

EXHIBIT “A”

SCOPE OF SERVICES

FOR RFQ No.: 13-011

CONSULTING ENGINEERING SERVICES

DILLARD STREET SOUTH RECONSTRUCTION

SOUTH DILLARD STREET FROM W. COLONIAL DRIVE TO PLANT STREET

CITY OF WINTER GARDEN, ORANGE COUNTY, FLORIDA

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SCOPE OF SERVICES FOR CONSULTING ENGINEERING SERVICES

STREET DESIGN

This Exhibit “A” forms an integral part of the agreement between the City of Winter Garden (hereinafter referred to as the “CITY”) and _____ (hereinafter referred to as the CONSULTANT) relative to the transportation facility and work and services described as follows:

Federal Aid Project No.: N/A

Description: Design for reconstruction of South Dillard Street from W. Colonial Drive to Plant Street, Orange County. Includes work on the first 500’ of North Dillard Street, Plant Street, Smith Street and Story Road from their intersection with South Dillard Street to facilitate roundabout construction.

Bridge No(s): N/A

Rail Road Crossing No: DOT # 621895L

1 PURPOSE

The purpose of this Exhibit is to describe the scope of work and the responsibilities of the CONSULTANT and the CITY in connection with the design and preparation of a complete set of construction contract documents and incidental engineering services, as necessary, for improvements to the transportation facility described herein.

Major work mix includes:

- Street Design and Roadway Analysis and Plans
- Drainage Design and Analysis
- Municipal Utility Design
- Surveying
- Geotechnical Engineering
- Lighting
- Signing and Pavement Marking
- Permitting and Environmental Compliance
- Right-of-Way Mapping
- 3D Modeling
- Utility Coordination
- Landscape Architecture

The general objective is for the CONSULTANT to prepare a set of contract documents including plans, specifications, supporting engineering analysis, calculations and other technical documents in accordance with Florida Department of Transportation (FDOT) and CITY policy, procedures and requirements. These Contract documents will be used by the contractor to build the project and test the project components. These Contract documents will be used by the CITY or its Construction Engineering Inspection (CEI) representatives for inspection and final acceptance of the project. The CONSULTANT shall follow a systems engineering process to ensure that all required project components are included in the development of the Contract documents and the project can be built as designed and to specifications.

The Scope of Services establishes which items of work in the FDOT Plans Preparation Manual and other pertinent manuals are specifically prescribed to

accomplish the work included in this contract, and also indicate which items of work will be the responsibility of the CONSULTANT and/or the CITY. While various FDOT policies and procedures are cited throughout the scope of service, CITY specifications and standards will supersede FDOT's wherever applicable, and the CITY will ultimately retain decision making authority on the project. It is expected that the CONSULTANT will vary from FDOT policies whenever prudent to achieve the CITY's design intent.

The CONSULTANT shall be aware that as a project is developed, certain modifications and/or improvements to the original concepts may be required. The CONSULTANT shall incorporate these refinements into the design and consider such refinements to be an anticipated and integral part of the work. This shall 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 CITY 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 CITY procedures. CONSULTANTS are expected to know the laws and rules governing their professions and are expected to provide services in accordance with current regulations, codes and ordinances and recognized standards applicable to such professional services. The Consultant shall provide qualified technical and professional personnel to perform to CITY standards and procedures, the duties and responsibilities assigned under the terms of this agreement. The Consultant shall minimize to the maximum extent possible the CITY's need to apply its own resources to assignments authorized by the CITY.

The CITY will provide contract administration, management services, and technical reviews of all work associated with the development and preparation of contract documents, including Construction documents. The CITY's technical reviews are for high-level conformance and are not meant to be comprehensive reviews. The CONSULTANT shall be fully responsible for all work performed and work products developed under this Scope of Services. The CITY may provide job-specific information and/or functions as outlined in this contract, if favorable.

2 PROJECT DESCRIPTION

The CONSULTANT shall investigate the status of the project and become familiar with concepts and commitments (typical sections, alignments, etc.) developed from prior studies and/or activities. A conceptual project layout is included as Exhibit B. This conceptual layout is intended to convey the design intent of the City and project stakeholders.

This project includes the reconstruction of South Dillard Street from Colonial Drive to Plant Street in Winter Garden, Florida. The purpose of the street reconstruction is to replace failing underground utilities, to create a more inviting streetscape that comfortably accommodates all modes of travel (walking, bicycling, motor vehicle), to better support the land uses on both sides of the street and nearby, to create a better arrival experience into the city and enhanced image of the city, and to better connect the adjacent neighborhoods to each other and the downtown.

Toole Design Group (TDG) developed the streetscape design concept (Exhibit B) during a two-week design workshop which included an extensive stakeholder engagement process. Exhibit C: Summary of Dillard Street Conceptual Design Memo provides pertinent detail on the process, feedback, and design concepts.

TDG will be retained under an independent contract with the City for continuing services and will provide design oversight during the subsequent phases of design.

The conceptual project design includes roundabouts at Plant Street, Story Road and Smith Street. The construction of the roundabouts will likely require the acquisition of additional right of way. The conceptual project design also includes lane removals (road diet), from a five-lane section to a three-lane section. The conceptual-level analysis has found these changes to be viable with a negligible effect on roadway operations.

The conceptual design includes a two-way curb-separated bikeway along the east side of Dillard Street. A two-way separated bikeway was selected due to right of way constraints and to provide better connectivity to local destinations.

Other important components of the conceptual project design include a flush median and valley gutters along parking spaces to help calm traffic, utility and

communication lines relocated underground, a mix of paving materials including brick and patterned concrete, landscaping, and access management.

2.1 Project General and Roadway

The following section provides general project information and identifies specific requirements related to project components. Consultant requirements are detailed in subsequent sections.

Public Involvement: Level of effort will be based on FDOT Community Awareness Plan (CAP) Level 3.

Other Agency Presentations/Meetings: County, MetroPlan, FDOT, Florida Central Railroad, any permitting agencies, as needed.

Joint Project Agreements: N/A

Specification Package Preparation: As needed

Plan Type: Plan/Profiles/Cross Sections as needed for complete reconstruction.

Typical Section:

- Two 11' travel lanes
- 10' flush median/two-way center left turn lane
- One 8' parking lane
- 2' valley gutter between parking lane and travel lane (with 1' being considered part of the parking lane's width and 1' being considered part of the travel lane's width)
- 10' curb-separated two-way bikeway on east side of street
- Two 8' sidewalks
- Variable boulevard and planting areas

Pavement Design: As needed for Dillard Street and any adjacent roadways impacted by construction.

Pavement Type Selection Report(s): Submitted with phase reviews.

Cross Slope: Two percent (2%) minimum

Access Management Classification: 7

Transit Route Features: N/A

Major Intersections/Interchanges: N/A

Roadway Alternative Analysis: N/A

Level of Traffic Control Plans (TCP): 2

Temporary Lighting: N/A

Temporary Signals: N/A

Temporary Drainage: As needed to maintain site drainage during construction.

Design Variations/Exceptions: As needed to facilitate project design.

Back of Sidewalk Profiles: As needed to facilitate project design.

Selective Clearing and Grubbing: As needed to facilitate project design.

2.2 Drainage

System Type: The existing and proposed drainage is a closed system. The proposed drainage system should follow existing drainage patterns and meet all applicable FDOT municipal separate storm sewer system (MS4), Florida Department of Environmental Protection (FDEP) requirements, and St. Johns River Water Management District (SJRWMD) requirements. Stormwater infiltration or filtration systems, pervious pavement, rain gardens, etc. will be included in the proposed design to the extent practicable and/or as needed to meet local stormwater requirements.

2.3 Municipal Utility Design

The project will include the replacement of all municipal utilities in the right of way. The CONSULTANT shall be responsible for designing all municipal utility work in accordance with CITY standards.

2.4 Utilities Coordination

The CONSULTANT is responsible to certify that all necessary arrangements for utility work on this project have been made and will not conflict with the physical construction schedule. The CONSULTANT should coordinate with CITY personnel to coordinate transmittals to Utility Companies and meet production schedules.

The CONSULTANT shall ensure MetroPlan, FDOT and CITY standards, policies, procedures, practices, and design criteria are followed concerning utility coordination.

The CONSULTANT may employ more than one individual or utility engineering consultant to provide utility coordination and engineering design expertise. The CONSULTANT shall identify a dedicated person responsible for managing all utility coordination activities. This person shall be contractually referred to as the Utility Coordination Manager and shall be identified in the CONSULTANT proposal

The Utility Coordination Manager shall be responsible for managing all utility coordination, including the following:

Assuring that Utility Coordination and accommodation is in accordance to the FDOT, FHWA, and AASHTO standards, policies, procedures, and design criteria.

Assisting the engineer of record in identifying all existing utilities and coordinating any new installations. Assisting the Engineer of Record with resolving utility conflicts.

Scheduling and performing utility coordination meetings, keeping and distribution of minutes/action items of all utility meetings, and ensuring expedient follow-up on all unresolved issues.

Distributing all plans, conflict matrixes and changes to affected utility owners and making sure this information is properly coordinated and documented.

Identifying and coordinating the completion of any CITY or utility owner agreement that is required for reimbursement, or accommodation of the utility facilities associated with the project.

Review and certify to the city staff that all Utility Work Schedules are correct and in accordance with the CITY's standards, policies, and procedures.

Prepare, review and process all utility related reimbursable paperwork inclusive of betterment and salvage determination.

Utility coordination work shall be performed and directed by the City and the Utility Coordination Manager that was identified and approved by CITY's Project Manager. Any proposed change of the approved Utility Coordination Manager shall be subject to review and approval by CITY's Project Manager prior to any change being made in this contract.

At this point, the utilities that will be involved with this project are unknown. It shall be the CONSULTANT's responsibility to identify potentially impacted utilities for coordination purposes.

2.5 Environmental Permits, Compliances, and Clearances

The CONSULTANT shall be responsible for identifying and preparing all necessary permits, compliances and clearances for project construction.

2.6 Signing and Pavement Markings

Signing and marking design will be performed by the CONSULTANT as needed for the project design. No overhead or cantilever structures are anticipated.

2.7 Lighting

Lighting shall be provided along Dillard Street. The CONSULTANT will be responsible for developing a lighting design analysis and developing plans and coordinating with Duke Energy.

2.8 Landscape Architecture

Landscape Architectural elements shall be designed by the CONSULTANT. Include coordination with existing and/or proposed underground utilities including but not limited to lighting, drainage and ITS. Refer to Exhibit B and Exhibit C for additional details on landscape architectural elements, which include the items listed below.

Planting Plans: South Dillard Street from Colonial Drive to Plant Street, urban landscape intensity, and landscape type includes buffer, gateway, streetscape, etc.

Irrigation Plans: Development of irrigation plans in accordance with typical City approved systems.

Hardscape Plans: Street furniture (litter receptacles, benches, tree grates and guards, etc.), specialty lighting (street poles and fixtures, landscape lighting, bridge lighting, etc.), specialty paving (concrete, brick or asphalt pavers, stamped, colored concrete or asphalt, etc.), sidewalks, plazas, steps, walls, and any non-regulatory signs.

2.9 Survey

The City has had a design survey for the corridor performed by Southeastern Surveying & Mapping. The CONSULTANT shall be responsible for obtaining any supplemental surveying as necessary to facilitate project design and any necessary right-of-way acquisition for the project. Survey needs include, but are not limited to:

Subsurface Utility Exploration: For limits of reconstruction

Right of Way Survey: For limits of reconstruction

Vegetation Survey: For limits of reconstruction

2.10 Mapping

The CONSULTANT shall be responsible for developing all mapping necessary to facilitate project design and any necessary right-of-way acquisition for the project. Mapping needs include, but are not limited to:

Control Survey Map: As needed for project construction.

Right of Way Map: As needed for project construction.

Legal Descriptions: As needed for any proposed right of way acquisitions or impacts.

2.11 Geotechnical

CONSULTANT is responsible for any necessary geotechnical analysis to facilitate roadway reconstruction and the design of stormwater infiltration/filtration features.

2.12 3D Modeling

CONSULTANT shall use 3D modeling to ensure that the project design matches into adjacent vertical constraints, such as doorways or driveways. Subsurface features should also be modeled to the extent practicable to avoid conflicts during project construction. CONSULTANT shall use AutoCAD Civil 3D for project design and modeling.

2.13 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 for CITY and CONSULTANT scheduled activities required to meet the current CITY Production Date. The schedule shall be based upon a project letting date of March, 2019, and should propose interim phase submittal (30%, 60%, 90%, 100%) dates as necessary to achieve the proposed letting date. The schedule shall be accompanied by an anticipated payout and fiscal progress curve. For the purpose of scheduling, the CONSULTANT shall allow for a three-week review time for each phase submittal and any other submittals as appropriate.

The schedule shall indicate all required submittals.

All fees and price proposals are to be based on the negotiated schedule of 15 months for final construction contract documents. However, the contract deadline is 24 months from the Notice to Proceed.

Periodically, throughout the life of the contract, the project schedule and payout and fiscal progress curves shall be reviewed and, with the approval of the CITY, adjusted as necessary to incorporate changes in the Scope of Services 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.

2.14 Submittals

The CONSULTANT shall furnish construction contract documents as required by the CITY to adequately control, coordinate, and approve the work concepts. Submittals shall be in accordance with FDOT's Plans Preparation Manual Phase Submittals (refer to the Plans Preparation Manual for the requirements for each project submittal. Required submittals include Phase I, II, III, IV (please refer to <http://www.fdot.gov/roadway/ppmmanual/2017/Volume2/V2Chap02.pdf> for more information). The CONSULTANT shall distribute submittals as directed by the CITY. The CITY will determine the specific number of copies required prior to each submittal. The CITY may, at their discretion, require that submittals be reviewed by a consultant.

2.15 Provisions for Work

All work shall be prepared with English units in accordance with the latest editions of standards and requirements utilized by the CITY or FDOT where CITY standards and requirements do not apply.

Services to be Performed by the CITY When appropriate and /or available, the CITY will provide project data including:

- All CITY agreements with Utility Agency Owner (UAO).
- Available traffic and planning data.
- All approved utility relocations.
- Existing right of way maps.
- Phase reviews of plans and engineering documents.

3 PROJECT COMMON AND PROJECT GENERAL TASKS

3.1 Project Common Tasks

Project Common Tasks, as listed below, are work efforts that are applicable to many project activities. These tasks are to be included in the project scope as needed in each applicable activity. Project submittals should correspond with the phase submittals as defined in FDOT's Plans Preparation Manual.

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. A Summary of Pay Items sheet shall be prepared with all required Phase II, III, and IV Plans submittals.

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, as required for project phase submittals in FDOT's Plans Preparation Manual.

Field Reviews: The CONSULTANT shall make as many trips to the project site as required to obtain necessary data for all elements of the project.

Technical Meetings: The CONSULTANT shall attend all technical meetings necessary to execute the Scope of Services of this contract. This includes meetings with CITY and/or Agency staff, between disciplines and subconsultants, such as access management meetings, pavement design meetings, local governments, railroads, progress review meetings (phase review), and miscellaneous meetings. The CONSULTANT shall prepare, and submit to the CITY's Project Manager for review, the meeting minutes for all meetings attended by them. The meeting minutes are due within five (5) working days of attending the meeting.

Quality Assurance/Quality Control: It is the intention of the CITY that design CONSULTANTS, including their subconsultant(s), are held responsible for their work, including plans review. 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, unless exceptions or variances are documented as required in order to comply with the CITY's design intent, and that the CONSULTANT submittals are complete. All subconsultant document submittals shall be submitted by the subconsultant directly to the CONSULTANT for their independent Quality Assurance/Quality Control (QA/QC) review and subsequent submittal to the CITY.

It is the CONSULTANT'S responsibility to independently and continually perform quality reviews of their plans and other deliverables. The CONSULTANT should regularly communicate with the CITY's Design Project Manager to discuss and resolve issues or solicit opinions from those within designated areas of expertise.

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 and their subconsultant(s) 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 shall be one specifically designed for this project. The CONSULTANT shall designate a QC Manager. The CONSULTANT shall submit a Quality Control Plan for approval within twenty (20) business days of the written Notice to Proceed and it shall be signed by the CONSULTANT's Project Manager and the CONSULTANT QC Manager. The Quality Control Plan shall include the names of the CONSULTANT's staff that will perform the quality control reviews. The Quality Control reviewer shall be a Florida Licensed Professional Engineer fully prequalified under F.A.C. 14-75 in the work type being reviewed. 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, landscape, surveys, etc.) and a written resolution of comments on a point-by-point basis will be required, if requested by the CITY, with each phase submittal. The responsible Professional Engineer, Landscape Architect, or Professional Surveyor & Mapper that performed the Quality Control review will sign a statement certifying that the review was conducted and found to meet required specifications.

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

3.2 Public Involvement

Public involvement includes communicating to all interested persons, groups, and government organizations information regarding the development of the project. The CONSULTANT shall provide to the CITY drafts of all Public Involvement documents (i.e., newsletters, property owner letters, advertisements, etc.) associated with the following tasks for review and approval at least 5 business days prior to printing and /or distribution.

3.2.1 Notifications

In addition to public involvement data collection, the CONSULTANT shall assist the CITY or prepare notifications, flyers, and/or letters to elected officials and other public officials, private property owners, and tenants at intervals during plans production as identified by the CITY. All letters and notices shall be reviewed by the CITY to ensure that they are addressed to the correct and current public officials.

3.2.2 Preparing Mailing Lists

At the beginning of the project, The CONSULTANT shall identify all impacted property owners and tenants (within a minimum of 300 feet of the project corridor) The CONSULTANT shall prepare a mailing list of all such entities and shall update the mailing list as needed during the life of the project.

3.2.3 Newsletters

The CONSULTANT shall prepare newsletters for distribution to elected officials, public officials, property owners along the corridor and other interested parties. The letters will be sent by the CONSULTANT.

3.2.4 Public Meeting Preparations

The CONSULTANT shall prepare the necessary materials for use in public meetings.

The CONSULTANT will investigate potential meeting sites to advise the CITY on their suitability. The CITY will pay all costs for meeting site rents and insurance.

3.2.5 Public Meeting Attendance and Follow-up

The CONSULTANT shall attend public meeting(s), assist with meeting setup and take down. The CONSULTANT shall also prepare a summary of the public meeting that includes all copies of all materials shown or provided at the public meeting. The summary shall also include a listing of all written comments made during or after the meeting and responses to those written comments.

The CONSULTANT will attend the meetings with an appropriate number of personnel to assist the CITY'S Project Manager.

It is estimated for this project there will be 6 Public meetings during the design.

3.2.6 Other Agency Meetings

In addition to scheduled public meetings the CONSULTANT may be required to participate in meetings with local governing authorities and/or Metropolitan Planning Organization (MPO). The CONSULTANT's participation may include, but not be limited to, presentations during the meeting, note taking, and summarizing the meeting in a memo to the file. It is estimated for this project there will be 4 meetings with local governing authorities and/or MPOs during the design.

3.3 Specifications Package Preparation

The CONSULTANT shall prepare and provide a specifications package in accordance with the FDOT's Handbook for the Preparation of Specification Packages and associated training, as well as the City of Winter Garden's Standards and Specifications Manual. The CONSULTANT shall provide the CITY names of at least two team members who have successfully completed the Specifications Package Preparation Training and will be responsible for preparing the Specifications Package for the project. The Specifications Package shall be prepared using the FDOT's Specs on the Web application along with any CITY-specific specifications. The CONSULTANT shall be able to document that the procedure defined in the Handbook for the Preparation of Specifications Packages is followed, which includes the quality assurance/quality control procedures. The specifications package shall address all items and areas of work and include any Mandatory Specifications, Modified Special Provisions, and Technical Special Provisions.

A draft specifications package should be submitted for CITY review with the Phase III project submittal. The final specifications package must be submitted for review

to the CITY at least 30 days prior to the contract package due date. This submittal does not require signing and sealing and shall be coordinated through the CITY's Project Manager. The CONSULTANT shall coordinate with the CITY on the submittal requirements, but at a minimum shall consist of (1) the complete specifications package, (2) a copy of the marked-up workbook used to prepare the package, and (3) a copy of the final project plans.

Final submittal of the specifications package must occur at least 10 working days prior to the contract package due date. This submittal shall be digitally signed, dated, and sealed in accordance with applicable Florida Statutes.

3.4 Post Design Services

Post Design Services may include, but not limited to, meetings; construction assistance; plans revisions; reviewing Requests for Information, payment applications, change order requests; shop drawing review; survey services; as-built drawings; and load ratings. Specific services will be negotiated at a later date as necessary as a contract amendment.

Post Design Services are not intended for instances of CONSULTANT errors and/or omissions.

3.5 Digital Delivery

The CONSULTANT shall deliver final contract plans and documents in digital format, both in .pdf and CADD. The final contract plans and documents shall be digitally signed and sealed files delivered to the CITY on acceptable electronic media, as determined by the CITY.

3.6 Railroad, Transit and/or Airport Coordination

The CONSULTANT shall provide all coordination necessary with the Florida Central Railroad to facilitate roadway improvements at their inactive railroad crossing (DOT # 621895L). This includes any coordination necessary to develop flagging or construction agreements with the railroad.

3.7 Landscape and Existing Vegetation Coordination

Coordinate to ensure preservation and protection of existing vegetation. Relocation of existing vegetation may be necessary in some cases. Space for proposed landscape should be preserved and conflicts with drainage, utilities, ITS, and signage should be minimized.

4 ROADWAY ANALYSIS

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

4.1 Typical Section Package

The CONSULTANT shall provide an approved Typical Section Package prior to the first plans submittal.

4.2 Pavement Type Selection Report

Pavement Type Selection Reports are required for every project one mile or greater in length where work includes a modification to the base materials. The Pavement Type Selection decision will again be reviewed by the CITY at the time the pavement is designed to warrant reconsideration. A letter to the Project Design File documenting the pavement type decision is required, even if no report is performed.

4.3 Pavement Design Package

The CONSULTANT shall provide an approved Pavement Design Package prior to the Phase II plans submittal date.

4.4 Horizontal/Vertical Master Design Files

The CONSULTANT shall design the geometrics using the design standards that are most appropriate given the context of the project, applicable policies and procedures, and the overall design intent of the project. The CONSULTANT shall also develop utility conflict information to be provided to project Utility Coordinator in the format requested by the CITY, and shall review Utility Work Schedules.

4.5 Access Management

The CONSULTANT shall incorporate access management standards for each project in coordination with CITY staff. The CONSULTANT shall review adopted access management standards and the existing access conditions (interchange spacing, signalized intersection spacing, median opening spacing, and connection spacing). Median openings that will be closed, relocated, or substantially altered shall be shown on plan sheets and submitted with supporting documentation for review with the first plans submittal.

The CITY shall provide access management classification information and information derived previous public engagement to be used by the CONSULTANT.

4.6 Roundabout Evaluation

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

The CONSULTANT shall perform a Roundabout Screening for assessment of potential site impacts such as utility adjustments or relocations, right-of-way takes, environmental mitigation, and access management.

The CONSULTANT shall perform a Roundabout b/c Evaluation comparing a roundabout with a traditional intersection (stop controlled or signal controlled). The b/c analysis considers safety benefits associated with reduced crashes, delay, life cycle costs including right-of-way, utilities, construction, operation, and maintenance.

The CONSULTANT shall perform a Geometric and Operation Analysis to establish the roundabout alignment, geometry and lane requirements. Roundabout geometric and operational analysis must be documented in a preliminary report including data collection, conceptual layout, and crash analysis.

4.7 Roundabout Final Design Analysis

The CONSULTANT shall finalize the design of the roundabout in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memoranda.

The CONSULTANT shall perform a final roundabout operational analysis that recommends a functional geometric layout that is cost effective, safe and meets the needs of the community. A final roundabout design will be recommended for implementation, and all geometric and operational analysis will be documented in a final roundabout report.

4.8 Traffic Control Analysis

The CONSULTANT shall design a safe and effective Traffic Control Plan to move motor vehicular, pedestrian, and bicycle 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, and 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 FDOT. Before proceeding with the Traffic Control Plan, the CONSULTANT shall meet with the appropriate CITY 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 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 CITY's Project Manager as soon as possible. Proposed road closings must be reviewed and approved by the CITY. 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.

4.9 Master TCP Design Files

The CONSULTANT shall develop master Traffic Control Plan (TCP) files showing each phase of the Traffic Control Plan.

4.10 Design Variations and Exceptions

The CONSULTANT shall prepare the documentation necessary to gain CITY and/or State approval of all appropriate Design Variations and/or Design Exceptions before the first submittal. It is expected that the CONSULTANT will use context-sensitive design practices to achieve the project intent, which will likely require several variations/exceptions.

4.11 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 CITY 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 CITY.

5 ROADWAY PLANS

5.1 Roadway Plans

The CONSULTANT shall prepare a set of biddable and constructible Roadway, Traffic Control, Retaining Wall (if needed), Utility Adjustment Sheets, plan sheets, notes, and details; along with cost estimates and specifications. The plans should include all necessary components as noted in FDOT's Plans Preparation Manual.

6 DRAINAGE ANALYSIS

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

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 FDOT's Drainage Manual. Low Impact Design (Stormwater infiltration or filtration systems, pervious pavement, rain gardens, etc.) will be included in the proposed design to the extent practicable and/or as needed to meet local stormwater requirements.

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

6.1 Drainage Map Hydrology

Accurately delineate drainage basin boundaries to be used in defining the system hydrology. Basin delineation shall incorporate existing survey and/or LiDAR and shall be supplemented, as necessary, with other appropriate data sources (such as permitted site plans) and field observations. Basin delineations shall also include any existing collection systems in a logical manner to aid in the development of the

hydraulic model. Prepare the Drainage Maps in accordance with the Plans Preparation Manual.

6.2 Design of Cross Drains

Analyze the hydraulic design and performance 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.

6.3 Design of Ditches

Design roadway conveyance and outfall ditches. This task includes capacity calculations, longitudinal grade adjustments, flow changes, additional adjustments for ditch convergences, selection of suitable channel lining, design of side drain pipes, and documentation. (Design of linear stormwater management facilities in separate task.)

6.4 Design of Stormwater Management Facility (Roadside Ditch as Linear Pond)

Design stormwater management facilities to meet requirements for stormwater quality treatment, attenuation and aesthetics. Develop proposed pond layout (contributing drainage basin, shape, contours, slopes, volumes, tie-ins, etc.), perform routing, pollutant loading calculations, recovery calculations and design the outlet control structure.

6.5 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.

6.6 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 for stand-alone reports, such as the Pond Siting Analysis Report.

6.7 Temporary Drainage Analysis

Evaluate and address drainage to adequately drain the road and maintain existing offsite drainage during all construction phases. Provide documentation.

7 DRAINAGE PLANS

7.1 Drainage Plans

The CONSULTANT shall prepare a set of biddable and constructible Drainage Plan sheets, notes, and details, along with cost estimates and specifications. The plans shall include the following sheets necessary to convey the intent and scope of the project for the purposes of construction. The Drainage Plans should include all necessary components as noted in the following sections of FDOT's Plans Preparation Manual:

- Drainage Map
- Summary of Drainage Structures and Optional Materials Tabulation
- Drainage Structures
- Lateral Ditch/Outfalls, Retention/Detention and Mitigation Areas
- Stormwater Pollution Prevention Plan

8 MUNICIPAL UTILITY ANALYSIS

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

The CONSULTANT shall be responsible for designing the replacement of all municipal utilities within the project construction area. All design work shall comply with the requirements of the appropriate regulatory agencies and CITY requirements.

9 MUNICIPAL UTILITY PLANS

9.1 Municipal Utility Plans

The CONSULTANT shall prepare a set of biddable and constructible municipal utility plan sheets, notes, and details, along with cost estimates and specifications. The plans shall include the following sheets necessary to convey the intent and scope of the project for the purposes of construction.

10 UTILITIES

The CONSULTANT shall identify utility facilities and secure agreements, utility work schedules, and plans from the Utility Agency Owners (UAO) ensuring all conflicts that exist between utility facilities and the CITY's construction project are addressed. The CONSULTANT shall certify all utility negotiations have been completed and that arrangements have been made for utility work to be undertaken.

10.1 Utility Kickoff Meeting

Before any contact with the UAO(s), the CONSULTANT shall meet with City utility staff to receive guidance, as may be required, to assure that all necessary coordination will be accomplished in accordance with FDOT procedures. CONSULTANT shall bring a copy of the design project work schedule reflecting utility activities.

10.2 Identify Existing Utility Agency Owner(s)

The Consultant shall identify all utilities within and adjacent to the project limits that may be impacted by the project.

10.3 Make Utility Contacts

First Contact: The CONSULTANT shall send letters and two sets of plans to each utility, one set for the utility office, and one set to the CITY Offices. Includes contact by phone for meeting coordination. Request type, size, location, easements, and cost for relocation if reimbursement is claimed. Request the voltage level for power lines in the project area. Send UAO requests for reimbursement to CITY for a legal opinion. Include the meeting schedule (if applicable) and the design schedule. Include typical meeting agenda. If scheduling a meeting, give 4 weeks advance notice.

Second Contact: At a minimum of 4 weeks prior to the meeting, the CONSULTANT shall transmit two complete sets of Phase II plans and the utility conflict information (when applicable and in the format requested by the CITY) to each UAO having facilities located within the project limits, and one set to the CITY Offices.

Third Contact: Identify agreements and assemble packages. The CONSULTANT shall send agreements, letters, the utility conflict information (when applicable and in the format requested by the CITY) and two sets of plans to the UAO(s) including all component sets, one set for the utility office, one set to construction and maintenance if required. Include the design schedule.

10.4 Exception Processing

The CONSULTANT shall be responsible for transmitting/coordinating the appropriate design reports to each UAO to identify any condition that may require a Utility Exception. The CONSULTANT shall identify and communicate to the UAO any facilities in conflict with their location or project schedule. The CONSULTANT shall assist with the processing of design exceptions involving Utilities with the UAO and the CITY. Assist with processing per the UAM.

10.5 Preliminary Utility Meeting

The CONSULTANT shall schedule (time and place), notify participants, and conduct a preliminary utility meeting with all UAO(s) having facilities located within the project limits for the purpose of presenting the project, review the current design schedule, evaluate the utility information collected, provide follow-up information on compensable property rights from the CITY Legal Office, discuss the utility work by highway contractor option with each utility, and discuss any future design issues that may impact utilities. This is also an opportunity for the UAO(s) to present proposed facilities. The CONSULTANT shall keep accurate minutes and distribute a copy to all attendees.

10.6 Individual/Field Meetings

The CONSULTANT shall meet with each UAO as necessary, separately or together, throughout the project design duration to provide guidance in the interpretation of plans, review changes to the plans and schedules, standard or selective clearing and grubbing work, and assist in the development of the UAO(s) plans and work schedules. The CONSULTANT is responsible for motivating the UAO to complete and return the necessary documents after each Utility Contact or Meeting.

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

The CONSULTANT shall review utility marked plans and data individually as they are received for content. Ensure information from the UAO (utility type, material and size) is sent to the designer for inclusion in the plans. Forward all requests for utility reimbursement and supporting documentation to the DUO.

10.8 Subordination of Easements Coordination

The CONSULTANT, if requested by the CITY, shall transmit to and secure from the UAO the executed subordination agreements prepared by the appropriate CITY office. The CONSULTANT shall coordinate with the DUO the programming of the necessary work program funds to compensate the UAO.

10.9 Utility Design Meeting

The CONSULTANT shall schedule (time and place), notify participants, and conduct a Utility meeting with all affected UAO(s). The CONSULTANT shall be prepared to discuss impacts to existing trees/vegetation and proposed landscape, 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 property rights from CITY Legal Office, discuss with each UAO the utility work by highway contractor option, 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 assist the UAOs in identifying and resolving conflicts between utilities and proposed construction before completion of the plans, including utility adjustment details. Also to work with the UAOs to recommend potential resolution between known utility conflicts with proposed construction plans as may be deemed practical by the UAO. The CONSULTANT shall keep accurate minutes of all meetings and distribute a copy to all attendees within 3 days.

10.10 Review Utility Markups & Work Schedules and Processing of Schedules & Agreements

The CONSULTANT shall review utility marked up plans and work schedules as they are received for content and coordinate review with the designer. Send color markups and schedules to the appropriate CITY staff for review and comment if required by the CITY. Coordinate with the CITY for execution. Distribute Executed Final Documents. Prepare Work Order for UAO(s). The CONSULTANT shall coordinate with the CITY the programming of necessary Work Program funds.

10.11 Utility Coordination/Follow-up

The CONSULTANT shall provide utility coordination and follow up. This includes follow-up, interpreting plans, and assisting the UAOs with completion of their work schedules and agreements. Includes phone calls, face-to-face meetings, etc., to motivate and ensure the UAO(s) complete and return the required documents in accordance with the project schedule. Ensure the resolution of all known conflicts. The CONSULTANT shall keep accurate minutes of all meetings and distribute a copy to all attendees. This task can be applied to all phases of the project.

10.12 Utility Constructability Review

The CONSULTANT shall review utility schedules against construction contract time, and phasing for compatibility. Coordinate with and obtain written concurrence from the construction office.

10.13 Contract Plans to UAO(s)

If requested by the CITY, the CONSULTANT shall transmit the contract plans as processed for letting to the UAO(s). Transmittals to UAO(s) may be by certified mail, return receipt requested.

10.14 Certification/Close-Out

This includes hours for transmitting utility files to the CITY and preparation of the Utility Certification Letter. The CONSULTANT shall certify to the appropriate CITY representative the following:

All utility negotiations (Full execution of each agreement, approved Utility Work Schedules, technical special provisions written, etc.) have been completed with arrangements made for utility work to be undertaken and completed as required for proper coordination with the physical construction schedule.

OR

An on-site inspection was made and no utility work will be involved.

OR

Plans were sent to the Utility Companies/Agencies and no utility work is required.

11 ENVIRONMENTAL PERMITS, COMPLIANCE AND CLEARANCES

The CONSULTANT shall be responsible for developing any required environmental documents required by Federal, State, or local laws or ordinances. The CONSULTANT shall notify the CITY Project Manager, Environmental Permit Coordinator and other appropriate CITY personnel in advance of all scheduled meetings with the regulatory agencies to allow a CITY representative to attend. The CONSULTANT shall copy in the Project Manager and the Environmental Permit Coordinator on all permit related correspondence and meetings.

11.1 Preliminary Project Research

The CONSULTANT shall perform preliminary project research and shall be responsible for regulatory agency coordination to assure that design efforts are properly directed toward permit requirements. The research should identify any permit needs for the project as well as any pertinent requirements that may impact project design.

The CONSULTANT shall also review for any existing easements or other restrictions that may exist both within or proposed project boundary. The CONSULTANT shall determine if any Sovereign Submerged Lands easements need to be modified or acquired. Project research may include but should not be limited to review of available federal, state, and local permit files and databases, local government information including county and property appraiser data. This information will be shown on the plans as appropriate.

11.2 Complete and Submit All Required Permit Applications

The CONSULTANT shall prepare any permit application packages necessary for project construction. The permit application package must be approved by the CITY prior to submittal to the regulatory agency.

The CONSULTANT shall collect all of the data and information necessary to obtain the environmental permits required to construct the project. The CONSULTANT shall prepare each permit application for CITY 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.

The CONSULTANT will submit all permit applications, as directed by the CITY, and be responsible for payment of all permit fees.

11.3 Contamination Impact Analysis

The City has had an assessment of potential contaminated sites within the project corridor performed by Geosyntec Consultants (*Contaminated Sites Review Summary*). The CONSULTANT shall review this information and perform the necessary analysis to complete the Contamination Screening Evaluation for any changes to the project and complete the Contamination Screening Evaluation Report as described in Part 2, Chapter 22, of the PD&E Manual.

12 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 memoranda.

12.1 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.

12.2 Sign Panel Design Analysis

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

13 SIGNING AND PAVEMENT MARKING PLANS

13.1 Signing and Pavement Marking Plans

The CONSULTANT shall prepare a set of biddable and constructible Signing and Pavement Marking Plans in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memoranda, along with cost estimates and specifications. The Signing and Pavement Marking Plans should include all necessary components as noted in FDOT's Plans Preparation Manual.

14 LIGHTING ANALYSIS

The CONSULTANT shall analyze and document Lighting Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memoranda. This shall include coordination with Duke Energy on lighting requirements.

14.1 Lighting Design Analysis Report

The CONSULTANT shall prepare a Preliminary Lighting Design Analysis Report. The report shall be submitted under a separate cover with the Phase II plans submittal. The report shall provide analyses for each typical section of the mainline, typical section for the ramps (one and/or two lanes), interchanges, underdeck lighting, and arterial roads. Each lighting calculation shall be properly identified as to the area that it covers.

The report shall include the Lighting Design Criteria that will be used and shall include the evaluation of at least three lighting design alternatives and a recommendation on the alternative to use. Each alternative shall be properly described; the alternatives shall consider different pole heights, lamp wattage, and arm lengths. Each alternative shall be provided with a cost estimate that includes initial cost in addition to operations and maintenance cost for one year.

The report shall also include the lighting calculations for each lighted sign.

After approval of the preliminary report, the CONSULTANT shall submit a revised report for each submittal. The Lighting Design Analysis Report shall include:

Voltage drop calculations

Load analysis calculations for each branch circuit

14.2 Voltage Drop Calculations

The CONSULTANT shall submit voltage drop calculations showing the equation or equations used along with the number of luminaires per circuit, the length of each circuit, the size conductor or conductors used and their ohm resistance values. The voltage drop incurred on each circuit (total volts and percentage of drop) shall be calculated, and all work necessary to calculate the voltage drop values for each circuit should be presented in such a manner as to be duplicated by the District.

The Voltage Drop Calculations shall be submitted as part of the Lighting Design Analysis Report.

14.3 Reference and Master Design Files

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

14.4 Design Documentation

The CONSULTANT shall submit a Design Documentation with each plans submittal under a separate cover and not part of the roadway documentation book. At a minimum, the design documentation shall include:

- Phase submittal checklist.
- Structural calculations for special conventional pole concrete foundations.
- Correspondence with the power company concerning new electrical service.

15 LIGHTING PLANS

15.1 Lighting Plans

The CONSULTANT shall prepare a set of biddable and constructible Lighting Plans in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memoranda, along with cost estimates and specifications. The Lighting Plans should include all necessary components as noted in FDOT's Plans Preparation Manual.

16 LANDSCAPE ARCHITECTURE ANALYSIS

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

16.1 Data Collection

All research required to collect data necessary to complete the initial design analysis. Includes identifying local ordinances and collection of other project data.

16.2 Site Inventory and Analysis for Proposed Landscape

Includes identification of opportunities and constraints for the proposed landscape project based on existing site conditions. Identify available planting areas for nursery landscape material. Summary of analysis, if required, is included in conceptual design.

16.3 Planting Design

Conceptual Design: Includes delineation of all proposed planting types, scheme development and preliminary costs and reports. The design shall be submitted with the Phase I plans.

Final Design: Includes identifying the species/type, size, location, spacing, quality of all plants, and specified growing medium.

16.4 Irrigation Design

Feasibility Report: Includes analysis of methods, materials and operation costs associated with proposed irrigation system design.

Conceptual Design: Typically not done in master design file. Includes determination of water and power sources. Phase I design level.

Final Design: Includes all work in master design files. Irrigation Design includes, but is not limited to, the locations and sizes of pumps, pump stations, mainlines, lateral lines, irrigation heads, valves, backflow and control devices.

16.5 Hardscape Design

Conceptual design - scheme development and preliminary costs: Typically not done in master design file. Delineation of areas and elements to be included in design. Select cut sheets, prepare image boards. Includes report, if required.

Final Design: Includes all work in master design files. Hardscape Design includes, but is not limited to, sidewalks, plazas, Steps, Fountains, Walls, non-regulatory signs or project graphics, roadway aesthetics, site furnishings.

17 LANDSCAPE ARCHITECTURE PLANS

17.1 Landscape Plans

The CONSULTANT shall prepare a set of biddable and constructible Landscape Plans, along with cost estimates and specifications. The Landscape Plans shall meet the requirements, and include all necessary components, as noted in FDOT's Plans Preparation Manual.

17.2 Landscape Maintenance Plan

The CONSULTANT shall include a written plan for care and maintenance of the plants and beds, hardscape, and irrigation system after the warranty period. The landscape maintenance plan will be developed in performance based language and will be in coordination with the local government entity who assumes the maintenance obligation.

18 SURVEY

The CONSULTANT shall perform survey tasks in accordance with all applicable statutes, manuals, guidelines, standards, handbooks, procedures, and current design memoranda. The City has had a design survey for the corridor performed by Southeastern Surveying & Mapping.

The CONSULTANT shall submit all survey notes and computations to document the surveys. All field survey work shall be recorded in approved media and submitted to the CITY. Field books submitted to the CITY must be of an approved type. The field books shall be certified by the surveyor in responsible charge of work being performed before the final product is submitted.

The survey notes shall include documentation of decisions reached from meetings, telephone conversations or site visits. All like work (such as bench lines, reference points, etc.) shall be recorded contiguously. The CITY 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 CITY may instead require that these points be surveyed by true line, traverse or parallel offset.

18.1 Horizontal Project Control (HPC)

Establish or recover HPC, for the purpose of establishing horizontal control on the Florida State Plane Coordinate System or datum approved by the CITY; may include primary or secondary control points. Includes analysis and processing of all field collected data, and preparation of forms.

18.2 Vertical Project Control (VPC)

Establish or recover VPC, for the purpose of establishing vertical control on datum approved by the CITY.; may include primary or secondary vertical control points. Includes analysis and processing of all field collected data, and preparation of forms.

18.3 Alignment and/or Existing Right of Way (R/W) Lines

Establish, recover or re-establish project alignment. Also includes analysis and processing of all field collected data, existing maps, and/or reports for identifying mainline, ramp, offset, or secondary alignments. Depict alignment and/or existing R/W lines (in required format) per CITY R/W Maps, platted or dedicated rights of way.

18.4 Topography/Digital Terrain Model (DTM) (3D)

Locate all above ground features and improvements for the limits of the project by collecting the required data for the purpose of creating a DTM with sufficient density. Shoot all break lines, high and low points. Effort includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

18.5 Planimetric (2D)

Locate all above ground features and improvements. Deliver in appropriate electronic format. Effort includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

18.6 Roadway Cross Sections/Profiles

Perform cross sections or profiles. May include analysis and processing of all field-collected data for comparison with DTM.

18.7 Side Street Surveys

Perform surveys of side streets as necessary to match in with proposed construction on Dillard Street.

18.8 Underground Utilities

Designation includes 2-dimensional collection of existing utilities and selected 3-dimensional verification as needed for designation. Location includes non-destructive excavation to determine size, type and location of existing utility, as necessary for final 3-dimensional verification. Survey includes collection of data on points as needed for designates and locates. Includes analysis and processing of all field collected data, and delivery of all appropriate electronic files.

18.9 Outfall Survey

Locate all above ground features and improvements for the limits of the project by collecting the required data for the purpose of a DTM. Survey with sufficient density of shots. Shoot all break lines, high and low points. Includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

18.10 Drainage Survey

Locate underground data (XYZ, pipe size, type, condition and flow line) that relates to above ground data. Includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

18.11 Subdivision Location

Survey all existing recorded subdivision/condominium boundaries, tracts, units, phases, blocks, street R/W lines, common areas. 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.

18.12 Boundary Survey

Perform boundary survey as defined by FDOT standards. Includes analysis and processing of all field-collected data, preparation of reports.

18.13 Right of Way Staking, Parcel / Right of Way Line

Perform field staking and calculations of existing/proposed R/W lines for on-site review purposes.

18.14 Work Zone Safety

Provide work zone as required by FDOT standards.

18.15 Supplemental Surveys

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

18.16 Document Research

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

19 MAPPING

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

Activities pertinent to right of way acquisition (such as title searches, legal descriptions, etc.) are only required where new right of way will be acquired for the project. It is assumed that there will be right of way acquisition from no more than 12 parcels for the project.

19.1 Master CADD File

The CONSULTANT shall prepare a Master CADD file containing all necessary survey and right-of-way information for project delivery in accordance with applicable manuals, guidelines, standards, handbooks, procedures.

19.2 Proposed Right of Way Requirements

The ENGINEER OF RECORD (EOR) will provide the proposed requirements. The PSM is responsible for calculating the final geometry. Notification of Final Right of Way Requirements along with the purpose and duration of all easements will be specified in writing.

19.3 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.

19.4 Jurisdictional/Agency Lines

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

19.5 Sheet Files

The CONSULTANT shall prepare all necessary survey sheet files necessary for project surveys and right-of-way acquisition in accordance with all applicable manuals, guidelines, standards, handbooks, procedures.

19.6 Supplemental Mapping

This task is to cover efforts resulting from major design and/or development changes after 60% map development that affect the right of way requirements/parent tract property lines and may include any number of tasks. Request and approval to utilize the Supplemental Mapping hours will be in writing and approved by the CITY project manager prior to any work being done under this task.

20 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 FDOT standards, or as otherwise directed by the CITY.

Before beginning each phase of investigation and after the Notice to Proceed is given, the CONSULTANT shall submit an investigation plan for approval and meet with the CITY's Engineer or representative to review the project scope and CITY 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 CITY in adequate time to schedule a representative to attend all related meetings and field activities.

20.1 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.

The CONSULTANT shall be responsible for coordination of all geotechnical related field work activities. The CONSULTANT shall retain all samples until acceptance of Phase IV plans.

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

20.2 Develop Detailed Boring Location Plan

Develop a detailed boring location plan. Meet with CITY 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 CITY for approval prior to commencing with the boring program.

20.3 Stake Borings/Utility Clearance

Stake borings and obtain utility clearance.

20.4 Coordinate and Develop 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 FDOT's Roadway and Traffic Design Standards Index 600 series.

20.5 Coordination of Field Work

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

20.6 Soil and Rock Classification - Roadway

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

20.7 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.

20.8 Parameters for Water Retention Areas

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

20.9 Electronic Files for Cross-Sections

Create electronic files of boring data for cross-sections.

20.10 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.

20.11 Preliminary Roadway Report

If a preliminary roadway investigation is performed, submit a preliminary roadway report before the Phase I plans submittal. The purpose of the preliminary roadway report will be to assist in setting road grades and locating potential problems.

- 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.
- The results of all tasks discussed in all previous sections regarding 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 CITY and submit any responses and revised reports.

20.12 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.
- The results of all tasks discussed in all previous sections regarding 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 CITY and submit any responses and revised reports.

21 3D MODELING

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

The CONSULTANT shall deliver all master design files, 3D surface design models, and all supporting digital files for the development of plans as required in the FDOT's CADD Manual, using AutoCAD Civil 3D.

The CONSULTANT shall prepare a 3D model using the latest FDOT software in accordance with the FDOT CADD Manual. Includes all efforts required for developing files for 3D deliverables supporting automated machine guidance for design models. This includes importing survey data and creation of existing 3D surface features and models, and developing proposed corridor models with necessary detail of features to depict the proposed project in 3D to comply with the FDOT CADD Manual.

The CONSULTANT shall add detail to the corridor and design model for 3D design. Includes many elements that contribute to this including but not limited to slope transitions, typical section transitions, changes in pavement depth, berms, swales/ditches, and other feature transitions. Extra corridor structure leads to extra assemblies, extra targeting, etc. Dynamic relationships must be maintained. Frequency must be increase to achieve a useable model.

The CONSULTANT shall create an accurate roadway design model which includes modeling the intersections.

The CONSULTANT shall provide sufficient detail in the 3D model to account for driveways, Guardrail Terminal Locations, etc. and other graded areas where surface triangles are delivered as break lines.

Phase I 3D Design Model (30% Plans)

The CONSULTANT shall prepare, submit and present for approval by the CITY, 30% complete 3D interactive model, comprised of, but not limited to: Existing features (pavement, shoulders, sidewalk, curb/gutter, utilities-if required per scope, drainage - if required per scope) and proposed corridor(s).

Phase II 3D Design Model (60% Plans)

The CONSULTANT shall prepare, submit and present for approval by the CITY, 60% complete 3D model, comprised of, but not limited to: Modification of 30% model to update the model to comply with changes based on 30% review comments and to include the addition of ponds, floodplain compensation sites, retaining walls, barrier walls, guardrail terminals, cross overs, gore areas, side street connections, roundabouts, and driveways.

[List optional services to be included, i.e. Curb Ramps, Closed Drainage Network, Bridge Modeling, Bridge Abutment, Overhead sign post/structures with foundation, Toll gantry and overhead DMS structures with foundation, proposed utilities (pressure pipe/gravity), etc.].

Phase III 3D Design Model (90% Plans)

The CONSULTANT shall prepare, submit and present for approval by the CITY, 90% complete 3D model, comprised of, but not limited to: Modification of 60% model to update the model to comply with changes based on 60% review comments and to further refine areas of transition between templates, detailed grading areas, bridge approaches and end bents, median noses, shoulder transition areas, retaining walls, barrier walls and guardrail.

Final 3D Model Design (100% Plans)

The CONSULTANT shall prepare for approval by CITY, 100% complete 3D model, comprised of, but not limited to: Modification of 90% model to update the model to comply with changes based on 90% review comments and to accurately generate, export and otherwise prepare the final 3D deliverable files as described in the FDOT's CADD Manual.

Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with the FDOT's CADD manual and Plans Preparation Manual. Includes all work required to establish and utilize intelligent/automated methods for creating cross sections including determining the locations for which all cross sections will be shown, existing and proposed features, cross section

refinement, placement of utilities and drainage, soil boxes, R/W lines, earthwork calculations, and other required labeling.

22 PROJECT REQUIREMENTS

22.1 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 CITY.

22.2 Progress Reporting

The CONSULTANT shall meet with the CITY as required and shall provide a written monthly progress report with approved schedule, schedule status, and payout curve or by using the earned value method that describe the work performed on each task. The report will include assessing project risk through monthly documentation of identifying and updating the risk category and approach for monitoring those tasks. Invoices shall be submitted after the CITY approves the monthly progress report and the payout curve or with earned value analysis. 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.

22.3 Correspondence

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

22.4 Professional Endorsement

The CONSULTANT shall have a Licensed Professional Engineer in the State of Florida sign and seal all reports, documents, technical special provisions, and plans as required by CITY standards.

22.5 Coordination with Other Consultants

The CONSULTANT is to coordinate his/her 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. Specifically, the CONSULTANT is expected to coordinate with the CITY's independent conceptual design consultant (Toole Design Group) to ensure that project submittals are in accordance with the project conceptual design intent, and previous stakeholder engagement and discussions. Close coordination will be required throughout the project development process, not only at project phase submittal milestones.

22.6 Optional Services

At the CITY'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, or other Services as required.

23 INVOICING LIMITS

Payment for the work accomplished shall be in accordance with Method of Compensation of this contract. Invoices shall be submitted to the CITY, in a format prescribed by the CITY. The CITY Project Manager and the CONSULTANT shall monitor the cumulative invoiced billings to ensure the reasonableness of the billings compared to the project schedule and the work accomplished and accepted by the CITY.

The CONSULTANT shall provide a list of key events and the associated total percentage of work considered to be complete at each event. This list shall 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 CITY.

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