FEBRUARY 7, 2007

EXHIBIT A

SCOPE OF SERVICES

FOR

FINANCIAL PROJECT ID. 414746-1-32-01

SR 63 (US 27) LAKE JACKSON ECOPASSAGE
FROM TOWER ROAD TO CLARA KEE BOULEVARD

DISTRICT THREE

LEON COUNTY

SCOPE OF SERVICES FOR CONSULTING ENGINEERING SERVICES
HIGHWAY AND STRUCTURAL DESIGN

This Exhibit forms an integral part of the agreement between the State of Florida Department of Transportation (hereinafter referred to as the DEPARTMENT) and _____ (hereinafter referred to as the CONSULTANT) relative to the transportation facility described as follows:

Financial Project ID:	***414746 1 32 01***
County Section No.:	***55010000***
Description:	***SR 63 (US 27) Lake Jackson Ecopassage from Tower Road to Clara Kee Boulevard Leon County***

1 PURPOSE

The purpose of this Exhibit is to describe the scope of work and the responsibilities of the CONSULTANT and the DEPARTMENT in connection with the design and preparation of a complete set of construction contract plans and special provisions, if necessary, for:

- Roadway improvements to the transportation facility described herein
- Structural improvements for the structures identified herein

The general objective is for the CONSULTANT to prepare a set of plans to be used by the contractor to build the project, and by the DEPARTMENT to ensure the project is built as designed and to specifications. Elements of work shall include roadways, structures, intersections, geotechnical activities, surveys, drainage, signing and pavement markings, utility relocation, right-of-way maps and legal descriptions, maintenance of traffic, cost estimates, environmental permits, environmental mitigation plans, quantity computation books, and all necessary incidental items for a complete project.

The Scope of Services establishes which items of work described in the Plans Preparation Manual and other pertinent manuals to accomplish the work are specifically included in this contract, and also which of the items of work will be the responsibility of the CONSULTANT or the DEPARTMENT.

All plans and design documents are to be prepared with Standard English values in accordance with all applicable DEPARTMENT manuals and guidelines.

The CONSULTANT shall be aware that as a project is developed, certain modifications and/or improvements to the original recommendation may be required. The CONSULTANT is to incorporate these refinements into the design and will consider this effort to be an anticipated and integral part of the work. This will not be a basis for any supplemental fee request(s).

The CONSULTANT shall demonstrate good project management practices while working on this project. These include communication with the DEPARTMENT and others as necessary, management of time and resources, and documentation. The CONSULTANT shall set up and maintain throughout the design of the project a contract file in accordance with DEPARTMENT procedures. It shall be the CONSULTANT's responsibility to utilize the very best engineering judgment, practices, and principles possible during the prosecution of the work commissioned under this contract.

The DEPARTMENT will provide contract administration, management services, and technical reviews of all work associated with the development and preparation of the contract plans. The DEPARTMENT will provide job-specific information and/or functions as outlined in this contract.

2 PROJECT DESCRIPTION

The CONSULTANT shall investigate the status of the projects and become familiar with concepts and commitments (typical sections, alignments, etc.) developed from prior studies. The Lake Jackson PD&E Preliminary Engineering Report and the Lake Jackson Ecopassage Feasibility Study (April 2005) are available and the CONSULTANT shall use the approved concepts as a basis for the design unless otherwise directed by the DEPARTMENT.

Financial Project ID: 414746-1-32-01 Work Description

This project involves developing a set of design documents for the eventual construction of an ecopassage system that will allow animals to cross under SR 63 (US 27) between Lake Jackson and Little Lake Jackson. The proposed ecopassage will be designed to facilitate animal movement underneath SR 63 (US 27) while balancing ecological needs and economic restraints. The existing elliptical corrugated metal cross drain (approximately 12' x 8') at CMP 2.320 will be replaced with an appropriate structure. The CONSULTANT will provide a Structure Evaluation Report that will include recommendations on the type of structure as well as the number of additional structures that will most effectively accommodate wildlife traffic along the project. The Report must also include documentation that verifies that drainage basins are not adversely affected. Diversion walls will be required along SR 63 (US 27) in order to direct animal traffic to proposed passageways and away from the existing roadway.

The existing typical section along SR 63 (US 27) consists of two 12' travel lanes with 6' shoulders (4' paved outside) separated by a 30' grass median. Existing drainage median inlets and cross drains may require reconstruction and/or relocation depending on proposed wall locations.

The existing county boat ramp (CMP 2.803) shall remain open during the project. If diversion walls are required in the vicinity of the boat ramp, the walls should not only be designed to channelize animal movement, but should also provide appropriate access for vehicular and trailer movements at the boat ramp. Similar efforts will be required at side road intersections located within the limits of the proposed wall.

SR 63 (US 27) has been designated as a "Hurricane Evacuation Route".

The posted speed limit on SR 63 (US 27) is 45 mph and the design speed is 55 mph.

The Pavement Design and necessary Geotechnical efforts will be provided by the CONSULTANT.

This project will be let to construction as a **Conventional Bid/Build** project.

The CONSULTANT shall incorporate the following into the design of this facility:

2.1 Roadway (Activities 3.0, 4.0, and 5.0)

Public Involvement: This project will be a CAP Level 2 project with a public meeting.

Plan Type: The Consultant shall provide roadway plans and miscellaneous details to construct this project. The Consultant shall develop and sign and seal the plans electronically in accordance with Section 33.6.

Typical Section: The Consultant shall provide a Typical Section Package in accordance with Section 4.1.

Pavement Design: The Consultant will provide any Pavement Design(s) required for this project in accordance with Section 4.2.

Access Management Classification: This project has an Access Management Classification of 3.

Level of TCP Plans: The Consultant shall provide a TCP Level I or II depending on the type of structure(s) required and proposed MOT.

Limits: SR 63 (US 27) from Tower Road (CMP 2.160) to Clara Kee Boulevard (CMP 3.234). The project limits are subject to change during design due to proposed wall limits and locations of ecopassage structure(s).

Variations/Exceptions: There are no variations or exceptions known at this time. However, should any be identified during design, submit to the Department as early as possible for approval in order to minimize potential schedule delays.

2.2 Drainage (Activity 6.0)

Existing drainage structures shall be shown on the construction plans. All drainage structures should be inspected for scour, erosion, structural integrity and accumulation of sediments. Appropriate improvements should be provided. Sidedrains and inlets within the right-of-way at side road intersections should be evaluated.

A drainage analysis shall be incorporated into the Structure Evaluation Report to determine appropriate locations and sizes of passageways. Ensure that the proposed ecopassage does not adversely affect existing drainage basins.

2.3 Utilities (Activity 7.0)

The Consultant shall prepare a Utility Conflict Matrix for all utilities which may be impacted by construction activities. Refer to District Three Design Newsletter Volume 8 Issue 2 (April-June 2003). The Area Utility Manager shall chair the predesign utility meeting and record the minutes of the meeting.

The Department will be responsible for utility coordination associated with this project. Additional utility responsibilities are covered in Section 7.

Utility exceptions will be per Chapter 13 as found in the Utility Accommodation Manual. Consultant will not be responsible for obtaining utility exceptions but will need to provide information as available to assist utility companies in obtaining exceptions. There have been no warrants for utility exceptions identified at this time.

2.4 Environmental Permits (Activity 8.0)

The Consultant shall be responsible for the identification, coordination and applications for all permits necessary to construct this project. All application and processing fees associated with said permit(s) and activities shall be paid for by the Consultant.

2.5 Structures (Activities 9.0 – 18.0)

The Consultant shall be responsible for designing structures that balance ecological needs and economic restraints. Develop a Structure Evaluation Report that provides recommendations for the type of structure (i.e. bridge, culvert, pipe, etc.), number of structures and required structure size that will facilitate animal movement. Consideration should be given to providing a dirt or soil substrate as flooring for the structure and providing an opening in the median to provide light to the ecopassage. The ecopassage shall be designed to accommodate the appropriate wildlife species as specified in the Feasibility Study and Preliminary Engineering Report.

Diversion Walls: The Structure Evaluation Report will recommend an innovative wall design that considers the use of alternative materials. The Report will define wall limits (retaining and/or barrier) that will be necessary to prohibit animals from crossing SR 63 (US 27) and also directs wildlife to the passageways. The proposed walls should be designed to prevent animals from crawling over them and provide a buffer zone adjacent to the wall to prevent vegetation from covering the wall.

Miscellaneous: The existing elliptical corrugated metal cross drain (approximately 12’ x 8’) at CMP 2.320 shall be replaced with an appropriate structure.

2.6 Signing and Pavement Markings (Activity 19.0 & 20.0)

The Consultant shall be responsible for the design, details, and quantities associated with signing and pavement markings for this project.

In addition, the Consultant shall complete and submit to the FDOT Project Manager quantities for final thermoplastic pavement markings on forms furnished by the Department.

2.7 Signals (Activity 21.0 & 22.0) (Not applicable to this project)

2.8 Lighting (Activity 23.0 & 24.0) (Not applicable to this project)

2.9 Landscape Architecture (Activity 25.0 & 26.0) (Not applicable to this project)

2.10 Survey (Activity 27.0)

Design Survey: The horizontal and vertical control will be provided to the Consultant. Other design survey requirements will be conducted by the Consultant in accordance with Section 27.0 of this document.

Subsurface Utility: The Consultant shall provide Subsurface Utility Surveys as needed for this project.

Right of Way Survey: The Consultant shall provide a Right of Way Survey for the project.

Survey Submittals:

The Survey Subconsultant shall transmit their submittals to The District 3 Surveying Office as well as the Prime Consultant. The Survey Subconsultant shall copy the Project Manager on all submittal correspondence. The Prime Consultant shall be responsible for ensuring that the survey folder of the Project CD/DVD is populated with the survey data for the project as well as being signed and sealed by the Surveyor thru PEDDS.

The Prime Consultant shall have the final survey data on the Project CD/DVD at the 100% phase delivery. The Survey Subconsultant shall be responsible for ensuring the deliverable matches the requirements stated in the District 3 Survey Guidelines.

Alignment Submittals

Alignment submittals shall be submitted to Surveying Office and copies shall be submitted to the FDOT Project Manager, D3 R/W Mapping Office, and the Prime Consultant.

The Prime shall wait for approval from the District Surveying Office before utilizing the alignment for Design purposes.

Design Survey Submittals

Design Survey submittals shall be submitted to the Surveying Office and Prime Consultant. Copies shall be submitted to the Project Manager.

2.11 Photogrammetry (Activity 28.0) (Not applicable to this project)

2.12 Mapping (Activity 29.0)

The Department will not purchase Right-of-Way for this project. If additional Right-of-Way is determined to be needed and the necessary acquisition or easement will be donated to the Department, then the Right-of-Way Mapping will be provided by the DEPARTMENT.

Control Survey Map: The CONSULTANT will be required to provide the DEPARTMENT with the Control Survey Map to facilitate creation of Right-of-Way Mapping, if required. The limits of the Control Survey Map will be determined during design.

Right-of-Way Map: Limits to be determined during design.

2.13 Geotechnical (Activity 30.0)

The CONSULTANT will be responsible for all geotechnical activities.

The CONSULTANT shall determine appropriate types of borings and lab tests needed for the project and discuss with the Department prior to mobilizing geotechnical operators. The Report recommendations should indicate if additional borings will be necessary based on type of structure(s).

2.14 Architecture (Activity 31.0) (Not applicable to this project)

2.15 Project Schedule

Within ten (10) days after the Notice-To-Proceed, and prior to the CONSULTANT beginning work, the CONSULTANT shall provide a detailed project activity/event schedule ***with actual dates and Department activity/event numbers*** for DEPARTMENT and CONSULTANT ***scheduled*** activities required to meet the DEPARTMENT Production Date***. The schedule shall be based upon the durations and schedule negotiated during the project staff hour negotiations process.*** The schedule shall be accompanied by an anticipated payout and fiscal progress curve.

The schedule shall indicate, ***at a minimum, proposed dates for Phase I, II, III, and IV plans and all other appropriate milestones and required submittals.***

For purposes of scheduling, the CONSULTANT shall allow for ***a 3 week review time for each phase review and other submittals as appropriate.***

Periodically, throughout the life of the project, the schedule and curves shall be reviewed and, with the approval of the DEPARTMENT, adjusted as necessary to incorporate changes in the work concept and progress to date.

The approved schedule and schedule status report, along with progress and payout curves, shall be submitted with the monthly progress report.

The schedule shall be submitted in Suretrak, Primavera, or system-compatible format.

The CONSULTANT shall complete the final plans for this project in accordance with the schedule negotiated for the project.

All fees and price proposals are to be based on the negotiated schedule of XX months for final plans production. However, the contract deadline is XX months from the Notice to Proceed.

2.16 Submittals

The CONSULTANT shall furnish plans and documents as required by the DEPARTMENT to adequately control, coordinate, and approve the plans. The CONSULTANT shall distribute phase submittals as directed by the DEPARTMENT.

The DEPARTMENT's Electronic Review and Comment (ERC) system will be used for project reviews. Upon Notice to Proceed, the design project manager will coordinate with the CONSULTANT to provide the required access into the ERC system.

It is the CONSULTANT'S responsibility to independently and continually QC their plans and other deliverables. The CONSULTANT should regularly communicate with the DEPARTMENT Project Manager to discuss and resolve issues or solicit opinions from those within designated areas of expertise. It is also the responsibility of the CONSULTANT to adhere to all DEPARTMENT standards, policies, procedures, guidelines, etc. Constant communication between the DEPARTMENT and the CONSULTANT is vital in the overall success of any project.

The CONSULTANT will be required to provide written monthly progress reports documenting actions taken, actions to be taken, status of project schedule, and contacts with the DEPARTMENT (the DEPARTMENT employee contacted, the issue, and the resolution), and the status of the plans.

The CONSULTANT shall submit their Quality Control Plan that will be used during the design of this project to the DEPARTMENT for reference. As a minimum, the QC plan shall include the details of all plan review processes to be utilized and sufficient file documentation to show that the QC plan has been followed.

The CONSULTANT will be furnished a project "seed directory" CD to be used during the development of the project files. Upon completion of the design phase, this CD will become the project CD and shall contain all pertinent project information as described in the FDOT CADD Manual.

Following the Notice-to Proceed Meeting, the CONSULTANT will begin the design process developing the Structure Evaluation Report and this will include making the necessary contacts with the DEPARTMENT and attending field reviews as required by the CONSULTANT Scope of Services.

Deliverables must be developed in the correct format as required by the FDOT CADD Manual and the CADD Criteria Handbook. Design plans will be developed using Microstation V8.

The CONSULTANT shall provide copies of the required plans and documents ***as identified in the Scope or made known by the Project Manager. The anticipated printing requirements for the project include the listed items below; however, this list of items may not be all inclusive on project needs.*** This tabulation will be used for estimating purposes, and the Project Manager will determine the specific number of copies ***and distribution list required for each project***.

Report: ***The CONSULTANT shall submit to the DEPARTMENT a Structure Evaluation Report for approval. The report will contain all necessary information on the proposed alternatives evaluated to derive the project recommendations. The recommendations will specify the proposed ecopassage structure types, diversion wall types, heights, lengths, locations and cost. The Report will also identify any needed Right-of-Way.***

Phase I: ***Upon approval of the Report, the CONSULTANT shall submit to the DEPARTMENT for concurrence the Typical Section Package, Pavement Design, Design Variances and/or Exceptions (if applicable), etc., and other documents as required by the Plans Preparation Manual and the Scope of Services.***

The CONSULTANT shall submit the Phase I Plans Submittal Report to the Project Manager.

The CONSULTANT shall submit eighteen (18) sets of plans and six (6) sets of design documentation books to the Project Manager. The CONSULTANT must have the QC marked-up plans available for the DEPARTMENT's review upon request.

The CONSULTANT shall submit one (1) copy of the plans to each of the local government(s). One (1) copy of the plans shall be submitted to each affected local government for review in accordance with the recent directions for local government input.

The CONSULTANT shall submit plans for utility coordination as per the Scope of Services. The CONSULTANT shall submit the two (2) plan sets for each utility on the project for the DEPARTMENT's Area Utility Manager to coordinate.

If bridge structures are included in the project: the CONSULTANT shall submit four (4) copies of the Bridge Hydraulics Report, four (4) copies of the Bridge Development Report, and six (6) sets of structure design documentation books.

Phase II: ***The CONSULTANT shall submit the Phase II Plans Submittal Report to the Project Manager.***

The CONSULTANT shall submit eighteen (18) sets of plans and six (6) sets of design documentation books to the Project Manager. The CONSULTANT must have the QC marked-up plans available for the DEPARTMENT's review upon request.

The CONSULTANT shall submit one (1) copy of the plans to each of the local government(s). One (1) copy of the plans shall be submitted to each affected local government for review in accordance with the recent directions for local government input.

The CONSULTANT shall submit plans for utility coordination as per the Scope of Services. The CONSULTANT shall submit the two (2) plan sets for each utility on the project for the DEPARTMENT's Area Utility Manager to coordinate.

The CONSULTANT shall submit a Constructability Phase Review Checklist as per the Construction Project Administration Manual (CPAM).

If bridge structures are included in the project: the CONSULTANT shall submit six (6) copies of the approved Bridge Development Report, nine (9) sets of the 30% structure plans, and six (6) sets of structure design documentation books.

Phase III: ***The CONSULTANT shall submit the Phase III Plans Submittal Report to the Project Manager.***

The CONSULTANT shall submit twenty-five (25) sets of plans, six (6) sets of design documentation books, six (6) computation books, and two (2) project CD/DVDs to the Project Manager. The CONSULTANT must have the QC marked-up plans available for the DEPARTMENT's review upon request.

The CONSULTANT shall submit one (1) copy of the plans to each of the local government(s). One (1) copy of the plans shall be submitted to

each affected local government for review in accordance with the recent directions for local government input

The CONSULTANT shall submit plans for utility coordination as per the Scope of Services. The CONSULTANT shall submit the two (2) plan sets for each utility on the project for the DEPARTMENT's Area Utility Manager to coordinate.

The CONSULTANT shall submit a Constructability Phase Review Checklist as per the Construction Project Administration Manual (CPAM). In addition, the CONSULTANT's construction contract time estimate shall be submitted to the Project Manager along with two (2) sets of plans, two (2) computation books, and two (2) sets of design documentation (including utility schedules and a dependent time memo) for the DEPARTMENT's review of the project contract time.

The CONSULTANT shall submit one (1) set of plans, one (1) computation book, and one (1) set of design documentation (including construction contract time estimate) for the initial Bid-Team review.

The CONSULTANT shall also submit any Technical Special Provisions and/or incentive/disincentive cost analysis as required by the Specification package (if applicable).

The CONSULTANT shall submit three (3) Geotechnical Reports (as applicable).

If bridge structures are included in the project: the CONSULTANT shall submit twelve (12) copies of the structure plans, six (6) copies of the structure computation books, and six (6) copies of structure design documentation books.

Phase IV: ***The CONSULTANT shall submit the Phase IV Plans Submittal Report to the Project Manager.***

The CONSULTANT shall submit twenty-five (25) sets of plans, six (6) sets of design documentation books, six (6) computation books, and two (2) project CD/DVDs to the Project Manager. The CONSULTANT must have the QC marked-up plans available for the DEPARTMENT's review upon request.

The CONSULTANT shall submit plans for utility coordination as per the Scope of Services. The CONSULTANT shall submit the two (2) plan sets for each utility on the project for the DEPARTMENT's Area Utility Manager to coordinate.

The CONSULTANT shall submit one (1) set of plans, one (1) secured project CD to the Project Manager. The CONSULTANT must have the

QC marked-up plans available for the DEPARTMENT's review upon request. This submittal is for a CADD compliancy review.

The CONSULTANT shall also submit a complete Specifications Package including any Technical Special Provisions and/or incentive/disincentive cost analysis as required by the Specification package (if applicable).

The CONSULTANT shall submit three (3) Final Geotechnical Reports (as applicable).

If bridge structures are included in the project: the CONSULTANT shall submit twelve (12) copies of the structure plans, six (6) copies of the structure computation books, six (6) copies of structure design documentation books, and one (1) signed and sealed load rating.

Final Phase: ***The CONSULTANT shall submit a Final Plans Submittal Report to the Project Manager. The Final Report shall include a Final Plans Submittal Certification signed by the Principal in Charge and the Engineer of Record to certify that all items submitted are complete (final electronic plans, documents, computation book, etc.) and has been evaluated in accordance with the firm's Quality Control Plan. In addition comp books, construction cost estimate, and the Specification package will be submitted for final Bid Team and subsequent Specifications office review.***

If changes have been made to the plans, pay items, or quantities after the Phase III review that will affect the contract time, the CONSULTANT shall resubmit two (2) copies of the plans, comp book, and the utility schedules/utility dependent time memo (if changes have occurred or they have not been submitted).

After any necessary plan and /or specification package revisions, the CONSULTANT shall submit the following:

The CONSULTANT shall submit two copies of the CADD files including the Electronic Data Submittal Checklist. The Electronic Data Submittal Checklist shall be signed by the Engineer of Record to certify that all electronic deliverables are complete, in the proper format, authenticated using PEDDS, and all plans and specifications are signed and sealed with the same program (as applicable per the Scope of Services).

2 Project CD/DVDs electronically signed and sealed with PEDDS (Note: all project data shall be included on the project CD/DVD and its location noted in the project journal). Also, the electronic computation book shall be developed into a PDF file that can be printed without having to open

each individual sheet on the Project CD/DVD.

1 paper copy of the Final Plans with Transport Proposal Sheets

Thermoplastic pavement marking quantities on forms provided by the DEPARTMENT

Original survey field books

All other applicable deliverables required by the Survey CONSULTANT Checklist

2.17 Provisions for Work

All maps, plans and designs are to be prepared with English values in accordance with all applicable current DEPARTMENT manuals, memorandums, guidelines and other documents listed below:.

General

- Florida Statutes
- Florida Administrative Codes
- Florida Department of Transportation Project Development and Environmental Manual
- Florida Department of Transportation Plans Preparation Manual
- Florida Department of Transportation Standard Specifications for Road and Bridge Construction
- Florida Department of Transportation Handbook for Preparation of Specifications Package
- Florida Department of Transportation Design Standards for Design, Construction, Maintenance, and Utility Operations on the State Highway System
- Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways
- Bicycle Facilities Planning and Design Manual, Rev. Ed. 1982
- CADD Production Criteria Handbook
- CADD Manual
- Florida's Level of Service Standards and Guidelines Manual for Planning
- Equivalent Single Axle Load Guidelines
- Design Traffic Procedure
- K-Factor Estimation Process
- Project Traffic Forecasting Guidelines
- Florida Department of Transportation Basis of Estimates Manual
- Quality Assurance Guidelines
- Safety Standards
- Rule 61G17-6, F.A.C., Minimum Technical Standards for Professional Surveyors and Mappers
- Department of Environmental Protection Rules Governing Mean High

Water and Jurisdictional Line Surveys
- Any special instructions from the DEPARTMENT
- Utility Accommodations Guidelines
- Policy for Geometric Design of Highways and Streets
- Florida Department of Transportation Materials Manual
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- 40 CFR, Part 61, Subpart M - National Emission Standard for Hazardous Air Polutants (NESHAP), Environmental Protection Agency (EPA)
- 40 CFR, Part 763, Subpart E – Asbestos-Containing Materials in Schools, EPA
- 40 CFR, Part 763, Subpart G – Asbestos Worker Protection, EPA
- 29 CFR, Part 1910.1101 – Asbestos Standard for Industry, U.S. Occupational Safety and Health Administration (OSHA)
- 29 CFR, Part 1926, 1101 – Asbestos Standard for Construction, OSHA
- Ch. 62257, F.A.C. – Asbestos Program, Florida Department of Environmental Protection (DEP)
- Ch. 469, F.S. – Asbestos Abatement, Florida Department of Business and Professional Regulation (DBPR)
- Model Guide Specifications – Asbestos Abatement and Management in Buildings, National Institute for Building Sciences (NIBS)

Permits

- Chapter 373, F.S.
- Bridge Permit Application Guide, COMDT PUB P16591.3B
- Building Permit

Drainage

- Drainage Manual
- Drainage Handbooks
- Storm Drain
- Optional Pipe Materials
- Stormwater Management Facility
- Cross Drain
- Erosion and Sediment Control
- Hydrology
- Temporary Drainage Handbook

Survey

- Surveying Handbook
- District 3 Surveying Standards
- Maintenance of Traffic Training: Topic No. 625-010-010
- Survey Safety Handbook
- Roadway and Traffic Design Standards
- Aerial Surveying Standards: Topic No. 550-020-002

- Minimum Technical Standards for Surveying and Mapping Rule 61G17-6
- Chapter 177, F.S.
- Chapter 472, F.S.
- All other applicable Department procedures, handbooks, and manuals

Traffic Operation Manuals

- American Disabilities Act
- AASHTO - Guide for Development of Bicycle Facilities
- Federal Highway Administration Standard Highway Signs Manual
- Florida Department of Transportation Traffic Engineering Manual
- Florida Department of Transportation Manual on Uniform Traffic Studies (MUTS)
- National Electrical Code
- National Electric Safety Code
- Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD)
- Minimum Specifications for Traffic Control Signal Devices
- Florida Department of Transportation - Florida Roundabout Guide
- FHWA - Roundabouts: An Informational Guide
- Florida Department of Transportation Median Handbook
- AASHTO - An Information Guide for Highway Lighting

Mapping

- Right-of-Way Mapping
- Florida Department of Transportation Right-of-Way Handbook
- Florida Department of Transportation Right-of-Way Manual

Structures

- AASHTO Standard Specifications for Highway Bridges and Interims (for curved steel bridges and pedestrian bridges only)
- AASHTO LRFD Bridge Specifications and Interims
- AASHTO LRFD Movable Highway Bridge Design Specifications and Interims
- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, dated 1994
- AASHTO LRFD Guide Specifications for Steel Curved Girder Bridges
- AASHTO Guide Specifications for Horizontally Curved Highway Bridges
- AASHTO/-AWS-D1. 5M/D1.5: An American National Standard Bridge Welding Code
- AASHTO Guide Specifications for Design of Pedestrian Bridges
- AASHTO Guide Specifications for Structural Design of Sound Barriers
- Florida Department of Transportation Structures Design Guidelines
- Florida Department of Transportation Structures Detailing Manual
- Florida Department of Transportation Structures Design Office Temporary

Design Bulletins (available on Florida Department of Transportation Structures web site only)
- Florida Department of Transportation Preferred Details (available on Florida Department of Transportation Structures web site only)
- Florida Department of Transportation - New Directions For Florida Post-Tensioned Bridges Volumes 1-5
- Florida Department of Transportation Bridge Load Rating Permitting And Posting Manual

Geotechnical

- Soils and Foundation Handbook
- Manual of Florida Sampling and Testing Methods

Landscape Architecture

- Florida Highway Landscape Guide

Architectural

- Building Codes
  - Florida Building Code
- Accessibility for Persons with Disabilities
  - Florida Accessibility Code for Building Construction
  - Chapter 13D-1, FAC
  - Section 255.21 and Chapter 553, Part V, F.S.
  - ANSI A117.1 - 1986
  - Titles II and III, Americans With Disabilities Act (ADA), Public Law 101-336; and the ADA Accessibility Guidelines (ADAAG)
- Fire Codes and Rules
  - NFPA 70-1990 National Electrical Code
  - NFPA 101-1997 Life Safety Code
  - NFPA 10-1998 Standard for Portable Fire Extinguishers
  - NFPA 11-1999 Standard for Low-Expansion Foam Systems
  - NFPA 11A-1998 Standard for High- and Medium-Expansion Foam Systems
  - NFPA 12-1998 Standard for Carbon Dioxide Extinguishing Systems
  - NFPA 13-1996 Installation of Sprinkler Systems
  - NFPA 30-1996 Flammable and Combustible Liquids Code
  - NFPA 54-1996 National Gas Fuel Code
  - NFPA 58-1998 LP-Gas Code

Florida Fire Prevention Code as adopted by the State Fire Marshal

Consult with the Florida State Fire Marshal's office for other frequently used codes.

- Energy Conservation
  - Rule 13D-10, FAC, Rules for Construction and Leases of State-Owned Buildings to Ensure Energy Conservation
  - Section 255.251, F.S., Florida Energy Conservation Act of 1974
  - Section 255.255, F.S., Life-Cycle Costs
- Glass
  - Chapter 553, F.S., Part III, Glass
- Elevators
  - Chapter 7C-5, Florida Elevator Code
  - Chapter 399, F.S., Elevators
- Flood Plain Management Criteria
  - Section 255.25, F.S., Approval Required Prior to Construction or Lease of Buildings
  - Rules of the Federal Emergency Management Agency (FEMA)
- Extinguishing Systems
  - NFPA 10 Fire Extinguishers
  - NFPA 13 Sprinkler
  - NFPA 14 Standpipe and Hose System
  - NFPA 17 Dry Chemical
  - NFPA 20 Centrifugal Fire Pump
  - NFPA 24 Private Fire Service Mains
  - NFPA 200 Standard on Clean Agent Fire Extinguishing Systems
- Detection and Fire Alarm Systems
  - NFPA 70 Electrical Code
  - NFPA 72 Standard for the Installation, Maintenance and Use of Local Protective Signaling Systems
  - NFPA 72E Automatic Fire Detectors
  - NFPA 72H Testing Procedures for Remote Station and Proprietary Systems
  - NFPA 72G Installation, Maintenance, and Use of Notification Appliances
  - NFPA 74 Household Fire Warning Equipment

- NFPA 75 Protection of Electronic Computer Equipment

- Mechanical Systems

  - NFPA 90A Air Conditioning and Ventilating Systems
  - NFPA 92A Smoke Control Systems
  - NFPA 96 Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment
  - NFPA 204M Smoke and Heating Venting

- Miscellaneous Systems

  - NFPA 45 Laboratories Using Chemicals
  - NFPA 80 Fire Doors and Windows
  - NFPA 88A Parking Structures
  - NFPA 105 Smoke and Draft-Control Door Assemblies
  - NFPA 110 Emergency and Standby Power Systems
  - NFPA 220 Types of Building Construction
  - NFPA 241 Safeguard Construction, Alteration, and Operations
  - SFM F.A.C. 4A-47 Elevators
  - SFM 4A-51 Boilers

- Other

  - Chapter 10D-6 FAC On Site Sewage Disposal Systems (Septic Tanks)
  - Chapter 17-6.070 FAC Wastewater Facilities (Treatment Plants)
  - Chapter 17-761 FAC Underground Storage Tank Rules

These documents are revised periodically by the responsible agencies and adopted by authorities having jurisdiction on building projects. The design consultant and the project manager are advised to obtain applicable versions of these documents from the responsible agency prior to use.

- American Concrete Institute
- American Institute of Architects - Architect's Handbook of Professional Practice
- American Society for Testing and Materials - ASTM Standards
- Southern Building Code Congress International - Standard Building Codes
- Brick Institute of America
- DMS - Standards for Design of State Facilities
- Florida Concrete Products Association
- Florida Department of Transportation - Standard Specifications for Road and Bridge Construction
- Florida Department of Transportation - Plans Preparation Manual
- Florida Department of Transportation - Roadway and Traffic Design Standards

- Florida Department of Transportation - Structures Design Guidelines
- Florida Department of Transportation - Structures Detailing Manual
- Florida Department of Transportation - Structures Standard Drawings
- Florida Department of Transportation - ADA/Accessibility Procedure
- Florida Department of Transportation - Fixed Capital Outlay Program
- Florida Department of Transportation - Building Code Compliance Procedure
- Florida Department of Transportation - Asbestos Management Program Procedure
- Florida Department of Transportation – Design Build Procurement and Administration
- National Concrete Masonry Association
- National Electrical Code (current edition)
- National Fire Protection Association - Life Safety Code (current edition)
- Portland Cement Association - Concrete Masonry Handbook
- South Florida Building Code

2.18 Services to be Performed by the DEPARTMENT

When appropriate the DEPARTMENT will provide those services and materials as set forth below:

- Regarding Surveying Services:
  - The DEPARTMENT shall provide a number sequence for each field book.
- Regarding Environmental Permitting Services:
  - Approve all contacts with environmental agencies.
  - Provide general philosophies and guidelines of the DEPARTMENT to be used in the fulfillment of this contract. Objectives, constraints, budgetary limitations, and time constraints will be completely defined by the Project Manager.
  - Provide the appropriate signatures on application forms.

- Provide phase reviews of roadway plans.
- Permit the CONSULTANT to utilize the DEPARTMENT's Data Processing and Computer Services for programs requested by the CONSULTANT and approved by the DEPARTMENT.
- Furnish an approved Environmental Document when available.
- Furnish all future information that may come to the DEPARTMENT during the term of the CONSULTANT's Agreement, which in the opinion of the DEPARTMENT is necessary for the prosecution of the work.
- Furnish available traffic and planning data.
- Furnish all approved utility relocations.
- Provide project utility certification to the DEPARTMENT's Central Office.
- Provide acquisition of any necessary title searches.
- Provide project data currently on file.
- Provide engineering standards and review services.

- Provide all available information in the possession of the DEPARTMENT pertaining to utility companies whose facilities may be affected by the proposed construction.
- Provide all future information that may come to the DEPARTMENT pertaining to subdivision plans so that the CONSULTANT may take advantage of additional areas that can be utilized as part of the existing right-of-way.
- Provide systems traffic for Projected Design Year, with K, D, and T factors.
- Provide existing right-of-way maps.
- PD&E documents.
- Design Reports

3 PROJECT COMMON and PROJECT GENERAL TASKS

Project Common Tasks

Project Common Tasks, as listed below, are work efforts that are applicable to many project activities, 4.0 Roadway Analysis through 32.0 Noise Impact Design Assessment. These tasks are to be included in the project scope in each applicable activity when the described work is to be performed by the CONSULTANT.

Cost Estimates: The CONSULTANT shall be responsible for producing a construction cost estimate and reviewing and updating the cost estimate when scope changes occur and/or at milestones of the project. Prior to 60% plans and completion of quantities, the DEPARTMENT's Long Range Estimate (L.R.E.) system will be used to produce a conceptual estimate, according to District policy. Once the quantities have been developed (beginning at 60% plans and no later than 90% plans) the CONSULTANT shall be responsible for inputting the pay items and quantities into TRNS*PORT PES (Proposal Estimating System) through the use of the DEPARTMENT's Designer Interface. A Summary of Pay Items sheet shall be prepared with all required Phase II, III, and IV Plans submittals. ***Within TRNS*PORT, the Consultant shall run a Project Edit Report for the project just prior to submitting the plans to the DEPARTMENT for Review. This program outputs invalid pay items that may be erroneously loaded for a project. Two printed hard copies shall be provided with the submittal.***

Technical Special Provisions: The CONSULTANT shall provide Technical Special Provisions for all items of work not covered by the Standard Specifications for Road and Bridge Construction and the workbook of implemented modifications.

A Technical Special Provision shall not modify the first nine sections of the Standard Specifications and implemented modifications in any way. All modifications to other sections must be justified to the appropriate District Specifications Office to be included in the project's specifications package, typically as special provisions and not as Technical Special Provisions.

The Technical Special Provisions shall be technical in nature and shall provide a description of work, materials, equipment and specific requirements, method of measurement and basis

of payment. Proposed Technical Special Provisions will be submitted to the District Specifications Office for initial review at the time of the Phase III plans review submission to the DEPARTMENT's Project Manager. This timing will allow for adequate processing time prior to final submittal. The Technical Special Provisions will be reviewed for suitability in accordance with the Handbook for Preparation of Specification Package. The District Specifications Office will forward the Technical Special Provisions to the District Legal Office for their review and comment. All comments will be returned to the CONSULTANT for correction and resolution. Final Technical Special Provisions shall be electronically signed and sealed in accordance with applicable Florida Statutes.

The CONSULTANT shall contact the appropriate District Specifications Office for details of the current format to be used before starting preparations of Technical Special Provisions.

Field Reviews: Includes all trips required to obtain necessary data for all elements of the project.

Technical Meetings: Includes meetings with DEPARTMENT and/or Agency staff, between disciplines and subconsultants, such as access management meetings, pavement design meetings, local governments, railroad companies, progress review meetings (phase review), and miscellaneous meetings.

Quality Assurance/Quality Control: It is the intention of the DEPARTMENT that design CONSULTANTS are held responsible for their work, including plans review. Detailed checking of CONSULTANT plans or assisting in designing portions of the project for the CONSULTANT is not the intent of having external design consultants. The purpose of CONSULTANT plan reviews is to ensure that CONSULTANT plans follow the plan preparation procedures outlined in the Plans Preparation Manual, that state and federal design criteria are followed with the DEPARTMENT concept, and that the CONSULTANT submittals are complete.

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of all surveys, designs, drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all maps, design drawings, specifications, and other documentation prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or it may be one specifically designed for this project. The CONSULTANT shall submit a Quality Control Plan for approval within 20 (twenty) calendar days of the written Notice to Proceed. A marked up set of prints from a Quality Control Review indicating the reviewers for each component (structures, roadway, drainage, signals, geotechnical, signing and marking, lighting, surveys, etc.) and a written resolution of comments on a point-by-point basis will be required, ***if requested by the DEPARTMENT,*** with each phase submittal. The responsible Professional Engineer, Landscape Architect, or Professional Surveyor that

performed the Quality Control review will sign a statement certifying that the review was conducted.

The CONSULTANT shall, without additional compensation, correct all errors or deficiencies in the designs, maps, drawings, specifications and/or other services.

Independent Peer Review: When directed by the DEPARTMENT, a subconsultant ***may*** perform Independent Peer Reviews.

Supervision: Includes all efforts required to supervise all technical design activities.

Coordination: Includes all efforts to coordinate with all disciplines of the project to produce a final set of construction documents.

Project General Tasks

Project General Tasks, described in Sections 3.1 through 3.7 below, represent work efforts that are applicable to the project as a whole and not to any one or more specific project activity. The work described in these tasks shall be performed by the CONSULTANT when included in the project scope.

3.1 Public Involvement

Public involvement is an important aspect of the project development process. Public involvement includes communicating to all interested persons, groups, and government organizations information regarding the development of the project. The CONSULTANT shall continue the public involvement begun in previous studies through implementing the DEPARTMENT's Community Awareness Plan. Property owners adjacent to the project, including those not subject to right-of-way acquisition shall be informed about the project.

All projects require the development of a CAP plan.

This project has been determined to be a CAP Level 2 project with a meeting and is defined as follows:

Project has general public acceptance, little impact on access and moderate degree of traffic disruption. Examples are urban resurfacing, bridge repairs and other construction activities that require lane closures.

CAP Level 2 requirements include:

Development of a Community Awareness Plan,

Public Information Workshop between the 60% - 90% plans stage. An additional Workshop may be required six (6) months prior to letting, however, staff hours for this effort will be negotiated at the appropriate time.

Contact all residences, tenants, and owners within 300 feet of the centerline of the project through mass mailings or hand delivered flyers. Mail-outs should provide a complete description of construction limits and activities. Mail-outs should provide name(s) of contact persons and should be mailed approximately 2 weeks prior to the project meeting date.

Specific requirements for these activities are described below.

Development of Community Awareness Plan (CAP):

The CONSULTANT shall prepare a Community Awareness Plan in accordance with Department Guidelines. The objective of the plan is to notify local governments, affected property owners, tenants, and the public of the DEPARTMENT'S proposed construction and the anticipated impact of that construction. In addition to the benefits of advance notification, the process should allow the DEPARTMENT to resolve controversial issues during the design phase. Three areas of specific concern are: (1) Influences on access to businesses and residences, (2) Drainage, (3) Maintenance of Traffic during construction.

Public Information Workshop:

The CONSULTANT shall provide all support necessary for the DEPARTMENT to hold a Public Information Workshop.

The CONSULTANT shall prepare and/or provide:

Script or agenda for the presentation.

Prepare graphics and displays as directed by the Project Manager.

Workshop equipment set-up and teardown.

Legal and/or display advertisements. The CONSULTANT will pay the cost of publishing.

Draft letters for notification of elected and appointed officials.

Two Press/News releases, for notification purposes. One ten (10) days prior to the workshop and one the day before the workshop.

The purpose of this workshop is to present to the public the results of the detailed design for the project and receive comments on the proposed design.

This workshop will be advertised and conducted by the CONSULTANT as an information workshop. The CONSULTANT will prepare all necessary displays, maps, handouts, etc., as explained below. The CONSULTANT will actively participate in all portions of the presentation.

Any press release or advertisement will indicate that the workshop is a DEPARTMENT activity and will be coordinated by the CONSULTANT.

Both the CONSULTANT'S and DEPARTMENT'S responsibilities are specified for the workshop as follows:

A copy of the public announcement including the project number, date, meeting place, and items to be addressed shall be submitted to the Design Project Manager and the District Public Information Director and incorporated into the project Community Awareness Plan (CAP).

All graphics, media releases, and general (mass) public announcements for property owners and business operators, will be prepared by the CONSULTANT and reviewed by the DEPARTMENT'S Public Information Director and the DEPARTMENT'S Project Manager.

Notification will be made to elected and appointed officials by personal letter. This letter shall be prepared by the CONSULTANT for the District Design Engineer's signature. This notification shall be mailed by the CONSULTANT no less than 15 days before the workshop. Letters shall be on DEPARTMENT letterhead.

Property Owner Letters/Business Operators Notification. An announcement, prepared by the CONSULTANT, will be written and sent no less than 10 days before the workshop to all property owners/business operators whose property or business lies in whole or in part within 300 feet of the centerline of the project. The CONSULTANT shall utilize Direct Mail Services, Tax Collector Office and/or any other source to identify and obtain the address of property owners and business operators along the project. The CONSULTANT will pay for the postage.

News releases will be prepared by the CONSULTANT and shall be published during the week of the Public Information Workshop. Two (2) newspaper display advertisements no less than (4"X6" inch) with graphic will be published in the local section, the first shall be two weeks in advance of the workshop, and the second will be the day before the workshop date. This shall be developed by the CONSULTANT and approved by the DEPARTMENT. The CONSULTANT shall pay for the ad.

The workshop format will be informal allowing the public to come and go. The workshop is anticipated to be approximately one hour in length. Proper signage using display boards no smaller that 2'X2' will be displayed near and on the site directing participants to the meeting place.

The CONSULTANT shall prepare displays or wall graphics for use during the meeting. These include typical sections, roadway plan layouts, charts, graphs, and visual imaging as needed. A summary handout package is required in addition to other visual aids. All displays, handouts, and graphics will be reviewed by the DEPARTMENT prior to the workshop.

Displays or wall graphics shall include but not limited to the following:

1-(36"X24") foam board (or a display similar in nature) displaying a typical section. The drawing shall be in color with computer images of automobiles, bicycles, and pedestrians occupying the designated travel areas.

1-(36"X24") foam board (or a display similar in nature) displaying a computer enhance photograph utilizing an existing conditions photo to reflect proposed conditions. For intersection projects, 2 computer-enhanced photographs for intersection projects are required.

Project plan view shall be on (36"X24") foam boards/rollouts (or a display similar in nature). For projects of substantial length, projects can be rolled out on tables or placed on the wall. The photo or roll-outs shall be 1"=50', 1"=100" (or a legible scale) raster drawings, to scale aerial photos, or colored CADD drawings with the following information:

- ***existing right-of-way lines***
- ***proposed right-of-way lines***
- ***proposed pavement markings (pavement should be black or gray with the correct color of pavement markings (white or yellow)***
- ***existing structures adjacent to the roadway (homes, businesses, etc.)***
- ***proposed driveway and median openings***
- ***proposed ponds designated as wet or dry***
- ***designation of proposed signalized intersections.***

All displays may depict the CONSULTANT logo but shall depict the DEPARTMENT'S logo.

Briefing of the Design staff by the CONSULTANT (who will be on hand during the workshop) will be done twice. The first time is to be at least seven days prior to the workshop and the second time will be just before the meeting to make sure the staff is up to date on the project and understands the project well enough to discuss it with the public and to answer questions.

Workshop equipment setup and tear down will be handled by the CONSULTANT staff members.

Conducting the workshop will take knowledgeable CONSULTANT staff and will require enough staff members to handle the crowd anticipated for the meeting. Although the meeting is scheduled for a one (1) hour period, the CONSULTANT staff will be available for some time before and/or after those set hours in order to maintain public contact, etc.

The CONSULTANT shall also provide office support personnel to ensure attendees register (CONSULTANT must provide a sign-in sheet with space available for the person's name, address, and telephone number).

If issues are identified at the workshop, their significance will be determined by the CONSULTANT and the DEPARTMENT; i.e., are the issues valid enough for further consideration or do they have elements which may require further consideration.

The CONSULTANT shall provide self-addressed comment forms to allow attendees to provide written comments within 10 days after the Public Information Workshop.

Addressing the issues and responding to them is also an integral part of the workshop process. This is to be accomplished by the CONSULTANT. The DEPARTMENT shall review and approve all response letters prior to mailing.

The CONSULTANT shall coordinate all activities listed and actions to be taken with the Department's Public Information Director and the Project Manager.

Public Involvement Data Collection

The CONSULTANT will collect the following data:

Mailing list preparation. This process involves the identification of any affected, possibly affected, and interested parties early in the study process. Media in the project area will be identified and placed on the mailing list to be used for news releases, advertisements or any concerns. The mailing list will be submitted to the DEPARTMENT and Public Information Director for review and approval. Information from this list will also be used in the CAP plan. In addition to property owners, business owners and tenants, individuals who are to receive a Notice of the meeting and a map shall as applicable include, (but not be limited to):

- ***Chief of Police*** **** District Secretary and Directors***
- ***Chamber of Commerce*** **** Seaport Authority***
- ***Airport Authority*** **** County/City Manager***

Elected and appointed officials (city, state, federal, county) and community leaders in the area will be identified and placed on the mailing list of officials and interested parties. The letter should be developed to include the local road names as well as the state road number. The limits and type of work should be clearly defined. Review the letters and notices to ensure accuracy, names are spelled correctly, and letters are sent to the person holding the public official positions. The letters to be signed by the District Design Engineer must also include the meeting format, schedule of the project, funding, length of construction, etc... The list of Public Officials to receive signed letters from the District Design Engineer will include:

Legislative Delegation,
House of Representatives,
Congress,
Senate,
Florida House & Florida Senate

County Officials

- ***County Manager***
- ***County Public Information Director***
- ***County Commissioners***
- ***County Public Works Director***

- ***County Engineer***
- ***County Emergency Management Director***
- ***Sheriff's Department***
- ***Sheriff's Department Public Information / Public Affairs***
- ***County Airport Director***
- ***County Seaport Director***
- ***County Public Transit System***

County Schools
- ***Superintendent***
- ***Transportation Director***
- ***Public Information Director***

City Contacts
- ***City Commission***
- ***Mayor***
- ***City Manager***
- ***Engineer / Public Work Director***
- ***City Police Chief***

Fire & Rescue Departments

Chamber of Commerce
- ***City, Regional, etc.***
- ***Merchants Association***
- ***Convention & Visitors Bureau***

Tourist Development Regional Planning Council

Water Management Districts

Florida Highway Patrol
****especially if Troop Headquarters is located in municipality***
- ***Major & Commanders***

Local Hospitals

US Postmaster

The CONSULTANT shall be responsible for determining the appropriate meeting site. Elementary, Middle and High Schools, and Colleges are not considered appropriate sites when searching for meeting locations. Prospective sites for the workshop shall be convenient to residents along the corridor and shall be inspected for suitability. Consideration shall be given to capacity, lighting, and other physical characteristics that may influence the selection of the site. The site shall meet ADA standards.

Room size will be based on the number of mailouts. The proposed meeting site shall be presented to the DEPARTMENT for approval prior to the CONSULTANT negotiating use of the site.

Local Government Involvement

The CONSULTANT shall submit Phase I, II, and III plans to the office(s) designated by the local government(s) for a two week review.

The CONSULTANT shall prepare a letter for the Project Manager's signature for each City and/or County Commissioner when the plans (i.e. Phase I, II, & III) are ready to be submitted to their designated contact's office. Examples of this correspondence will be provided by the FDOT Project Manager.

When commissioners are notified, plans and/or documents are sent to their designated contact's office and the notice shall include the following:

FPID Number, Local Description, Type of Work, Construction Estimate, Construction (letting) date, estimated duration of construction and a deadline of two weeks for returning comments.

Each local government response shall be evaluated and all comments or requests shall be responded to in writing within thirty days of receipt of comments.

It is the responsibility of the Engineer of Record to prepare all correspondence for the Project Manager's use. The Engineer of Record will research all issues and respond to and bring closure to all issues.

3.2 Joint Project Agreements (Not anticipated for this project at this time)

3.3 Specifications Package Preparation

The CONSULTANT shall prepare and provide a complete specifications package, including applicable Technical Special Provisions, for all items and areas of work.

The DEPARTMENT will provide the necessary workbook and electronic files, in Microsoft Word 2000 format, for proper completion of the specifications package. The actual work effort will entail utilization of the supplied electronic files, including updates of new files that may be issued from time to time as mandatory specifications changes, and assembling the package in accordance with the DEPARTMENT's Specification Package Preparation Training. ***All current special provisions and supplemental specifications can be found on the DEPARTMENT'S Internet web site at the State Specifications Office Web Page (http://www.dot.state.fl.us/specificationsoffice/) under the Standard Specifications for Road and Bridge Construction and Implemented Modifications. The DEPARTMENT will post permits/utility schedules obtained by the DEPARTMENT to their Specifications Web site for informational purposes.*** The DEPARTMENT may also require inclusion of special provisions necessary to convey particular DEPARTMENT needs. The DEPARTMENT has a database of

previously approved Technical Special Provisions that may be used as a basis of formulation of any proposed Technical Special Provisions.

The Standard Specifications, for Road and Bridge Construction and, Special Provisions or Supplemental Specifications from the applicable workbook of implemented modifications may not be modified unless absolutely necessary to control project-specific requirements. Proposed modifications to these listed documents must be drafted in redline strikethrough format along with justification of the project specific need, and coordinated with the District Specifications Office, who will obtain District Legal input, and approval by the State Specifications Engineer, prior to inclusion in the final project specifications package.

Contact the District Specifications Office for formatting requirements and the availability of a Technical Special Provision for the anticipated work on the project. Each modification must be justified to the DEPARTMENT's Specifications Office to be included in the project's Specifications Package as Technical Special Provisions. Technical Special Provisions shall be submitted in conformity with FDOT Handbook for Preparation of Specifications Packages and FDOT Procedure No. 630-010-005-a. If any portion of the project is Federally funded, all Technical Special Provisions must also conform to Chapter 23, Part 635 of the Code of Federal Regulations for this project. At the Phase III plans submittal, the CONSULTANT shall submit a draft of the proposed Technical Special Provisions to the District's Specifications Office. Submittal shall be coordinated through the District's Project Manager.

One of the most important considerations for justifying the use of an Incentive Disincentive (I/D) provision is whether payment for early completion of the project or portion of the project is cost beneficial to the traveling public. The incentive/disincentive monetary amount set for a selected project shall be supported by an estimated cost of damages expected to be mitigated by early completion of the overall project or critical phase of work. The amount of such I/D payment or such additional damages shall be established in the contract based on an analysis of the cost savings to the traveling public or revenue projections for a revenue-producing project. The Consultant will be required to conduct the I/D cost analysis and shall submit the analysis results and backup documentation to the District Construction Office at Phase III along with any TSP's (as noted above) to be reviewed at that time. The analysis may be conducted by using an approved process and software such as "QUEWZ" or "MicroBenCost" to calculate the daily I/D amount. The Consultant shall coordinate with the Department's Project manager and the District Specifications Office regarding the use of these software packages and if an equivalent process may be used for the cost analysis. The Consultant shall conduct the cost analysis on projects that are identified to use Incentive/Disincentive, Time plus Money (A+B), and/or Lane Rental Alternative Contracting methods for letting.

<u>For Class 1 (State) Contracts the following is required:</u>

Submit a complete Specifications Package and the Workbook used to compile the Specifications Package; along with a copy of the Signed and Sealed Plans at the time plans are to be reviewed by the Bid Team.

This submittal shall include:

One Electronically Signed and Sealed Spec Package (CD) and the documents generated from using the current version of the Professionals' Electronic Data Delivery System (PEDDS) software. One copy of the quality control review conducted for the submittal a copy of the signed and sealed plans and a copy of the incentive/disincentive $ amounts and backup documentation. The submittal shall occur nine (9) weeks prior to the "Contract Package to Tallahassee" date.

The District Specifications Office will review the Specifications Package and provide input for the Consultant's consideration. The Consultant shall respond in writing to the comments within 10 days and provide a corrected Specifications package, any corrected plan sheets and a copy of the quality review conducted for the changes.

Final submittal of the complete specifications package must occur at least 5 working days prior to the contract package to Tallahassee due date. This submittal shall be signed, dated and sealed in accordance with applicable Florida Statutes. The submittal materials shall consist of the same as those submitted for the Final Specifications submittal to the DEPARTMENT.

Any Plan Revision, Mandatory Specification Revision or any other change occurring after the "Transmit Package for Letting" Date that requires a Supplemental Specifications Package, will be the responsibility of the CONSULTANT. The number of copies for the Supplemental Specifications will be the same as above.

For projects to be let together or "goes with projects", the CONSULTANT for the lead project will be responsible for compiling the Specifications Package and any required Supplemental Specifications Packages. Technical Special Provisions will be the responsibility of the CONSULTANT for that project which requires the TSP.

It is the intent of the DEPARTMENT that the Specifications Package and any Supplements be prepared by & signed and sealed by the Engineer of Record preparing the project plans, except as noted above for projects being let together. In this case, the Engineer of Record for the lead project will be required to sign and seal the Specification Package and any required Supplements.

3.4 Contract Maintenance

Contract maintenance includes project management effort for complete setup and maintenance of files, developing monthly progress reports, schedule updates, work effort to develop and execute subconsultant agreements, etc.

3.5 Value Engineering (Multi-Discipline Team) Review (Not applicable to this

project)

3.6 Prime Project Manager Meetings

Includes only the Prime Project Manager's time for travel and attendance at Activity Technical Meetings and other meetings listed in the meeting summary for Task 3.6 on tab 3.0 Project General Task of the staff hour forms. Staff hours for other personnel attending Activity Technical Meetings are included in the meeting task for that specific Activity.

3.7 Other Project General Tasks (Not applicable to this project)

4 ROADWAY ANALYSIS

The CONSULTANT shall analyze and document Roadway Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

4.1 Typical Section Package

The CONSULTANT shall provide an approved ***signed and sealed*** Typical Section Package ***to be submitted to the DEPARTMENT for review and concurrence*** prior to the Phase I (30%) plans submittal date. ***This package shall include the following:***

Transmittal letter, Location Map(s), Typical Section(s) (including bridge sections), Project Control Sheet(s)

The District Three Newsletter, Vol. 3 No. 1 article entitled "Typical Section Package Requirements" will provide the Consultant with guidelines in making this submittal.

4.2 Pavement Design Package

The CONSULTANT will be responsible for the Pavement Design.

The CONSULTANT will be responsible for conducting a pavement type selection analysis in accordance with the FDOT's current Pavement Type Selection Manual or as Directed by the Department. This analysis shall be conducted after coring and prior to developing the Typical Section Package for the project. Results of this analysis shall be submitted to and concurred by the Department prior proceeding with the project.

The CONSULTANT will be responsible for performing Pavement Coring and providing recommendations regarding milling and recycling. In addition, the CONSULTANT will be responsible for the Pavement Design. Pavement Coring shall comply with Section 3.4, Pavement Coring and Evaluation, of the Materials Manual. The condition of the pavement at each core location shall be observed and recorded on the Pavement Evaluation Coring and Condition Data Sheet

(Form #675-030-09), and input into the Pavement Coring Reporting (PCR) system by the Consultant. The Pavement Design shall comply with the most recent version of the FDOT Pavement Design Manual. The CONSULTANT may contact the District Materials Office to obtain a copy of the Department's Pavement Design Package Requirements.

The Consultant shall consider the number of lifts and constructability when designing the pavement mix. The CONSULTANT shall consider these issues, as construction plans are prepared. The CONSULTANT shall provide an approved Pavement Design Package for DEPARTMENT concurrence prior to the Phase II Plans submittal date.

The CONSULTANT shall provide the District Materials Office the opportunity to review the Pavement Coring and Pavement Design. A Coring plan shall be submitted to the District Bituminous Engineer, for concurrence, prior to commencing with any coring. The Pavement Design shall be submitted for concurrence, prior to plan implementation. Also, plan submittals shall be forwarded for review as they occur.

4.3 Access Management (Not applicable to this project)

4.4 Horizontal/Vertical Master Design Files

The CONSULTANT shall design the geometrics using the design standards that are most appropriate with proper consideration given to the design traffic volumes, design speed, capacity and levels of service, functional classification, adjacent land use, design consistency and driver expectancy, aesthetics, pedestrian and bicycle concerns, ADA requirements, elder road user policy, access management, PD&E documents and scope of work.

4.5 Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with the CADD manual.

4.6 Traffic Control Analysis

The CONSULTANT shall design a safe and effective Traffic Control Plan to move vehicular and pedestrian traffic during all phases of construction. The design shall include construction phasing of roadways ingress and egress to existing property owners and businesses, routing, signing and pavement markings, detour quantity tabulations, ***roadway pavement, drainage structures, ditches, front slopes, back slopes, drop offs within clear zone, and traffic monitoring sites***. Special consideration shall be given to the construction of the drainage system when developing the construction phases. Positive drainage must be maintained at all times. The design shall include construction phasing of roadways to accommodate the construction ***or relocation*** of utilities when the contract includes Joint Project Agreements (JPAs).

The CONSULTANT shall investigate the need for temporary traffic signals, temporary lighting, alternate detour roads, and the use of materials such as sheet piling in the analysis. The Traffic Control Plan shall be prepared by a certified designer who has completed training as required by the DEPARTMENT. Prior to proceeding with the Traffic Control Plan, the CONSULTANT shall meet with the appropriate DEPARTMENT personnel. The purpose of this meeting is to provide information to the CONSULTANT that will better coordinate the Preliminary and Final Traffic Control Plan efforts.

The CONSULTANT shall conduct the lane closure analysis to determine work conditions when no lane closures will be allowed. The Traffic Control Plan shall be prepared by a certified designer who has completed the DEPARTMENT'S training course, and in accordance with the DEPARTMENT'S Design Standards and the Roadway Plans Preparation Manual.

The CONSULTANT shall consider the local impact of any lane closures or alternate routes. When the need to close a road is identified during this analysis, the CONSULTANT shall notify the DEPARTMENT's Project Manager as soon as possible. Proposed road closings must be reviewed and approved by the DEPARTMENT. Diligence shall be used to minimize negative impacts by appropriate specifications, recommendations or plans development. Local impacts to consider will be local events, holidays, peak seasons, detour route deterioration and other eventualities. CONSULTANT shall be responsible to obtain local authorities permission for use of detour routes not on state highways.

4.7 Master TCP Design Files

The CONSULTANT shall develop master Traffic Control Plan (TCP) files (for Level II and Level III only) showing each phase of the Traffic Control Plan.

4.8 Design Variations and Exceptions

The CONSULTANT shall prepare the documentation necessary to gain DEPARTMENT approval of all appropriate Design Variations and/or Design Exceptions. ***This information shall be submitted to the Project Manager upon completion.***

4.9 Design Report

The CONSULTANT shall prepare all applicable report(s) as listed in the Project Description section of this scope.

The CONSULTANT shall submit to the DEPARTMENT design notes, data, and calculations to document the design conclusions reached during the development of the contract plans.

The design notes, data, and computations shall be recorded on size 8½"x11" sheets, fully titled, numbered, dated, indexed and signed by the designer and the checker.

Computer output forms and other oversized sheets shall be folded to 8½"x11" size. The data shall be in a hardback folder for submittal to the DEPARTMENT.

4.10 Computation Book and Quantities

The CONSULTANT shall prepare the Computation Book and various summary of quantities sheets. This includes all efforts required to develop the Computation Book and the supporting documentation, including ***proposed*** construction days ***and total contract time***. ***(Comp books are not required on Lump Sum Projects) If the project is identified to be a Lump Sum project, a summary of pay items and quantities shall be submitted with the construction contract time estimate for the DEPARTMENT's review and approval at the Phase III, IV and Final plans submittal.***

4.11 Cost Estimate

The CONSULTANT shall be responsible for inputting pay items and quantities into the DEPARTMENT'S Transport System. The project shall be established in this system by Phase I (30%). Phase II (60%) submittal shall have all pay items identified with or without quantities. (If quantities have not been determined at this point, the CONSULTANT shall load a quantity of "1.0".) A draft construction cost estimate shall be provided with the Phase II submittal. At Phase III (90%) and IV (100%) the Consultant shall have all quantities loaded and develop the construction cost estimate. This estimate and a copy of the plans will be submitted to the Department at phases III and IV. The above shall be provided for each component set of plans (i.e., Roadway, Bridge, Signing and Marking, etc.).

4.12 Technical Special Provisions

4.13 Other Roadway Analysis

4.14 Field Reviews

4.15 Technical Meetings

4.16 Quality Assurance/Quality Control

4.17 Independent Peer Review (Not applicable to this project)

4.18 Supervision

4.19 Coordination

5 ROADWAY PLANS

The CONSULTANT shall prepare Roadway, Drainage, Traffic Control, Utility Adjustment Sheets, plan sheets, notes, and details. The plans shall include the following sheets necessary to convey the intent and scope of the project for the purposes of construction.

On some projects, traffic monitoring sites may have to be included. The CONSULTANT shall be responsible for loading all quantities for the installation and/or removal of a traffic monitoring site(s) and showing the location the site(s) on the Key Sheet and plan sheets (as applicable). The DEPARTMENT shall be responsible for providing the location to the CONSULTANT.

Contamination – All underground fuel tanks and monitoring wells within the proposed right-of-way are to be located and shown/tabulated in the plans. All piping and pumps in association with the tanks shall also be located and identified by the survey. The CONSULTANT shall relay to the DEPARTMENT any findings of contaminated soil, monitoring wells, or any features (particularly springs or sinks) relating to contamination or hazardous material.

The task items negotiated for the project will be identified on the Approved Staff Hour forms for the project.

5.1 Key Sheet

5.2 Summary of Pay Items Including Quantity Input

5.3 Drainage Map

5.4 Interchange Drainage Map (Not applicable to this project)

5.5 Typical Section Sheets

5.6 General Notes/Pay Item Notes

5.7 Summary of Quantities

5.8 Box Culvert Data Sheet

5.9 Bridge Hydraulics Recommendation Sheets (Not applicable to this project)

5.10 Summary of Drainage Structures

5.11 Optional Pipe/Culvert Material

5.12 Project Layout

5.13 Plan/Profile Sheet

5.14 Profile Sheet

5.15 Plan Sheet

5.16 Special Profile

5.17 Back of Sidewalk Profile Sheet (Not applicable to this project)

5.18 Interchange Layout Sheet (Not applicable to this project)

5.19 Ramp Terminal Details (Plan View) (Not applicable to this project)

5.20 Intersection Layout Details

5.21 Miscellaneous Detail Sheets

5.22 Drainage Structure Sheet

5.23 Miscellaneous Drainage Detail Sheets

5.24 Lateral Ditch Plan/Profile (Not applicable to this project)

5.25 Lateral Ditch Cross Sections (Not applicable to this project)

5.26 Retention/Detention Ponds Detail Sheet (Not applicable to this project)

5.27 Retention Pond Cross Sections (Not applicable to this project)

5.28 Cross-Section Pattern Sheet (Not applicable to this project)

5.29 Roadway Soil Survey Sheet

5.30 Cross Sections

5.31 Traffic Control Plan Sheets

5.32 Traffic Control Cross Section Sheets

5.33 Traffic Control Detail Sheets

5.34 Utility Adjustment Sheets

5.35 Selective Clearing and Grubbing

5.36 Erosion Control Plan

5.37 SWPPP

5.38 Project Control Network Sheet

5.39 Interim Standards

5.40 Utility Verification Sheet (SUE Data)

5.41 Quality Assurance/Quality Control

5.42 Supervision

6 DRAINAGE ANALYSIS

The CONSULTANT shall analyze and document Drainage Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall be responsible for designing a drainage and stormwater management system. All design work shall comply with the requirements of the appropriate regulatory agencies and the DEPARTMENT's Drainage Manual.

The CONSULTANT shall field inspect the project for the structural condition of all side drains, cross drains, and drainage under the roadway area and make recommendations concerning repairs, extensions, replacement/upgrade, or removal of such facilities. Drainage structures shall be assessed and designed to meet clear zone requirements within existing right of way. Culverts that warrant replacement shall be itemized and detailed as appropriate in the construction plans. The CONSULTANT shall contact and document discussions with the DEPARTMENT's local Maintenance Office regarding historical drainage problems in the project area.

The CONSULTANT shall develop a drainage map based upon available information and field reviews. The available information should consist of old Florida DEPARTMENT of Transportation Plans, USGS Quadrangles, USGS Studies, NWFWMD Studies, FEMA Studies, Local Government Agency Studies or Contours, etc. The drainage map should be included in the Hydraulic Design Study. The Hydrology should be by regional or local regression equations, or by the rational method. An assumed velocity should not be used. The CONSULTANT shall document the Drainage Design in the Drainage Design Study (23CFR650A). The Design Study should show that the design requirements of the DEPARTMENT and FHWA have been met.

The CONSULTANT has the responsibility for determining the need, appropriate locations, and sizes for water management facilities, and drainage outfalls.

In the areas of poor drainage, significant addition of impervious surface, or inadequacy of sufficient downstream conveyance, the CONSULTANT shall address the requirements of Ch. 14-86 F.A.C. Alternate detention facilities shall be conceptually designed, costed and presented to the DEPARTMENT for consideration. Detention facilities to be considered include open basins, underground pipes or vaults, and french drains. The DEPARTMENT will decide on the Alternate to be used.

Flood data requirements will be determined in accordance with DEPARTMENT procedures. Flood data will be required in plans under the following conditions 1) necessary for all structures that are being modified, 2) necessary for all structures that have a history of flooding or other hydraulic problems even if the structure is not to be modified, 3) necessary for structures that may not be modified but share a drainage basin with another structure being modified and are being impacted by such modification.

The CONSULTANT will consider alternate culvert materials in accordance with Volume

I of the DEPARTMENT's Drainage Manual.

Prior to Phase II (60%) plans submittal, the CONSULTANT shall meet with the District Drainage Engineer. The purpose of this meeting is to provide information to the CONSULTANT that will better coordinate the Preliminary and Final Drainage Design efforts.

The CONSULTANT shall provide the DEPARTMENT's District Drainage engineer a signed and sealed Drainage Design Study. The study shall include a narrative description of existing and proposed drainage structures, conditions, and facilities, and a listing of environmental regulatory permits required. All hydrologic and hydraulic drainage computations for the design presented in the plans shall be included along with supporting design information such as drainage maps, geotechnical data (such as soil borings and permeability tests), and correspondence that directly affected design decisions.

The CONSULTANT must coordinate fully with the appropriate permitting agencies and the DEPARTMENT's staff. All activities and submittals should be coordinated through the DEPARTMENT's Project Manager. The work will include the engineering analyses for any or all of the following:

6.1 Determine Base Clearance Water Elevation (Not applicable to this project)

6.2 Pond Siting Analysis and Report (Not applicable to this project)

6.3 Design of Cross Drains

Analyze the hydraulic design of cross drains. Check existing cross drains to determine if they are structurally sound and can be extended. Document the design as required. Determine and provide flood data as required.

6.4 Design of Roadway Ditches

Design roadway conveyance ditches. This includes determining ditch cross sections, grades, selecting suitable channel lining, designing the side drain pipes, and documentation.

6.5 Design of Outfalls

Analyze and document the design of ditch or piped outfalls. (Pond outlet structure included in task 6.6)

6.6 Design of Stormwater Management Facility (Offsite Pond) (Not applicable to this project)

6.7 Design of Stormwater Management Facility (Roadside Ditch as Linear Pond) (Not applicable to this project)

6.8 Design of Flood Plain Compensation Area (Not applicable to this project)

6.9 Design of Storm Drains

Develop a "working drainage map", determine runoff, inlet locations, and spread. Calculate hydraulic losses (friction, utility conflict and, if necessary, minor losses). Determine Design Tailwater and, if necessary, outlet scour protection.

6.10 Optional Culvert Material

Determine acceptable options for pipe materials.

6.11 French Drain Design (Not applicable to this project)

6.12 Drainage Wells (Not applicable to this project)

6.13 Drainage Design Documentation Report

Compile drainage design documentation into report format. Include documentation for all the drainage design tasks and associated meetings and decisions, except the Pond Siting Analysis Report and Bridge Hydraulics Report.

6.14 Bridge Hydraulic Report (Not applicable to this project)

6.15 Temporary Drainage Analysis (Not applicable to this project)

6.16 Cost Estimate

6.17 Technical Special Provisions

6.18 Other Drainage Analysis

6.19 Field Reviews

6.20 Technical Meetings

6.21 Quality Assurance/Quality Control

6.22 Independent Peer Review (Not applicable to this project)

6.23 Supervision

6.24 Coordination

7 UTILITIES

All Utility Coordination activities will be performed by the DEPARTMENT. Coordinate with FDOT Area Utility Manager regarding information needed.

7.1 Kickoff Meeting

The CONSULTANT shall meet with the District Utility Office (DUO) to receive guidance, as may be required, to assure that all necessary ***activities*** will be accomplished in accordance with DEPARTMENT procedures.

7.2 Identify Existing UAO(s)

The DEPARTMENT will identify all utilities in the corridor.

7.3 Make Utility Contacts

The DEPARTMENT's Area Utility Manager will make contact and distribute plans to the applicable UAOs. The CONSULTANT will be responsible for providing the appropriate quantity of plan sets to the Area Utility Manager.

7.4 Exception Coordination

The DEPARTMENT will coordinate all necessary Utility Exceptions. The CONSULTANT will not be responsible for obtaining utility exceptions but will need to provide information as available to assist utility companies in obtaining exceptions.

7.5 Preliminary Utility Meeting

The DEPARTMENT shall be responsible for scheduling (time and place), notifying participants, and conducting a preliminary utility meeting with all affected UAO(s). As directed by the DEPARTMENT's Area Utility Manager, the CONSULTANT shall attend the Preliminary Utility Meeting for the purpose of presenting the project, reviewing the current design schedule, evaluating the utility information collected, and discussing any future design issues that may impact utilities. The AREA UTILITY MANAGER shall keep accurate minutes and distribute a copy to all attendees.

7.6 Individual/Field Meetings

The CONSULTANT will attend utility meetings as directed by the DEPARTMENT's Area Utility Manager.

7.7 Collect and Review Plans and Data from UAO(s)

The CONSULTANT will be responsible for reviewing and implementing identified utility locations into the plans as well as producing a Utility Conflict Matrix.

7.8 Subordination of Easements Coordination (Not applicable to this project)

All Utility Coordination activities will be performed by the DEPARTMENT.

7.9 Utility Design Meeting

At a minimum of 3 weeks prior to the meeting, the CONSULTANT shall transmit two complete sets of Phase II plans ***to the Area Utility Manager for*** each ***of the***

UAO***s*** having facilities located within the project limits, and one set to the DEPARTMENT Offices as required by the District. ***The DEPARTMENT's Area Utility Manager shall schedule (time and place), notify participants, and conduct a Utility Design Meeting with all affected UAO(s).*** The CONSULTANT shall be prepared to discuss drainage, traffic signalization, maintenance of traffic (construction phasing), review the current design schedule and letting date, evaluate the utility information collected, provide follow-up information on compensable interest requests, discuss any future design issues that may impact utilities, etc., to the extent that they may have an effect on existing or proposed utility facilities with particular emphasis on drainage and maintenance of traffic with each UAO. The intent of this meeting shall be to identify and resolve conflicts between utilities and proposed construction prior to completion of the plans, including utility adjustment details. Also recommend resolution between known utility conflicts with proposed construction plans as practical. The ***AREA UTILITY MANAGER*** shall keep accurate minutes of all meetings and distribute a copy to all attendees.

7.10 Review Utility Markups and Work Schedules and Processing of Schedules and Agreements

Review utility marked up plans individually as they are received for content. Send color markups and schedules to the ***Area Utility Manager*** for review and comment if required by the District. ***The CONSULTANT will coordinate with the DEPARTMENT's Area Utility Manager for execution.***

7.11 Utility Coordination/Follow-up

Utility Coordination and Follow-up activities will be performed by the DEPARTMENT and the CONSULTANT if requested by the DEPARTMENT..

7.12 Utility Constructability Review

Utility Constructability Review activities will be performed by the DEPARTMENT.

7.13 Additional Utility Services

Additional Utility Services will be performed by the DEPARTMENT.

7.14 Processing Utility Work by Highway Contractor (UWHC)

Processing of any Utility Work by the Highway Contractor will be performed by the DEPARTMENT.

7.15 Contract Plans to UAO(s)

The CONSULTANT will be responsible for providing the appropriate quantity of plan sets to the Area Utility Coordinator at each Phase Submittal.

7.16 Certification/Close-Out

The Certification and Close-Out of utility activities will be performed by the DEPARTMENT.

7.17 Other Utilities (Not applicable to this project)

8 ENVIRONMENTAL PERMITS

The CONSULTANT shall notify the DEPARTMENT Project Manager, Environmental Permit Coordinator and other appropriate personnel in advance of all scheduled meetings with the regulatory agencies to allow a DEPARTMENT representative to attend. The CONSULTANT shall copy in the Project Manager and the Environmental Permit Coordinator on all permit related correspondence and meetings.

8.1 Preliminary Project Research

The CONSULTANT shall perform preliminary project research and shall be responsible for early identification of and coordination with the appropriate regulatory agencies to assure that design efforts are properly directed toward permit requirements.

8.2 Complete Permit Involvement Form

The CONSULTANT shall document permit involvement in coordination with the District Permit Coordinator and DEPARTMENT Project Manager. This is to be done upon completion of preliminary project research.

8.3 Establish Wetland Jurisdictional Lines

The CONSULTANT shall collect all data and information necessary to determine the boundaries of wetlands and surface waters defined by the rules or regulations of each agency processing or reviewing a permit application necessary to construct a DEPARTMENT project.

It is the intent of the Florida DEPARTMENT of Transportation (FDOT) to "preserve the quality of our environment." In keeping with this portion of our Mission, the FDOT, District 3, has developed these guidelines (originally named the Dozen Points on Environmental Issues) to assist FDOT and our Consultant Designers in meeting environmental agency permit requirements. In general, MECHANICAL clearing and grubbing (construction activities) or VEHICULAR intrusion in jurisdictional wetlands requires a Dredge and Fill permit from the Florida DEPARTMENT of Environmental Protection (FDEP) and the United States Army Corps of Engineers (USACE).

Multi-lane projects, projects on new alignment, bridge replacements or any other project where wetlands may be impacted*.

A binding jurisdictional determination from USACE and a formal jurisdictional determination from FDEP are required. (Note: In many cases, the FDEP may

choose to accept the USACE binding jurisdictional determination, resulting in one (1) wetland line).

It is FDOT's intent to mitigate for impacts within the Limits of Construction (LOC) PLUS a "buffer zone" of 5 feet outside each LOC line. If the right of way line is within 5 feet of the LOC, mitigation is to the right of way line.

The Consultant is to stake or flag both the FDEP and USACE jurisdictional lines. The jurisdictional lines for FDEP and USACE shall be staked and surveyed by a registered surveyor. Prior to submitting the FDEP and USACE permit applications, the consultant confirms that the stakes or flags are in place. The consultant must remove all stakes or flags after the environmental permits are approved.

The contractor is to be provided, in the plans, survey points to delineate or flag the wetlands that are NOT TO BE IMPACTED. It is the contractor's responsibility to flag or stake these areas prior to construction beginning and maintain them throughout construction. The responsibility of the contractor shall be clearly noted on the plans.

The plans shall clearly show the jurisdictional line(s). The jurisdictional areas that are impacted and requiring mitigation shall be clearly designated and noted "Construction activities allowed." Jurisdictional areas that are not impacted and are to remain undisturbed throughout construction shall be clearly designated and noted "Construction activities not allowed".

The Consultant shall include a section in the roadway component set of plans to reflect the items above. This section shall also include a Tabulation Sheet or Block defining the undisturbed wetlands by x, y coordinates or station and offsets. The disturbed wetlands shall also be tabulated in square feet or acres indicating the area impacted (or mitigated). This section shall include any general or project specific environmental notes.

The Engineer of Record (EOR) shall prepare a narrative, in layman terms, for inclusion in the permit application package. It shall include work being performed in this project, impacts to the environment and methods of construction specifically related to the environmental sensitive areas. This brief description will aid the regulatory agency reviewer in understanding the scope of the project.

A Pre-Application Meeting should be held on major projects between the FDOT Project Manager, Environmental Management Office, EOR and all agencies issuing permits on the project no later than 60% plan development. This meeting should discuss estimated mitigation acreage, mitigation inventory acreage, proposed pond sites, jurisdictional delineations, special erosion requirements, additional sensitive sites and Northwest Florida Water Management District (NWFWMD) mitigation plan. This meeting should streamline the permitting process by early involvement with agencies.

On projects where no wetland impacts are anticipated, the plans will clearly show the "Safe Upland Line**." Areas outside this line shall be labeled or noted "Construction activities not allowed".

On all projects:

The EOR shall prepare an Erosion Control Plan that will prevent or minimize environmental impacts. Areas especially prone to erosion, such as high fill areas or long steep ditches shall be given special attention, i.e. sod, temporary matting, slope drains, inline holding or sediment pools, etc., to reduce environmental impacts.

The EOR must be prepared to discuss the Erosion Control Plan at the Pre-Construction Conference, including any environmental sensitive areas, any known risk(s) and the special requirements listed in the permit for this project.

All environmental permits will be forwarded to the EOR as early as possible. It will be the EOR's responsibility to compare the plans with the environmental permits for conflicts and/or discrepancies. The EOR must submit in writing to the Project Manager that this review has occurred and the plans comply with the permit. Also, with this letter, he will verify the flags and/or other wetland delineation markings related to this project have been removed.

On projects with utility relocations:

The Wetland Delineations (disturbed and undisturbed) and/or the Safe Upland Lines must be shown in the plans at the time of the utility pre-design meeting (Phase II Plans).

For utility construction projects required by a FDOT construction project, prior to intruding a wetland, the Utility owner or his representative

- ***May be allowed to move the utility under FDOT's footprint, as identified in the plans, under FDOT's permit***
- ***Use a non-intrusive method of construction (bore and jack under the wetland).***
- ***Secure his own permit.***

For utility constructions projects not associated with a FDOT project the Utility Owner or his representative will be required to present a FDEP and USACE permit if required or a letter from the regulatory agencies stating a permit will not be required.

**** There may be circumstances where a small percentage of a project impacts wetlands. In this case, the Designer should apply this guideline to that portion of the project that is impacted and the remainder of the project should be treated as if no impacts are anticipated. For example, a ten (10) mile resurfacing project has impacts on a 0.25 mile section of the project.***

***** According to the USACE, a Safe Upland is any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands. The Consultant/Designer shall locate this line in manner that allows the Contractor to reproduce this line in the field—station and offset or state plane coordinates.***

The CONSULTANT shall be responsible for, but not limited to, the following activities:

Determine landward extent of state waters as defined in Chapter 62-340 FAC as ratified in Section 373.4211 FS

- Determine the jurisdictional boundaries of wetlands and surface waters as defined by rules or regulations of any other permitting authority that is processing a DEPARTMENT permit application.
- Prepare aerial maps showing the jurisdictional boundaries of wetlands and surface waters. Aerial maps shall be reproducible, of a scale no greater than 1"=200' and be recent photography. The maps shall show the jurisdictional limits of each agency. Xerox copies of aerials are not acceptable. All jurisdictional boundaries are to be tied to the project's baseline of survey. When necessary, jurisdictional maps shall be signed and sealed by either a Registered Professional Engineer or a Registered Land Surveyor.
- Acquire written verification of jurisdictional lines from the appropriate environmental agencies.

Prepare a written assessment (UMAM) of the current condition and relative value of the function being performed by wetlands and surface waters. Prepare data in tabular form which includes the ID number for each wetland impacted, size of wetland to be impacted, type of impact and identify any wetland within the project limits that will not be impacted by the project.

8.4 Agency Verification of Wetland Data

The CONSULTANT shall be responsible for verification of wetland data identified in Section 8.3 and coordinating regulatory agency field reviews, including finalization of wetland assessments with applicable agencies.

8.5 Complete and Submit All Required Permit Applications

The CONSULTANT shall prepare permit packages as identified in the Project Description section.

The CONSULTANT shall collect all of the data and information necessary to obtain the environmental permits required to construct a project.

The CONSULTANT shall prepare each permit application for DEPARTMENT approval in accordance with the rules and/or regulations of the environmental agency responsible for issuing a specific permit and/or authorization to perform work.

All environmental permits will be forwarded to the EOR as early as possible. It will be the EOR's responsibility to compare the plans with the environmental permits and to identify and resolve any conflicts and/or discrepancies. The EOR must submit in writing to the Project Manager that this review has occurred and that the plans comply with the permit. Also, with this letter, the EOR will verify the flags and/or other wetland delineation markings related to this project have been removed.

8.6 Prepare Dredge and Fill Sketches

8.7 Prepare USCG Permit Sketches (Not applicable for this project)

8.8 Prepare Easement Sketches

8.9 Prepare Right-of-Way Occupancy Sketches

8.10 Prepare Coastal Construction Control Line (CCCL) Permit Sketches (Not applicable for this project)

8.11 Prepare Tree Permit Information (Not applicable for this project)

8.12 Mitigation Coordination and Meetings

The CONSULTANT shall coordinate with DEPARTMENT personnel prior to approaching any environmental permitting or reviewing agencies. Once a mitigation plan has been reviewed and approved by the DEPARTMENT, the CONSULTANT will be responsible for coordinating the proposed mitigation plan with the environmental agencies.

8.13 Mitigation Design

If wetland impacts cannot be avoided, the CONSULTANT shall prepare a mitigation plan to be included as a part of the Environmental Resource or Wetlands Resource Permit applications.

Prior to the development of alternatives, the CONSULTANT shall meet with the Project Manager to determine the DEPARTMENT's policies in proposing mitigation. The CONSULTANT shall proceed in the development of a mitigation plan based upon the general guidelines provided by the DEPARTMENT.

The CONSULTANT will be directed by the DEPARTMENT to investigate the following methods of mitigation:

Payment to DEP/WMD per acre of wetlands impacted as defined in CH 373.4137 FS
- Monetary participation in offsite regional mitigation plans
- Monetary participation in a private mitigation bank
- Creation/restoration on public lands
- Creation/restoration on right-of-way purchased by the DEPARTMENT

Creation/restoration on existing DEPARTMENT right-of-way

In the event that physical creation or restoration is the only feasible alternative to offset wetland impacts, the CONSULTANT shall collect all of the data and information necessary to prepare alternative mitigation plans that may be acceptable to all permitting agencies and commenting agencies who are processing or reviewing a permit application for a DEPARTMENT project.

Prior to selection of a final mitigation site, the CONSULTANT will provide the following services in the development of alternative mitigation plans:

Preliminary jurisdictional determination for each proposed site
- Selection of alternative sites
- Coordination of alternative sites with the DEPARTMENT/all environmental agencies

Written narrative listing potential sites with justifications for both non-recommended

8.14 Environmental Clearances

The CONSULTANT shall prepare clearances for all pond and/or mitigation sites identified after the PD&E was completed.

Archaeological and Historical Features: The DEPARTMENT shall collect data necessary to completely analyze the impacts to all cultural and historic resources by the pond and/or mitigation sites and prepare a Cultural Resource Assessment Request Package.

Wetland Impact Analysis: The CONSULTANT shall analyze the impacts to wetlands for the pond and/or mitigation sites and complete the Wetlands Evaluation Report.

Wildlife and Habitat Impact Analysis: The CONSULTANT shall collect data necessary to perform an Endangered Species Biological Assessment, and analyze the impacts to wildlife and habitat by the pond and/or mitigation sites.

Contamination Impact Analysis: The DEPARTMENT shall perform the necessary analysis to complete the Contamination Screening Evaluation for the pond and/or mitigation sites and complete the Contamination Screening Evaluation Report.

8.15 Other Environmental Permits

8.16 Technical Meetings

At the Pre-construction Conference, the EOR must be prepared to discuss the Erosion Control Plan, including environmentally sensitive areas, and known risk, proposed avoidance measures, and the special requirements listed in the permit for this project.

8.17 Quality Assurance/Quality Control

8.18 Supervision

8.19 Coordination

9 STRUCTURES - SUMMARY AND MISCELLANEOUS TASKS AND DRAWINGS

The CONSULTANT shall analyze and design all structures in accordance with applicable provisions as defined in Section 2.17, Provisions for Work. Individual tasks identified in Sections 9 through 18 are defined in the Staff Hour Estimation Handbook and within the provision defined in Section 2.17, Provisions for Work. Contract documents shall display economical solutions for the given conditions.

The CONSULTANT shall provide Design Documentation to the DEPARTMENT with each submittal consisting of structural design calculations and other supporting documentation developed during the development of the plans. The design calculations submitted shall adequately address the complete design of all structural elements. These calculations shall be neatly and logically presented on 8½"x11" paper (where possible) and all sheets shall be numbered. The final design calculations shall be signed and sealed by a Florida-registered professional engineer. A cover sheet indexing the contents of the calculations shall be included and the engineer shall sign and seal that sheet. All computer programs and parameters used in the design calculations shall include sufficient backup information to facilitate the review task.

9.1 Index of Drawings

9.2 Project Layout

9.3 General Notes and Bid Item Notes

9.4 Incorporate Florida Department of Transportation Standards

9.5 Incorporate Report of Core Borings

9.6 Existing Bridge Plans (Not applicable for this project)

9.7 Computation Book and Quantities

9.8 Cost Estimate

9.9 Technical Special Provisions

9.10 Field Reviews

9.11 Technical Meetings

9.12 Quality Assurance/Quality Control

9.13 Independent Peer Review

9.14 Supervision

9.15 Coordination

10 STRUCTURES - BRIDGE DEVELOPMENT REPORT and tasks 10.1 – 10.48 are not applicable for this project.

11 STRUCTURES - TEMPORARY BRIDGE and tasks 11.1 – 11.8 are not applicable for this project.

12 STRUCTURES - SHORT SPAN CONCRETE BRIDGE and tasks 12.1 – 12.28 are not applicable for this project.

13 STRUCTURES - MEDIUM SPAN CONCRETE BRIDGE and tasks 13.1 – 13. 53 are not applicable for this project.

14 STRUCTURES - STRUCTURAL STEEL BRIDGE and tasks 14.1 – 14. 61 are not applicable for this project.

15 STRUCTURES - SEGMENTAL CONCRETE BRIDGE and tasks 15.1 – 15.78 are not applicable for this project.

16 STRUCTURES - MOVABLE SPAN and tasks 16.1 – 16.102 are not applicable for this project.

17 STRUCTURES - RETAINING WALL

The CONSULTANT shall prepare plans for Retaining Wall(s) as specified in Section 2.5.

General Requirements

17.1 Key Sheets

17.2 Horizontal Wall Geometry

Permanent Proprietary Walls

17.3 Vertical Wall Geometry

17.4 Semi-Standard Drawings

17.5 Wall Plan and Elevations (Control Drawings)

17.6 Details

Temporary Proprietary Walls

17.7 Vertical Wall Geometry

17.8 Semi-Standard Drawings

17.9 Wall Plan and Elevations (Control Drawings)

17.10 Details

Cast-In-Place Retaining Walls

17.11 Design

17.12 Vertical Wall Geometry

17.13 General Notes

17.14 Wall Plan and Elevations (Control Drawings)

17.15 Sections and Details

17.16 Reinforcing Bar List

Other Retaining Walls

17.17 Design

17.18 Vertical Wall Geometry

17.19 General Notes, Tables and Miscellaneous Details

17.20 Wall Plan and Elevations

17.21 Details

18 STRUCTURES - MISCELLANEOUS

The CONSULTANT shall prepare plans for Miscellaneous Structure(s) as specified in Section 2.5.

Concrete Box Culverts

18.1 Concrete Box Culverts

18.2 Concrete Box Culverts Extensions (Not applicable for this project**)**

Strain Poles and tasks 18.3 – 18.4 are not applicable for this project.

Mast Arms and task 18.5 is not applicable for this project.

Overhead/Cantilever Sign Structure and tasks 18.6 – 18.10 are not applicable for this project.

High Mast Light Foundations and task 18.11 is not applicable for this project.

Sound Barrier Walls (Ground Mount) and tasks 18.12 – 18.18 are not applicable for this project.

Sound Barrier Walls (Ground Mount) and tasks 18.12 – 18.18 are not applicable for this project.

19 SIGNING AND PAVEMENT MARKING ANALYSIS

The CONSULTANT shall analyze and document Signing and Pavement Markings Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums. ***(The tasks negotiated are identified on the Approved Staff Hour forms for each project.)***

19.1 Traffic Data Analysis

The CONSULTANT shall review the approved preliminary engineering report, typical section package, traffic technical memorandum and proposed geometric design alignment to identify proposed sign placements and roadway markings. Perform queue analysis.

19.2 No Passing Zone Study (Not applicable for this project)

19.3 Reference and Master Design File

The CONSULTANT shall prepare the Signing & Marking Design file to include all necessary design elements and all associated reference files.

19.4 Multi-Post Sign Support Calculations

The CONSULTANT shall determine the appropriate column size from the DEPARTMENT's Multi-Post Sign Program(s).

19.5 Sign Panel Design Analysis

Establish sign layout, letter size and series for non-standard signs.

19.6 Sign Lighting/Electrical Calculations (Not applicable for this project)

19.7 Quantities

19.8 Computation Book

19.9 Cost Estimates

19.10 Technical Special Provisions

19.11 Other Signing and Pavement Marking Analysis

19.12 Field Reviews

19.13 Technical Meetings

19.14 Quality Assurance/Quality Control

19.15 Independent Peer Review (Not applicable for this project)

19.16 Supervision

19.17 Coordination

20 SIGNING AND PAVEMENT MARKING PLANS

The CONSULTANT shall prepare a set of Signing and Pavement Marking Plans in accordance with the Plans Preparation Manual. ***The plans shall include only those sheets, of the following list of sheets, necessary to convey the intent and scope of the project for the purpose of construction. With the final plans submittal the CONSULTANT shall complete and submit final Thermoplastic Pavement Markings quantities on forms furnished by the DEPARTMENT. (The tasks negotiated are identified on the Approved Staff Hour forms for the project.)***

20.1 Key Sheet

20.2 Summary of Pay Items Including Trns*port Input

20.3 Tabulation of Quantities

20.4 General Notes/Pay Item Notes

20.5 Project Layout (Not applicable for this project)

20.6 Plan Sheet

20.7 Typical Details

20.8 Guide Sign Work Sheet(s)

20.9 Traffic Monitoring Site (Not applicable for this project)

20.10 Cross Sections (Not applicable for this project)

20.11 Special Service Point Details (Not applicable for this project)

20.12 Special Details

20.13 Interim Standards

20.14 Quality Assurance/Quality Control

20.15 Supervision

21 SIGNALIZATION ANALYSIS and tasks 21.1 – 21.18 are not applicable for this project.

22 SIGNALIZATION PLANS and tasks 22.1 – 22.18 are not applicable for this project.

23 LIGHTING ANALYSIS and tasks 23.1 – 23.17 are not applicable for this project.

24 LIGHTING PLANS and tasks 24.1 – 24.14 are not applicable for this project.

25 LANDSCAPE ARCHITECTURE ANALYSIS and tasks 25.1 – 25.14 are not applicable for this project.

26 LANDSCAPE ARCHITECTURE PLANS and tasks 26.1 – 26.15 are not applicable for this project.

27 SURVEY

The CONSULTANT shall perform survey tasks in accordance with all applicable statutes, manuals, guidelines, standards, handbooks, procedures, and current design memoranda.

The survey CONSULTANT shall perform all survey services necessary to prepare the plans for the subject project. Survey work shall be accomplished in accordance with the Department's Surveying procedure and special instructions below.

SURVEYING IN GENERAL FOR THE DEPARTMENT

1. ***All survey services necessary for projects performed by the DEPARTMENT or the CONSULTANT shall be conducted utilizing ENGLISH UNITS.***

2. ***Survey services shall be accomplished in accordance with the DEPARTMENT'S Survey Handbook, Minimum Technical Standards for Surveying and Mapping Rule 61G17-6, Florida Statute 472.027, Department of Environmental Protection Rule, and Florida Administrative Code Chapter 18-5 (Florida Statute 177 - Part Two). GPS services must be provided in accordance with the FDOT District 3 GPS Survey Standards in Chapter Seven of this document. All surveys performed for the DEPARTMENT will require a certified survey report in accordance with Chapter Nine of this document by a Professional Surveyor and Mapper, licensed to practice in the State of Florida.***

3. ***All survey data shall be collected and delivered in the approved FDOT electronic format. The survey project database shall be submitted utilizing Caice software. All survey work shall be on the Florida State Plane Coordinate System NAD 1983/99 Horizontal Datum and NAVD 1988 Vertical Datum unless otherwise specified by the DS or his representative. All signed and sealed deliverables such as Project Survey Reports, etc. shall be provided in hard copy format.***

4. ***The surveyor shall use all necessary safety equipment (i.e., cones, flagman, and temporary warning signs, etc.) and procedures in accordance with the DEPARTMENT'S Roadway and Traffic Design Standards and Survey Safety Handbook. The surveyor shall insure that the appropriate survey crew member(s) have the mandatory maintenance of traffic (MOT) training course.***

5. ***The surveyor and or party chief shall exercise due respect to the rights of property owners along the path of the survey and shall not enter property against the will of the owner except where necessary and by court order. In planning work the surveyor and or party chief shall make an effort to publicize the presence and purpose of the survey parties such that entry on private property will not be unanticipated by interested owner.***

When projects are out-sourced the CONSULTANT Designer shall be responsible for identifying additional survey requirements to be addressed before survey man-hours are final. The CONSULTANT Surveyor is required to do a field review and then meet with the FDOT District Surveyor or his representative prior to man-hour negotiations. If the FDOT Project Manager and DS or his authorized representative agrees that the majority of the project requires cross sections, a Digital Terrain Model (DTM) Survey shall be done. The CONSULTANT Surveyor is required to perform all activities required to supervise and coordinate project. The CONSULTANT Surveyor is required to coordinate survey activities with other disciplines. The CONSULTANT Surveyor is required to perform verification of the field conditions as related to the collected survey data. The CONSULTANT Surveyor is required to attend meetings as required and negotiated by the Design Survey Office or the Right of Way Mapping Department.

When a project involves right of way acquisition or survey for a maintained right of way map, certain required survey work performed for the DEPARTMENT shall be recorded in DEPARTMENT approved field books. The CONSULTANT shall provide the field books. The DEPARTMENT shall provide a number sequence for each field book. The alignment,

reference points, section ties, subdivision ties, property line ties and S.U.E.L ties must be recorded contiguously in certified field books. The field books shall be certified by the surveyor in responsible charge of the work being performed before the final product is submitted. Copies of the plats and necessary Right-of-Way Control Survey drawings shall be submitted to the DEPARTMENT for review. Upon completion of the contract, the original field books shall become the property of the DEPARTMENT and must be turned into the DEPARTMENT'S Design Survey Section. The surveyor shall submit all survey data, required electronic files, required submittal documents and other documentation of decisions reached from meetings, telephone conversations or site visits.

Establish and implement a Quality Assurance/Quality Control (QAQC) plan in accordance with Chapter Ten of this document. This also includes sub-consultant review, response to comments and any resolution meetings if required, preparation of submittals for review, etc.

Any supplemental survey days and or hours are to be approved in advance by the District Surveyor.

DESIGN SURVEYS

See Chapter 25.3.4 of the Plans Preparation Manual for the definitions of levels of survey effort for RRR projects.

If the FDOT Project Manager and DS or his authorized representative agrees that the majority of the project requires cross sections, a Digital Terrain Model (DTM) Survey shall be done.

The CONSULTANT shall contact the Design Survey Section to obtain a series letter for the project prior to starting any control work.

1. Horizontal Project Network Control (HPNC)

Primary HPNC shall be established in such manners that two inter-visible points (pairs) are set throughout the project at approximately three (3) mile intervals. The sight distance between a pair should range from 2000 feet to 4000 feet. The CONSULTANT shall provide DEPARTMENT approved monumentation with FDOT identification and metal witness posts. The witness post shall be constructed of galvanized steel or aluminum and have a minimum length of 5 feet with 3 feet exposed when driven. The DEPARTMENT shall provide white signs for the witness posts. Either the witness post or sign or both may be omitted when the property owner objects, when it is aesthetically unpleasing or if it would pose an obstruction to pedestrian or vehicular traffic. The station should be buried a minimum of 6 inches where practical. The stations should be set outside the anticipated Limits of Construction for the project. The station reference name must be stamped on the disk. PNC station naming must adhere to the standard DEPARTMENT naming convention for control stations. A PNC form shall be completed for each station. These completed forms shall be turned in to the DEPARTMENT'S Survey Section. All primary PNC control shall be

established by standards contained in the DEPARTMENT'S FDOT DISTRICT 3 GLOBAL POSITIONING SYSTEM SURVEY STANDARDS.

Secondary HPNC shall be established along the route at approximately 1000 foot intervals. These points are to be monumented with 5/8" iron rods with F.D.O.T orange plastic caps stamped "Control". These secondary points will be used to collect topography and other survey data. A PNC form is not needed for these points. Secondary PNC can be established by field traverse or by real time GPS methods. When GPS methods are utilized secondary PNC control shall be established by standards contained in the DEPARTMENT'S FDOT DISTRICT 3 GLOBAL POSITIONING SYSTEM SURVEY STANDARDS.

When GPS methods are utilized the GPS data shall be placed in a subdirectory of the project named GPS. Subdirectories under GPS named RTK and or Static are also acceptable.

2. Vertical Project Network Control (VPNC)

Primary VPNC shall be established along the route. These points are to be monumented with concrete monuments at approximately 5000 foot intervals and at cross drains, intersections and other areas needing improvement. Use existing NGS and other governmental monuments if available instead of setting a new monument. The CONSULTANT shall provide DEPARTMENT approved concrete monuments with FDOT brass disk and witness posts. The witness post shall be constructed of galvanized steel or aluminum and have a minimum length of 5 feet with 3 feet exposed when driven. The DEPARTMENT shall provide red signs for the witness posts. Either the witness post or sign or both may be omitted when the property owner objects, when it is aesthetically unpleasing or if it would pose an obstruction to pedestrian or vehicular traffic. The station reference name must be stamped on the brass disk. Benchmark station naming must adhere to the standard DEPARTMENT naming convention for control stations. These benchmarks are to be set outside of the limits of construction for the project. A PNC form shall be completed for each concrete monument. These completed forms shall be turned in to the DEPARTMENT'S Design Survey Section.

Secondary HPNC shall be placed between the concrete monuments at approximately 1000 foot intervals using 5/8" iron rods and FDOT aluminum caps stamped "TBM". The CONSULTANT shall provide witness posts. The witness post shall be constructed of galvanized steel or aluminum and have a minimum length of 5 feet with 3 feet exposed when driven. The DEPARTMENT shall provide red signs for the witness posts. Either the witness post or sign or both may be omitted when the property owner objects, when it is aesthetically unpleasing or if it would pose an obstruction to pedestrian or vehicular traffic. These temporary benchmarks are to be set outside of the limits of construction for the project. While making the benchmark run (loop) turn through all of the primary and secondary horizontal control points thus also making these points temporary benchmarks.

When a digital level is used the electronic level data shall be placed in a subdirectory of the project named Level.

3. Standard Project Network Control Naming Conventions

Naming must adhere to the standard Department naming convention for control stations. The following naming convention is to be used for all control projects in District 3:

46-99-A01xy

46 = County number
99 = Year
A = Series
01 = Point Number
x = G for a GPS point
x = H for other horizontal points x = V for a vertical point
y = V for horizontal points that also have valid elevations.
Note that y is not used if the point being named has only one set of data.
Examples:

46-99-A01V Benchmark (without good horizontal data)
46-99-A01H Horizontal point (without elevation)
46-99-A01HV Horizontal point (with elevation)
46-99-A01G GPS point (without elevation)
46-99-A01GV GPS point (with elevation)

4. PNC sheets

PNC forms (sheets) must be filled out for each primary horizontal and vertical point set. Use the form as shown on page nine of the District Three Survey Guidelines. The station reference name should be the same name (see item number 3 as referenced above) that was stamped on the monument Add the station and offset at the end of the "to reach station" field on all points being referenced.

A. Horizontal Points with no elevations.

Add the county, state road number, units, and horizontal datum. Add the zone noting that all of district three is in Fl North (not Zone 903). Show the latitude and longitude to five decimal places. Show the scale factor to six decimal places. Show the x and y coordinate values to four decimal places. Show the elliptical and geoid heights to two decimal places. Show the positional accuracy in a ratio form as in 1:100000. Show the year established, Section, Township, Range and the "to reach station" information. Show at least three topographic references to the point being referenced. Show the bearings from the topographic point in the direction back to the point being referenced.

B. Vertical Points with no horizontal location.

Add the county, state road number, units, and vertical datum. Show the latitude and longitude to one decimal place. Do not show any value for the x and y coordinate fields. Show the elevations to two decimal places. Show the year established, Section, Township, Range and the "to reach station" information. Show at least three topographic references to the point being referenced. Show the bearings from the topographic point in the direction back to the point being referenced.

C. Points with both horizontal and vertical data.

Add the county, state road number, units, and horizontal - vertical datums. Add the zone noting that all of district three is in Fl North (not Zone 903). Show the latitude and longitude to five decimal places. Show the scale factor to six decimal places. Show the x and y coordinate values to four decimal places. Show the elliptical and geoid heights to two decimal places. Show elevations to two decimal places. Show the positional accuracy in a ratio form as in 1:100000. Show the year established, Section, Township, Range and the "to reach station" information. Show at least three topographic references to the point being referenced. Show the bearings from the topographic point in the direction back to the point being referenced.

5. Aerial Targets

Place, locate, and maintain required aerial targets and/or photo identifiable points. Set 8"spike nails with aluminum washers or commercial nails 2 1/2 inches long with a disk in the center of the target stamped with the target number when the target falls on paved surfaces. When wing targets that fall on dirt surfaces they shall have a 5/8" iron rod and cap stamped "Control" set at their center point. Activities include analysis and processing of all field collected data, existing maps, and/or reports. All targets shall be on a closed traverse or located using GPS methods. Redundant side shots for horizontal location of targets are acceptable. All vertical control will be a part of a third order or higher order line of levels. No side shots for vertical will be allowed, and each vertical control point must be used as a turning point. When GPS methods are utilized control shall be established by standards contained in the DEPARTMENT'S FDOT DISTRICT 3 GLOBAL POSITIONING SYSTEM SURVEY STANDARDS. The survey report will include y, x, and z, text that includes the FDOT section number and target name. An example follows:

SECTION	*POINT NAME*	*NORTHING*	*EASTING*	*ELEVATION*
60010-1521	*T33*	*651870.903*	*1475389.296*	*145.99*

Do not use commas in the northing and easting fields of this document.

6. Centerline and or Baseline alignment

Establish, recover or re-establish the project alignment adhering as closely as possible to existing right of way maps and or other historical records if available. Depict and submit the alignment in a Caice database to the Design Survey Department before field

layout for approval. Activities also include analysis and processing of all field collected data, existing maps, and/or reports for identifying mainline, ramp, offset, or secondary alignments. The centerline of survey control points shall be monumented with 5/8" iron rods with F.D.O.T orange plastic caps stamped "Control" when the point does not lie on a paved surface. The centerline of survey control points shall be monumented with 8"spike nails with aluminum washers stamped "Control" or commercial nails 2 1/2 inches long with a disk stamped "FDOT Control" when these points fall on paved surfaces. All control points (i.e., point of curves, point of tangents, and point of intersections excepting curve points of intersections and Points on tangents) shall be painted with permanent enamel type paint. Points on tangent shall be no more that 1400 feet apart. Survey the location of each public road found on the project. Tie in the side road centerline with the project's centerline using enough information to establish a station flag at the intersection. Station the side road in a geometry chain at least 500 feet in length. Use existing stationing for the side road. If no stationing exists along the side road place a station of 30+00.00 at its intersection with the baseline then station the side road from north to south or west to east. In Caice the intersection point of these lines will be named "SRINT". Tie enough topography for the designer to review for radius improvements. The centerline alignments shall be shown in the Caice database and when a project involves right of way acquisition or survey for a maintained right of way map the centerline alignment shall be recorded contiguously in the project field book.

7. Reference Points

A. Primary HPNC points and VPNC concrete monuments shall have at least three topographic ties to the point being referenced. This information shall be shown on the PNC sheets.

B. G.L.O. section corners shall have at least four topographic ties to the point being referenced. G.L.O. ¼ section corners shall have at least three topographic ties to the point being referenced. The center point of sections shall have at least three topographic ties to the point being referenced. All G.L.O corners references shall be shown on F.D.E.P. certified corner reports.

C. All alignment reference points shall be 5/8 inch iron rods a minimum of 18 inches long with caps. Reference points can be 8"spike nails with aluminum washers or commercial nails 2 1/2 inches long in paved areas. Iron rods caps and survey tags shall be imprinted with "REF.". Each point referenced shall have a minimum of two (2) references each side of centerline. When a point can only be referenced on one side of the centerline, a minimum of three (3) references is required. The reason only one side of the centerline was referenced shall be noted in the comment field of the reference point geometry chain and/or in the project field book. These references should be placed outside the anticipated limits of construction. Reference point spacing shall be a minimum of 20 feet where practical. Reference point intervals shall not exceed 1,400 feet unless specified by the DS. Reference the beginning of survey (BOS), end of survey (EOS) and all points of curve, points of compound curve,

points of reverse curve, points of intersection (does not include curve points of intersection) and major points of tangent. The centerline reference points shall be shown in the Caice database, ensuring that the reference points are named "RP" or "REF", that they have a proper feature codes, that they are all in zone one, and that the description field indicates whether these points was either found or set, that reference points are chained using geometry chains named "RP" or "REF", THROUGH and INCLUDING its centerline point with station in the description field of the chain. When a project involves right of way acquisition or survey for a maintained right of way map the reference points shall also be recorded contiguously in the project field book.

8. Topography

The Surveyor shall gather existing topographic information using the HVD method for the following:

A. Roadway pavement

B. Miscellaneous pavement

C. Concrete areas within asphalt pavement that may interfere with milling operations.

D. Bridges (if applicable)

E. Drainage structures (cross drains, side drains, inlets, storm sewer, etc.)

1. Cover over side drain pipes.

2. Condition of side drain pipes (good, fair, or poor).

3. Size of structure.

F. Mail/Paper boxes

G. City and county streets (w/names)

H. Driveways

I. Guardrail (if identified by Designer to be upgraded)

J. Paved ditches (if identified by Designer to be upgraded)

K. Manholes (the Surveyor will distinguish between utility-owned and state-owned)

L. Signs (record the date on the back of the sign in the comment or description field of the point)

M. Trees (type and size) or other hazardous obstacles within clear zone.

Above ground utilities within construction limits or clear zone (i.e., utility poles, fire hydrants, telephone pedestals, valve boxes, etc.)

N. Sub-surface utilities that may interfere with any construction activity

Ensure that topographic points and survey chains have a proper feature code and that ground points and survey chains are in Zone One, that bridge elements are in Zone Two and that the survey points and survey chains for drainage structures and underground utilities are in Zone Three.

9. Digital Terrain Model (DTM)

Locate all above ground features and improvements for the total length of the project by collecting the required data for the purpose of creating a digital terrain model with sufficient density. Shoot all break lines, high and low points. The coverage area in rural areas shall be to the edge of the woods right and left of centerline or to the existing or proposed right of way at cross drains. The coverage area in urban areas shall be 10 feet beyond the existing or proposed right of way line right and left of the centerline. All digital terrain models on side roads and ditches shall be taken 10 feet beyond the existing or proposed right of way. If intersection improvements or other factors dictate, more digital terrain model coverage will be needed. Effort includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

The settings to compute the digital terrain model in Caice shall be as follows:

A. Maximum triangle distance = 100 feet

B. Maximum break line distance = 50 feet

C. Maximum triangle angle = 179.9 degrees

Ensure that there are no crossing ground chains or ground chains with feature points or points that do not have valid elevations on them when computing the digital terrain model. Check visually for spikes and holes in the digital terrain model prior to submittal. Compute only one digital terrain model for the ground surface. Bridge elements can be in separate digital terrain models.

10. Roadway Cross Sections/Profiles

Perform field survey check sections to verify the required accuracy of the digital terrain model and/or to determine existing cross slope. Activities include analysis and processing of all field collected data for comparison with digital terrain model. A check cross section shall be taken at a minimum of every 1,000 feet to check the digital terrain model through the total length of the project. Check cross sections shall also be taken on all side roads and outfall ditches. These cross sections shall extend out as far

as the digital terrain model coverage. An absolute minimum of two (2) check cross sections will be taken for each DTM area.

Profiles shall only be taken at the direction of the designer. Vertical curves shall be profiled where vertical alignment may be substandard and require reconstruction or a design exception. Driveway profiles or half sections shall be taken and used in plans when roadway widening and the addition of a paved shoulder would dramatically change the existing driveway profile.

NOTE: The following applies only if a digital terrain model survey is not performed.

Cross sections shall be taken a minimum of every 1000 feet on tangent sections, where the typical terrain changes (i.e., cut to fill, fill to cut), and should extend to the R/W lines. These sections should enable the Designer to determine the existing typical design features as follows:

A. Roadway cross slope

B. Pavement/shoulder drop off or build up

C. Shoulder width

D. Front slope

E. Ditch bottom width

F. Back slope

The following represent locations where cross sections shall be taken on horizontal curves in order to check super elevation and enable the Designer to calculate asphalt overbuild required to correct the super elevation and transitions if necessary.

NOTE: These cross sections shall extend to the existing R/W lines.

A. 50 feet before the P.C.

B. At the P.C.

C. 100 feet inside the P.C.

D. Every 300 feet throughout the curve as a minimum

E. 100 feet before the P.T.

F. At the P.T.

G. 50 feet after the P.T.

A minimum of three cross sections are required at each cross drain including bridge culverts where the structure may need modifying either to meet clear zone requirements or hydraulic improvement. It is the Designer's responsibility to identify which structures should be cross-sectioned. These cross sections shall be taken in the middle and 30 feet on each side of the centerline of the structure unless otherwise specified by the Designer.

Three cross sections shall be taken at side drains where the ends of the existing pipe are 30 feet or less apart. (One at each end of the pipe and one in the middle; half sections will suffice.)

Cross sections shall be taken at locations where substandard ditch pavement (sides steeper than 4:1 slope in the clear zone) or broken ditch pavement exists. (Half sections will suffice.)

The following procedure has been implemented in District 3 as an alternate method to collect cross section data with Electronic Field Book (EFB):

Edit the EFB feature table to include an "XS" point feature with message "Station" and an "XSC" chain feature with message "Cross Section" and download to the data collector.

Back sight in horizontal direction, horizontal distance (HD) mode if you are not carrying good elevation. Otherwise, all the other rules apply for carrying elevation with EFB.

Collect the cross section (xs) shots in HVD mode using point prefix "XS" and feature code XS followed by the dash and the appropriate alignment station. Note that geometry should be "P" for distinct breaks in the xs chains. Attribute is "G", and Zone is Zone 4 for District 3. Also note that the operator types in the feature code and xs station only once for a particular station.

If the cross sections are not tied to good elevation, use the centerline or alignment shot as a temporary bench mark (TBM). Note you do not have to observe this center shot first. You will also get a bogus elevation on your setup point which really does not matter.

Use the same point prefix for all xs shots noting in the project field book the station, beginning xs shot, alignment xs shot (for assumed elevations) and ending xs shot for each cross

section. If you are not using the centerline points as TBMs, you do not have to note the center shot, as either the setup, the backsight or a bench mark (BM) is the controlling elevation.

Chain each cross section to get a graphical representation in CAICE. Use the

XSC chain feature code. All F.D.O.T. feature tables are currently being updated to include cross section point and chain symbology.

The segment is processed as usual through EFBP, and using CAICE's flexible file format an output file of format X Y Z Station is created. Geopak will read this file and place the xs points along a stored Geopak alignment. Note that Geopak handles cross section points just like CAICE. This means that the points are placed exactly perpendicular or radial to the alignment and perpendicular to the back tangent at a Point of Intersection (P.I.).

11. Underground Utilities

Utilities on a project, whether above or below the ground surface, within the survey limits should be located. The horizontal and vertical location of the utilities, size, use, material, identification, and ownership should be shown.

The following identifies the level of utility locates in ascending order of effort:

A. Level D - Information obtained solely from a review of utility records. The comprehensiveness and accuracy of such information is highly limited. Even when existing information for a utility in a particular area is accurate, there are often other underground systems that are not shown on any records. Level D may be appropriately used early in the development of a project to determine the presence of utilities.

B. Level C - Information obtained to augment Level D information. This involves topographic surveying of visible, above ground utility features (e.g., poles, hydrants, valve boxes, circuit breakers, etc.) and entering the topographic data into the CADD system. Level C may be appropriately used early in the development of a project and will provide better data than Level D information alone. Designers must be very cautious when working on projects using information for underground utilities that is based only on Level D and C locates.

C. Level B - Information obtained through the use of designating technologies (e.g., geophysical prospecting technologies). This is an application using scanning

technologies, most of which have very specific capabilities. Applying a variety of techniques is essential to the process of preparing a comprehensive horizontal map of the utilities and other underground structures on the site. Designating

technologies are capable of providing good horizontal information but provide limited vertical information.

D. Level A - provides the highest level of accuracy of utility locations in three dimensions. This level may apply manual, mechanical or

nondestructive (e.g., vacuum excavation) methods to physically expose utilities for measurement and data recording. Levels B, C, and D locates are incorporated in Level A locates. The designer should obtain Level A locates at highway/utility conflict points where verified information is necessary.

Designation includes two dimensional collection of existing utilities and selected three dimensional verification as needed for designation. Location includes non-destructive excavation to determine size, type and location of existing utility, as necessary for final three dimensional verification. Survey includes collection of data on points as needed for designates and locates. Activities include analysis and processing of all field collected data, and delivery of all appropriate electronic files. Contact the District Utility Engineer for project specific Utility Survey requirements. These requirements shall be supplied to the Survey Project Manager before man-hour negotiations. The DEPARTMENT has "Area Utility Managers" that can be contacted for liaison and coordination with utility owners.

All utility information is to be shown in the Caice database. All underground utility survey points and survey chains shall be in Zone Three with the correct feature code. The size and type of material of the utility shall be shown in the description field of the survey chain. Add an estimated depth of the utility when locating two dimensional utilities in the field to the height of the rod so that the utility plots vertically in Caice. If the utility company will not provide this information use 30 inches for buried telephone, 36 inches for fiber optic and 48 inches for gas, force main and water lines. Place a note in the project text file in the root of the project directory including utility contact notes, the owner and spotter's name and source of depths of utilities in this text file.

12. Geotechnical Support

Perform 3-dimensional (X, Y, Z) field location, or stakeout, of boring sites established by geotechnical engineer. Activities include field edits, analysis and processing of all field collected data and/or reports.

Show all of these points in the Caice database with proper feature codes and descriptions in Zone One.

13. Pond Site Survey

For all sites:

A. Perform a boundary and topographic survey of the pond site to include 50 feet off site in all directions.

B. Ditches to / from the pond, outfall ditches. Easements associated with the site.

C. Wetlands on the pond site and wetlands impacting any easements.

Site/Local Government specific

A. Tree survey.

B. Special protection natural features (i.e. Leon County, high quality success ional forest line).

DRAINAGE AND OUTFALL SURVEYS

DRAINAGE

A. Open Systems

High water elevations should be shown upstream of the project, upstream of significant structures and at the end of lateral ditch and outfall surveys. High water notes may be kept in the project.txt file in the root of the project directory.

B. Closed Systems

Locate underground improvements using the HVD method on any existing structures that relates to above ground data. Include field edits, analysis and processing of all field collected data, existing maps, and or reports. Store the storm drain points and survey chains in Zone Three with the correct feature code in the Caice database. Indicate the size and type of material in the description field of its survey chain. Show the condition of the pipes in the comment field of the survey chain.

OUTFALL

Establish a baseline for the outfall survey. One acceptable method of stationing the outfall is to make the station at the tie to the centerline or baseline of the project station 30+00.00, with the stationing decreasing to the infall and increasing to the outfall end. Significant property ties and or land ties will be shown to substantiate alignment determination. Topography, cross-sections, and or digital terrain model will extend right and left of the centerline of the outfall survey line to approximately 10 feet beyond the proposed or existing right of way or easement lines. All underground utilities will be investigated and located within the limits of the existing right of way or easement lines. Locate all above ground features and improvements for the limits of the outfall survey by collecting the required data for the purpose of a D.T.M. Survey with sufficient density of shots. Shoot all break lines, high and low points. Activities include Caice edits, analysis and processing of all field collected data, existing maps, and/or reports.

RIGHT OF WAY SURVEYS

1. Document Research

Perform research of documentation to support field and office efforts involving surveying and mapping.

2. Section Ties (Sectional/Grant Survey)

Tie section lines, quarter section lines, (and quarter-quarter section lines when pertinent) to the centerline of survey. All corners found or set in the field shall be properly identified and recorded in the Caice database and in the project field book with station ties, angles, and distances recorded in each direction from the centerline. All section lines, quarter section lines, (and quarter-quarter section lines when pertinent) will be chained in the Caice database on an individual basis with a geometry chain. These geometry chains will be intersected with the centerline or baseline of the project and the resulting point will be named CLINT. These CLINT points will be included in the section line geometry chain. The section identification for these geometry chains will be in the description field of the section line geometry chain. Certified Corner Records shall be completed and sent to F.D.E.P. and a copy of the records shall be sent to the DEPARTMENT'S Survey Section. The DEPARTMENT may not accept field survey radial locations of section corners, platted subdivision lot and block corners, alignment control points, alignment control reference points and certified section corner references. The DEPARTMENT may instead require that these points be surveyed by true line, traverse or parallel offset. This includes analysis and processing of all field-collected data and/or reports.

3. Subdivision Location

Tie all existing recorded subdivision/condominium boundaries, tracts, units, phases, blocks, street right of way and common areas lines to the centerline of survey. Monument all subdivision boundaries and required subdivision block lines. Note that monuments are not to be set in areas within the proposed or anticipated Right of Way. All necessary block corners found or set in the field shall be properly identified and recorded in the Caice database and in the project field book with station ties, angles, and distances recorded in each direction from the centerline. Efforts should be made to identify all vacated streets within a subdivision. This includes analysis and processing of all field collected data and/or reports. If unrecorded subdivision is on file in the public records of the subject county, tie existing monumentation of the beginning and end of unrecorded subdivision.

4. Individual Property Line Ties

Make individual property line ties. Identify all corners found or set in the field and record in the Caice database and the project field book. Submit copies of local surveys and deeds used in the course of these property line ties. When we encounter major utility lines on our right of way we need enough survey information to be able to accurately plot their right of way.

5. Boundary Survey

Perform boundary survey as defined by DEPARTMENT standards. This includes analysis and processing of all field collected data and preparation of reports. Make individual property line ties. All corners found in the field shall be properly identified and recorded in the Caice database and in the project field book with station ties, angles, and distances recorded in each direction from the centerline. Submit copies of local surveys and deeds used in the course of these property line ties.

6. Pond Site Survey

For all sites:

A. Perform a boundary and topographic survey of the pond site to include 50 feet off site in all directions.

B. Ditches to / from the pond, outfall ditches. Easements associated with the site.

C. Wetlands on the pond site and wetlands impacting any easements.

Site/Local Government specific

A. Tree survey.

B. Special protection natural features (i.e. Leon County, high quality success ional forest line).

7. Maintained R/W

Perform field location (2-dimensional) of maintained R/W limits as defined by respective authorities, if needed. Also includes field edits, analysis and processing of all field collected data, preparation of reports. Contact the District R/W Surveyor and Area Maintenance Engineer for project specific Maintained Right of Way Survey requirements. These requirements shall be supplied to the Survey Project Manager before man-hour negotiations. All survey work shall be recorded in the Caice database and in the project field book.

8. Water Boundary Survey

Perform Mean High Water, Ordinary High Water and Safe Upland Line surveys as required by DEPARTMENT standards. Contact the District Environmental Engineer for wetland delineation locations. A map of the approximate location requirements shall be supplied to the Survey Project Manager before man-hour negotiations. All survey work shall be recorded in the Caice database and in the project field book.

9. Jurisdiction Line Survey

Perform field location (2-dimensional) of jurisdiction limits as defined by respective authorities, also including field edits, analysis and processing of all field collected data, preparation of reports.

T.I.I.T.F. lines are to be shown in the project database as well as the project field book.

DATABASE REQUIREMENTS

The survey project and database should be named using the first seven digits of the FPN number. If more than 26 segments are anticipated for a project then use only the first or last six numbers of the FPN number for the project name.

When a project control database is furnished by FDOT, use that database and add segment date to it rather than starting a new database. This does not include databases just furnished for reference.

A digital text file will be furnished for each project. This file is referred to as the project text document. This file is to be named the same as the six or seven digit project number e.g., 1234567.txt. This text file will be a plain ASCII text file in the root directory of the project. This file shall contain the project FPN number, brief location description of the project, county, type of survey, field book information if any, party chief's name, datum information, survey database file information and general notes concerning the project including underground utility notes.

A digital alignment report is also required to be included in the root directory of the project database. This alignment report can be made using Caice by describing all geometry chains with a feature code of "BL" then saving the report as Align.rep.

A digital benchmark report is also required to be included in the root directory of the project. This benchmark report can be made using Caice by describing all benchmarks and other points that have valid elevations that were included in a benchmark run (loop) by using the station – offset report in Caice. This benchmark report should be saved as BM.rep. When there are benchmarks that need to be shown from other alignments the benchmark report can be appended or separate reports for each alignment can be made naming them BM2.rep etc...

When the database contains a digital terrain model a check cross section report will be required. This report is make by using scan lines to develop the cross sections in Caice at the same stations that actual field check sections were made. Then run the Slope Stake Notes in the VBA library and save the results as a checkxs.ssr file. This file should then be compared with the actual field check cross sections.

When the database does not contain a digital terrain model and cross sections were taken electronically using the alternate method of taking cross sections as described in chapter five. A digital file in "X, Y, Z, and Station format is required. This file is to be named XS.inp… See Chapter Five for more details.

When the database does not contain a digital terrain model and all cross sections are kept in the project field book no digital cross section file is required.

Include the default.con and the default.sd for each segment file processed in the appropriate segment sub directory.

Use the feature code of "SSS" only on governmental and major private signs Include the date on the back of the sign and it's owner's name in the description or comment field of the survey point. Do not use this feature code for delineator post, reflector post, or utility information post.

Side drain chains must show the condition and size in the comment or the description field of the survey chain. In addition the amount of cover over the pipes has to be shown on 2D projects. Use the feature code of "PCULV" for side drains.

Underground utilities must be given an estimated size and depth on 2D projects. Full design surveys require that underground utilities be obtained by the HVD mode.

District 3 Zone Requirements:

Zone One (1)	***Ground surface***
	edges of pavements
	curb and gutter
	ditches, etc.
Zone Two (2)	***Aerial structures***
	bridges
	railroad overpasses, etc.
Zone Three (3)	***Underground and all utilities***
	pipe flow lines
	buried telephone cable
	aerial utility lines (if required)
	water lines, etc.

Zone Four (4)	***Alternate EFB HVD Mode cross sections as described in Chapter Five (Points and chains)***

Perform the following checks:

1. In Caice view all points then fit to graphics to check for wild points.

2. In Caice check the system settings to see if they agree with the project text document.

3. In Caice use the database explorer to ensure that only Zones 1 through 4 were used.

4. In Caice ensure that the control point names are also in the description or comment field of the point in order for it to show up in reports that are required.

5. In Caice ensure that all centerline reference points are named "RP" or "REF" that they are in Zone One, that they have a proper feature code, that they are properly described indicating whether they were they were found or set, and that they are chained using a geometry chain named "RP" or "REF" in Zone One with the station value being referenced in the description field of the chain through and including the centerline point being referenced. Note that the centerline point should not be named "RP" or "REF".

6. In Caice ensure that topographic points have a proper feature code (unless they are included in a survey chain that has a feature code).

7. In Caice ensure that wetland chains have a feature code of "DEP or COE".

THE SURVEYOR'S REPORT

In order to avoid misuse of a survey the surveyor and mapper must adequately communicate the survey results through a report. Any survey report must identify the responsible surveyor and mapper and contain standard content. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

1. ***Each survey report shall state the type of survey it depicts consistent with the types of surveys defined in Rule 61G17-6.002 F.A.C.***

2. ***The purpose of a survey, as set out in Rule 61G17-6.002 F.A.C.***

3. ***All survey reports must bear the name, certificate of authorization number, and street and mailing address of the business entity issuing the report, along with the name and license number of the surveyor and mapper in responsible charge. The name, license number, and street and mailing address of a surveyor and mapper practicing independent of any business entity must be shown on each survey map and report.***

4. ***All survey reports must reflect a survey date, which is the date of data acquisition.***

5. ***Detail the methods used, measurements and computations made, accuracies obtained, and information obtained or developed by surveying and mapping techniques.***

6. ***Report items are information, such as: abbreviations, legends, accuracy statements, feature lists, datums used, and things done or not done as part of the survey and mapping process. In addition, the report shall contain other items necessary for an adequate communication of survey methods and results as judged by the surveyor and mapper such as: data sources, measurement methods, history and lineage of data, and limitations pertaining to the information presented.***

7. ***The report contains a DTM certification that states that the maximum triangle distance of 100 feet and a maximum break line distance of 50 feet were used. It further states that the DTM has been verified by check cross sections taken as least every 1000 feet as shown in project field book or in a separate independent survey segment in the project submittal.***

8. ***The survey report shows the FPN number and a brief description of the location of the survey project.***

9. ***The survey report includes a file list of the electronic files included in the submittal.***

10. ***The survey report is certified as to meeting the minimum technical standards as set forth by Rule 61G17-6 F.A.C.***

When a map is attached to the report then the text report items shall be displayed either through notes on the map, report, or in a text report delivered with the map. When the report is produced as a text document and a map is attached, the report shall be signed and sealed. When the map is delivered in digital form only, then a report is required. An attached map must clearly reference the report by title, date and subject; and the report must likewise clearly refer to the map by title, date, and subject. Statements must be made on the map and in the report that neither is full and complete without the other.

QUALITY ASSURANCE/QUALITY CONTROL

The main objective of the Quality Control Plan for survey projects is to provide a mechanism by which all products of the District Design Survey Office can be subject to a systematic and consistent review. The outcome of the review should create a quality survey, which should be substantially error free.

A secondary objective of the Quality Control Plan is to provide for a well documented "trail" of the survey process. A properly documented project file should be a by-product of the quality control process. The Department, as a whole, should be able to substantiate its position from properly documented project files if any legal, social or procedural issues arise regarding the project.

Another secondary objective of the Quality Control Plan is to provide information feedback from reviews that should increase awareness of surveying personnel. Surveyor's improved expertise and general increase in knowledge from feedback should result in product improvement at early stages even before a project review is started. The Quality Control Plan thus serves as a parallel training program.

A <u>Project Quality Control Plan (PQCP)</u> is required for each project prior to beginning survey. This details the proposed methods or process of providing quality control for all work products. This plan will be kept current with the work requirements. The plan shall include, but is not limited to, the following areas:

1. Organization

A. Quality Control Management Staff

The project surveyor has primary management responsibility for Quality Control and for development and implementation of the Project Quality Control Plan (PQCP). At the time of starting the QC process for any project element, the surveyor in coordination with the District Surveyor must identify the QC person or team required to review that particular element. This QC person or team must complete the QC process of his/their elements. The following describes in more details the duties and responsibilities of the major participants:

1. Project Surveyor: Allocates resources to various elements of the work, establishes and implements the PQCP, schedules the various activities and adjusts plans as the work progresses to identify potential problem areas and resolve them in a timely manner. Responsible for technical review and approval of project documents; identifies the Quality Control personnel required for each review; and maintains frequent contact and communication with Departments within FDOT, local governments, other state agencies and the general public. The Surveyor directs technical staff and assigns quality control functions.

2. Survey Technician: An experienced survey technician working under the supervision of the Project Surveyor responsible for various activities and quality control activities as assigned by the Project Surveyor.

3. Senior Technical Advisors: These advisors are senior technical staff with extensive experience in their respective areas of expertise. These individuals review the basic concepts and survey criteria in the initial stages of project development so that all subsequent work will proceed based on the proper assumptions. They review the work for sound surveying, feasibility, conformance to professional surveying standards and practices, and compliance to project standards and scope.

***4. Checkers:** Peer level surveyors or technicians who review the details of reports, drawings and/or calculations. Checkers should not be actively involved in the preparation of the product being reviewed.*

***5. Quality Assurance Manager:** A surveyor or manager with general experience in the area of surveying, whose primary responsibility is to approve the initial Project Quality Control Plan and periodically performs unannounced QA reviews to ensure the plan is being adhered to, and to document deficiencies and recommend improvements to the Project Manager, Project Surveyor or the District Surveyor, as appropriate.*

2. Quality Control Reviews

Every product will undergo a quality control review. The reviewer will be an experienced technician or surveyor. Checking procedures for these quality control reviews are discussed in Sections below.

A. Checking Survey Reports

Once the report writing has progressed to an appropriate stage of development, a draft is assembled and sent to the reviewer(s). The reviewers will be given a specific and reasonable deadline for completing their reviews. Review comments/corrections are marked on the review draft in red. Upon completion of the review, the reviewer signs and dates the cover page of the draft and returns the draft to its originator. The originator then confirms or revises the corrections and comments, adds his/her own corrections/comments, and consults with the appropriate person(s) to resolve any conflicts. The originator then makes the corrections to the text. The marked-up draft is placed in the project files after the document is finalized.

B. Checking Drawings

Drawings are prepared under the direction of a Professional Surveyor. They are developed progressively by an interactive process using sources of information such as survey data, reports, record data, preliminary sketches, samples, official maps, etc, in conformance with the requirements, survey criteria, and standards and guidelines required by FDOT. Before a drawing is considered final, it will be independently checked for:

- ***Conformance with the mapping criteria, project requirements including graphic standards (CADD Standards).***
- ***Completeness and clarity***
- ***Coordination with other aspects of the project.***
- ***Compatibility standards and good mapping practice.***

C. Checking SURVEY databases:

The Project Surveyor and survey technician shall develop a checklist that encompasses all of the standards in this document and is updated using comments from DEPARTMENT reviewers as they come in thus having an ever growing checklist.

D. Checking Correspondence

Any correspondence that is prepared for external customers shall be reviewed by an equal or higher level employee. The review shall include spelling, punctuation, grammar, sentence structure, correct address and title. The goal is accuracy, simplicity and uniformity. All correspondence shall always include the FDOT FM# as well as a local name when referring to a project.

E. Resolution of Disputes

During the review and checking process, if the checker does not agree with the results of the task being checked, he will first discuss the matter with the Project Surveyor. If the difference cannot be resolved between the checker and the Surveyor, a senior technical advisor will be consulted to assist in the resolution of the dispute.

3. Proposed methods of documentation of comments, coordination responses and quality assurance records.

1. DOCUMENTATION OF COMMENTS AND RESPONSES

All comments made by external reviewers shall be recorded either by copy of memos, e-mail, letters and/or marked plans received from the reviewers. In the event that comments are received through meetings with reviewers, there shall be minutes prepared that summarize the comments received. All comments shall be responded to, by the Project Surveyor responsible for the discipline that prepared the document being reviewed. The response shall be in writing and shall be formatted in a manner that identifies the document review date, reviewer's comments and responses to the comments. All comment/response drafts shall be submitted to the District Surveyor for his review. The Project Surveyor will be responsible for submittal of comment/responses to the reviewing entity.

Where it is necessary and prudent to discuss the comments with the reviewer(s) prior to making a response, the Project Surveyor shall arrange for the meeting.

Copies of all comments and responses shall be kept in a separate file contained within the Project Filing System.

2. PROJECT SURVEYOR QUALITY ASSURANCE RECORDS

The Project Surveyor will be responsible for maintaining the Quality Control records. At any point in the surveying process, the Project Surveyor shall make records available within a reasonable time frame to meet with the Quality Assurance Manager (or designee) for any unannounced QA review.

Strong emphasis will be placed on coordination with all of the sub-consultants throughout the project. Particular attention will be placed on critical path activities and on the sub-

consultant's needs for information required for participating in these and other activities in a timely manner. Regular meetings and teleconferences will take place in order to facilitate this coordination. All sub-consultants shall be required to conform to the PQCP and provide their supplement to the PQCP where they are performing a specialized service that is not adequately addressed in the PQCP.

All submittals shall also be subject to quality assurance audits by FDOT. Problem areas shall be discussed with the sub-consultant and agreed upon remedial actions shall be taken by the sub-consultant prior to any further payment of sub-consultant invoices.

Projects in FDOT's work program are identified for various levels of review by FDOT. Others may be identified as "Full Service" contracts concerning consultant services. These type contracts require continual and frequent communication. Where any review by FDOT is performed, consultants must not rely on FDOT as a part of their QC plan either formally or informally. Consultants are expected to follow their own QC plans and accepted surveying practices.

27.1 Horizontal Project Network Control (HPNC)

To be provided by the Department.

27.2 Vertical Project Network Control (VPNC)

To be provided by the Department.

27.3 Alignment and/or Existing Right of Way Lines

Refer to survey section 27 above.

27.4 Aerial Targets (Not applicable for this project)

27.5 Reference Points

Refer to survey section 27 above.

27.6 Topography (2D)

Refer to survey section 27 above.

27.7 Digital Terrain Model (DTM)

Refer to survey section 27 above.

27.8 Roadway Cross Sections/Profiles

Refer to survey section 27 above.

27.9 Side Street Surveys

Refer to survey section 27 above.

27.10 Underground Utilities

Refer to survey section 27 above.

27.11 Outfall Survey

Refer to survey section 27 above.

27.12 Drainage Survey

Refer to survey section 27 above.

27.13 Bridge Survey (Not applicable for this project)

27.14 Channel Survey (Not applicable for this project)

27.15 Pond Site Survey (Not applicable for this project)

27.16 Mitigation Survey

Refer to survey section 27 above.

27.17 Jurisdiction Line Survey

Refer to survey section 27 above.

27.18 Geotechnical Support

Refer to survey section 27 above.

27.19 Sectional/Grant Survey (Not applicable for this project)

27.20 Subdivision Location (Not applicable for this project)

27.21 Maintained R/W (Not applicable for this project)

27.22 Boundary Survey (Not applicable for this project)

27.23 Water Boundary Survey

Refer to survey section 27 above.

27.24 Right of Way Staking

Refer to survey section 27 above.

27.25 Right of Way Monumentation

Refer to survey section 27 above.

27.26 Line Cutting

Refer to survey section 27 above.

27.27 Work Zone Safety

Refer to survey section 27 above.

27.28 Miscellaneous Surveys

Refer to tasks of this document, as applicable, to perform surveys not described herein.

27.29 Supplemental Surveys

Supplemental survey days and hours are to be approved in advance by DS. Refer to tasks of this document, as applicable, to perform surveys not described herein.

27.30 Document Research

Perform research of documentation to support field and office efforts involving surveying and mapping.

27.31 Field Review

Perform verification of the field conditions as related to the collected survey data.

27.32 Technical Meetings

Attend meetings as required and negotiated by the Surveying and Mapping Department.

27.33 Quality Control/Quality Assurance

Refer to survey section 27 above.

27.34 Supervision

Perform all activities required to supervise and coordinate project. These activities must be performed by the project supervisor, a Florida Professional Surveyor.

27.35 Coordination

Includes all effort required to coordinate survey activities with other disciplines. These activities must be performed by the project supervisor, a Florida P.S.M.

28 PHOTOGRAMMETRY and tasks 28.1 – 28.25 are not applicable for this project.

29 MAPPING

The CONSULTANT will be responsible for the preparation of control survey maps as required for this project in accordance with all applicable DEPARTMENT Manuals, Procedures, Handbooks, and Florida Statutes. All maps and surveys will be prepared under the direction of a Florida Professional Surveyor and Mapper (PSM) to DEPARTMENT size and format requirements utilizing DEPARTMENT approved software, and will be designed to provide a high degree of uniformity and maximum readability. The CONSULTANT will submit maps, quality assurance check prints, checklists, electronic media files and any other documents as required for this project to the DEPARTMENT for review at stages of completion as negotiated.

Master CADD File

29.1 Alignment

29.2 Section and 1/4 Section Lines

29.3 Subdivisions (Not applicable for this project)

29.4 Existing Right of Way

29.5 Topography

29.6 Parent Tract Properties and Existing Easements

29.7 Proposed Right of Way Requirements

The ENGINEER OF RECORD (EOR) will provide the proposed requirements. The PSM is responsible for calculating the final geometry.

29.8 Limits of Construction

The limits of construction DGN file as provided by the EOR will be imported or referenced to the master CADD file. Additional labeling will be added as required. The PSM is required to advise the EOR of any noted discrepancies between the limits of construction line and the existing/proposed right of way lines, and for making adjustments as needed when a resolution is determined.

29.9 Jurisdictional/Agency Lines

These lines may include, but are not limited to, jurisdictional, wetland, water boundaries, and city/county limit lines.

Sheet Files

29.10 Control Survey Cover Sheet

29.11 Control Survey Key Sheet

29.12 Control Survey Detail Sheet

29.13 Right of Way Map Cover Sheet (Not applicable for this project)

29.14 Right of Way Map Key Sheet (Not applicable for this project)

29.15 Right of Way Map Detail Sheet (Not applicable for this project)

29.16 Maintenance Map Cover Sheet (Not applicable for this project)

29.17 Maintenance Map Key Sheet (Not applicable for this project)

29.18 Maintenance Map Detail Sheet (Not applicable for this project)

29.19 Reference Point Sheet

This sheet(s) will be included with the Control Survey Map.

29.20 Project Network Control Sheet (Not applicable for this project)

29.21 Table of Ownerships Sheet (Not applicable for this project)

Miscellaneous Surveys and Sketches and tasks 29.22 – 29.35 are not applicable for this project

30 GEOTECHNICAL

The CONSULTANT shall, for each project, be responsible for a complete geotechnical investigation. All work performed by the CONSULTANT shall be in accordance with DEPARTMENT standards, or as otherwise directed by the District Geotechnical Engineer. The District Geotechnical Engineer will make interpretations and changes regarding geotechnical standards, policies and procedures and provide guidance to the CONSULTANT.

Prior to beginning each phase of investigation and after the Notice to Proceed is given, the CONSULTANT shall submit investigation plan for approval and meet with the DEPARTMENT's Geotechnical Engineer or representative to review the project scope and DEPARTMENT requirements. The investigation plan shall include, but not be limited to, the proposed boring locations and depths, and all existing geotechnical information from available sources to generally describe the surface and subsurface conditions of the project site. Additional meetings may be required to plan any additional field efforts, review plans,

resolve plans/report comments, resolve responses to comments, and/or any other meetings necessary to facilitate the project.

The CONSULTANT shall notify the DEPARTMENT in adequate time to schedule a representative to attend all related meetings and field activities.

The CONSULTANT shall be responsible for coordination of all geotechnical related fieldwork activities. The CONSULTANT shall retain all samples until acceptance of ***final*** plans. Rock cores shall be retained as directed in writing by the District Geotechnical Engineer.

CONSULTANT shall perform specialized field-testing as required by project needs.

All testing and classification will be performed in accordance with applicable DEPARTMENT standards, ASTM Standards or AASHTO Standards, unless otherwise specified in the Contract Documents.

30.1 Document Collection and Review

CONSULTANT will review printed literature including topographic maps, county agricultural maps, aerial photography (including historic photos), ground water resources, geology bulletins, potentiometric maps, pile driving records, historic construction records and other geotechnical related resources. Prior to field reconnaissance, CONSULTANT shall review U.S.G.S., S.C.S. and potentiometric maps, and identify areas with problematic soil and groundwater conditions.

Roadway

If required, a preliminary roadway exploration shall be performed before the Phase I plans submittal. The preliminary roadway exploration will be performed and results provided to the Engineer of Record to assist in setting roadway grades and locating potential problem areas.

30.2 Detailed Boring Location Plan

Develop a detailed boring location plan. Meet with DEPARTMENT Geotechnical Project Manager for boring plan approval. If the drilling program expects to encounter artesian conditions, the CONSULTANT shall submit a methodology(s) for plugging the borehole to the DEPARTMENT for approval prior to commencing with the boring program.

30.3 Stake Borings/Utility Clearance

Stake borings and obtain utility clearance.

30.4 MOT Plans for Field Investigation

Coordinate and develop Maintenance of Traffic (MOT) plan. All work zone traffic control will be performed in accordance with the DEPARTMENT's Roadway and Traffic Design Standards Index 600 series.

30.5 Drilling Access Permits

Obtain all State, County, City, and Water Management District permits for performing geotechnical borings, as needed.

30.6 Property Clearances

Notify property tenants in person of drilling and field activities, if applicable. Written notification to property owners/tenants is the responsibility of the DEPARTMENT's Project Manager.

30.7 Groundwater Monitoring

Monitor groundwater, using piezometers.

30.8 LBR *& Resilient Modulus Test* Sampling

Collect appropriate samples for Limerock Bearing Ratio (LBR) testing ***and Resilient Modulus (M_R) Testing. Coordinate with District Geotechnical Office regarding delivery of samples to State Materials Office, Gainesville.***

30.9 Coordination of Field Work

Coordinate all field work required to provide geotechnical data for the project.

30.10 Soil and Rock Classification - Roadway

Refine soil profiles recorded in the field, based on results of laboratory testing.

30.11 Design LBR

Determine design LBR values from the 90% and mean methods.

30.12 Laboratory Data

Tabulate laboratory test results for inclusion in the geotechnical report, the report of tests sheet (Roadway Soil Survey Sheet), and for any necessary calculations and analyses.

30.13 Seasonal High Water Table

Review the encountered ground water levels and estimate seasonal high ground water levels. Estimate seasonal low ground water levels, if requested.

30.14 Parameters for Water Retention Areas

Calculate parameters for water retention areas, exfiltration trenches, and/or swales.

30.15 Limits of Unsuitable Material

Delineate limits of unsuitable material(s) in both horizontal and vertical directions. Assist the Engineer of Record with detailing these limits on the cross-sections. If requested, prepare a plan view of the limits of unsuitable material.

30.16 ASCII Files for Cross-Sections

Create ASCII files of boring data for cross-sections.

30.17 Embankment Settlement and Stability

Estimate the total magnitude and time rate of embankment settlements. Calculate the factor of safety against slope stability failure.

30.18 Stormwater Volume Recovery and/or Background Seepage Analysis

Perform stormwater volume recovery analysis as directed by the DEPARTMENT.

30.19 Geotechnical Recommendations

Provide geotechnical recommendations regarding the proposed roadway construction project including the following: description of the site/alignment, design recommendations and discussion of any special considerations (i.e. removal of unsuitable material, consolidation of weak soils, estimated settlement time/amount, groundwater control, high groundwater conditions relative to pavement base, etc.) Evaluate and recommend types of geosynthetics and properties for various applications, as required.

30.20 Preliminary Roadway Report and Pavement Evaluation Report

Pavement coring, testing, and a pavement ***condition*** evaluation ***shall be*** performed ***by the Consultant.*** The evaluation and report submittal shall be in accordance with Section 3.4 of the Materials Manual: Pavement Coring and Evaluation. ***The condition of the pavement at each core location shall be observed and recorded on the Pavement Evaluation Coring and Condition Data Sheet (Form #675-030-09), and input into the Pavement Coring Reporting (PCR) system.***

When the project includes adding paved shoulders, the shoulder subgrade shall be evaluated to assist the pavement designer in determining the need for subgrade stabilization or alternate pavement designs. Classification and LBR testing of subgrade soils may be necessary. Refer to the Flexible Pavement Design Manual, Chapter 8. Coordinate the extent of sampling and testing needed wit the Pavement Designer and the District Geotechnical Project Manager.

30.21 Final Report

The Final Roadway Report shall include the following:

Copies of U.S.G.S. and S.C.S. maps with project limits shown.

- A report of tests sheet that summarizes the laboratory test results, the soil stratification (i.e. soils grouped into layers of similar materials) and construction recommendations relative to Standard Indices 500 and 505.

Results of all tasks discussed in the previous section (Data Interpretation and Analysis).

- An appendix that contains stratified soil boring profiles, laboratory test data sheets, sample embankment settlement and stability calculations, design LBR calculation/graphs, and other pertinent calculations.

The CONSULTANT will respond in writing to any changes and/or comments from the DEPARTMENT and submit any responses and revised reports.

30.22 Auger Boring Drafting

Draft auger borings as directed by the DEPARTMENT.

30.23 SPT Boring Drafting

Draft SPT borings as directed by the DEPARTMENT.

Structures

The tasks for high embankment fills and structural foundations for bridges, box culverts, walls, high-mast lighting, overhead signs, mast arm signals, strain poles, buildings, and other structures include the following:

30.24 Detailed Boring Location Plan

Develop a detailed boring location plan. Meet with DEPARTMENT Geotechnical Project Manager for boring plan approval. If the drilling program expects to encounter artesian conditions, the CONSULTANT shall submit a methodology(s) for plugging the borehole to the DEPARTMENT for approval prior to commencing with the boring program.

30.25 Stake Borings/Utility Clearance

Stake borings and obtain utility clearance.

30.26 MOT Plans for Field Investigation

Coordinate and develop MOT plan. All work zone traffic control will be performed in accordance with the DEPARTMENT's Roadway and Traffic Design Standards Index 600 series.

30.27 Drilling Access Permits

Obtain all State, County, City, and Water Management District permits for performing geotechnical borings, as needed.

30.28 Property Clearances

Notify property tenants in person of drilling and field activities, if applicable. Written notification to property owners/tenants is the responsibility of the DEPARTMENT's Project Manager.

30.29 Collection of Corrosion Samples

Collect corrosion samples for determination of environmental classifications.

30.30 Coordination of Field Work

Coordinate all field work required to provide geotechnical data for the project.

30.31 Soil and Rock Classification - Structures

Soil profiles recorded in the field should be refined based on the results of laboratory testing.

30.32 Tabulation of Laboratory Data

Laboratory test results should be tabulated for inclusion in the geotechnical report and for the necessary calculations and analyses.

30.33 Design Groundwater Level for Structures

Review encountered groundwater levels, estimate seasonal high groundwater levels, and evaluate groundwater levels for structure design.

30.34 Selection of Foundation Alternatives (BDR) (Not applicable for this project)

30.35 Detailed Analysis of Selected Foundation Alternate(s) (Not applicable for this project)

30.36 Bridge Construction and Testing Recommendations (Not applicable for this project)

30.37 Lateral Load Analysis (Optional) (Not applicable for this project)

30.38 Walls

Provide the design soil profile(s), which include the soil model/type of each layer and all soil engineering properties required by the Engineer of Record for conventional wall analyses and recommendations. Review wall design for geotechnical compatibility and constructability.

Evaluate the external stability of conventional retaining walls and retained earth wall systems. For retained earth wall systems, calculate and provide minimum soil reinforcement lengths versus wall heights, and soil parameters assumed in analysis. Estimate differential and total (long term and short term) settlements.

Provide wall construction recommendations.

30.39 Sheet Pile Wall Analysis (Optional)

Analyze sheet pile walls as directed by the DEPARTMENT.

30.40 Soil Parameters for Signs, Signals, High Mast Lights, and Strain Poles and Geotechnical Recommendations (Not applicable for this project)

30.41 Box Culvert Analysis

- Provide the design soil profile(s) that include the soil model/type of each layer and all soil properties required by the Engineer of Record for foundation design. Review design for geotechnical compatibility and constructability.
- Provide lateral earth pressure coefficients.
- Provide box culvert construction and design recommendations.
- Estimate differential and total (long term and short term) settlements.

Evaluate wingwall stability.

30.42 Preliminary Report - BDR (Not applicable for this project)

30.43 Final Report - Bridge and Associated Walls (Not applicable for this project)

30.44 Final Reports - Signs, Signals, Box Culvert, Walls, and High Mast Lights

The final reports shall include the following:

Copies of U.S.G.S. and S.C.S. maps with project limits shown.

- Summary of structure background data, SCS, USGS, geologic and potentiometric data.
- The results of all tasks discussed in the previous section (Data Interpretation and Analysis).
- Recommendations for foundation installation, or other site preparation soils-related construction considerations with plan sheets as necessary.
- Any special provisions required for construction that are not addressed in the DEPARTMENT's Standard specification.

An Appendix which includes SPT and CPT boring/sounding profiles, data from any specialized field tests, engineering analysis, notes/sample calculations, sheets showing ultimate bearing capacity curves versus elevation for piles and drilled shafts, a complete FHWA check list, pile driving records (if available), and any other pertinent information.

Final reports will incorporate comments from the DEPARTMENT and contain any additional field or laboratory test results, recommended foundation alternatives along with design parameters and special provisions for the contract plans. These reports will be submitted to the District Geotechnical Engineer for review prior to project completion. After review by the District Geotechnical Engineer, the reports will be submitted to the District Geotechnical Engineer in final form and will include the following:

All original plan sheets (11" x 17")

- One set of all plan and specification documents, in electronic format, according to DEPARTMENT requirements
- Two sets of record prints
- Six sets of any special provisions

All reference and support documentation used in preparation of contract plans package

Additional final reports (up to four), aside from stated above, may be needed and requested for the DEPARTMENT's Project Manager and other disciplines.

The final reports, special provisions, as well as record prints, will be signed and sealed by a Professional Engineer registered in the State of Florida.

Draft the detailed boring/sounding standard sheet, including environmental classification, results of laboratory testing, and specialized construction requirements, for inclusion in final plans.

30.45 Drafting

Prepare a complete set of drawings to include all SPT borings, auger borings and other pertinent soils information in the plans. Include these drawings in the Final Geotechnical Report. Draft borings, location map, S.C.S. map and U.S.D.A. map as directed by the DEPARTMENT. Soil symbols must be consistent with those presented in the latest Florida Department of Transportation Soils and Foundations Handbook.

30.46 Other Geotechnical

Define

30.47 Technical Special Provisions

30.48 Field Reviews

Identify and note surface soil and rock conditions, surface water conditions and locations, and preliminary utility conflicts. Observe and note nearby structures and foundation types.

30.49 Technical Meetings

30.50 Quality Assurance/Quality Control

30.51 Supervision

30.52 Coordination

30.53 Optional Preliminary Contamination Assessment (Not applicable for this project)

31 ARCHITECTURE DEVELOPMENT and tasks 31.1 – 31.55 are not applicable for this project.

32 NOISE IMPACT DESIGN ASSESSMENT (Not applicable for this project)

33 PROJECT REQUIREMENTS

33.1 Liaison Office

The DEPARTMENT and the CONSULTANT will designate a Liaison Office and a Project Manager who shall be the representative of their respective organizations for the Project. While it is expected the CONSULTANT shall seek and receive advice from various state, regional, and local agencies, the final direction on all matters of this project remain with the DEPARTMENT Project Manager.

33.2 Key Personnel

The CONSULTANT's work shall be performed and directed by the key personnel identified in the proposal presentations by the CONSULTANT. Any changes in the indicated personnel shall be subject to review and approval by DEPARTMENT.

33.3 Progress Reporting

The CONSULTANT shall meet with the DEPARTMENT as required and shall provide a written progress and schedule status reports that describe the work performed on each task. Progress and schedule status reports shall be delivered to the DEPARTMENT concurrently with the monthly invoice. The Project Manager will make judgment on whether work of sufficient quality and quantity has been accomplished by comparing the reported percent complete against actual work accomplished.

33.4 Correspondence

Copies of all written correspondence between the CONSULTANT and any party pertaining specifically to this contract shall be provided to the DEPARTMENT for their records within one (1) week of the receipt or mailing of said correspondence.

33.5 Professional Endorsement

The CONSULTANT shall have a Registered Professional Engineer in the State of Florida sign and seal all reports, documents, and plans as required by DEPARTMENT standards.

33.6 Computer Automation

The project will be developed utilizing Computer Aided Drafting and Design (CADD) systems. The DEPARTMENT makes available software to help assure quality and conformance with policy and procedures regarding CADD. It is the responsibility of the CONSULTANT to meet the requirements in the DEPARTMENT's CADD Manual. The CONSULTANT will submit final documents and files as described therein. ***The Engineer of Record must certify that the electronic plans and documents for the project meet the requirements of the DEPARTMENTS's CADD Manual.***

33.7 Coordination With Other Consultants

The CONSULTANT is to coordinate his work with any and all adjacent and integral consultants so as to effect complete and homogenous plans and specifications for the project(s) described herein.

33.8 Optional Services

At the DEPARTMENT's option, the CONSULTANT may be requested to provide optional services. The fee for these services shall be negotiated in accordance with the terms detailed in Exhibit B, Method of Compensation, for a fair, competitive and reasonable cost, considering the scope and complexity of the project(s). Additional services may be authorized by Letter of Authorization or supplemental amendment in accordance with paragraph 2.00 of the Standard Consultant Agreement. The additional services may include Construction Assistance, Review of Shop Drawings, Final Bridge Load Rating, update (Category II) bridge plans electronically (CADD) for the Final "As-Built" conditions, based on documents provided by the DEPARTMENT (CADD Services Only) or other Services as required.

33.9 Other Special Areas (Miscellaneous Items)

PLANS UPDATE: ***The CONSULTANT shall perform engineering analyses and/or make revisions to original plans and documents, as requested by the DEPARTMENT, to reflect additions, deletions and/or modifications prior to and subsequent to letting. Whenever original plans are changed, the CONSULTANT shall submit to the DEPARTMENT one (1) updated Project CD signed and sealed with PEDDS including the updated plans, specifications and all other appropriately updated data and files. This requirement is in addition to any other reproduction and delivery instruction given by the DEPARTMENT in specific instances.***

POST-DESIGN SERVICES: ***Post Design Services include Construction Assistance and Review of Shop Drawings as noted below. In addition, these services are included for the CONSULTANT to attend and provide information at the preconstruction meeting. Subsequent construction field meetings are to be attended as required. The frequency of meetings shall be based on the complexity of the project and as directed by the Design Project Manager.***

Post design services may also include:

- ***Reestablishment of the original survey control just prior to construction (Refer to Section 5-7.1 of the Standard Specifications for Road and Bridge Construction).***
- ***Flagging R/W for acquisition***
- ***Monumentation of the R/W after construction is complete for projects with right-of-way acquisition***
- ***Comprehensive utility coordination and conflict resolution during construction.***
- ***Bridge load ratings for projects where dead loads on bridge structures are modified.***

Post Design services are not intended for instances of CONSULTANT errors and/or omissions. The fee(s) for these services shall be established if and when said services are required.

CONSTRUCTION ASSISTANCE: ***The CONSULTANT shall provide to the DEPARTMENT qualified representation during the construction phase to address issues concerning the intent and interpretation of the construction contract plans and documents prepared in the work. From time to time during construction the CONSULTANT may be requested by the DEPARTMENT or its designated representative to review contractor proposed field changes or to respond with a recommended solution to remedy particular field situations not covered by the plans and specifications***

REVIEW OF SHOP DRAWINGS: ***Shop drawing reviews shall be performed by the CONSULTANT in accordance with Chapter 19 of the Florida Department of Transportation Structures Design Guidelines.***

34 INVOICING LIMITS

Payment for the work accomplished will be in accordance with Method of Compensation of this contract. Invoices shall be submitted ***through the Departments Consultant Invoice Transmittal System (CITS) or*** in a format prescribed by the DEPARTMENT. The DEPARTMENT Project Manager and the CONSULTANT shall monitor the cumulative invoiced billings to insure the reasonableness of the billings compared to the project schedule and the work accomplished and accepted by the DEPARTMENT.

The CONSULTANT will provide a list of key events and the associated total percentage of

work considered to be complete at each event. This list will be used to control invoicing. Payments will not be made that exceed the percentage of work for any event until those events have actually occurred and the results are acceptable to the DEPARTMENT.