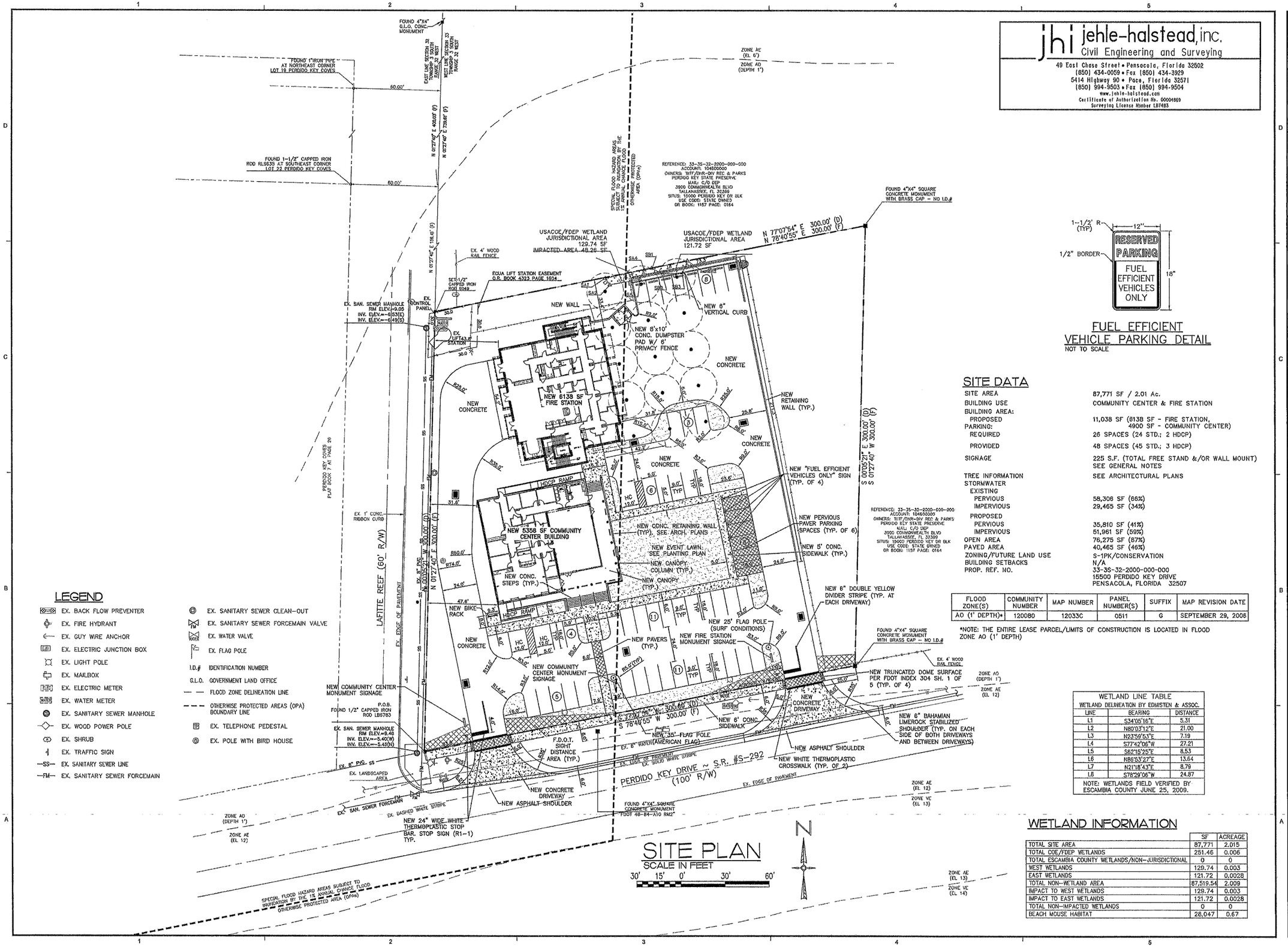
Drawn By: WEB
Checked By: GPH

Date: 09-15-11

Project No.: 08074

Drawing Title: CIVIL COVER SHEET/INDEX

Drawing No.: C-1 OF 10




## LEGEND

- EX. BACK FLOW PREVENTER
- EX. FIRE HYDRANT
- EX. GUY WIRE ANCHOR
- EX. ELECTRIC JUNCTION BOX
- EX. LIGHT POLE
- EX. MAILBOX
- EX. ELECTRIC METER
- EX. WATER METER
- EX. SANITARY SEWER MANHOLE
- EX. WOOD POWER POLE
- EX. SHRUB
- EX. TRAFFIC SIGN
- EX. SANITARY SEWER LINE
- EX. SANITARY SEWER FORCEMAIN
- EX. SANITARY SEWER CLEAN-OUT
- EX. SANITARY SEWER FORCEMAIN VALVE
- EX. WATER VALVE
- EX. FLAG POLE
- I.D.# IDENTIFICATION NUMBER
- G.L.O. GOVERNMENT LAND OFFICE
- FLOOD ZONE DELINEATION LINE
- OTHERWISE PROTECTED AREAS (OPA) BOUNDARY LINE
- EX. TELEPHONE PEDESTAL
- EX. POLE WITH BIRD HOUSE

## SITE PLAN

SCALE IN FEET

30' 15' 0' 30' 60'

N




## FUEL EFFICIENT VEHICLE PARKING DETAIL

NOT TO SCALE

## SITE DATA

| | |
|---|---|
| SITE AREA | 87,771 SF / 2.01 Ac. |
| BUILDING USE | COMMUNITY CENTER & FIRE STATION |
| BUILDING AREA: PROPOSED | 11,038 SF (8138 SF - FIRE STATION, 4900 SF - COMMUNITY CENTER) |
| PARKING: REQUIRED | 26 SPACES (24 STD.; 2 HDCP) |
| PROVIDED | 48 SPACES (45 STD.; 3 HDCP) |
| SIGNAGE | 225 S.F. (TOTAL FREE STAND &/OR WALL MOUNT) SEE GENERAL NOTES |
| TREE INFORMATION | SEE ARCHITECTURAL PLANS |
| STORMWATER | |
| EXISTING | |
| PERVIOUS | 58,306 SF (66%) |
| IMPERVIOUS | 29,465 SF (34%) |
| PROPOSED | |
| PERVIOUS | 35,810 SF (41%) |
| IMPERVIOUS | 51,961 SF (59%) |
| OPEN AREA | 76,275 SF (87%) |
| PAVED AREA | 40,465 SF (46%) |
| ZONING/FUTURE LAND USE | S-1PK/CONSERVATION |
| BUILDING SETBACKS | N/A |
| PROP. REF. NO. | 33-3S-32-2000-000-000 |
| | 15500 PERDIDO KEY DRIVE PENSACOLA, FLORIDA 32507 |

| FLOOD ZONE(S) | COMMUNITY NUMBER | MAP NUMBER | PANEL NUMBER(S) | SUFFIX | MAP REVISION DATE |
|---|---|---|---|---|---|
| AO (1' DEPTH)* | 120080 | 12033C | 0511 | G | SEPTEMBER 29, 2006 |

*NOTE: THE ENTIRE LEASE PARCEL/LIMITS OF CONSTRUCTION IS LOCATED IN FLOOD ZONE AO (1' DEPTH)

WETLAND LINE TABLE
WETLAND DELINEATION BY EDMISTEN & ASSOC.

| LINE | BEARING | DISTANCE |
|---|---|---|
| L1 | S34°05'16"E | 5.31 |
| L2 | N80°03'12"E | 21.00 |
| L3 | N23°59'53"E | 7.19 |
| L4 | S77°42'06"W | 27.21 |
| L5 | S62°15'25"E | 8.53 |
| L6 | N86°53'27"E | 13.64 |
| L7 | N21°18'43"E | 8.79 |
| L8 | S78°29'06"W | 24.87 |

NOTE: WETLANDS FIELD VERIFIED BY ESCAMBIA COUNTY JUNE 25, 2009.

## WETLAND INFORMATION

| | SF | ACREAGE |
|---|---|---|
| TOTAL SITE AREA | 87,771 | 2.015 |
| TOTAL COE/FDEP WETLANDS | 251.46 | 0.006 |
| TOTAL ESCAMBIA COUNTY WETLANDS/NON-JURISDICTIONAL | 0 | 0 |
| WEST WETLANDS | 129.74 | 0.003 |
| EAST WETLANDS | 121.72 | 0.0028 |
| TOTAL NON-WETLAND AREA | 87,519.54 | 2.009 |
| IMPACT TO WEST WETLANDS | 129.74 | 0.003 |
| IMPACT TO EAST WETLANDS | 121.72 | 0.0028 |
| TOTAL NON-IMPACTED WETLANDS | 0 | 0 |
| BEACH MOUSE HABITAT | 28,047 | 0.67 |

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AA-C000745



BID DOCUMENTS

# Perdido Key Fire Station and Community Center

NOT FOR CONSTRUCTION

Revision

| Date: | No. | Description: |
|---|---|---|
| 8-5-10 | | Escambia County Review Comments |
| 8-12-10 | | F.D.O.T. Comments |
| 9-1-10 | | FDEP Comments |
| 11-2-10 | | Bike Rack & Fuel Efficient Parking Added |

Drawn By: WEB
Checked By: GPH

Date: 09-15-11

Project No.: 08074

Drawing Title: CIVIL SITE PLAN

Drawing No.: C-2 OF 10

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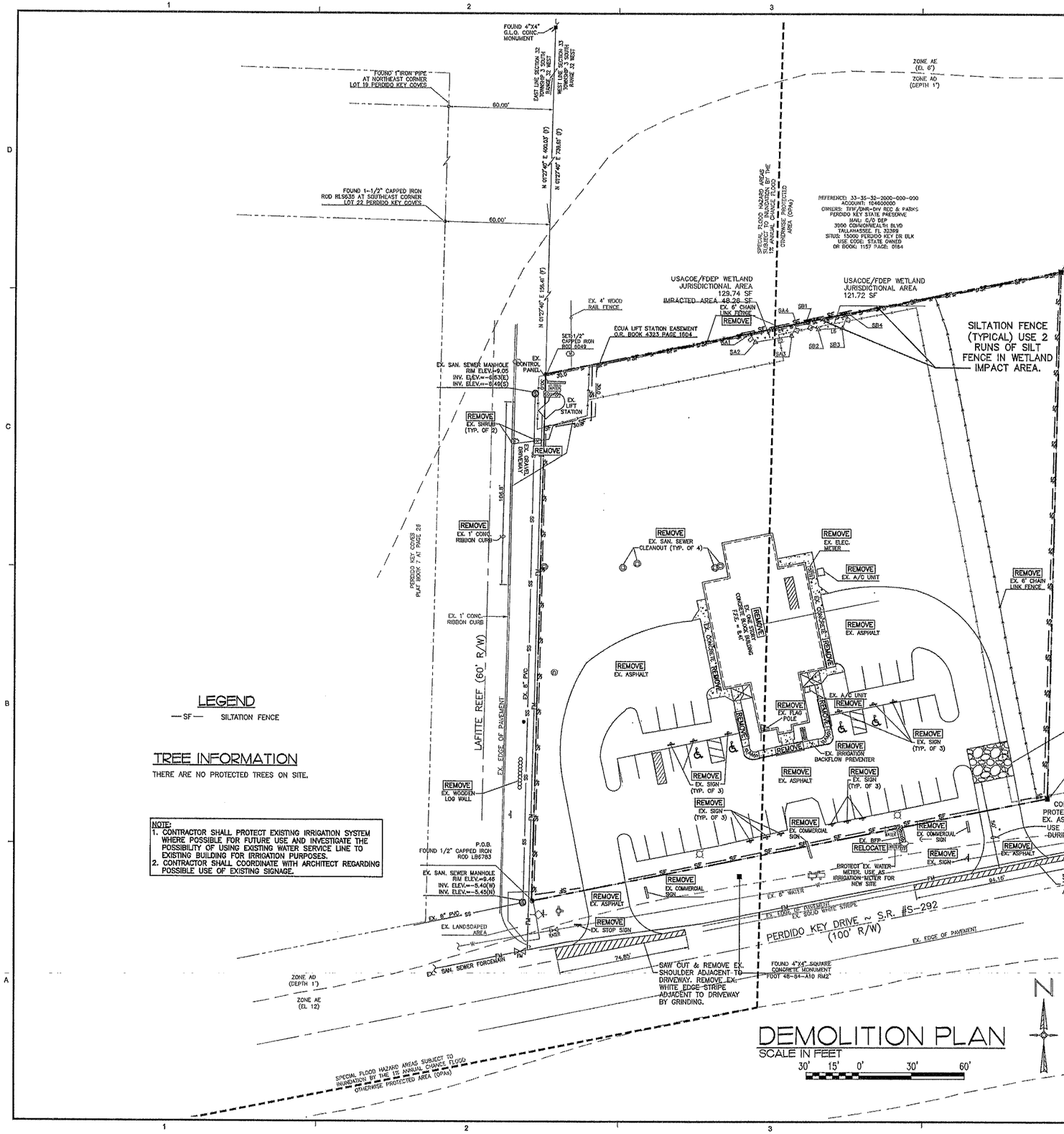


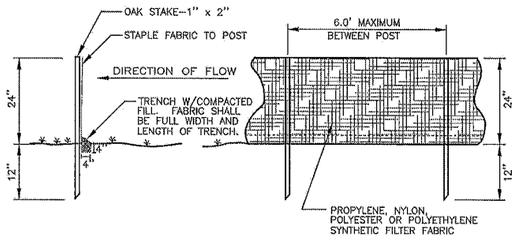

## LEGEND

—SF— SILTATION FENCE

## TREE INFORMATION

THERE ARE NO PROTECTED TREES ON SITE.

NOTE:
1. CONTRACTOR SHALL PROTECT EXISTING IRRIGATION SYSTEM WHERE POSSIBLE FOR FUTURE USE AND INVESTIGATE THE POSSIBILITY OF USING EXISTING WATER SERVICE LINE TO EXISTING BUILDING FOR IRRIGATION PURPOSES.
2. CONTRACTOR SHALL COORDINATE WITH ARCHITECT REGARDING POSSIBLE USE OF EXISTING SIGNAGE.




SILTATION FENCE DETAIL
NOT TO SCALE

NOTE: CONTRACTOR SHALL REMOVE EXISTING CHAIN LINK FENCE MANUALLY WITH EXTREME CAUTION AND MAXIMUM PROTECTION OF THE BEACHMOUSE HABITAT.

DAG ARCHITECTS INC,
40 S. PALAFOX PLACE - STE 201
PENSACOLA, FL 32502
TELEPHONE: 850-429-9004 FAX: 850-429-9005
AA-C000745



BID DOCUMENTS

# Perdido Key Fire Station and Community Center

NOT FOR CONSTRUCTION

Revision

| Date: | No. | Description: |
|---|---|---|
| 8-5-10 | | Escambia County Review Comments |
| 8-12-10 | | F.D.O.T. Comments |

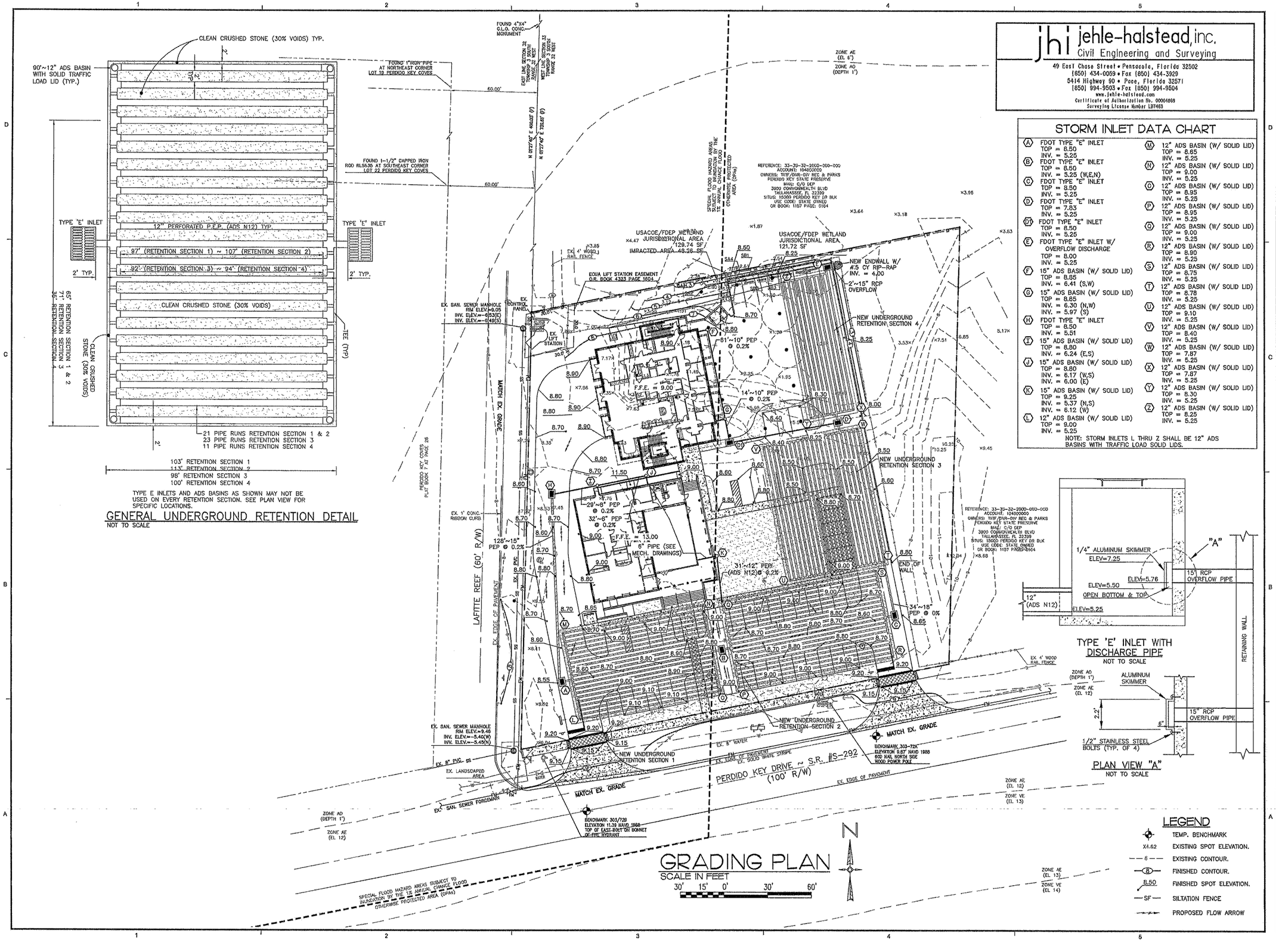
Drawn By: WEB
Checked By: GPH

Date: 09-15-11

Project No.: 08074

Drawing Title:
CIVIL DEMOLITION PLAN

Drawing No.:
C-3 OF 10




## STORM INLET DATA CHART

| | | | |
|---|---|---|---|
| A | FDOT TYPE "E" INLET TOP = 8.50 INV. = 5.25 | M | 12" ADS BASIN (W/ SOLID LID) TOP = 8.65 INV. = 5.25 |
| B | FDOT TYPE "E" INLET TOP = 8.50 INV. = 5.25 (W,E,N) | N | 12" ADS BASIN (W/ SOLID LID) TOP = 9.00 INV. = 5.25 |
| C | FDOT TYPE "E" INLET TOP = 8.50 INV. = 5.25 | O | 12" ADS BASIN (W/ SOLID LID) TOP = 8.95 INV. = 5.25 |
| D | FDOT TYPE "E" INLET TOP = 7.83 INV. = 5.25 | P | 12" ADS BASIN (W/ SOLID LID) TOP = 8.95 INV. = 5.25 |
| DY | FDOT TYPE "E" INLET TOP = 8.50 INV. = 5.25 | Q | 12" ADS BASIN (W/ SOLID LID) TOP = 9.00 INV. = 5.25 |
| E | FDOT TYPE "E" INLET W/ OVERFLOW DISCHARGE TOP = 8.00 INV. = 5.25 | R | 12" ADS BASIN (W/ SOLID LID) TOP = 8.90 INV. = 5.25 |
| F | 15" ADS BASIN (W/ SOLID LID) TOP = 8.85 INV. = 6.41 (S,W) | S | 12" ADS BASIN (W/ SOLID LID) TOP = 8.75 INV. = 5.25 |
| G | 15" ADS BASIN (W/ SOLID LID) TOP = 8.85 INV. = 6.30 (N,W) INV. = 5.97 (S) | T | 12" ADS BASIN (W/ SOLID LID) TOP = 8.78 INV. = 5.25 |
| H | FDOT TYPE "E" INLET TOP = 8.50 INV. = 5.51 | U | 12" ADS BASIN (W/ SOLID LID) TOP = 9.10 INV. = 5.25 |
| I | 15" ADS BASIN (W/ SOLID LID) TOP = 8.80 INV. = 6.24 (E,S) | V | 12" ADS BASIN (W/ SOLID LID) TOP = 8.40 INV. = 5.25 |
| J | 15" ADS BASIN (W/ SOLID LID) TOP = 8.80 INV. = 6.17 (W,S) INV. = 6.00 (E) | W | 12" ADS BASIN (W/ SOLID LID) TOP = 7.87 INV. = 5.25 |
| K | 15" ADS BASIN (W/ SOLID LID) TOP = 9.25 INV. = 5.37 (N,S) INV. = 6.12 (W) | X | 12" ADS BASIN (W/ SOLID LID) TOP = 7.87 INV. = 5.25 |
| L | 12" ADS BASIN (W/ SOLID LID) TOP = 9.00 INV. = 5.25 | Y | 12" ADS BASIN (W/ SOLID LID) TOP = 8.30 INV. = 5.25 |
| | | Z | 12" ADS BASIN (W/ SOLID LID) TOP = 8.25 INV. = 5.25 |

NOTE: STORM INLETS L THRU Z SHALL BE 12" ADS BASINS WITH TRAFFIC LOAD SOLID LIDS.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www.jehle-halstead.com
Certificate of Authorization No. 00004869
Surveying License Number LB7463

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BID DOCUMENTS

# Perdido Key Fire Station and Community Center

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Revision

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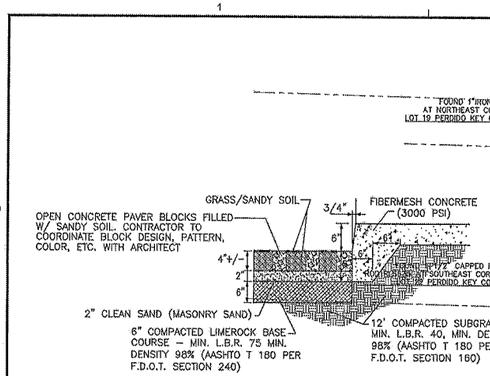
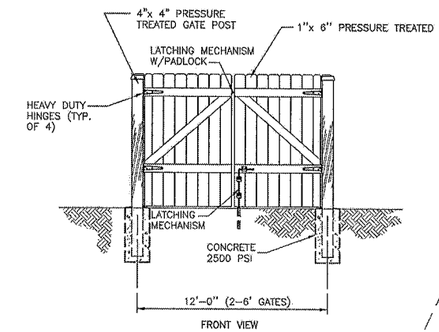
| 8-5-10 | | Escambia County Review Comments |
| 8-12-10 | | F.D.O.T. Comments |
| 9-1-10 | | FDEP Comments |
| 11-2-10 | | Bike Rack & Post Efficient Parking Added |

Drawn By: WEB
Checked By: GPH
Date: 09-15-11
Project No.: 08074
Drawing Title: CIVIL GRADING PLAN
Drawing No.: C-4 OF 10




## GRASSCRETE BLOCK PAVER DETAIL

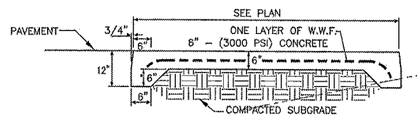
NOT TO SCALE




NOTE: CLEAR SIDE TO FACE OUT

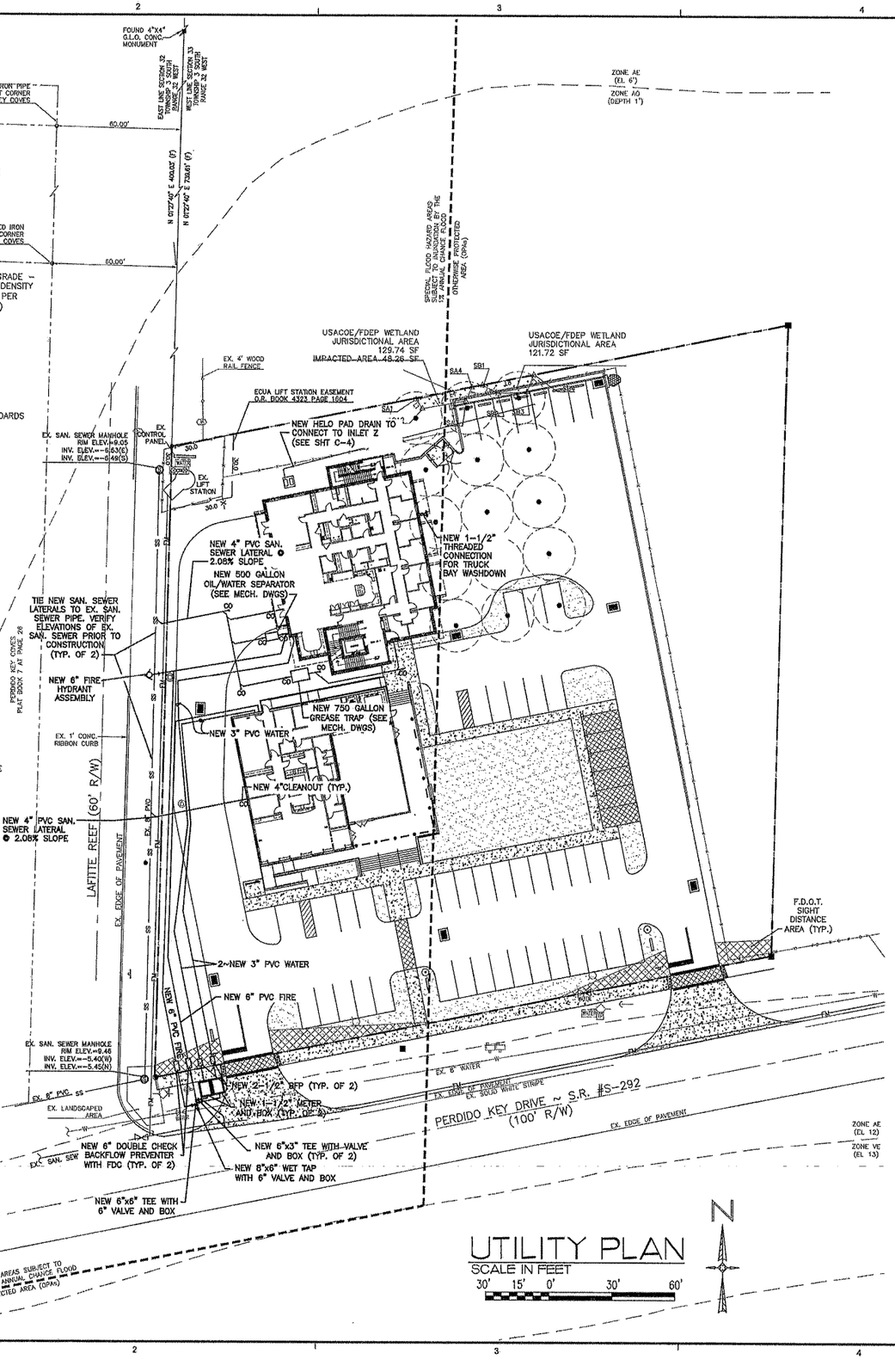
## DUMPSTER ENCLOSURE

NOT TO SCALE




## DUMPSTER PAD DETAIL

NOT TO SCALE

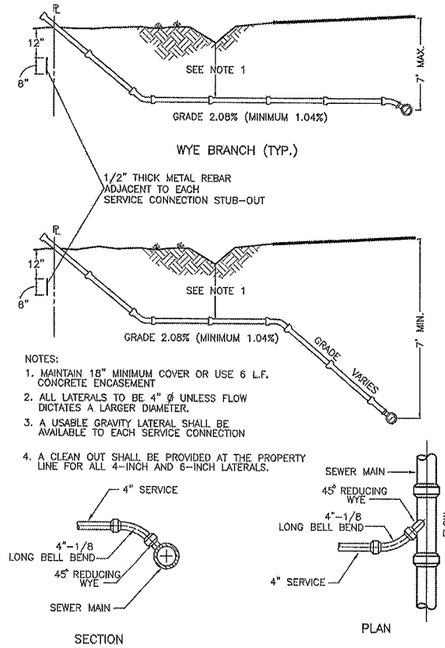



## UTILITY PLAN

SCALE IN FEET

30' 15' 0' 30' 60'

N

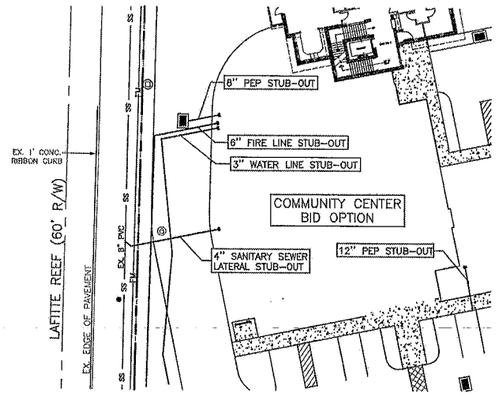



NOTES:

1. MAINTAIN 18" MINIMUM COVER OR USE 6 L.F. CONCRETE ENCASEMENT
2. ALL LATERALS TO BE 4" Ø UNLESS FLOW DICTATES A LARGER DIAMETER.
3. A USABLE GRAVITY LATERAL SHALL BE AVAILABLE TO EACH SERVICE CONNECTION
4. A CLEAN OUT SHALL BE PROVIDED AT THE PROPERTY LINE FOR ALL 4-INCH AND 6-INCH LATERALS.

## TYPICAL LATERAL SEWER CONNECTION

NOT TO SCALE




## BID OPTION

SCALE IN FEET

30' 15' 0' 30' 60'

N

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BID DOCUMENTS

# Perdido Key Fire Station and Community Center

NOT FOR CONSTRUCTION

Revision

| Date: | No. | Description |
|---|---|---|
| 8-5-10 | | Escambia County Review Comments |
| 9-12-10 | | F.D.O.T. Comments |
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Drawn By: WEB
Checked By: GPH

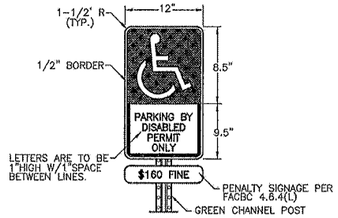
Date: 09-15-11

Project No.: 08074

Drawing Title:

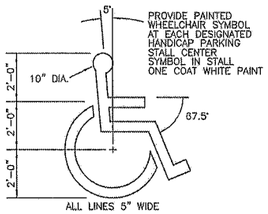
CIVIL UTILITY PLAN

Drawing No.: C-5 OF 10




1. TOP PORTION OF SIGN SHALL HAVE A REFLECTIVE BLUE BACKGROUND W/WHITE REFLECTIVE SYMBOL & BORDER.
2. BOTTOM PORTION SHALL HAVE A REFLECTIVE WHITE BACKGROUND W/BLACK OPAQUE LEGEND & BORDER.
3. SIGN CAN BE FABRICATED ON ONE PANEL OR TWO.
4. SIGNS USED AS PER FLORIDA STATUTES 316.1955 AND 316.1956.
5. THE BOTTOM OF THE SIGN IS TO BE MOUNTED 84" (7') ABOVE GRADE.
6. HANDICAP PARKING SIGNS SHALL CONFORM WITH F.D.O.T. DESIGN STANDARDS PER"ROADWAY AND TRAFFIC DESIGN STANDARDS", INDEX #17355, SHT. 3 OF 8, FTP-25 SIGN

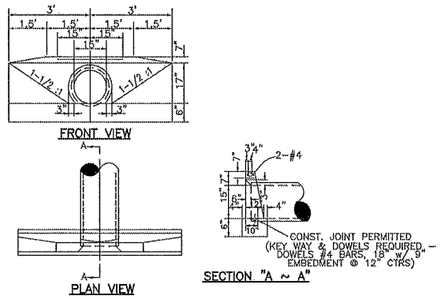
## HANDICAP SIGN DETAIL
NOT TO SCALE



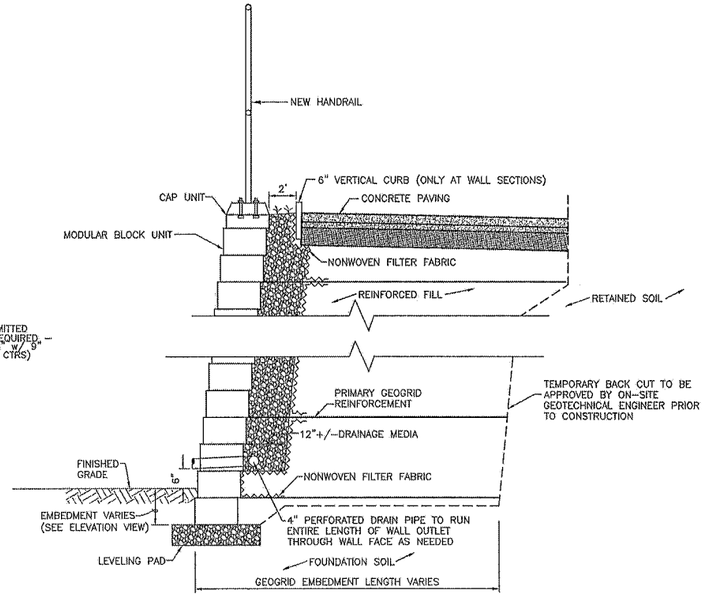

## WHEELCHAIR SYMBOL
NOT TO SCALE

HANDICAPPED PARKING NOTE

EACH SUCH PARKING SPACE SHALL BE CONSPICUOUSLY OUTLINED IN BLUE PAINT, AND SHALL BE POSTED AND MAINTAINED WITH A PERMANENT, ABOVE-GRADE SIGN BEARING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY OR THE CAPTION "PARKING BY DISABLED PERMIT ONLY" OR BEARING BOTH SUCH SYMBOL AND CAPTION. SUCH SIGN SHALL NOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE. ALL HANDICAPPED PARKING SPACES MUST BE SIGNED AND MARKED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION.



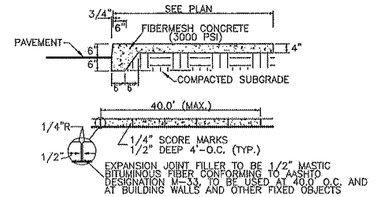

## STRAIGHT CONCRETE ENDWALL
NOT TO SCALE



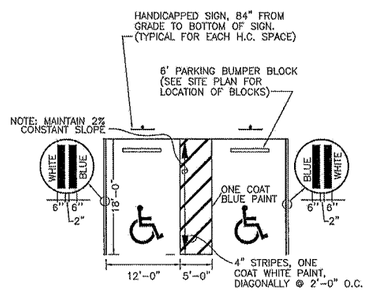

FOUNDATION REMEDIATION AS REQUIRED BY ON-SITE GEOTECHNICAL ENGINEER TO OBTAIN STABLE WORKING PLATFORM.

NOTE: THIS DETAIL IS NOT FOR CONSTRUCTION. CONTRACTOR SHALL PROVIDE TO ENGINEER DETAILED DESIGN OF THE RETAINING WALL PRIOR TO CONSTRUCTION. ALL DESIGN CALCULATIONS AND PLANS SHALL BE SIGNED AND SEALED BY A REGISTERED FLORIDA PROFESSIONAL ENGINEER.

## RETAINING WALL
## TYPICAL CROSS SECTION
NOT TO SCALE ~ NOT FOR CONSTRUCTION

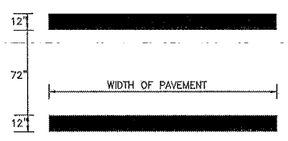



## TYPICAL TURNDOWN SIDEWALK
NOT TO SCALE

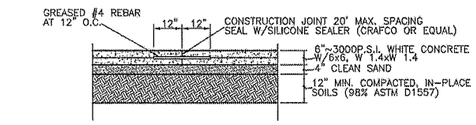



NOTE:
1. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20. (F.A.C.B.C. 4.7.2)
2. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 1:12. (F.A.C.B.C. 4.8.6)
3. THE CROSS SLOPE OF RAMP SURFACES SHALL BE NO GREATER THAN 1:50. (F.A.C.B.C. 4.8.2)
4. EACH H.C. PARKING SPACE MUST BE SIGNED AND MARKED IN ACCORDANCE WITH THE STANDARDS ACCEPTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION AND FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION.

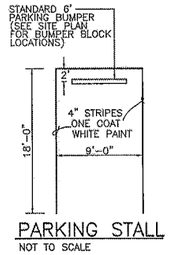
## HANDICAPPED PARKING STALL
NOT TO SCALE



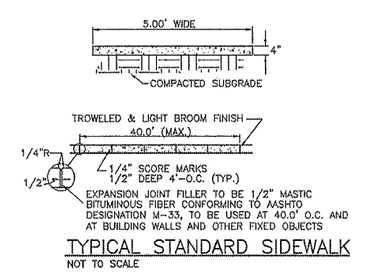

## CROSSWALK DETAIL
NOT TO SCALE



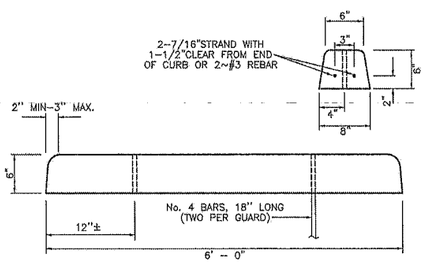

## ON-SITE WHITE CONCRETE PAVING SECTION
NOT TO SCALE



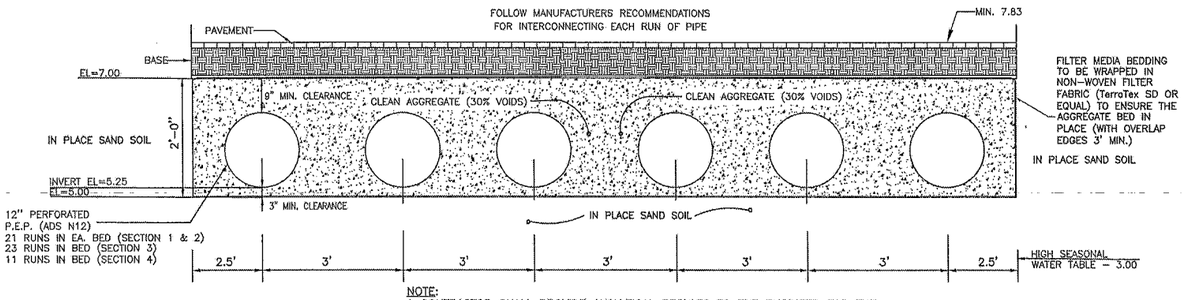

## PARKING STALL
NOT TO SCALE




## TYPICAL STANDARD SIDEWALK
NOT TO SCALE




## STANDARD BUMPER BLOCK DETAIL
NOT TO SCALE




NOTE:
* CONTRACTOR SHALL PROVIDE ANALYTICAL RESULTS TO THE ENGINEER FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE AS FOLLOWS:
1) AGGREGATE SHOULD HAVE MIN. OF 30% VOIDS WITH LESS THAN 5% FINES.

## UNDERGROUND RETENTION DETAIL (TYP.)
NOT TO SCALE

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BID DOCUMENTS

# Perdido Key Fire Station and Community Center

NOT FOR CONSTRUCTION

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| 8-12-10 | | F.D.O.T. Comments |
| 9-1-10 | | FDEP Comments |

Drawn By: WEB
Checked By: GPH

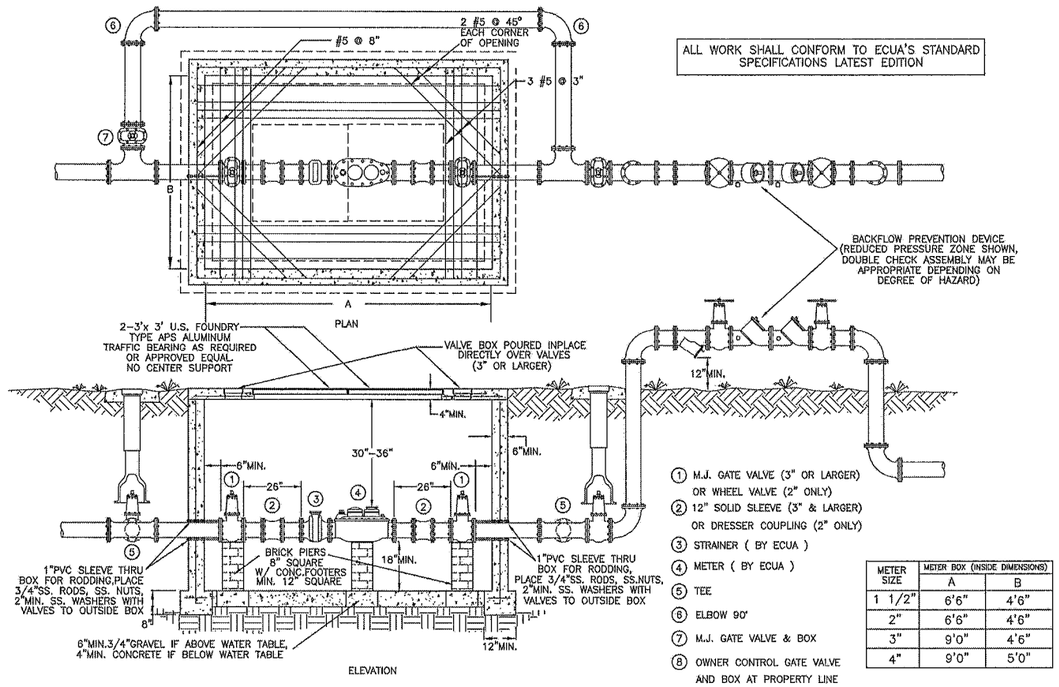
Date: 09-15-11

Project No.: 08074

Drawing Title:

CIVIL CONSTRUCTION DETAILS

Drawing No.:
C-6 OF 10

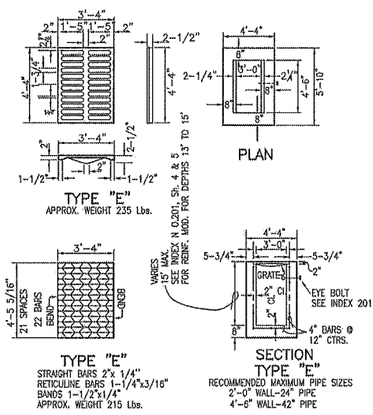



| METER SIZE | METER BOX (INSIDE DIMENSIONS) A | B |
|---|---|---|
| 1 1/2" | 6'6" | 4'6" |
| 2" | 6'6" | 4'6" |
| 3" | 9'0" | 4'6" |
| 4" | 9'0" | 5'0" |

ALL WORK SHALL CONFORM TO ECUA'S STANDARD SPECIFICATIONS LATEST EDITION

## TYPICAL COMPOUND/TURBINE METER SERVICE 1 1/2", 2", 3" AND 4", D-25

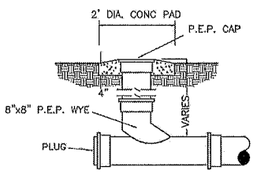
NOT TO SCALE




NOTE:
ALL INLETS SHALL HAVE ROLLOCKS POURED IN INLET BOTTOM TO PREVENT PONDING OF WATER.

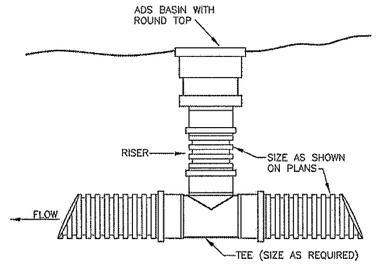
## F.D.O.T. TYPE "E" INLET~INDEX No. 232

NOT TO SCALE



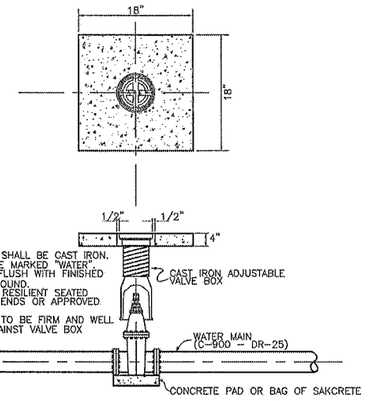

## CLEAN-OUT DETAIL

NOT TO SCALE



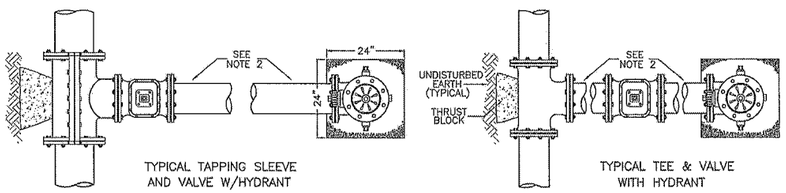

## ADS BASIN DETAIL

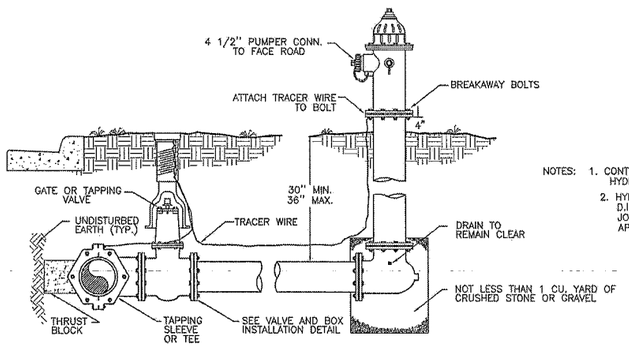
NOT TO SCALE




## TYPICAL VALVE & BOX INSTALLATION

NOT TO SCALE

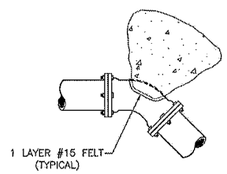



NOTES: 1. CONTRACTOR TO ADJUST FIRE HYDRANT TO FINISHED GRADE.
2. HYDRANT CONNECTORS OR D.I.P. SPOOLS WITH MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL.

## TYPICAL FIRE HYDRANT INSTALLATION: TAPPING SLEEVE & VALVE and TEE CONNECTION

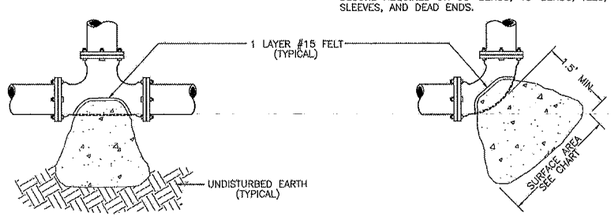
NOT TO SCALE




MINIMUM THRUST BLOCK DIMENSIONS: SURFACE AREA AGAINST UNDISTURBED SOIL

| PIPE SIZE \ FITTING | DEAD END OR TEE | 90° BEND | 45° BEND | 22.5° BEND |
|---|---|---|---|---|
| 4" | 1' X 2' | 1.5' X 1.5' | 1' X 1.5' | 1' X 1' |
| 6" | 2' X 2' | 2.5' X 2.5' | 2' X 1.5' | 1' X 1.5' |
| 8" | 2.25' X 3' | 3' X 3' | 2' X 2.5' | 1.5' X 1.5' |
| 10" | 3.5' X 3' | 4' X 3.75' | 2.75' X 3' | 2' X 2' |
| 12" | 4' X 4' | 4' X 5' | 3' X 4' | 2' X 3' |
| 16" | 5' X 6.5' | 6' X 6.5' | 4' X 5' | 3' X 3.5' |

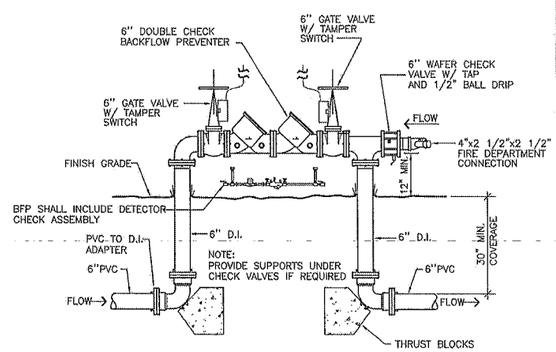
NOTES:
1. ONE LAYER OF #15 FELT TO BE USED TO PREVENT ADHESION OF CONCRETE TO FITTING.
2. ALL THRUST BLOCKS TO BE BACKED BY UNDISTURBED SOIL
3. THRUST BLOCK DIMENSIONS BASED ON SM SOIL CLASSIFICATION
4. CONCRETE MIN. 2,500 PSI.
5. JOINT RESTRAINTS ARE TO BE USED ON ALL FITTINGS. THRUST BLOCKS REQUIRED ON 90° BENDS, 45° BENDS, TEES, TAPPING SLEEVES, AND DEAD ENDS.




## TYPICAL THRUST BLOCK INSTALLATIONS, D-43

NOT TO SCALE

NOTE:
BFP TO BE ENCASED WITH PROTECTIVE FIBERGLASS ENCLOSURE




## DOUBLE CHECK BACKFLOW PREVENTER WITH FIRE DEPT. CONNECTION

NOT TO SCALE

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AA-C000745



BID DOCUMENTS

# Perdido Key Fire Station and Community Center

NOT FOR CONSTRUCTION

Revision

| Date: | No. | Description: |
|---|---|---|
| 8-6-10 | | Escambia County Review Comments |
| 8-12-10 | | F.D.O.T. Comments |

Drawn By: WEB
Checked By: GPH

Date: 09-15-11

Project No.: 08074

Drawing Title:

CIVIL CONSTRUCTION DETAILS

Drawing No.: C-7 OF 10

GENERAL NOTES FOR EROSION AND SEDIMENT CONTROL

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION (PRIOR TO CONSTRUCTION) AND MAINTENANCE/REPAIRS OF (DURING CONSTRUCTION) EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED TO RETAIN ALL SEDIMENT AND EROSION ON THE SITE OF DEVELOPMENT. THE PROVISIONS SHOWN HEREIN REPRESENT THE MINIMUM EROSION CONTROL MEASURES TO BE TAKEN.
2. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMITS OF CONSTRUCTION OR ONTO PUBLIC RIGHTS-OF-WAY WILL BE REMOVED IMMEDIATELY.
3. ALL AREAS OF DISTURBANCE SHALL BE TREATED AS APPROPRIATE TO PREVENT THE GENERATION OF DUST.
4. AT THE TIME OF SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT PERMANENT COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR PERMANENT COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION SHALL BE EMPLOYED (I.E. EROSION CONTROL FABRIC, RIP-RAP, ETC.).
5. THE CONTRACTOR SHALL MAKE REGULAR INSPECTIONS OF ALL CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PROCESS TO ENSURE THE OVERALL EFFECTIVENESS OF THE EROSION AND SEDIMENT CONTROL PLAN. AT A MINIMUM, INSPECTIONS MUST OCCUR AT LEAST ONCE A WEEK AND WITHIN TWENTY-FOUR (24) HOURS OF THE END OF A STORM EVENT THAT IS ONE-HALF (0.50) INCH OR GREATER. ALL INSPECTIONS MUST BE DOCUMENTED PER THE NPDES STORMWATER POLLUTION PREVENTION PLAN.
6. IN THE EVENT THAT AN ON-SITE INSPECTION BY ANY PARTY REVEALS A DEFICIENCY IN THE INSTALLATION AND/OR MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REMEDIATION OF THE PROBLEM.
7. FAILURE TO COMPLY WITH THE REQUIRED EROSION AND SEDIMENT CONTROL GUIDELINES MAY RESULT IN FINES LEVIED BY GOVERNMENTAL AGENCIES. ANY FINES SUFFERED DUE TO NON-COMPLIANCE SHALL BECOME THE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING CONSTRUCTION AND SUBMITTING TO THE NWFWMD NOTICE OF CONSTRUCTION AND AS-BUILT CERTIFICATION FOR THE PROJECT WHEN COMPLETED.

SEQUENCE OF EROSION AND SEDIMENT CONTROL MEASURES IMPLEMENTATION

SITE PREPARATION
1. PRIOR TO ANY SOIL DISTURBANCE, SILT FENCE SHALL BE INSTALLED ALONG ENTIRE DOWN-GRADE PERIMETER OF PROJECT AREA, AS SHOWN IN PLANS AND DETAILS, OR BY EQUIVALENT MEASURES. SILT FENCE SHALL REMAIN IN PLACE UNTIL ALL UP-GRADE AREAS OF DISTURBANCE HAVE BEEN PERMANENTLY STABILIZED.
2. A PROPER CONSTRUCTION ENTRANCE SHALL BE ESTABLISHED AT ALL POINTS OF INGRESS/EGRESS FROM CONSTRUCTION SITE, PER DETAIL PROVIDED IN THE PLANS, OR BY EQUIVALENT MEASURES. ALL CONSTRUCTION ENTRANCES SHALL REMAIN IN PLACE UNTIL INGRESS/EGRESS FROM THE SITE AT THAT POINT HAS STOPPED.

CLEARING AND GRUBBING
1. ALL DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR MORE THAN FOURTEEN (14) DAYS, AND ARE NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL RECEIVE A TEMPORARY SEEDING IMMEDIATELY UPON DISTURBANCE. IF THE SEASON PREVENTS ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREA WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE.
2. ALL DISTURBED AREAS THAT ARE SUBJECT TO HIGH AMOUNTS OF EROSION (I.E. STEEP SLOPES, EMBANKMENTS GREATER THAN 3:1, OR OTHER AS DICTATED BY SITE CONDITIONS) SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH MULCHING WITH STRAW, OR EQUIVALENT MATERIAL, AT A THICKNESS OF TWO (2) TO FOUR (4) INCHES MIXED WITH THE TOP TWO (2) INCHES OF SOIL.
3. ALL DISTURBED AREAS SHALL, AS A MINIMUM, BE MAINTAINED BY WATER TO MINIMIZE THE GENERATION OF DUST.

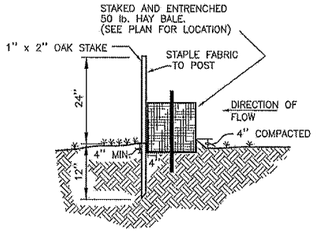
SITE GRADING
1. THE SITE SHALL, AT ALL TIMES, BE GRADED AND MAINTAINED SUCH THAT ALL STORM WATER RUNOFF IS CONTROLLED BY EROSION AND SEDIMENT CONTROL MEASURES.
2. ALL AREAS USED FOR MATERIAL STOCKPILE, BE IT FILL/EXCAVATED MATERIALS, STONE, OR OTHERWISE, ARE TO BE STABILIZED AS APPROPRIATE PER 'CLEARING AND GRUBBING' SECTION, AND SHALL HAVE SILT FENCE WITH HAY BALES INSTALLED PER THE DETAILS PROVIDED IN THE PLANS, OR BY EQUIVALENT MEASURES, AROUND THEIR ENTIRE PERIMETER.

INSTALLATION OF STORM SEWER AND UTILITIES
1. TEMPORARY OUTLET PROTECTION MUST BE INSTALLED AT ALL PROPOSED STORMWATER OUTFALLS PRIOR TO THE INSTALLATION OF THE DRAINAGE SYSTEM.
2. ALL SITE DRAINAGE, INCLUDING ROOF DRAINS, DOWN SPOUTS, GUTTERS, OR OTHERWISE SHALL BE ROUTED TO CARRY ALL STORM WATER TO THE PROPOSED STORMWATER MANAGEMENT SYSTEM(S).
3. ANY SLOPES GREATER THAN 3:1 (H:V) RECEIVING PIPELINE OR UTILITY INSTALLATION SHALL BE BACKFILLED AND STABILIZED DAILY AS THE INSTALLATION PROCEEDS.

FINAL SITEWORK
1. PERMANENT VEGETATION (I.E. SEED AND MULCH, SOD, ETC) TO BE INSTALLED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
2. UPON COMPLETION OF CONSTRUCTION, BUT PRIOR TO FINAL ACCEPTANCE, ALL CONSTRUCTION WASTE AND DEBRIS SHALL BE REMOVED FROM THE SITE AND ALL PAVED ROADWAYS AND/OR PARKING AREAS SHALL BE SWEPT CLEAN OF ALL SEDIMENT.
3. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL SUCH TIME WHEN ALL UP-GRADE AREAS HAVE BEEN PERMANENTLY STABILIZED.
4. THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR OPERATING AND MAINTAINING STORMWATER SYSTEM IN ACCORDANCE WITH NWFWMD STANDARDS AND REGULATIONS.

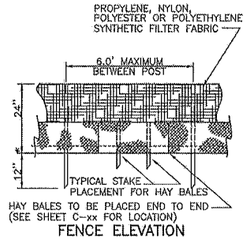
## SEQUENCE OF CONSTRUCTION

| | | |
|---|---|---|
| 0 – 5 DAYS | ~ | SITE PREPARATION |
| 6 – 12 DAYS | ~ | INSTALL PERIMETER SEDIMENT AND EROSION CONTROLS |
| 13 – 36 DAYS | ~ | DEMOLITION OF EXISTING BUILDING AND PARKING LOT |
| 37 – 60 DAYS | ~ | CLEARING/GRUBBING |
| 61 – 85 DAYS | ~ | SITE GRADING AND BUILDING PAD GRADING |
| 86 – 118 DAYS | ~ | UTILITIES, STORMWATER STRUCTURES, UNDERGROUND RETENTION POND, RETAINING WALL INSTALLATION |
| 119 – 165 DAYS | ~ | CONCRETE SLABS OF BOTH BUILDINGS |
| 166 – 235 DAYS | ~ | FRAME STRUCTURES |
| 236 – 350 DAYS | ~ | FINISH BUILDINGS |
| 351 – 415 DAYS | ~ | PAVEMENT, PARKING LOT, LANDSCAPING, STABILIZATION OF SITE |
| 416 – 420 DAYS | ~ | FINAL STRIPING AND SIGNAGE |




NOTE:
ANCHOR HAY BALES WITH 2"x2" STAKES ~ 2 PER BALE (TYP)

SECTION THROUGH FENCE

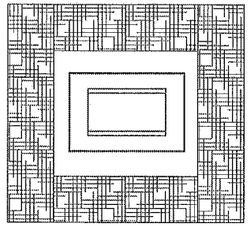



FENCE ELEVATION

## SILTATION FENCE DETAIL WITH HAY BALES

NOT TO SCALE

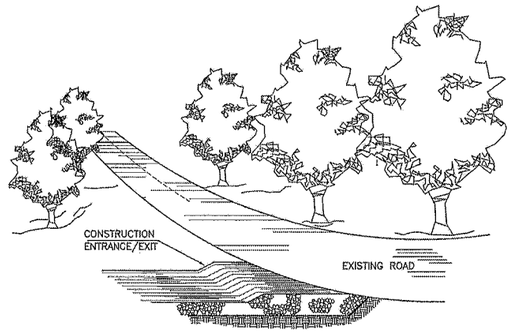
NOTE:
HAYBALES SHALL BE PLACED AT COMMENCEMENT OF CONSTRUCTION AND MAINTAINED THROUGHOUT PROJECT COMPLETION AND STABILIZATION IN ACCORDANCE WITH NWFWMD, F.D.O.T., CITY AND COUNTY STANDARDS WHERE APPLICABLE.



DITCH BOTTOM INLET

## PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

NOT TO SCALE




## CONSTRUCTION ENTRANCE/EXIT

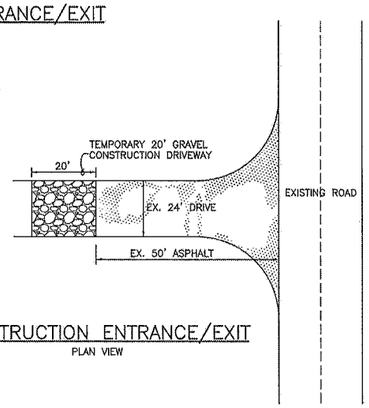
PERSPECTIVE VIEW

PURPOSE:
CONSTRUCTION ENTRANCES PROVIDE AN AREA WHERE MUD CAN BE REMOVED FROM VEHICLE TIRES BEFORE THEY ENTER A PUBLIC ROAD. THE MOTION OF THE VEHICLE AS IT MOVES OVER THE GRAVEL CONSTRUCTION MATERIAL DISLODGES CAKED MUD.

LIMITATIONS:
IF THE ACTION OF THE VEHICLE ON THE GRAVEL PAD IS NOT SUFFICIENT TO DISLODGE MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLE LEAVES THE SITE.

MATERIALS:
GRAVEL, 1.5"-3.5" (MIN.) IN DIAMETER, IS USED.

INSTALLATION:
GRAVEL LAYER SHOULD BE AT LEAST 6" THICK. THE PAD SHOULD BE AT LEAST 50' LONG. WIDTH SHOULD BE APPROPRIATE TO VEHICLE SIZE.

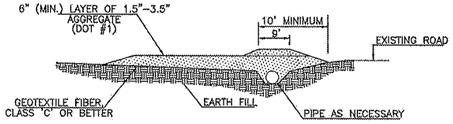



## CONSTRUCTION ENTRANCE/EXIT

PLAN VIEW

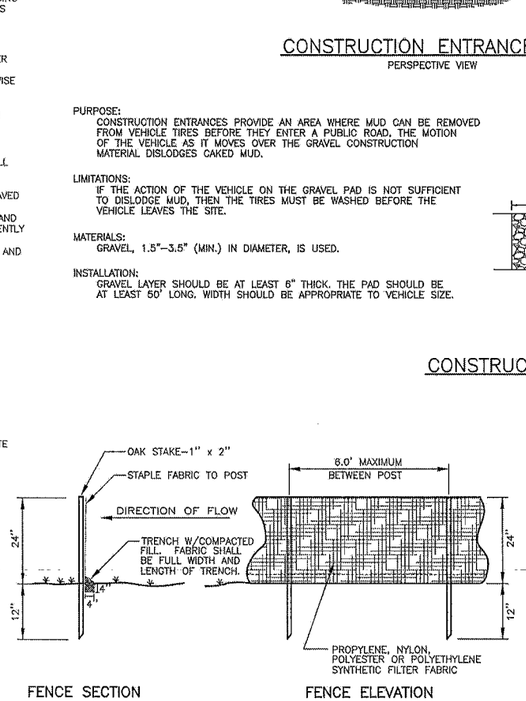
## CONSTRUCTION ENTRANCE/EXIT

NOT TO SCALE




## CONSTRUCTION ENTRANCE/EXIT

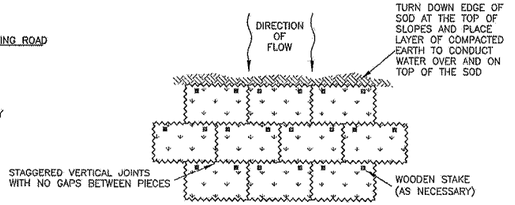
SECTION VIEW




FENCE SECTION FENCE ELEVATION

## SILTATION FENCE DETAIL

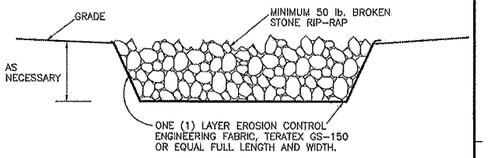
NOT TO SCALE




NOTES:
1. RIP-RAP PAD SHALL NOT BE BROKEN CONCRETE, BROKEN STONE SHALL BE ROUGHLY ANGULAR AND FREE FROM THIN OR ELONGATED PIECES.
2. TOP OF RIP-RAP TO BE FLUSH WITH FINAL GRADES.

## RIP-RAP PAD DETAIL

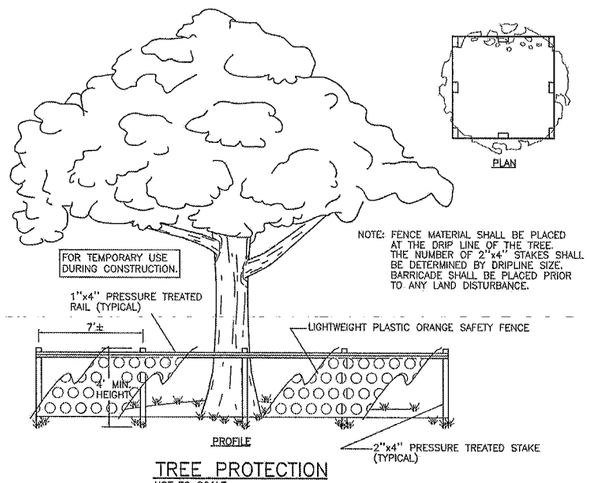
NOT TO SCALE




NOTES:
1. SEE WRITTEN SPECIFICATIONS FOR FULL DETAILS.
2. PLACE SOD BEGINNING AT THE TOE OF THE SLOPE AND LONG EDGE PERPENDICULAR TO DIRECTION OF FLOW.
3. SOD SHALL BE STAKED ON ALL SLOPES 4:1 OR STEEPER, IN AREAS OF CONCENTRATED DRAINAGE FLOWS, AND ANYWHERE THAT THERE IS DANGER OF SOD SLIPPING.

## SODDING DETAIL

NOT TO SCALE




## TREE PROTECTION

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BID DOCUMENTS

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Drawn By: WEB
Checked By: GPH

Date: 09-15-11

Project No.: 08074

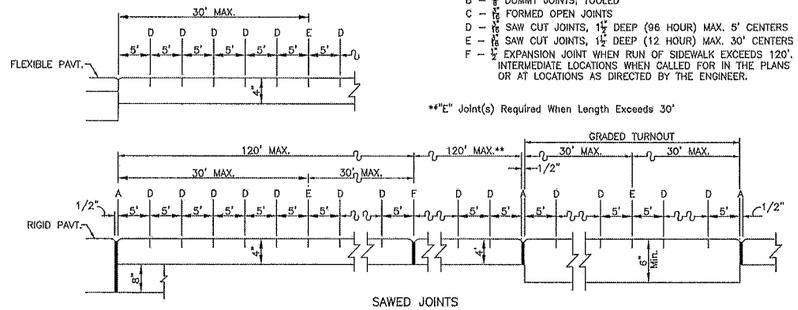
Drawing Title:

CIVIL EROSION CONTROL PLAN

Drawing No.: C-8 OF 10

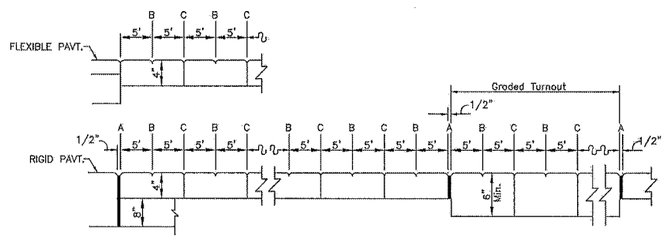
JOINT LEGEND

A – ½" EXPANSION JOINTS (PREFORMED JOINT FILLER)
B – DUMMY JOINTS, TOOLED
C – FORMED OPEN JOINTS
D – SAW CUT JOINTS, 1½" DEEP (96 HOUR) MAX. 5' CENTERS
E – SAW CUT JOINTS, 1½" DEEP (12 HOUR) MAX. 30' CENTERS
F – ½" EXPANSION JOINT WHEN RUN OF SIDEWALK EXCEEDS 120'. INTERMEDIATE LOCATIONS WHEN CALLED FOR IN THE PLANS OR AT LOCATIONS AS DIRECTED BY THE ENGINEER.




**"E" Joint(s) Required When Length Exceeds 30'

SAWED JOINTS




OPEN JOINTS

EXAGGERATED SCALE
LONGITUDINAL SECTION
SIDEWALK JOINTS

NOTES FOR CONCRETE SIDEWALKS ON UNCURBED ROADWAYS

1. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 522 OF THE FDOT STANDARD SPECIFICATIONS.

2. PROVIDE DETECTABLE WARNINGS THAT EXTEND THE FULL WIDTH OF THE SIDEWALK AND 24" DEEP FROM THE EDGE OF PAVEMENT WHERE SIDEWALKS ADJOIN THE FOLLOWING VEHICULAR WAYS:
   - –SIDE ROADS AND STREETS
   - –DRIVEWAYS WITH SIGNALIZED ENTRANCES
   - –DRIVEWAYS WITH ENTRANCE VOLUMES GREATER THAN 600VPD
   - –DRIVEWAYS WITH ENTRANCE SPEEDS OF 25MPH OR GREATER
   - –RIGHT IN/RIGHT OUT COMPOSITE DRIVEWAYS

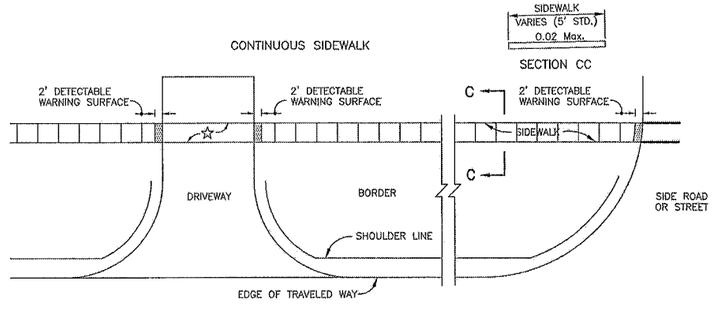
   DETECTABLE WARNING SURFACES SHALL CONFORM TO THE REQUIREMENTS DESCRIBED IN THE GENERAL NOTES OF INDEX 304, TO THE EXTENT PRACTICAL, THE ROWS OF TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE SHOULD BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE STREET, ROADWAY, OR DRIVEWAY, AS APPLICABLE.

3. FOR TURNOUTS SEE INDEX NO. 515.

4. CONSTRUCT SIDEWALKS WITH 1' THICK EDGE BEAM THROUGH THE LIMITS OF ANY SURFACE MOUNTED PEDESTRIAN/BICYCLE PICKET RAILING OR PIPE GUIDERAIL SHOWN IN THE PLANS. SEE SHEET 1 FOR DETAILS.

5. SIDEWALK SHALL BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR SIDEWALK CONCRETE (___ THICK), S.Y.

CONTINUOUS SIDEWALK



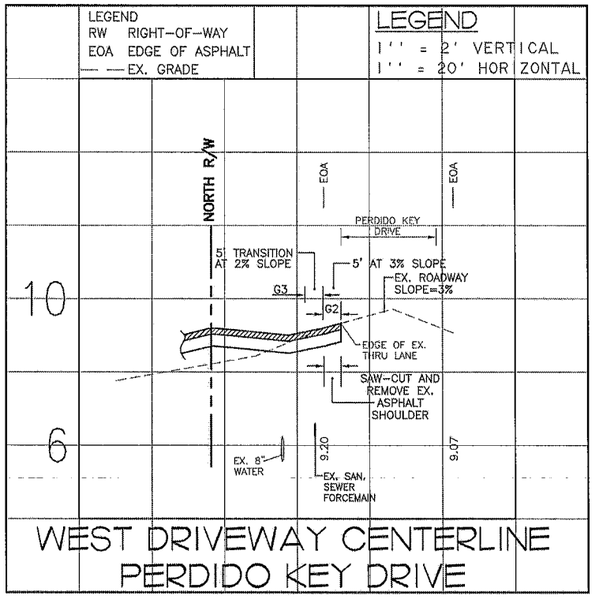

☆ WHEN DRIVEWAY IS NEW CONSTRUCTION, RECONSTRUCTION, OR ALTERED, CROSS SLOPE WITHIN THIS AREA SHALL NOT EXCEED 0.02. EXISTING DRIVEWAYS THAT ARE NOT BEING ALTERED MAY BE LEFT AS THEY ARE.

DISCONTINUOUS SIDEWALK

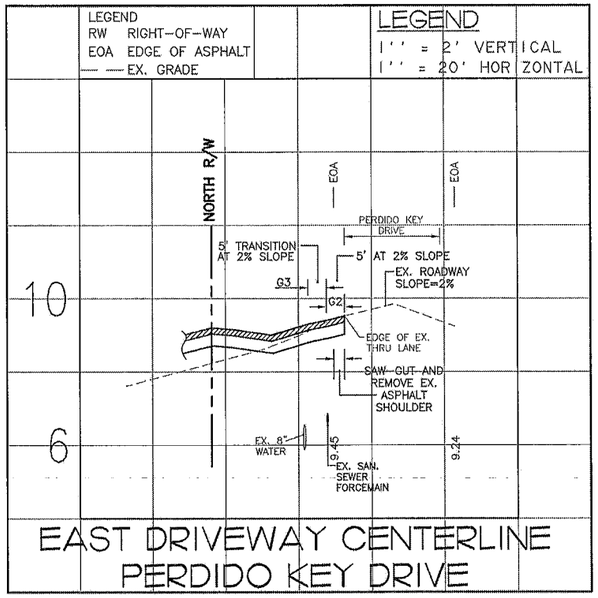
PLAN

CONCRETE SIDEWALK FOR UNCURBED ROADWAYS

CONCRETE SIDEWALK
NOT TO SCALE F.D.O.T. INDEX NO. 310 SH. 2 OF 2




WEST DRIVEWAY CENTERLINE
PERDIDO KEY DRIVE




EAST DRIVEWAY CENTERLINE
PERDIDO KEY DRIVE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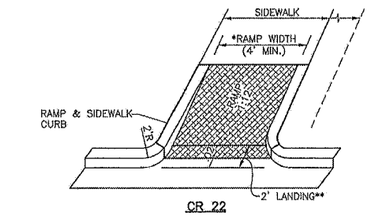
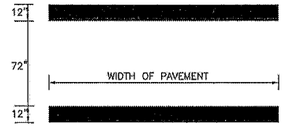



CR 22

* RAMP WIDTH MAY BE REDUCED TO 3' MIN. IN RESTRICTED CONDITIONS WHEN APPROVED BY THE ENGINEER.

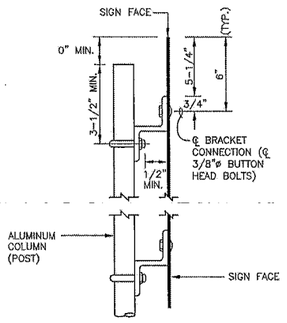
** LOWER LANDING NOT REQUIRED AT DRIVEWAYS, PARKING LOTS, OR OTHER AREAS WITH PAVEMENT CROSS-SLOPES LESS THAN 2% (0.02).

TYPICAL PUBLIC SIDEWALK CURB RAMPS
FOR LINEAR PEDESTRIAN TRAFFIC
NOT TO SCALE F.D.O.T. INDEX NO. 304, SHEET 4 OF 6

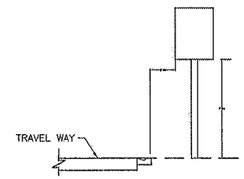



WHITE THERMOPLASTIC
PER F.D.O.T. ROADWAY & TRAFFIC DESIGN STANDARDS

CROSSWALK DETAIL
NOT TO SCALE




SINGLE COLUMN GROUND SIGNS
NOT TO SCALE F.D.O.T. INDEX NO. 11860 SH. 4 OF 8




GENERAL NOTES:
1. THE TYPICAL SECTIONS SHOWN HEREON SERVE AS A GUIDE FOR LOCATING THE TRAFFIC SIGNS REQUIRED UNDER VARIOUS ROADSIDE CONDITIONS. FOR SIZE AND DETAILS OF SIGN CONSTRUCTION AND FOOTING, REFER TO THE APPROPRIATE STANDARD INDEX DRAWING FOR ROADSIDE SIGN.

2. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY THE LENGTH OF SIGN SUPPORTS IN THE FIELD PRIOR TO FABRICATION.

3. GROUND SIGNS SHALL BE INSTALLED AT AN ANGLE OF 1 TO 4 DEGREES AWAY FROM THE TRAFFIC FLOW (SEE ILLUSTRATION). SHOULDER MOUNTED SIGNS SHALL BE ROTATED COUNTERCLOCKWISE AND MEDIAN MOUNTED SIGNS ROTATED CLOCKWISE.
SIGNS ON CURVES SHALL BE MOUNTED AS NOTED ABOVE FROM THE PERPENDICULAR TO THE MOTORIST LINE OF SIGHT.


4. THE SETBACK FOR STOP AND YIELD SIGNS MAY BE REDUCED TO 3' MINIMUM FROM THE DRIVING LANE IF REQUIRED FOR VISIBILITY IN BUSINESS OR RESIDENTIAL SECTIONS WITH NO CURB AND SPEEDS OF 30 MPH OR LESS.

5. THE MOUNTING HEIGHTS ARE MEASURED FROM THE BOTTOM OF THE SIGN PANEL TO A HORIZONTAL LINE EXTENDED FROM THE EDGE OF THE DRIVING LANE. IF THE STANDARD HEIGHTS CANNOT BE MET, THE MINIMUM HEIGHTS ARE AS FOLLOWS:

| | |
|---|---|
| EXPRESSWAY & FREEWAY SYSTEMS | 7' |
| OTHER ROADWAY SYSTEMS | |
| RURAL | 5' |
| URBAN (INCLUDING RESIDENTIAL WITH PARKING AND/OR PEDESTRIAN ACTIVITY) | 7' |

6. SIGN SUPPORTS SHOULD NEVER BE PLACED IN THE BOTTOM OF DITCHES WHERE EROSION MIGHT AFFECT THE PROPER OPERATION OF THE BREAKAWAY FEATURE.

7. SIGN SUPPORTS SHALL NOT REDUCE THE ACCESSIBLE ROUTE/ CONTINUOUS PASSAGE TO LESS THAN 4' MIN. CLEAR WIDTH AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES.

TYPICAL SECTIONS FOR PLACEMENT
OF SINGLE & MULTI-COLUMN SIGNS
NOT TO SCALE F.D.O.T. INDEX NO. 17302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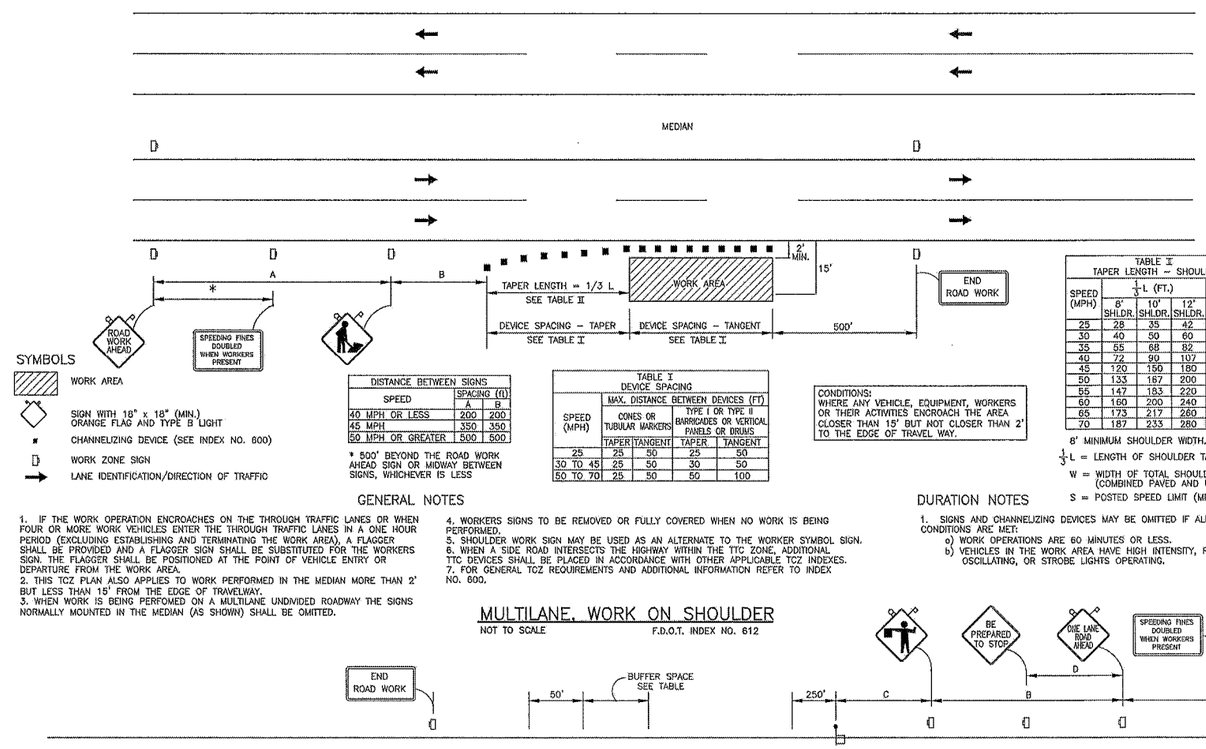
Drawing No.:
C-9 OF 10




SYMBOLS

- WORK AREA
- SIGN WITH 18" x 18" (MIN.) ORANGE FLAG AND TYPE B LIGHT
- CHANNELIZING DEVICE (SEE INDEX NO. 600)
- WORK ZONE SIGN
- LANE IDENTIFICATION/DIRECTION OF TRAFFIC

| DISTANCE BETWEEN SIGNS | | |
|---|---|---|
| SPEED | SPACING (ft) | |
| | A | B |
| 40 MPH OR LESS | 200 | 200 |
| 45 MPH | 350 | 350 |
| 50 MPH OR GREATER | 500 | 500 |

* 500' BEYOND THE ROAD WORK AHEAD SIGN OR MIDWAY BETWEEN SIGNS, WHICHEVER IS LESS

TABLE I
DEVICE SPACING

| SPEED (MPH) | MAX. DISTANCE BETWEEN DEVICES (FT) | | | |
|---|---|---|---|---|
| | CONES OR TUBULAR MARKERS | | TYPE I OR TYPE II BARRICADES OR VERTICAL PANELS OR DRUMS | |
| | TAPER | TANGENT | TAPER | TANGENT |
| 25 | 25 | 50 | 25 | 50 |
| 30 TO 45 | 25 | 50 | 30 | 50 |
| 50 TO 70 | 25 | 50 | 50 | 100 |

CONDITIONS:
WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

TABLE II
TAPER LENGTH – SHOULDER

| SPEED (MPH) | 1/3 L (FT.) 8' SHLDR. | 10' SHLDR. | 12' SHLDR. | NOTES |
|---|---|---|---|---|
| 25 | 28 | 35 | 42 | |
| 30 | 40 | 50 | 60 | L = WS²/60 |
| 35 | 55 | 68 | 82 | |
| 40 | 72 | 90 | 107 | |
| 45 | 120 | 150 | 180 | |
| 50 | 133 | 167 | 200 | |
| 55 | 147 | 183 | 220 | L = WS |
| 60 | 160 | 200 | 240 | |
| 65 | 173 | 217 | 260 | |
| 70 | 187 | 233 | 280 | |

8' MINIMUM SHOULDER WIDTH.
1/3 L = LENGTH OF SHOULDER TAPER IN FEET
W = WIDTH OF TOTAL SHOULDER IN FEET (COMBINED PAVED AND UNPAVED WIDTH)
S = POSTED SPEED LIMIT (MPH)

## GENERAL NOTES

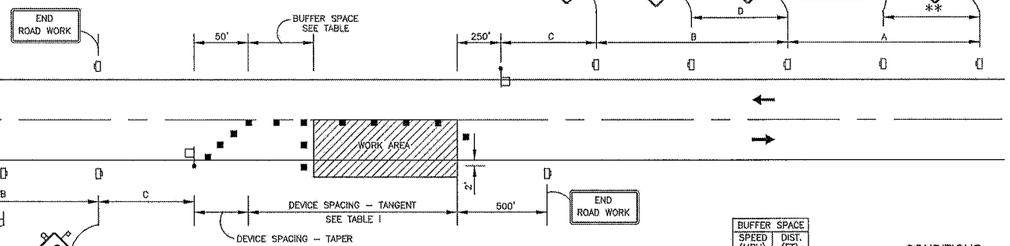
1. IF THE WORK OPERATION ENCROACHES ON THE THROUGH TRAFFIC LANES OR WHEN FOUR OR MORE WORK VEHICLES ENTER THE THROUGH TRAFFIC LANES IN A ONE HOUR PERIOD (EXCLUDING ESTABLISHING AND TERMINATING THE WORK AREA), A FLAGGER SHALL BE PROVIDED AND A FLAGGER SIGN SHALL BE SUBSTITUTED FOR THE WORKERS SIGN. THE FLAGGER SHALL BE POSITIONED AT THE POINT OF VEHICLE ENTRY OR DEPARTURE FROM THE WORK AREA.
2. THIS TCZ PLAN ALSO APPLIES TO WORK PERFORMED IN THE MEDIAN MORE THAN 2' BUT LESS THAN 15' FROM THE EDGE OF TRAVELWAY.
3. WHEN WORK IS BEING PERFOMED ON A MULTILANE UNDIVIDED ROADWAY THE SIGNS NORMALLY MOUNTED IN THE MEDIAN (AS SHOWN) SHALL BE OMITTED.
4. WORKERS SIGNS TO BE REMOVED OR FULLY COVERED WHEN NO WORK IS BEING PERFORMED.
5. SHOULDER WORK SIGN MAY BE USED AS AN ALTERNATE TO THE WORKER SYMBOL SIGN.
6. WHEN A SIDE ROAD INTERSECTS THE HIGHWAY WITHIN THE TTC ZONE, ADDITIONAL TTC DEVICES SHALL BE PLACED IN ACCORDANCE WITH OTHER APPLICABLE TCZ INDEXES.
7. FOR GENERAL TCZ REQUIREMENTS AND ADDITIONAL INFORMATION REFER TO INDEX NO. 600.

## DURATION NOTES

1. SIGNS AND CHANNELIZING DEVICES MAY BE OMITTED IF ALL OF THE FOLLOWING CONDITIONS ARE MET:
   a) WORK OPERATIONS ARE 60 MINUTES OR LESS.
   b) VEHICLES IN THE WORK AREA HAVE HIGH INTENSITY, ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS OPERATING.

## MULTILANE, WORK ON SHOULDER

NOT TO SCALE F.D.O.T. INDEX NO. 612




| DISTANCE BETWEEN SIGNS | | | | |
|---|---|---|---|---|
| SPEED | SPACING (ft) | | | |
| | A | B | C | D |
| 40 MPH OR LESS | 200 | 200 | 200 | 100 |
| 45 MPH | 350 | 350 | 350 | 175 |
| 50 MPH | 500 | 500 | 500 | 250 |
| 55 MPH OR GREATER | 2640 | 1640 | 1000 | 500 |

* THE ROAD WORK 1 MILE SIGN MAY BE USED AS AN ALTERNATE TO THE ROAD WORK AHEAD SIGN

** 500' BEYOND THE ROAD WORK AHEAD SIGN OR MIDWAY BETWEEN SIGNS, WHICHEVER IS LESS

*** BE PREPARED TO STOP SIGN MAY BE OMITTED FOR SPEEDS OF 45 MPH OR LESS

SYMBOLS

- WORK AREA
- SIGN WITH 18" x 18" (MIN.) ORANGE FLAG AND TYPE B LIGHT
- CHANNELIZING DEVICE (SEE INDEX NO. 600)
- WORK ZONE SIGN
- FLAGGER
- AUTOMATED FLAGGER ASSISTANCE DEVICES (AFAD), WITH GATE
- LANE IDENTIFICATION + DIRECTION OF FLOW

## GENERAL NOTES

1. WORK OPERATIONS SHALL BE CONFINED TO ONE TRAFFIC LANE LEAVING THE OPPOSITE LANE OPEN TO TRAFFIC.
2. ADDITIONAL ONE-WAY CONTROL MAY BE EFFECTED BY THE FOLLOWING MEANS:
   (1) FLAG-CARRYING VEHICLE (2) OFFICIAL VEHICLE
   (3) PILOT VEHICLES (4) TRAFFIC SIGNALS

   WHEN FLAGGERS ARE THE SOLE MEANS OF ONE-WAY CONTROL THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
3. THE ONE-LANE ROAD SIGNS ARE TO BE FULLY COVERED AND THE FLAGGER SIGNS EITHER REMOVED OR FULLY COVERED WHEN NO WORK IS BEING PERFORMED AND THE HIGHWAY IS OPEN TO TWO-WAY TRAFFIC.
4. WHEN A SIDE ROAD INTERSECTS THE HIGHWAY WITHIN THE TTC ZONE, ADDITIONAL TTC DEVICES SHALL BE PLACED IN ACCORDANCE WITH OTHER APPLICABLE TCZ INDEXES.
5. THE TWO CHANNELIZING DEVICES DIRECTLY IN FRONT OF THE WORK AREA AND THE ONE CHANNELIZING DEVICE DIRECTLY AT THE END OF THE WORK AREA MAY BE OMITTED PROVIDED VEHICLES IN THE WORK AREA HAVE HIGH-INTENSITY ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS OPERATING.
6. FOR GENERAL TCZ REQUIREMENTS AND ADDITIONAL INFORMATION, REFER TO INDEX NO. 600.

## DURATION NOTES

1. ROAD WORK AHEAD AND THE BE PREPARED TO STOP SIGNS MAY BE OMITTED IF ALL OF THE FOLLOWING CONDITIONS ARE MET:
   A) WORK OPERATIONS ARE 60 MINUTES OR LESS
   B) SPEED LIMIT IS 45 MPH OR LESS
   C) NO SIGHT OBSTRUCTIONS TO VEHICLES APPROACHING THE WORK AREA FOR A DISTANCE EQUAL TO THE BUFFER SPACE
   D) VEHICLES IN THE WORK AREA HAVE HIGH-INTENSITY, ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS OPERATING.
   E) VOLUME AND COMPLEXITY OF THE ROADWAY HAS BEEN CONSIDERED.

## TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY

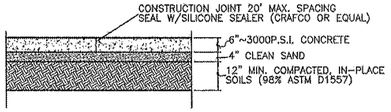
NOT TO SCALE F.D.O.T. INDEX NO. 603 SH. 1 OF 2

| TABLE I DEVICE SPACING | | | | |
|---|---|---|---|---|
| SPEED (MPH) | MAX. DISTANCE BETWEEN DEVICES (FT) | | | |
| | CONES OR TUBULAR MARKERS | | TYPE I OR TYPE II BARRICADES OR VERTICAL PANELS OR DRUMS | |
| | TAPER | TANGENT | TAPER | TANGENT |
| 25 TO 45 | 20 | 50 | 20 | 50 |
| 50 TO 70 | 20 | 50 | 20 | 100 |

| BUFFER SPACE | |
|---|---|
| SPEED (MPH) | DIST. (FT) |
| 25 | 155 |
| 30 | 200 |
| 35 | 250 |
| 40 | 305 |
| 45 | 360 |
| 50 | 425 |
| 55 | 495 |
| 60 | 570 |
| 65 | 645 |
| 70 | 730 |

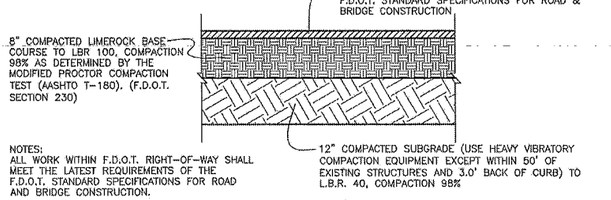
WHEN BUFFER SPACE CANNOT BE ATTAINED DUE TO GEOMETRIC CONSTRAINTS, THE GREATEST ATTAINABLE LENGTH SHALL BE USED, BUT NOT LESS THAN 200 FEET

CONDITIONS
WHERE ANY VEHICLE, EQUIPMENT WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA BETWEEN THE CENTERLINE AND A LINE 2' OUTSIDE THE EDGE OF TRAVEL WAY




## F.D.O.T. RIGHT-OF-WAY CONCRETE PAVING SECTION

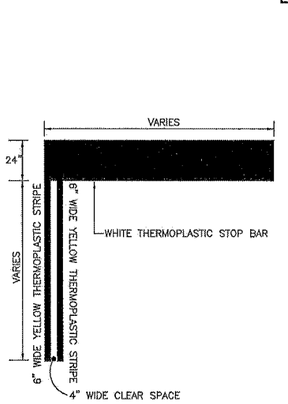
NOT TO SCALE




NOTES:
ALL WORK WITHIN F.D.O.T. RIGHT-OF-WAY SHALL MEET THE LATEST REQUIREMENTS OF THE F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

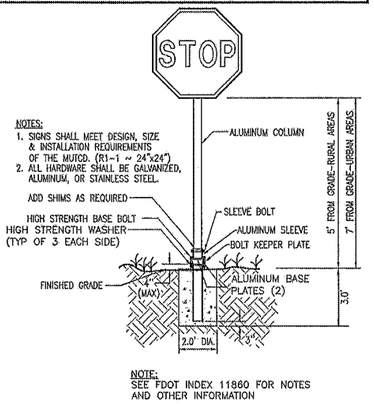
## TYPICAL F.D.O.T. R/W PAVING SECTION

NOT TO SCALE



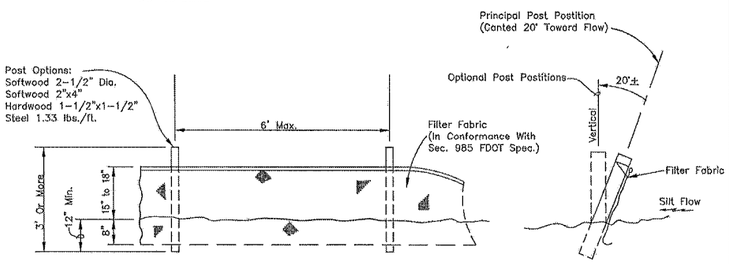

## PAVEMENT STOP BAR DETAIL w/ Dbl. YELLOW STRIPE

NOT TO SCALE




## F.D.O.T. STOP SIGN DETAIL

NOT TO SCALE

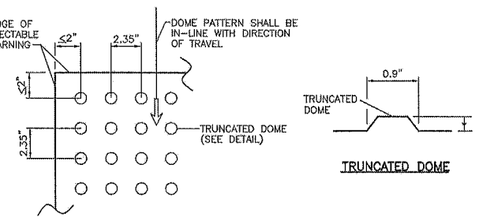



ELEVATION SECTION

## TYPE III SILT FENCE

## TEMPORARY EROSION AND SEDIMENT CONTROL

NOT TO SCALE F.D.O.T. INDEX NO. 102 SH. 3 OF 3




PLAN VIEW

TRUNCATED DOME

ALL SIDEWALK CURB RAMPS SHALL HAVE DETECTABLE WARNING SURFACES THAT EXTEND THE FULL WIDTH OF THE RAMP AND IN THE DIRECTION OF TRAVEL. 24 INCHES FROM THE BACK OF CURB

PARAGRAPH 527-2.3 FROM FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

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: BLACK, BROWN, BRICK-RED, GREEN AND SAFETY YELLOW (US-ANSI Z535.1-1991, 6.3; INTERNATIONAL-ISO 3864-1984(3)) AS DESCRIBED IN THE DRAWINGS OR APPROVED BY THE ENGINEER. THE COLOR MUST BE INTEGRAL WITH AND CONSISTENT THROUGHOUT THE MATERIAL. DO NOT USE THE COLOR BLUE.

## CURB RAMP DETECTABLE WARNING

NOT TO SCALE F.D.O.T. INDEX NO. 304, SHEET 6 OF 6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AA-C000745




BID DOCUMENTS

# Perdido Key Fire Station and Community Center

NOT FOR CONSTRUCTION

Revision

| Date: | No. | Description: |
|---|---|---|
| 8-5-10 | | Escambia County Review Comments |
| 8-12-10 | | F.D.O.T. Comments |

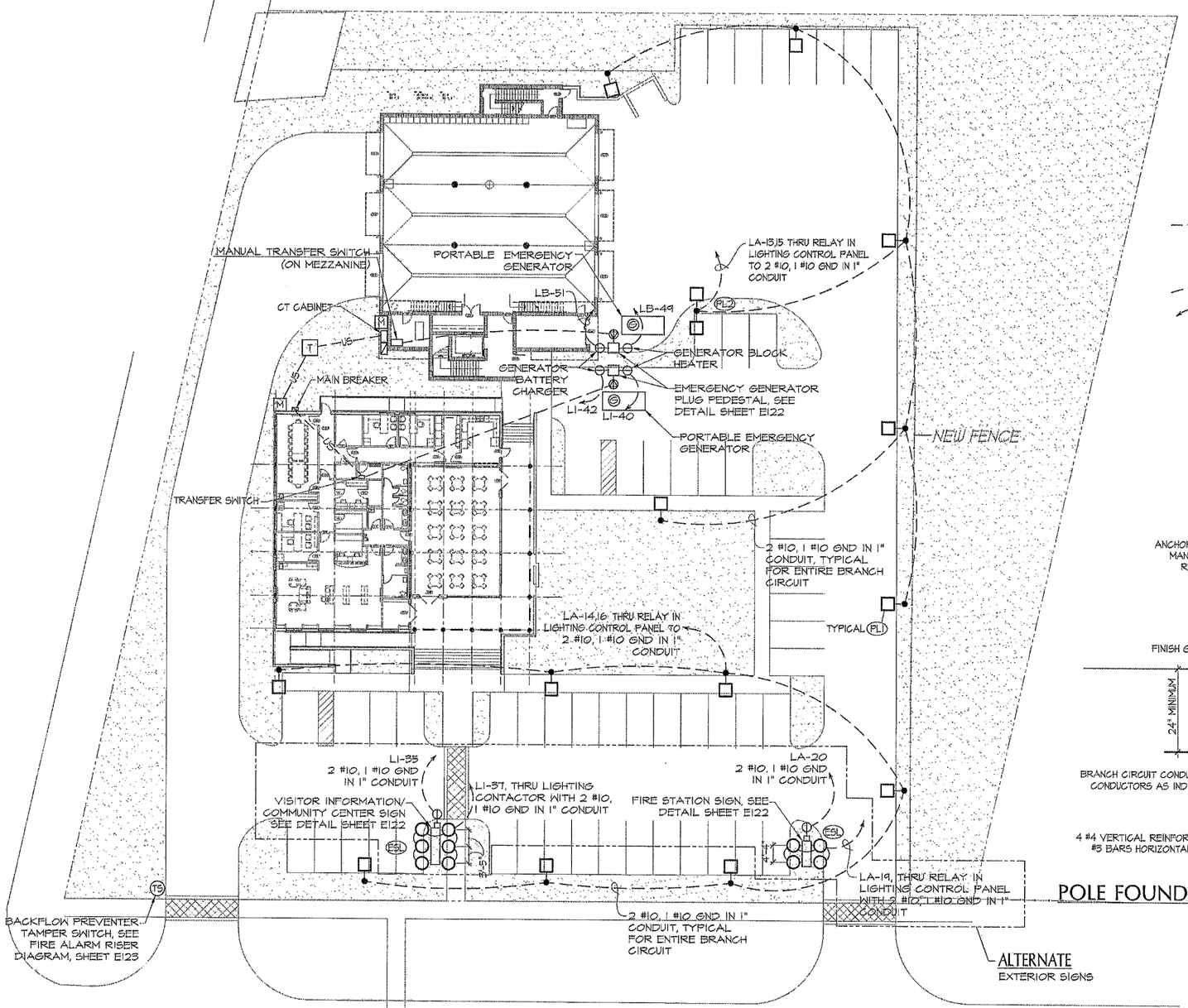
Drawn By: WEB
Checked By: GPH

Date: 09-15-11

Project No.: 08074

Drawing Title:
CIVIL M.O.T. PLAN & CONSTRUCTION DETAILS

Drawing No.:
C-10 OF 10

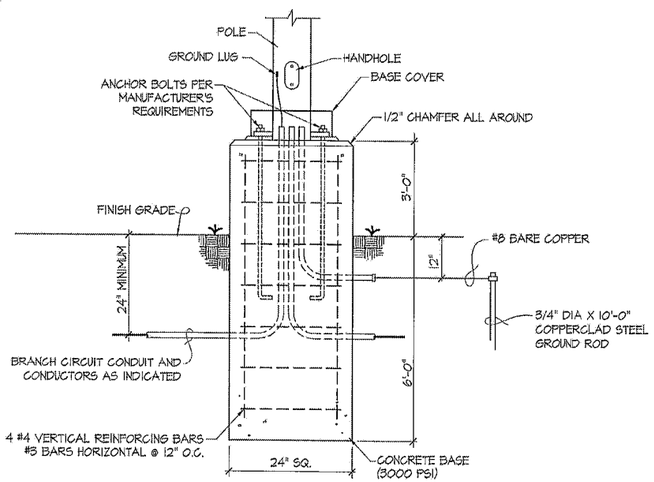



## ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

## ELECTRICAL SITE LEGEND

- M — WATTHOUR/DEMAND METER BY GULF POWER COMPANY
- T — GULF POWER COMPANY PAD MOUNTED TRANSFORMER
- LED POLE MOUNTED PARKING LIGHT FIXTURE - SEE DETAIL, THIS SHEET
- —US— UNDERGROUND SECONDARY SERVICE CONDUCTOR
- PORTABLE EMERGENCY GENERATOR BY OWNER
- INDIVIDUALLY MOUNTED CIRCUIT BREAKER IN NEMA 4X ENCLOSURE
- UNDERGROUND BRANCH CIRCUIT CONDUIT AND CONDUCTORS
- UNDERGROUND BRANCH CIRCUIT HOMERUN TO PANEL
- PORTABLE EMERGENCY GENERATOR PLUG PEDESTAL 400 AMP, 4 WIRE RECEPTACLE AND MOUNTING BOX - APPLETON CATALOG No. AJA40144-400 OR APPROVED EQUAL. MOUNT 24" ABOVE FINISH GRADE. SECURE TO PLUG PEDESTAL.
- SINGLE RECEPTACLE - 20 AMP, 125 VOLT, 3 WIRE GROUND FAULT INTERRUPTING TYPE NEMA 5-20R IN WEATHERPROOF IN USE ENCLOSURE, MOUNT ON PEDESTAL 24" ABOVE FINISH GRADE




## POLE FOUNDATION DETAIL - FIXTURES "PL1" & "PL2"

NOT TO SCALE


dag
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AA-C000745




BID DOCUMENTS

# Perdido Key Fire Station and Community Center

Samuel L. Gulley PE #50007

Revision

| Date: | No. | Description: |
|---|---|---|
| | | |

Drawn By: M. REID
Checked By: S. L. GULLEY

Date: 09-15-11

Project No.: 08074

Drawing Title: ELECTRICAL SITE PLAN

Drawing No.: E101


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