CENTRAL FLORIDA EXPRESSWAY AUTHORITY

2022 Design Guidelines

Central Florida Expressway Authority

Introduction

As part of Central Florida Expressway Authority's (CFX) continuing quality development effort, these Design Guidelines have been developed to provide consultants, reviewers, and management with a single source of design preferences. The guidelines serve to modify or add to the requirements included in the Florida Department of Transportation (FDOT) Design Manual January 2022 (FDM).

Additional guidance is available in the following documents located on the CFX Website:

- CFX Signing and Marking Details (2022)
- CFX ITS Design Details(2022)
- CFX Property Acquisition & Disposition Manual (September 2017)
- Specifications (January 2022)
- CFX Lighting Details (2022)
- CFX PD&E Study Documentation Guidance (2021)

The table of contents lists the FDM chapters and sections modified within this document. If a section has been modified the user should refer to the specific section in the **Design Guidelines** shown in the table of contents.

The **Design Guidelines** will be updated on an annual basis, following the official revision to the FDM. Interim updates to the **Design Guidelines** will be issued as Addenda to the annual revision.

Should you have any comments or suggestions for this document, please contact:

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TABLE OF CONTENTS

LIST OF APPENDICES

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

1.0 - Development and Process

2022 Design Guidelines

1.0 DEVELOPMENT AND PROCESSES

102 - Glossary of Terms

102.1 - General

Replace the last sentence with the following:

When definition of terms conflict with other publications (AASHTO, MUTCD, FDM, etc.), use the definitions provided in this chapter.

Add the following section:

102.3 - CFX Terms

Bridge Concept Memorandum (BCM): A brief report of practical superstructure, substructure and foundation alternatives for a bridge widening or new bridge design. Plan, Elevation and Typical Section drawings should be included. For a new bridge, a comparison of superstructure and substructure alternatives in regard to constructability, cost, and transport should be included to determine the type of bridge if not dictated by the scope. CFX utilizes a BCM in lieu of the Bridge Development Report (BDR). Change all references in the FDM from Bridge Development Report to Bridge Concept Memorandum.

Central Florida Expressway Authority (CFX): An agency of the State that builds and maintains a regional transportation network that connects Brevard, Lake, Orange, Osceola and Seminole counties.

Conceptual Signing Plan (CSP): Proposed guide signs and structure locations required for a project based on preliminary geometry. Does not include standard signing (regulatory, warning, route markers, etc.) other than post interchange signing along the mainline. The CSP is intended to provide a general layout of sign panel messages, existing and proposed, and does not dictate the final disposition of existing structures where structure re-use is subject to structural analysis and final design of the sign panel layout.

Constructability Review: A supplemental and specialized review of construction plans and specifications, which seeks to identify construction requirements that are impractical, unnecessarily costly, or difficult to build. Constructability reviews consider such items as contractor access, site constraints and relationship to other project work.

Construction Guide Signing Plan (CGSP): Existing, proposed, and temporary guide signing required during each phase of construction.

Design Deviations: CFX follows the design criteria and standards contained in the FDM except where noted in the Design Guidelines. When it becomes necessary to deviate from the FDM, the minimum criteria established by AASHTO will be used. CFX utilizes the term Design Deviations in lieu of the Design Variations and Exceptions. Change all references in the FDM from Design Variations and

Exceptions to Design Deviations. See Section 122.

Engineer of Record (EOR): "A Florida professional engineer who is in responsible charge for the preparation, signing, dating, sealing and issuing of any engineering document(s) for any engineering service or creative work." F.A.C. CHAPTER 61G15-30. Throughout the Design Guidelines, the terms EOR and Designer are synonymous.

Executive Director: Whenever the FDOT-incorporated documents refer to the FDOT (the "Department") or any FDOT offices or personnel (e.g., "Engineer", "Estimates Engineer", "Project Engineer", "Inspector"), such words shall be taken to mean CFX's Executive Director, or representative specifically and duly authorized to act on behalf of the Executive Director.

General Engineering Consultant (GEC): A consulting firm that provides professional services in connection with general planning, design, engineering, management, and other services for projects related to the development, determination of feasibility, planning, design, permitting, right-of-way acquisition, bidding, construction, and maintenance of CFX's existing and future system.

Phase submittals: Throughout the FDM, Phases I, II, III & IV are equivalent with 30%, 60%, 90%, and 100% plans.

Preliminary Design Review/Report (PDR): A document that provides a brief project overview and project specific design issues (e.g. auxiliary lanes, geometric changes, drainage design approach, basic weave analysis, maintenance of traffic, pier protection, typical sections, ramp realignment, etc.) including:

- A brief description of the design issue, including a summary of the research performed to identify the design issue
- A description of each design alternative considered (with exhibits)
- An analysis of alternatives including benefits and impacts of each alternative considered; and
- A design recommendation

Renewal and Replacement (R&R): A CFX program designed to preserve their infrastructure assets and maintain the serviceability of the system by meeting the following standards:

- Routine Maintenance: Maintain an overall Maintenance Rating Program (MRP) of at least 90.
- Resurfacing: Ensure a minimum of 85% of its lane miles in good condition (rated 7 or above)
- Bridge Repair and Replacement: Ensure 95% or more of all bridges are in good condition.

CFX utilizes the term R&R in lieu of the Resurfacing, Restoration and Rehabilitation (RRR). Change all references in the FDM from Resurfacing, Restoration and Rehabilitation to Renewal and Replacement.

Responsible Agency: When the FDM identifies an approval or review process to be performed by either a State or District Office, they are not obligated to provide the same service for the CFX system. Change all references in the FDM that requires State or District approval to the CFX Chief of Infrastructure.

103 - Standard Forms

Delete FDM 103.

104 - Public Involvement

104.1 - General

Insert the following sentence after the last paragraph.

CFX is supported in these efforts through a Public Information Services contract. Design and Construction firms shall coordinate all public involvement efforts through this contract.

105 - Aesthetic Design

Add the following section:

105.7 - CFX Aesthetic Guidelines

CFX has developed aesthetic treatments for multiple corridors which are applied consistently throughout the system to mitigate the visual impacts of the expressway and provide context sensitive design features characteristic of the neighborhoods and areas it traverses. The future development along the right-of-way as well as the ultimate build out the corridors will impact the existing aesthetic treatments along the corridor. To maintain the existing level of treatments and communicate the current standards, CFX has developed general guidelines to define the potential impacts and provide standards for development of aesthetic treatments for the following corridors:

- SR 408
- SR 414
- SR 417
- SR 429
- SR 516
- SR 528
- SR 538
- Wekiva Parkway

In addition to the general Aesthetic Guidelines, SR 408 has specific aesthetic requirements. Along SR 408 between the interchanges of Kirkman Road and Chickasaw Trail, single post and multi-post sign assemblies (all posts, post attachment hardware, and back of sign panels) shall be painted black. The black paint shall be semi-gloss “thermoset powder paint finish”, Federal color #27038. The back of panel decal containing owner and fabrication information, shall be applied after the painting process is complete.

106 - Exempt Public Documents

106.3 - Distribution of Exempt Documents

Delete all paragraphs and replace with:

The process for the distribution of documents can be found at CFX’s website.

110 - Initial Engineering Design Process

110.2 - Initial Engineering Design

Delete activity (13) and add the following:

(13) Identify seasonal high-water elevations and determine base clearances.

(14) Identify applicable project drainage criteria and constraints. Determine impacts to project design and schedule.

110.5 - Support Services

In the second paragraph, replace (9) with:

(9) Intelligent Transportation Systems GIS Documentation

In the third paragraph, add the following functional areas:

(22) Toll Operations

(23) Environmental Permitting

(24) ITS

(25) Lighting/ Electrical

(26) Concepts

(27) Architecture

(28) Materials (pavement)

110.5.7 - Traffic Monitoring Sites

Delete the last sentence of the first paragraph and replace with:

Inquiries about monitoring sites should be addressed to the ITS Department at CFX.

110.6 - Preliminary Geometry

Delete item 8 from the last set of activities.

111 - Final Engineering Design Process

111.2 - Final Engineering Design

Add the following item to the list of major design activities:

(16) Toll facilities design

111.2.1 - Work Program Administration (WPA) System

Delete FDM 111.2.1.

111.3 - Contract Plans and BIM Files

Add the following item to the list of major component sets:

(9) Toll Facilities

111.4 - Standard Specifications and Special Provisions

Delete FDM 111.4.

111.5 - Standard Specifications and Special Provisions

Delete FDM 111.5 and replace with the following:

As the engineering plans are prepared, the quantities are calculated, tabulated, and summarized by Pay Item (of work) as stipulated by the Standard Specifications and the Basis of Estimates Manual. The summary of pay items is updated as quantities are determined and summarized.

111.6 - PS&E Package Submittal

Delete FDM 111.6.

111.7- Project Documentation

Delete all paragraphs and replace with:

The submittal of project documentation is required for all projects. This section describes the required process for delivery of project documentation, and a list of documents that are to be provided.

Create a project documentation folder structure as shown in ***APPENDIX A – CFX File Directory Structure.***

General Requirements:

All PDF files shall be compressed prior to submittal.

111.7.1 - File Naming Convention

Delete all paragraphs and replace with:

Although the filename is limited to 240 characters, the number of characters used should not exceed 48. Filename is not to contain spaces or special characters (!@#$%^&*+).

Filenames are not case sensitive; however, the use of uppercase letters to begin each word in the filename is encouraged.

The filename should be easily searchable within the folder. See APPENDIX B – CFX Document Naming for commonly used file names.

111.7.2 - Documents

Delete FDM 111.7.2.

112 - Update Engineering Design Process

Delete FDM 112.

113 - Right of Way Requirements

Add the following section:

113.4 - CFX Property Acquisition, Disposition, & Permitting Procedures Manual

The Central Florida Expressway Authority Property Acquisition, Disposition, and Permitting Procedures Manual ("Manual") is intended to provide recommended procedures to CFX employees and consultants for:

(1) Obtaining necessary rights of way, easements and other property rights for roadway improvement projects and other projects for which CFX may be authorized to acquire such property rights

(2) Disposing of property rights deemed available for disposal by CFX.

The Manual is intended for use in all projects for which CFX is the acquiring agency, unless the project is required by law or contract to be governed by Florida Department of Transportation procedures or other procedures.

CFX Property Acquisition & Disposition Manual can be found on the CFX website.

114 - Resurfacing, Restoration and Rehabilitation (RRR)

*Revise title of Section to **Renewal & Replacement (R&R),** replace all references of RRR to R&R, and replace the section with the following:*

114.1 - General

Add the following paragraph:

Unless otherwise noted in this Chapter or unless otherwise approved by CFX or their GEC, projects not specifically designated as "R&R" are required to apply new construction criteria for all design elements.

114.1.1 - Proposed Improvements (Type of Work)

Delete the first sentence and replace with:

The following items must be included in each R&R project unless written authorization to deviate from this policy is obtained from CFX.

Add the following item to the list:

(8) Improvements to facilitate future maintenance operations.

114.3.1.1 - Office Reviews

After the first sentence in the first paragraph add the following:

In review of historical documents, the following information shall be obtained and evaluated:

- Determine the FDOT or AASHTO criteria used for the original design,
- Determine if the “old” criteria is current, and
- Document deficiencies and provide recommendation to correct.
- “Old” criteria will not be given an automatic approval to remain in place.

114.3.1.2 - Field Reviews

Replace Note (1) (g) and (j) with the following:

(g) Shoulder type, width, and condition

(j) Drainage (including erosion, siltation problems, or deficient surface conveyance systems)

114.3.1.3 - Identified Improvements

Add the following possible improvements:

(20) Add through lane capacity (requires use of new construction criteria).

(21) Correct shoulder gutter or inlet top deficiencies.

(22) Increase lengths of parallel acceleration/deceleration lanes at ramp terminals to meet current standards or to increase storage.

114.3.1.4 - Design Exceptions and Design Variations

Revise the title to Design Criteria Deviations (Modifications) and replace with the following:

R&R projects with existing features not meeting minimum criteria values require processing a Design Deviation for the feature to remain. Refer to Section 122 for the Design Deviation procedures.

114.3.3 - Drainage

Delete the second sentence and replace with:

Field reviews should inspect and evaluate the existing drainage and coordinate with GEC drainage staff.

114.3.7 – Signals, Signing, and Pavement Markings

Add the following paragraph:

The geometry (baseline, stationing, curve data, etc.) shown on the Signing and Pavement Marking Plans for milling and resurfacing projects shall match the original roadway construction plans and/or any revisions as a result of major roadway improvements, i.e. widening and adding/removing ramps, when survey is not scoped.

Add the following section:

114.3.11 – Shoulder Pavement Resurfacing

The EOR shall prepare a Technical Design Memorandum recommending needing to mill and resurface (or not to mill and resurface) existing shoulders on resurfacing projects. The Tech Memo shall evaluate the age, visual condition including noticeable deficiencies and geotechnical core evaluations. EOR shall consider construction cost, time savings and construction impacts (such as being adjacent to an aesthetic feature or sound wall). The Tech Memo, with a recommendation, shall be presented to the CFX Design and construction for inclusion or exclusion into the design.

117 – Monitor Existing Structures

117.2 – Inspection and Settlement Monitoring

Delete the second paragraph.

120 - Design Submittals

120.1 - General

Delete the first paragraph and replace with:

The design process will require various submittals to transfer technical information and decisions between the Engineer of Record (EOR) and GEC personnel. The GEC Project Manager is responsible for the adequacy of the submittals or requests and for the coordination of reviews between the GEC and the EOR. To the extent practical, the contract scope of work should list the information to be furnished by CFX functional areas and submittals (number and type) required of the EOR. ***FDM Figure 120.1.1***, is a partial list of functional areas with typical submittals and requests.

120.2 - Design Documentation Submittals

Add the following paragraph:

Draft, pre-final, and final versions of all documents requiring CFX approval or concurrence must be submitted to the GEC Project Manager for review. Upon completion of the review process, the GEC Project Manager will proceed with obtaining the necessary approvals or concurrence.

120.2.2.2 - 18 Kip Equivalent Single Axle Loads (ESAL)

Delete the first paragraph and replace with:

The GEC will provide the AADT forecasts for the year a project opens to traffic and for the design year. In addition to the AADT, together with percent trucks (24-hour period) and other factors, the GEC will provide to the EOR, the pavement loading (18kip ESAL) information to be used for the pavement design.

120.2.3 - Typical Section Package

Delete FDM 120.2.3 and replace with the following:

Typical sections are prepared during the PD&E phase, as well as the PDR phase of design.

120.2.3.1 - Approval Process

Delete FDM 120.2.3.1 and replace with the following:

When crossroads or other facilities are maintained by another agency, the EOR must provide correspondence from that agency confirming their concurrence. The design documentation shall include a copy of the local agency's standard to document design conformance. The maintaining agency will not be required to upgrade their typical sections to meet higher FDOT or CFX criteria.

In addition, typical sections of ramp and mainline bridges over the initial and ultimate local roadway shall be included to confirm clear zones, future lanes and the proposed bridge length. All under bridge typical sections are to be included in the roadway plans.

120.2.3.2 – Cover Sheet

Delete FDM 120.2.3.2.

120.2.3.3 - Typical Section Sheet

Delete the first sentence of the first paragraph.
Delete subsection Project Controls.
Delete note 3 in the Typical Section subsection.

Add the following paragraph:

The projects should facilitate the ultimate widening by designing for the future lane offsets and cross slopes where possible. A separate future typical section must be provided. Future lanes on existing or proposed crossroad typical sections must be dashed and labeled "Future, By Others".

120.2.4 - Preliminary Drainage Design

After the first paragraph delete Items 2, 3 & 5 and replace with:

(2) Determination of design high water elevations for pond locations.

(3) Documentation of preliminary drainage coordination with permitting agencies facilitated by the GEC staff.

(5) Evaluation and documentation of hydroplaning risk associated with the proposed roadway typical and critical sections.

120.2.5 - Preliminary Geometry and Grades

Add the following section:

120.2.5.1 - Preliminary Line and Grade Submittal

Submit preliminary (15%) alignment and grade sketches depicting the proposed geometric design. The submittal should include the following in preliminary status:

- Typical Section
- Roadway – Plan & Profile (Roll Plots)
- Interchange Layout
- Pond Locations

120.2.6 - Preliminary Traffic Control Plan

Add the following:

(5) A preliminary traffic control plan on roll plots shall be submitted at the (30%) phase for review. If required, a comment resolution meeting with the GEC and CFX staff must be scheduled following the review.

120.2.7 - Pavement Selection and Design

*Revise the title to **Pavement Design** and replace with the following:*

The pavement selection and design shall be completed as early in the process as possible. Pavement designs must meet the following minimum standards. Variations from these standards require concurrence from the GEC prior to the final pavement design being submitted to the GEC Project Manager.

Pavement Type Selection Reports are not required.

The GEC:

- Will provide the ESAL's and traffic counts to the EOR
- Upon request will provide Rut, Ride and Crack reports to the EOR
- As directed by CFX, will provide the pavement layering for new construction to the EOR for their review and concurrence.
- As directed by CFX, will provide the pavement requirements to the EOR for toll plazas.

Design:

- All pavement designs on new construction must be calculated using a minimum reliability (%R) of 95%.
- All pavement designs on rehabilitation projects must be calculated using a minimum reliability (%R) of 97%.
- All pavement designs, with the exception of temporary pavement, must be calculated for a 20-year design life. The minimum design life and traffic (ESALd) for temporary pavements must be no less than the construction period for the project.
- Table 5.5 of the ***Flexible Pavement Design Manual*** contains the required minimum thickness for new construction and resurfacing projects.
- All travel lanes pavement must include PG 76-22 in the top structural lift and friction course regardless of traffic level.
- Use only Dark Granite for FC (Friction Course) Aggregate
- Limerock base LBR 100 and Type B 12.5 Black Base are the only two base materials to be used on CFX projects. Local roads associated with the projects will follow local design criteria standards.
- If new pavement is proposed to be joined to existing pavement such as widening auxiliary lanes, ramps, and turn lanes, a minimum 6-inch wide shelf must be created at the longitudinal joint by milling the existing pavement structure. The minimum depth of the milling equals the thickness of the final lift of structural plus the FC-5 thickness of the travel lanes.
- A detail of the longitudinal joint must be shown in the plans. The traffic control plan must accommodate the space necessary for this work in the phasing sequence plan notes and/or a table of dimensions must describe the limits of the milled shelf width and depth.
- Show proposed pavement layer details for milling and resurfacing, widening and

shoulders in the plan Typical Section details.

General Conditions:

- The references in the guidelines represent the minimum requirements, which must be met for flexible pavement design for new construction, pavement rehabilitation, and milling/resurfacing projects. It is the EOR's task and responsibility to evaluate and apply the sound application of acceptable engineering criteria and standards.
- The reference documentation and preferences do not apply or cover all possible situations, when this occurs the EOR shall bring these conditions to the GEC for discussion and resolution.
- For specific projects prepare and submit a draft coring plan to the GEC for review and comment. This submittal and approval by the GEC shall take place before any physical coring takes place.
- Submit to the GEC for review the geotechnical coring report and recommendations.
- The 30% submittal package shall include a draft of the pavement design for review and comment
- Provide the final signed and sealed pavement design and report on or before the 60% plans submittal
- Upon acceptance by the GEC, submit all the signed and sealed pavement design reports to the GEC.

Add the following section:

120.2.7.1 - Pavement Selection at Toll Plazas and Intersections

Longitudinal joints through the toll loop pavement area must be placed along the center of the lane line as this approach is more beneficial with the toll equipment and placement of the loops. However, if there are challenges with the construction on the placement of the longitudinal joints at specific locations, CFX will evaluate and provide recommendations.

FC-5 and FC-12.5 Limits at Toll Plazas and Intersections		
Off-Ramps		
	Cash Plaza	FC-12.5 300’ in advance of the Toll Plaza concrete and FC 12.5 from the Toll Plaza to the local road
	No Plaza	FC-12.5 500’ from the local road intersection
	ORT	FC-5 only through toll lane and FC-12.5 500’ from the local road intersection
On-Ramps		
	Cash Plaza	FC-12.5 from the local road intersection to the Toll Plaza concrete pavement and 300’ beyond the Toll Plaza concrete pavement
	No Plaza	FC-12.5 500’ from the local road intersection
	ORT	FC-5 only through toll lane and FC-12.5 500’ from the local road intersection
Mainline Cash Plazas		
	Cash Plaza	FC-12.5 shall be placed 300’ on either side of the Toll Plaza concrete pavement.
	ORT Lanes	FC-5 only
Exceptions:		
	1. Loop Ramp friction course limits shall be determined on a case by case basis and approved by the GEC and CFX. 2. No pavement messages shall be applied on the interface between the FC-5 and FC-12-5 friction course. The FC-12.5 and FC-5 limits shall be adjusted as necessary to support the placement of required pavement messages.	

Note: The terms “in advance” and “beyond” refer to the respective direction of travel.

Add the following section:

120.2.9 - Roadway Design Documentation

Roadway design documentation must be provided at phase submittals. The design documentation must include, but is not limited to, the following information as applicable:

(1) Section 1 - Summary

(a) Narrative - summary of existing and proposed design

(b) Location Map

(2) Section 2 - Design Documentation

(a) Roadway Design Criteria

(b) Horizontal and Vertical Alignments

(c) Design Calculations and Exhibits

- Superelevation
- Horizontal and Vertical Stopping Sight Distance
- Vertical Clearance
- Barrier – Length of Need
- AutoTURN Analysis
- Intersection Sight Distance Analysis
- Cross Slope and Superelevation Analysis

(d) MOT

- Lane Closure Analysis (Provided by GEC)
- Pacing Analysis
- Detour Analysis
- Impacts to Toll Facilities

(e) Pavement Design Report (Final Signed and Sealed) (Include Pavement Design Calculations and Resilient Modulus Recommendations)

(f) Documented Design Deviations (Exclude Appendices)

(g) Meeting Minutes/Project Correspondence

(h) Comments and Responses

The design documentation must include all design notes, data, and calculations to document the design conclusions reached during the development of the contract plans.

120.4 – Plans Phase Reviews

Add the following paragraphs:

Verification at the 60% level that a field review of the proposed sign locations has occurred and

appropriate sign distances have been provided is required.

Verification whether governing agencies (other than FDOT) for roadways contained in the plans, which are not within CFX's jurisdiction, have established their own signing and pavement marking criteria. If the governing agency has its own criteria, a copy shall be provided to CFX with the 60% plans submittal.

121 - Bridge Project Development

121.1- General

Delete the first paragraph.

Delete the third paragraph and replace with:

Structural designs for repair or rehabilitation of bridges are generally developed under the direction of the GEC or CFX and may not include all the submittal types discussed in this chapter.

121.2 - Organization

Delete FDM 121.2.

121.5 - Responsibility

Delete FDM 121.5.

121.7- Bridge Project Development

Insert the following as the first paragraph:

CFX utilizes a Bridge Concept Memorandum (BCM) in lieu of the Bridge Development Report (BDR). Change all references in the FDM from Bridge Development Report to Bridge Concept Memorandum.

Delete the second paragraph and replace with:

Bridge project development normally includes five phases of development:

- The first phase of development, bridge analysis, occurs during the Project Development and Environment (PD&E) process.
- After location design approval is granted, the second phase, Bridge Concept Memorandum is initiated. After approval of the BCM, the production plans phases of work will begin.
- The third phase is the 30% Structures Plans.

- A 60% Structures Plans phase is required for Category 2 Structures between the third and fourth phases.

- The fourth phase includes the 90% Structures Plans and specifications.

- The fifth phase includes the 100% Structures Plans and specifications. For efficiency, one engineering firm (one design team) should be responsible for the BCM and the final plans and specifications.

121.8.1 - General

Replace "The District Structures Design Engineer" with "CFX and the GEC" and "BDR" with "BCM".

121.9 - Bridge Concept Memorandum / 30% Structures Plans

Delete the fifth sentence of the first paragraph.

121.9.3 - Aesthetics

Insert the following after the last paragraph:

CFX has developed aesthetic treatments for multiple corridors, see Section 105.7 for additional guidance.

121.9.5 - Historical Significance Considerations

Delete FDM 121.9.5.

121.9.9 - 30% Structure Plans

In the first paragraph, second sentence, replace Bridge Development Report with 60% Roadway Design Plans.

121.10 - Bridge Concept Memorandum Submittal Checklist

Replace the section with the following paragraphs:

Each BCM is project specific and should be developed for its individual characteristics, however the referenced BCM is to serve as a guideline/example for all that is expected for a quality report.

The BCM shall contain the following for each bridge within the project limits:

(1) A description of the existing bridge characteristics (e.g. length, width, deck thickness, superstructure beam type, foundation, skew, cross-slope, lane configuration, etc.), as applicable.

(2) A description of the proposed bridge design characteristics (e.g. length, width, deck thickness, superstructure type, skew, cross-slope, lane configuration, etc.), including specific components such as beam type and spacing, wall type, and foundation type.

(3) For a new bridge, a comparison of superstructure, substructure and foundation types (advantages and disadvantages). Configuration alternatives in regard to constructability, cost, and transport should be included to determine the type of bridge if not dictated by the scope.

(4) Proposed bridge typical sections.

(5) Proposed bridge profiles, including documenting horizontal and vertical clearances, span lengths, and facilities underneath the bridge, including water bodies, railroads, and roadway typical sections.

(6) Existing inspection report and existing load rating analysis, if applicable.

(7) Railroad requirements, if applicable.

122 - Design Exceptions and Design Variations

*Revise title of Section to **Procedure for Design Deviations**, delete FDM 122.1 through 122.4and replace with the following:*

122.1 - General

CFX follows the design criteria and standards contained in the FDM except where noted in the Design Guidelines. When it becomes necessary to deviate from the FDM for the elements listed in Sections 122.2.1 and 122.2.2, the minimum criteria established by AASHTO will be used. Documentation for all deviations shall be identified within the Preliminary Design Report (PDR) submitted to the GEC for review and approval. The PDR shall call out to the GEC and reviewers any criteria deviation from the FDM.

As the design progresses, the designer will continue to provide early notification and documentation to the GEC on any design deviations that were not included in the PDR and do not meet FDM requirements.

There are two approval procedures used by CFX and shall be used by designers.

122.2 - Procedures

Procedure One:

If the design criteria does not meet FDM criteria but meets AASHTO, the designer shall:

- Notify the GEC and document the notification and condition within the PDR and design

documentation.

- The designer shall provide a complete narrative to the GEC PM, with possible solutions and recommendations that have been evaluated. Along with the AASHTO criteria that can be used or applied.

- The designer shall provide any additional information that the GEC requests, and upon review and with a full understanding of the requested FDM deviation, the GEC with CFX concurrence may approve the deviation.

- The designer shall document this approval and incorporate the approval at the next progress meeting. The meeting minutes shall provide sufficient background information, connecting the deviation to previous documentation.

Procedure Two:

If the design criteria does not meet FDM and/or AASHTO criteria, the designer shall:

- Notify the GEC in writing and document the notification and condition.

- Provide sufficient detail, explanations, possible solutions and recommendations to the GEC PM to justify approval.

- Evaluate the 10 Controlling Design Elements that are safety related. This justification may be used to defend design decisions made by the designer and approved by the GEC and CFX.

- Provide any additional information that the GEC requests, and upon review and with a full understanding of the requested FDM deviation, the GEC with CFX concurrence may approve the deviation.

122.3 – Justification for Approval

All deviations from criteria and standards must be uniquely identified, located, and justified; no blanket approvals are given. A strong case can be made if the following can be proven:

(1) The required criteria are not applicable to the site-specific conditions.

(2) The project can be as safe by not following the criteria and the level of safety will not be reduced due to criteria-based deficiencies.

(3) The environmental or community needs prohibit meeting criteria.

Most often, a case is made by showing the required criteria are impractical and the proposed design wisely balances all design impacts. The impacts required for initial review, evaluation, and recommendation are:

(1) Safety and Operational performance

(2) Level of Service

(3) Right of Way impacts

(4) Community impacts

(5) Environmental impacts

(6) Costs

(7) Usability by all modes of transportation

(8) Long term and cumulative effects on adjacent sections of roadway

A case should not be made based solely on the basis that:

(1) The CFX can save money.

(2) The CFX can save time.

(3) The proposed design is similar to previous designs.

The designer will provide all supporting documentation as requested by the GEC during the review and approval process and is cautioned not to proceed with the design without the approval of the design criteria deviation.

Upon review of all supporting documentation the GEC and the CFX may approve the requested design deviation from the FDM/AASHTO criteria.

123 - Engineering Design Estimate Process

123.3 – Designer Interface for AASHTOWare Project Preconstruction

Delete FDM 123.3.

123.4.1 – Summary of Quantities

Delete the first sentence of the first paragraph, and replace with the following:

All quantities for pay items are tabulated and totaled on Summary of Quantity sheets in the plans. The summary boxes should be organized in pay item sequence for the project.

123.4.2 – Breakdown of Quantities

Delete FDM 123.4.2.

126 - Lane Elimination Projects

Delete FDM 126.

128 - Federal-Aid Project Certification

Delete FDM 128.

130 - Signing and Sealing Documents

130.2.1 - Digital Signing and Sealing

Add the following paragraph:

Digital certificates used to sign documents submitted to CFX must be acquired from one of the FDOT approved digital Certificate Authorities. The current FDOT requirement is that the digital certificate meets a National Institute of Standards and Technology (NIST) assurance level of three (3) or higher (NIST Special Publication (SP) 800-63-2 Electronic Authentication Guideline). However, NIST SP 800-63-2 was withdrawn and superseded in June 2017 (updated 12/1/2017) by SP 800-63-3 Digital Identity Guidelines (includes parts 800-63A, 800-63B and 800-63C). As part of SP 800-63-3, the definitions of assurance levels were revised from a scale of one to four to a scale of one to three. Based on NIST SP 800-63A, the required assurance level shall now be a two (2) or higher. (SP 800-63A assurance levels two and three replaced SP 800-63-2 assurance levels three and four, respectively). The list of approved Certificate Authorities can be found on the FDOT website.

130.2.1.1 - Single Digital Signature

Delete FDM 130.2.1.1 and replace with the following:

A Signature Sheet is required for all component plans that will be signed and sealed by one or more professionals. See FDM 303 for Signature Sheet requirements.

130.2.1.2 - Multiple Digital Signatures

Delete FDM 130.2.1.2 and replace with the following:

A Signature Sheet is required for all component plans that will be signed and sealed by one or more professionals. See FDM 303 for Signature Sheet requirements.

130.2.2 - Manual Signing and Sealing

Delete FDM 130.2.2.

131 - Plans Processing

Delete FDM 131Revise the title to ***Plans, Processing, and Revisions*** *and replace with the following:*

131.1 - General

This section describes the critical activities required to process the contract plans, specifications and estimate for letting.

131.2 - Plans Processing

All CFX construction contracts are let utilizing CFX's Procurement Resources, located on the CFX website.

131.2.1 - Bid Plans (Prior to Advertisement for Construction)

a. Submit bid plans with all digital signatures applied to the signature sheet(s) to CFX.

b. The bid plans will be reviewed by CFX and CFX's GEC.

131.2.2 - Addendums (During Advertisement for Construction)

a. Plan changes during advertisement are to be issued as addendums.

   i. Addendum triangles, clouds, dates, and descriptions to describe the changes should be added to each revised sheet.

b. Submit addendums in clean pdf format (not signed and sealed) to CFX.

131.2.3 - Approved for Construction (AFC) Plans (After Award)

a. Do NOT reprint/pdf the entire plan set to create the AFC Plan set

b. The AFC plan set shall be comprised of the original pdf sheets generated for and included in the digitally signed and sealed Bid Plans with the following exceptions:

   i. Replace the key sheet

      1. Remove all addendum triangles, clouds, dates and descriptions.

      2. Update the plans submittal label from "Bid Plans" to "Approved for

Construction Plans" and the month and calendar year, i.e.: "October 2018", to the month and calendar year that the AFC Plans are to be submitted.

ii. Replace sheets modified per addendum

1. Remove all addendum triangles, clouds, dates and descriptions.

iii. Replace the signature sheet if any sheets were added or deleted as part of the addendums.

iv. Submit the Approved for Construction Plans with all digital signatures applied to the signature sheet(s) to CFX.

1. The AFC Plans will be reviewed by CFX and the CFX GEC to verify that the AFC Plans adhere to the process outlined above.

131.2.4- Revisions

a. Prepare plans revisions in accordance with FDM Section 151.1 Revisions after Award

b. Prepare revision signature sheet in accordance with FDM Section 303 Signature Sheet, subsection 303.8 Revisions.

c. Sign and seal revisions in accordance with FDM Section 130.5 Signing and Sealing Revisions.

d. Submit plans revisions with all digital signatures applied to the signature sheet(s) to CFX and the Construction Engineering and Inspection (CEI) consultant.

131.2.5 - As-Built Plans

The as-built plans will be prepared and then signed and sealed by the CEI.

131.2.6 - Record Drawings

a. The record drawings will NOT be signed and sealed.

b. See CFX's Record Drawings Guidelines dated December 2017, Revised April 2018 for CFX's record drawings process. (See Appendix C)

132 - PS&E Submittal Package Revisions

Delete FDM 132.

140 - Lump Sum Projects

Delete FDM 140.

151 – Plan Revisions

151.2 – Final "As-Built" Plans Process

Delete FDM 151.2.

152 - Shop Drawing Submittals

152.1 - Introduction

Add the following after the third paragraph:

The CEI and or the EOR that attend the preconstruction meeting will describe and detail the Shop Drawing Process. The electronic submittal of shop drawings to the CEI and the procedures and routing will be included in the presentation. The presentation will also address the requirement for submission of CFX shop drawings, tracking of the submittal, and outlining the review and approval process.

Delete the third note of the fourth paragraph and replace with:

Engineer of Record (EOR): Consultant shall review standard regulatory and warning signs with respect to the elements specific to CFX's design requirements, i.e. sheeting, color, size, thickness, etc. The Consultant shall review the fabricator's details for attachment of single post mounted panels to the horizontal brackets. The use of mechanical fasteners is limited to each end of the bracket. See VHB Special Provision. Holes shall not be "punched" at standard increments through the full width of the sign. The Consultant shall review panel and hardware fabrications for single and multi-post assemblies to ensure compliance with aesthetic criteria when applicable. The Consultant shall ensure the structure manufacturer has included the capability of future cantilever arm length adjustment(s) when required in design and that the structure manufacturer has provided for mounting mainline toll plaza approaching signs, i.e. single line DMS/static combination and adjacent static panel, on the same vertical plane.

Delete the tenth note of the fourth paragraph and replace with:

CFX Shop Drawing Review: The GEC assigned by CFX will be responsible for performing CFX shop drawing reviews for sign panels and structures, aesthetics for certain bridge and noise wall elements, and proprietary lighting items when specified as a CFX preference. The GEC will be responsible for documenting, tracking, and maintaining tracking records for the specific shop drawings as previously noted, disposition and distribution of Shop Drawings to other disciplines within the GEC organization for review as well as distribution back to the EOR.

Delete the eleventh note of the fourth paragraph and replace with:

Final Review Office: The CEI is responsible for performing the final review and final distribution of shop drawings which have been reviewed.

Replace within whole section:

It shall be understood that any references stated within the *FDM 152*, to the Department or the FDOT Shop Drawing Review Office shall be replaced with CFX or the CFX Shop Drawing Review Office.

152.2 - Shop Drawing Submittals Not Required

Delete this section and replace with:

Material certifications, welding procedures, paint procedures and concrete mix designs are typically submitted by the Contractor to the Engineer (CEI) who forwards the certifications to the EOR. These items do not need to be submitted for shop drawing review and approval. For non- standard items, the Engineer (CEI) will typically request approval by the EOR regarding applicability. Material certification for items on the Approved Product List (APL) is typically submitted by the Contractor to the Engineer (CEI).

152.3 - Contractor Information Required

Replace first paragraph with the following:

A shop drawing submittal which omits any of the minimum requirements listed in FDOT Standard Specifications, Sections 5-1.4.4.1, 5-1.4.4.2 and 5-1.4.6.1 must be returned for resubmittal.

152.4 - Submittals Requiring a Specialty Engineer or Contractor's Engineer of Record

In the first paragraph replace the word Department with CEI.

152.5 - Transmittal of Submittals

In the first paragraph delete the last sentence and add the following information:

One copy of each sign panel shop drawing submittal shall be transmitted to CFX's GEC for a concurrent oversight review. Comments will be provided by CFX's GEC to the EOR for incorporation into the shop drawing (unless the EOR notifies CFX's GEC otherwise). The EOR shall not return the shop drawing submittal to the CEI prior to receiving and incorporating CFX's GEC concurrent review comments.

Delete the first sentence in the second paragraph.

152.5.1 - Requirements for Department EOR

Delete FDM 152.5.1.

152.5.2 - Requirements for Consultant EOR (Full Services)

Delete FDM 152.5.2.

152.5.3 - Requirements for Consultant EOR (Design Services Only)

Delete FDM 152.5.3.

152.5.4 - Requirements for Architectural or Building Structures

Delete FDM 152.5.4.

152.5.7 - Miscellaneous Requirements and Assistance

Replace this section with the following:

For items not specified above or for which questions may arise as to shop drawing requirements, the Contractor should be advised to contact the CEI or the appropriate CFX Shop Drawing Review Office personnel. Regardless of submittal type, a letter of transmittal must always accompany a shop drawing submittal.

152.6 - Disposition of Submittals

Replace title with the following:

152.6 - Disposition of Shop Drawing Submittals

After the first paragraph add the following:

The GEC has the responsibility to review and comment on specific shop drawings as specified in Section 152.1 or other shop drawings as directed and assigned by CFX. When assigned the GEC will proceed as follows:

- Upon receipt of the shop drawing(s) from the EOR, review and mark the shop drawings with comments, questions or clarifications.
- Call the EOR for discussions and electronically transmit a copy of the marked-up shop drawing(s) to the EOR. The EOR will review and determine the final resolution.
- The GEC is not responsible to stamp the shop drawing for approval, disapproval, resubmit or not approved. The GEC can make a recommendation to the EOR however

these actions are the responsibility of the EOR. The GEC may mark and date their copy of the shop drawing as “dated and reviewed”.

- For those cases where the GEC requests a resubmittal or recommends not approving the shop drawing, the EOR shall discuss and resolve all issues brought forth by the GEC prior to proceeding and shall not approve or approve as noted any shop drawing without the full concurrence of the GEC.

- The GEC shall maintain a historical record of all activity, from receipt to return, devoted to an individual submittal for all shop drawings that the GEC is directly assigned.

Delete the last paragraph.

152.7 - Distribution of Submittals

Delete the first three paragraphs and replace with:

CFX Figure 152-1 illustrates the submittal and distributional flow of shop drawing for reviews performed by the EORs and the GEC.

152.9 - Submittal Activity Record (Logbook)

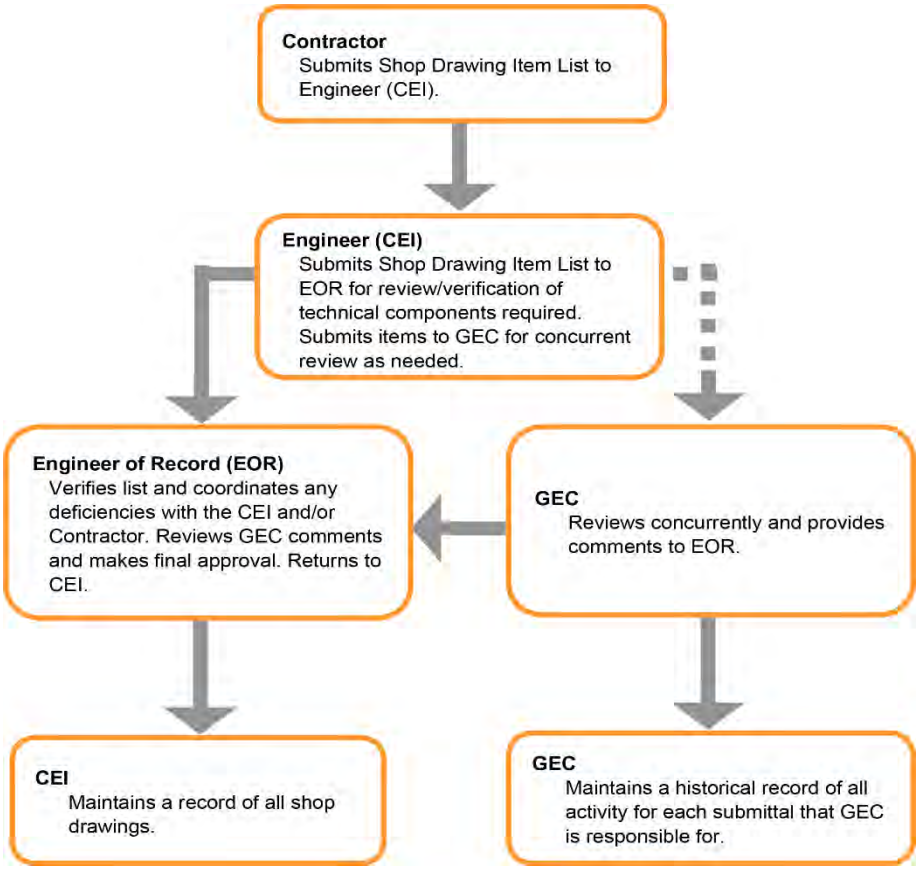
Delete bullet (1) and replace with:

(1) CFX Project Number (if assigned)

152.11 - Shop Drawing Flow Diagrams

Replace Figures 152.11.1 through 152.11.4 with:

CFX Figure 152-1 illustrates the submittal and distributional flow of shop drawings



CENTRAL FLORIDA EXPRESSWAY AUTHORITY

2.0 - Design Criteria

2022 Design Guidelines

2.0 DESIGN CRITERIA

200 – Context Based Design

200.1 - General

Add the following sentence at the end of paragraph two:

CFX roadways use Interstate criteria unless approved by the CFX Chief of Infrastructure.

201 - Design Controls

201.5.1 - Design Speed Selection

Delete the eighth paragraph.

Table 201.5.2 Ramp Design Speeds

Delete Express Lane Direct Connections.

201.5.1.2 - Express Lanes

Delete FDM 201.5.1.2.

201.5.2 – Post-Construction Speed Study

Delete FDM 201.5.2.

201.5.3 - RRR Projects

Apply this section to CFX R&R Projects.

Delete the second, third, and fourth paragraphs.

210 - Arterials and Collectors

210.6 – Roadside Slopes

Delete all bullets in the second paragraph and replace with:

Sod must be used throughout the entire limits of CFX projects. Coordinate with the GEC for the type of sod to be used on each specific project.

210.10.3 - Vertical Clearances

Replace the second sentence in (6) with:

This clearance shall be measured from the highest point of the entire roadway width, including shoulders, for all span trusses.

Add the following:

(9) The minimum VC for single line DMS / static panel combination used in toll plaza approach signing shall be 19'-6". For all other DMS/static sign installations vertical clearance shall be measured to the bottom controlling element.

211 - Limited Access Facilities

211.1 - General

Delete the second paragraph.

In the fourth paragraph beginning with "The following manuals" add:

- Standard Highway Signs and Marking Book (SHS)

In the fourth paragraph beginning with "The following manuals" delete:

- Turnpike Design Handbook (TDH) and

Delete the sixth paragraph and replace with the following:

Specific requirements for placement of the toll site infrastructure (e.g., tolling equipment structures, equipment buildings, utilities) is provided in the General Tolling Requirements and amended per the CFX ITS Design Standards. The CFX ITS Design Standards can be located on the CFX website.

211.2.2 - Pavement Cross Slopes

Delete the first paragraph and replace with the following:

Standard pavement cross slopes are shown in *FDM Figure 211.2.1*. An analysis of the surface drainage is required when more than three lanes are sloped in one direction.

211.2.2.1 - Existing Pavement Cross Slopes

Delete the first sentence of the third paragraph and replace with the following:

When cross slope correction is necessary, work closely with the GEC PM to determine the appropriate method of correction.

211.2.3 - Hydroplaning Risk Analysis

Delete the last two sentences in the first paragraph and replace with:

The analysis should be completed during the PDR phase because the typical section cross slopes and superelevation rotation points could impact the roadway geometry. Evaluate key areas where there can be potentially problematic cross slopes such as sections with additional auxiliary and /or ramp lanes that are in superelevation. CFX corrects deficient cross slopes and superelevations. Modifications to cross slopes or superelevations should be discussed with the GEC Project Manager before completing each phase submittal. Travel lanes with existing cross slopes that are found to be non-compliant must be corrected to meet standard pavement cross slopes. The following information is offered to assist with this analysis:

- Travel lanes one direction, FDM Figure 211.2.1 (211.2.3) and FDM Table 210.9.1
- Sample section information:
    - Hydroplaning analysis indicate station of the section being analyzed.
    - Lane 1 should always be labeled as the inside lane.
    - Hydroplaning analysis is not applicable through areas of superelevation transition. Provide Hydroplaning analysis of the full superelevation section and the typical section
    - Utilize the FDOT Hydroplaning Tool, released in April 2020. It is available on the FDOT website.
    - If the predicated drivers speed is greater than the calculated hydroplaning speed on existing travel lanes evaluate the crash data provided within the project area to determine whether there is a correlation between collisions.
    - Provide a hydroplaning analysis summary for the minimum corrective cross slope to address the hydroplaning issues identified.

211.3 - Medians

Add note (2) to FDM Table 211.3.1.

(2) For CFX roadways (without barrier), provide a median width which will accommodate future lanes when planned. (106-ft median width for 4 lane sections planned to be future 8 lane section with special use lanes and 4-ft buffers)

211.3.2 - Median Crossovers

Delete the last sentence in the second paragraph.

Delete the fourth paragraph and replace with:

Crossover locations that do not meet the above criteria require approval by the CFX Chief of Infrastructure.

211.3.2.1 - Existing Crossovers

Delete criterion (2) and (3) and replace with:

(2) Crossover locations that do not meet the AASHTO Green Book criteria or the additional FDOT criteria require approval by the CFX Chief of Infrastructure to remain.

211.3.3 - Managed Lanes Separation

Delete FDM 211.3.3 and Figures 211.3.1 thru 211.3.4.

211.4 - Shoulders

Add the following paragraphs:

It is CFX preference to provide a wider useable shoulder for emergency use and to accommodate stopped or disabled vehicles. For new (2-Lane) or widened facilities (3-Lane or more), provide 14 ft. wide inside and outside shoulders with a 12 ft. paved width.

Per AASHTO Chapter 10.9.6, the left and right shoulder widths may be reversed if needed to provide additional sight distance.

Delete Managed Lanes from Table 211.4.1.

Add the following to the NOTES with shoulder gutter in Table 211.4.1:

(2) Where no guardrail, shoulders shall extend 4 ft beyond the outside of shoulder gutter with 0.06 cross slope back toward the gutter. The 4 ft backslope shall include 3 ft of misc. asphalt adjacent to shoulder gutter and 1 ft of sod.

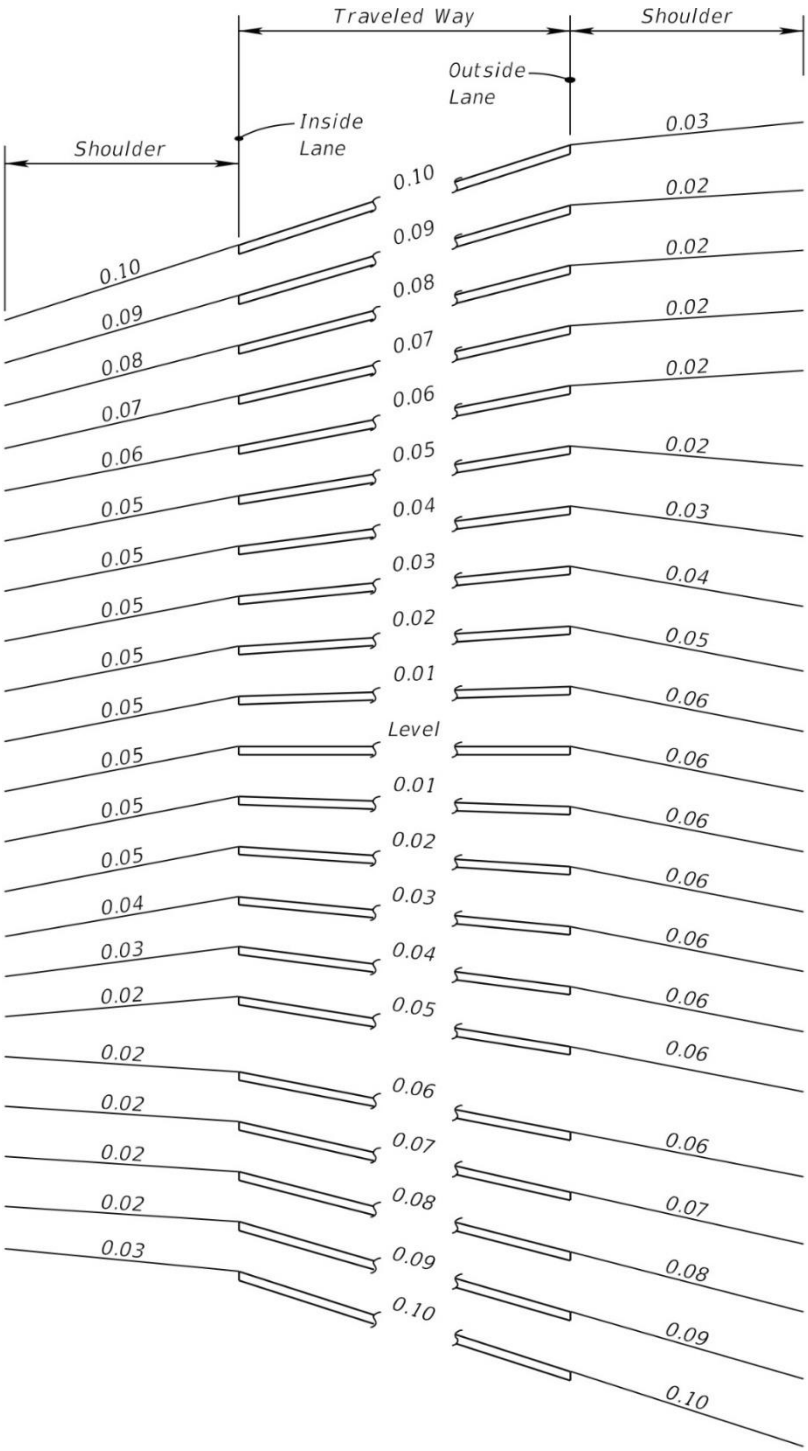
211.4.1 - Managed Lanes Shoulders

Delete FDM 211.4.1 and the rows for Managed Lanes from Table 211.4.1.

211.4.2 - Shoulder Cross Slopes

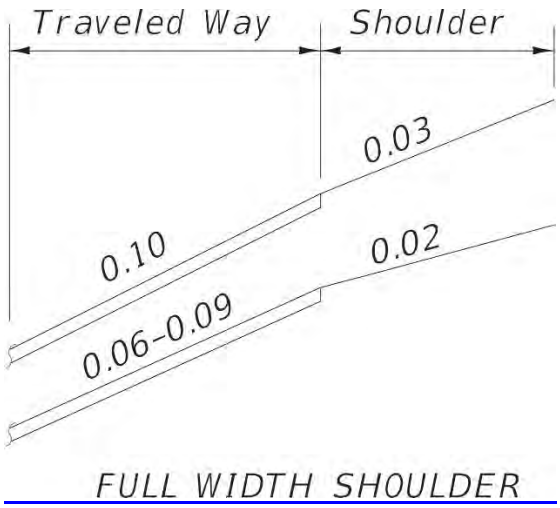
Replace Figure 211.4.1 Shoulder Superelevation with CFX Figure 211.4.1 Shoulder Superelevation

CFX Figure 211.4.1 Shoulder Superelevation



Replace Figure 211.4.2 Special Ramp Shoulder Superelevation with CFX Figure 211.4.2 Special Ramp Shoulder Superelevation

CFX Figure 211.4.2 Special Ramp Shoulder Superelevation



Add the following section:

211.4.2.1 – Shoulder Rocking

CFX preference is to use trench drain in areas of substandard gutter grade. When trench drain is not feasible or cost effective, consult CFX prior to utilizing shoulder rocking.

Roadway shoulder may be rocked up and down to provide the minimum longitudinal slope of 0.3% along the outside of shoulder / gutter line. The Shoulder Rocking may vary from a minimum 3% cross slope to a maximum 7% cross slope in areas of tangent roadway sections. Where Shoulder Rocking occurs outside of tangent roadway sections, shoulder cross slopes may range from a minimum of matching the adjacent travel lane cross slope to a maximum cross slope of 7% break over from the travel lane. The cross-slope difference between adjacent low points and high points of Shoulder Rocking shall not exceed 4%.

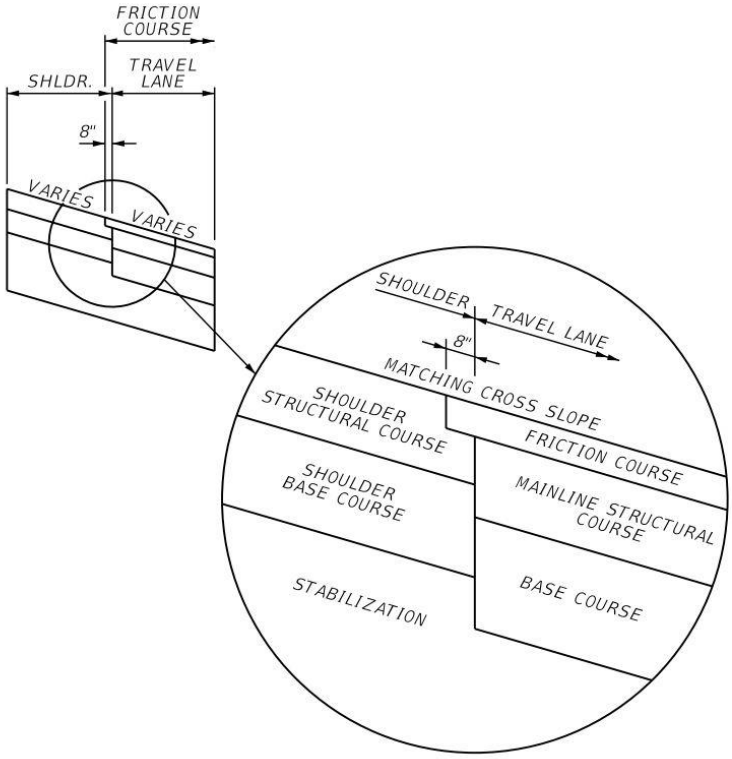
Shoulder Rocking shall be depicted on the Roadway Profile Sheets and shall include a gutter line profile (station and elevation of all low points and high points, and longitudinal slopes of the gutter line) and a topo of barrier wall profile. Where shoulder rocking occurs on both sides of a median barrier wall, a gutter line profile for each side of the median barrier wall and a profile for the top of barrier wall shall be required. The top of barrier shall follow the adjacent profile grade. In lieu of gutter line profiles, a table may be provided in the plans that includes, at a minimum, necessary information to construct the shoulder rocking and the longitudinal gutter grades. Shoulder cross slopes at each low point and high point of shoulder rocking shall be included in either the Shoulder Rocking table on the plans or in separate shoulder rocking calculations in the Drainage Report.

211.4.3 – Limits of Friction Course on Paved Shoulders

Delete the second paragraph and Figure 211.4.3 and replace with the following:

For all locations where the shoulder slopes toward the travel lane, the shoulder pavement shall be flush with the travel lane friction course that extends 8” outside the travel lane. This will address any concerns for trapping water on the shoulder as demonstrated in CFX Figure 211.4.3.

CFX FIGURE 211.4.3



211.4.4.1 - Ground-in Rumble Strips

Add the following paragraph:

The minimum thickness of proposed structural asphalt on shoulders with ground-in rumble strips must be no less than 2.0 inches. On existing shoulders without rumble strips that call for new rumble strips to be placed, the minimum thickness of combined existing structural asphalt and proposed asphalt must be no less than 2.0 inches.

211.4.7.1 - Existing Curb

Delete the third sentence.

211.7 - Horizontal Alignment

Add the following paragraph:

Spiral curves should not be used on mainline curves equal to or less than 1.5 degrees and on ramp curves equal to or less than 3 degrees. Avoid the use of spirals on bridges and R/W lines.

211.8 - Superelevation

Add the following paragraph:

Zero percent cross slopes are to be avoided within 150 ft. of the high point or low point of crest and sag vertical curves, respectively, especially at gore areas and bridges.

211.9.1 - Grades

Add the following sentence to the last paragraph:

The minimum distance between VPIs on curbed roadways is 250 feet. (FDM 210.10.1.1) The minimum distance required between VPIs on an expressway used to develop the profile grade line should be 5 x Design Speed.

Table 211.9.2

Delete Note (2).

Table 211.9.3

Add the following note to the Table:

Notes:

(1) This table provides general guidance for minimum vertical curve lengths. If a curve meets K value, stopping sight distance, decision sight distance, and provides positive drainage control, then a reduction in vertical curve length may be approved by the CFX Chief of Infrastructure.

211.10 - Sight Distance

Delete the last paragraph and replace with:

Do not place decision points e.g. ingress or egress within the limits of reduced sight distance.

211.11 - Structures

Add the following sentence:

The width of all CFX-owned bridges must equal the paved width of the approach roadway including the paved width of shoulders.

211.13 - Ramp Terminals

Add the following paragraphs:

For single lane ramp terminals, it is CFX's preference to use the taper-type design for exit ramps and the parallel-type for entrance ramps. Per AASHTO, "the advantages in efficient traffic operations and low crash frequencies of long acceleration lanes provided by parallel type entrances are well recognized. A long acceleration lane provides more time for the merging vehicles to find an opening in the through-traffic stream. An acceleration lane length of at least 360 m [1,200 ft.] plus the taper is desirable wherever it is anticipated that the ramp and freeway will frequently carry traffic volumes approximately equal to the design capacity of the merging area."

A parallel-type exit ramp will be considered in locations where both the main line and ramp carry high volumes of traffic. In this case, the deceleration lane provided by the parallel-type exit provides storage for vehicles that would otherwise undesirably queue up on the through lane or shoulder. See AASHTO for additional guidance for two-lane ramp terminal designs.

211.14 - Managed Lanes Access Points and Access Types

Delete FDM 211.14.

Delete Exhibits 211-3 through 211-12

215 - Roadside Safety

215.2.6 - Roadside Slope Criteria

Add the following paragraphs:

To reduce future erosion and maintenance issues, utilizing a maximum slope of 1:3 is preferable. In constrained conditions, flattening, maintaining or shielding the existing slopes should be evaluated. Where the slopes are greater than 1:2 and maintenance is difficult to perform, consider placing concrete pavement on slopes.

In areas where guardrail is adjacent to the roadway, provide a maintenance/landscaping berm behind the guardrail. The berm should be 10 ft. wide (3 ft. minimum), measured from the back of the miscellaneous asphalt and slope towards the roadway. The back of the berm (break point) shall be maintained at an elevation equal to the outside edge of travel. This design is intended to prevent roadway runoff from bypassing treatment as well as preventing runoff from staging into the travel way in the event of a drainage structure malfunction/clog during a storm event. See ***CFX Figure 215.2.16*** for additional information.

CFX Figure 215.2.16 Grading Behind Guardrail

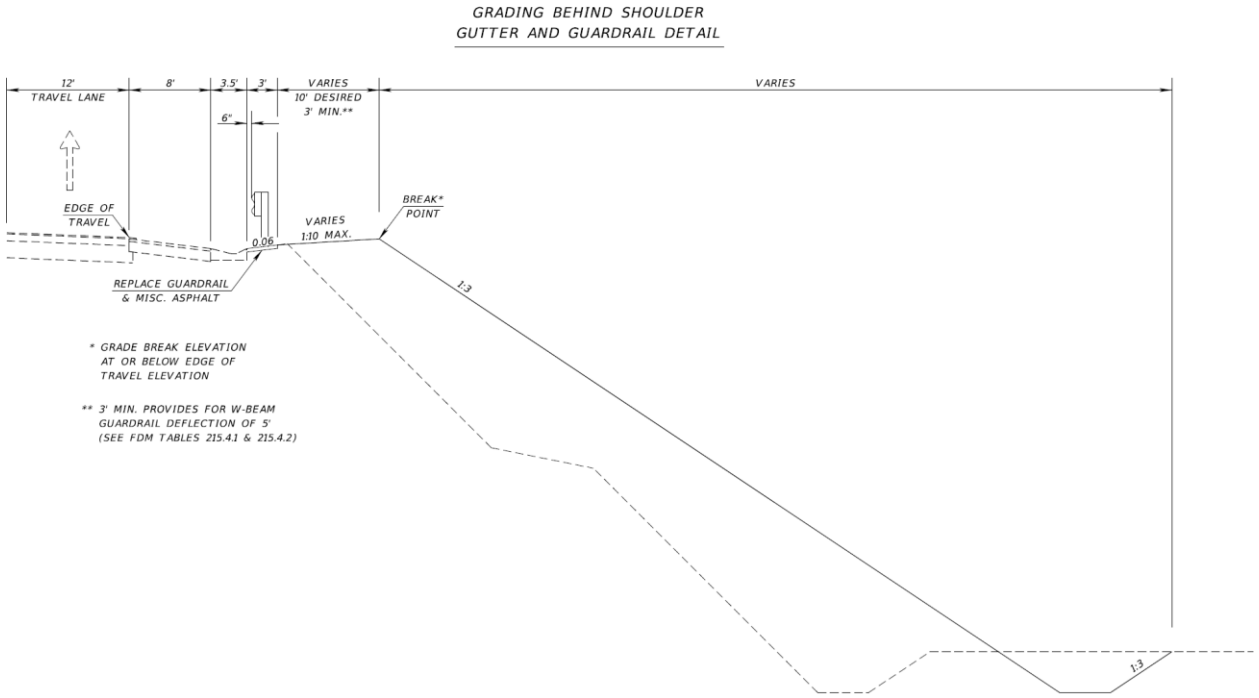


Table 215.2.3

For front slope with height greater than 20 ft., delete the rate and replace with:

1:3 with guardrail and maintenance/landscaping berm.

215.2.8 - Aboveground Utilities

Delete the last sentence in the first paragraph.

215.3.2 - Canal Hazards

*Delete 215.3.2 (Figures 215.3.1 and 215.3.2 to remain), rename the section to **Water Body/ Canal Hazards** and replace with the following:*

Water body is defined as a natural or manmade feature, such as a pond, lake, ditch, canal, river, wetland, etc. that has a depth of water 3 feet or more for an extended period of time (24 hours or longer) as measured from the bottom elevation of the water body.

Minimal lateral offsets for water body hazards exceed standard clear zone width criteria. Water body hazard lateral offsets are measured from the edge of travel lane, auxiliary lane or ramp to the top of the water body side slope nearest the road. Minimum required distances are illustrated in ***Figures 215.3.1*** and ***215.3.2*** and summarized as follows:

- Not less than 60 feet for flush shoulder and curbed roadways with design speeds of 50 mph or greater.
- Not less than 50 feet for flush shoulder roadways with design speeds of 45 mph or less.
- Not less than 40 feet for curbed roadways with design speeds of 45 mph or less.

When new water body or roadway alignment is required, provide distances greater than those above to accommodate future widening of the roadway.

On fill sections, provide a flat berm (1:10 or flatter slope) no less than 20 feet in width between the toe of the roadway front slope and the top of the water body side slope nearest the roadway.

When the slope between the roadway and the "extended period of time" water surface is 1:6 or flatter, the minimum distance can be measured from the edge of the travel lane, auxiliary lane, or ramp to the "extended period of time" water surface and a berm is not required.

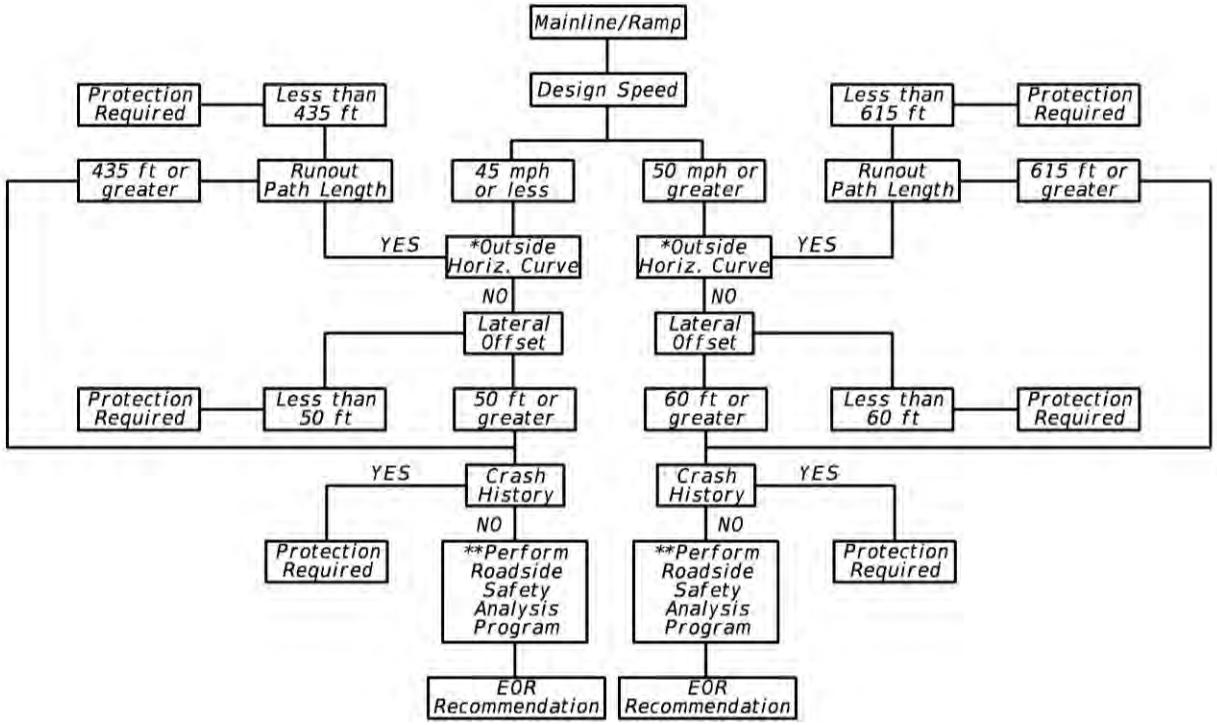
In sections with ditch cuts, provide a minimum of 20 feet between the toe of the front slope and the top of the water body side slope nearest the roadway.

- If the minimum lateral offset can be met, additional water body protection criteria may still apply and are summarized as follows:
- No crashes within a 5-year period in which a vehicle departs from the roadway towards the waterbody.
- There shall be no non-traversable slopes (rough terrain, obstructed, or slopes steeper than 1:3) between the roadway and the water body
- If design speeds of 45 mph or less on roadway adjacent to water body, the distance between where a vehicle leaves the roadway along the outside of a horizontal curve and the edge of waterbody shall not be less than runout path length of 435 ft (based on a 50 mph stopping distance).
- If design speeds of 50 mph or greater on roadway adjacent to water body, the distance between where a vehicle leaves the roadway along the outside of a horizontal curve and the edge of waterbody shall not be less than the runout path length of 615 ft (based on a 70 mph stopping distance).

Shield the water body hazard with an approved roadside barrier when the required minimum lateral offset cannot be met, or the water body protection criteria above cannot be met. Use the following criteria for water body hazard protection:

- Locate the barrier as far from the traveled way as practical and outside of the clear zone where possible.
- Locate guardrail no closer than 6 feet from the water body front slope.
- Locate High Tension Cable Barrier no closer than 15 feet from the water body front slope.

CFX Figure 215.3.4 Waterbody Protection Requirement Flowchart



***Outside Horizontal Curve** – Waterbody is located along the outside of a horizontal curve where an errant vehicle may encroach.

****Roadside Safety Analysis Program (RSAP)** – Cost effective analysis for evaluation of roadside safety improvements. The encroachment-based approach uses a series of conditionally independent probabilities representing vehicle roadside encroachment events, the conditional probability of a crash given a roadside encroachment has occurred, the probable severity of crashes that are likely to occur and the expected benefit cost ratios of various roadside design alternatives. EOR to provide recommendation from results and present to CFX GEC for approval.

215.4.1.1 – Flexible Barrier

Add the following paragraph:
HTCB installations shall utilize a 3-wire system matching Trinity Highway CASS TL-3 or CFX approved equal.

215.4.2.1 - Guardrail End Treatments

Delete the third sentence of the first note of the first paragraph and replace with:

Approach terminals are classified by a Test Level (TL-2 for Design Speeds ≤ 45 mph or TL-3, which is acceptable for all design speeds). All guardrail and end treatments on CFX's System shall be TL-3.

215.4.3.2 - Temporary Crash Cushions

Delete the first paragraph and replace with:

Only redirective non-gating crash cushions are permitted for use as temporary crash cushions on CFX roadways unless otherwise approved.

Delete the third paragraph.

215.4.6.1 – Barrier Offset

Delete "shoulder gutter segments" from the third sentence in the third paragraph. Delete the last sentence of the third paragraph.

216 - Earthwork

216.1 - General

Add the following sentence to paragraph 3:

Landscape work may require excavation to remove and replace soils unsuitable for plant growth and finish grading for drainage and aesthetic purposes.

221 - Utilities

221.1 - General

Add the following to the last paragraph:

Guidance for accommodating utilities within CFX R/W can be found in CFX's Property Acquisition and Disposition Procedures Manual.

230 - Signing and Pavement Marking

230.1 - General

Delete the last sentence of paragraph two and replace with:

Signs and Pavement Markings not included in the CFX Signing and Marking Details, the FDM, or the FDOT Standard Plans are to be detailed in the plans.

Add the following paragraphs:

CFX recognizes Comm (community) as an approved abbreviation. The MUTCD approved abbreviation

Int'l (International) is restricted to signing for International Airports.

Sign R5-10b shall be placed on all entrance ramps near the cross street.

Regulatory sign R3-8 shall not be used on the mainline in advance of a lane drop at a two lane exit with optional lane without prior approval from CFX

Signs of different shapes or sizes shall not be mounted back to back.

Trailblazer sign assemblies shall:

- Be placed 1 mile or less from the CFX facility, in an urban area
- Be placed 2 miles or less from the CFX facility, outside an urban area
- Be placed such that the motorist will make no more than one turn to reach the facility
- Be placed at strategic locations which make it easy for a motorist to find a new facility or new alignment
- Not be placed at intersections that would direct traffic through neighborhoods

Signs are to match the CFX Aesthetic Guidelines Section 105.7.

230.2.2 - Overhead Signs on Limited Access Facilities

Delete all paragraphs and replace with:

All exit direction signs shall be mounted overhead.

All advanced guide signs shall be mounted overhead. Multi-post advanced guide signs shall not be permitted.

Alternatives to sign placement shall have written justification approved by CFX and include the following:

- Right edge of sign panel aligned with the outside edge of travel
- Left edge of sign panel aligned with the skip stripe for the outside lane.

Crossroad signing shall be overhead to extent possible.

Span mounted panels shall be centered over the entire width of the roadway.

Cantilever mounted panels shall be centered over the entire width of the roadway.

Panels containing NEXT RIGHT or NEXT LEFT are considered lane specific signs and shall be centered over the applicable lane.

Panels less than ½ mile from the exit direction assembly are to read “NEXT RIGHT”.

“Overhead” category in MUTCD applies to all signing along the mainline. Interstate, U.S., and State Route Shields shall be reduced from the “overhead” criteria to the next smallest size for Interchange Sequence Signs.

Multiple panels on an overhead structure shall be designed having the same overall height if panels face the same direction of travel and after using standard design criteria, the difference in panel heights is 24 inches or less.

The overall panel width shall be equal to or greater than the overall height unless otherwise directed by CFX.

Hyphens shall only be used if the destination and/or street name is hyphenated with the governing agency.

Temporary panels must be fully designed and detailed in the plans.

230.2.3 - Local Street Names on Guide Signs

Delete the last sentence and replace with:

The decision to use a local name should be coordinated with CFX.

230.2.4 - External Lighting of Overhead Signs

Delete all paragraphs and replace with:

Provide external lighting for all CFX overhead signs. LED type lighting shall be used for overhead signs.

Luminaires shall not be mounted to the top of sign panels. Luminaires shall be grey or silver. Refer to FDM 231, Table 231.2.1 for information related to sign lighting criteria.

230.2.5 - Signs on Barriers and Traffic Railings

Add the following to the first paragraph:

Crossroad street name signs shall be mounted flush to traffic railing barrier on roadway bridges crossing over the mainline. The CFX logo signs shall be mounted flush to the traffic railing on mainline bridges crossing over surface roadways.

Delete the second paragraph and replace with:

Utilize Standard Plans, Index 700-013 when attaching permanent sign supports to a median traffic railing.

Delete the first sentence in the third paragraph and add the following:

Utilize the Barrier Mounted Sign Details as shown in the CFX Signing and Marking Details Appendix for all outside traffic railing sign installations.

230.2.7 - Object Markers and Delineators

Delete the second paragraph and replace with:

The CFX Signing and Marking Details illustrate the use of delineators along the edge of limited access traffic lanes and interchange ramps.

Do not place delineators behind guardrail.

Add new section:

230.2.7.1 – Linear Delineation

3M Linear Delineation System, Series 340 is to be specified on barrier walls and guardrail into and along the high side of loop / partial loop ramp curves and other locations as determined by CFX. Panels are to be thirty-four (34) inches long and six (6) inches wide on barrier walls and guardrail. Panels are typically spaced eighteen (18) inches apart on barrier walls and centered at 2 feet above the gutter line elevation. However, spacing may require adjustment depending on the total length of each wall such that all panels are 34” long. Sheeting color shall match adjacent edge line.

230.2.10 - Internally Illuminated Street Name Signs

Delete the first paragraph and replace with:

Do not exceed ten feet in width for any internally illuminated street name sign installed on CFX-maintained signals. On mast arm supports, the sign shall be free swinging from the arm. If the sign cannot be free swinging from the arm, it shall be placed on an arm below the signal mast arm. The sign is never to be placed above the mast arm.
Delete the first sentence in the second paragraph and replace with:

Unless directed otherwise by the local agency responsible for the cross street at an interchange, design the street name sign in accordance with the TEM, Section 2.2.

Add the following section:

230.2.10.1 – Traffic Signal Mounted Signing

Submit a written recommendation addressing all traffic signal related signing including, but not limited to, street name signs (internally illuminated or static), turn prohibition, etc. Signal related signing shall

include proposed overhead panels (span wire, mast arm, pole, etc.) as well as single post ground mounted assemblies

230.2.11 - Tourist-Oriented Directional Signs

Delete FDM 230.2.11.

Add the following sections:

230.2.13 – ClearView Font

ClearView Font is the standard font for use in guide sign design and fabrication. Traditional Series shall be used for negative contrast copy. Traditional Series and CV shall not be used on the same panel for positive contrast.

"TRANSOFT GuidSIGN" is the only software currently approved by CFX. However, the Consultant may use an alternative program or format provided examples have been submitted and approved prior to 60% plans submittal.

For mainline and ramp guide signs, CV standard upper-case heights will match the MUTCD table but the lower-case heights may not. Do not adjust the lower-case letters to match the MUTCD. Only the upper-case letter height is to be shown on the guide sign worksheets.

230.2.13.1 – Letter Spacing for Panel Design

Interword spacing (the horizontal space between words) shall be 1.25 times the UC letter height (rounded to the nearest tenth of an inch) when the destination contains two words, (i.e. Goldenrod Rd) and 1.0 times the UC letter height when the destination contains three or more words, (Winter Garden Vineland Rd). When two- and three-word destinations are on the same panel, use 1.0 times the UC letter height for all lines of destination copy.

Interline spacing (the vertical space between lines of copy) should be 0.75 times the average of the UC letter heights in the adjacent lines of copy. For example, using 16" UC in one line and 12" UC in the adjacent line, the interline space would be 10.5" or (0.75*(16+12)/2)).
Spacing may be slightly adjusted to achieve a total panel height in an even 6" increment.

230.2.14 – Crossroad Street Name Signs

Crossroad street name signs for roadways that do not have an interchange with a CFX facility shall be provided. If design constraints require two lines of text, CFX approval is required. Locations for these signs shall be as follows:

- Crossroad over toll road: Mount panels on the bridge girder for view by toll road traffic.

- Toll road over crossroad: Install multi-post assemblies in the median behind bridge approach guardrail depending on existing or proposed landscaping. If median installation is prevented by landscaping or other design related elements, install the multi-post assembly along the outside travel lane. Roadside mounted assemblies shall be located as close to the bridge as practical.

230.2.15 – Partial Overlay Designs

Partial overlays shall completely cover all existing copy to be revised by the overlay, match positive contrast copy style, i.e. CV or Traditional, which is to remain visible when overlay is positive contrast, and provide sufficient information such that the Contractor can correctly align the proposed copy (not the overall overlay) with the existing copy which is to remain visible.

230.3 - Pavement Markings

Delete the first sentence in the first paragraph and replace with:

Pavement marking design are to comply with the CFX Signing and Marking Details, Standard Specifications, Standard Plans, TEM, MUTS, and the MUTCD.

230.3.1 - Selection of Pavement Marking Material

Delete the first sentence in the first paragraph and replace with:

For local roadways impacted by construction or maintenance of a CFX facility use the flowchart, shown in *FDM Figure 230.3.1*, as a tool to assist in determining the appropriate pavement marking material.

Add the following paragraphs:

3M Company Standard Preformed Patterned Retroreflective Pavement Marking Tape (PPRT), Series 380AW is to be specified for all solid lane lines, edge lines, skip striping, Do Not Stop pavement messages and gore markings on asphalt and concrete pavement on facilities within CFX's jurisdiction.

At ramp terminal return radii, where the radius is smaller than manufacturer's recommend radius for PPRT installations, Consultant may request to utilize thermoplastic marking materials in lieu of PPRT.

Stop bars, crosswalks, messages, directional arrows, and option arrows will be preformed thermoplastic.

For lane lines leading to a ramp terminal, determine if existing markings show a significant amount of crossover from the vehicles. If so, use thermoplastic for the lane lines, otherwise use PPRT. Coordinate decision with CFX GEC.

9" Contrast (PPRT, black/white) shall be specified for all solid lane lines, 10'- 30' skip striping, and white edge of pavement lines within CFX's jurisdiction.

230.3.4 - Work Zone Pavement Markings

Delete the second paragraph and replace with:

Use Removable Tape for all temporary pavement markings on final asphalt or concrete surfaces. Removable Tape shall be 3M Brand Scotch-Lane Removable Tape Series 710, 711, and 715 or CFX Approved Equal.

230.3.5 - Raised Pavement Markers (RPMs)

Add the following to the last paragraph:

… and the CFX Signing and Marking Details. All RPMs installed within CFX's jurisdiction shall be 3M Company Series 290 or CFX's approved equal.

230.4.1 - Exit Ramp Intersections

Add the following to note (3):

(3) …for any static wrong way panels. Otherwise, Wrong Way Signing shall be coordinated with the ITS Consultant and/or CFX's General System Consultant to include the Wrong Way Detection System as directed by CFX.

Delete the first sentence in note (7) and replace with:

(6) Include a straight arrow and "RAMP" pavement message in left-turn lanes extending from the far-side ramp intersection through the near-side ramp intersection to prevent premature left turns.

Delete note (9).

230.5 - Signing and Pavement Marking Coordination

Delete the second and fourth paragraphs.

Add the following paragraphs:

Unless constrained by other roadway design elements, signs shall be placed in advance of the nearest light pole in order to provide optimum visibility (as viewed in the direction facing the sign). The Consultants for signing and pavement marking and lighting are responsible for adjusting one or both plan components if proposed signing or lighting changes during plan development.

Multi-post assemblies shall be placed in advance of the nearest light pole when both are behind guardrail or wall.

ITS EOR shall provide locations for Dynamic Message Signs to ensure locations do not conflict. ITS EOR shall coordinate the placement of the Wrong Way signage and Wrong Way detection.

231 – Lighting

231.1 – General

Add the following paragraphs:

LED fixtures shall be used for new installation and the retrofit of existing lighting systems.

231.1.4 - Voltage Drop Criteria

Delete the FDM 231.1.4 and replace with the following:

When determining conductor sizes for lighting circuits, the maximum allowable voltage drop from the service point on any circuit shall not exceed 5% on combination of service, feeder, and branch circuit.

The voltage drop calculations for design of lighted signs shall be based on the worst-case scenario.

231.1.5 - Grounding

Delete note (3).

231.3.6 – Underdeck Bridge Lighting

Delete the second sentence of the first paragraph.

Add the following sections:

231.3.7 - Luminaires

- All luminaires shall be produced by the same manufacturer.
- The models currently accepted by CFX for new installation and the retrofit of existing facilities are:
    - Roadway: Signify/Philips RoadFocus Series supplied with Dimming driver, 22KA Surge Protection Device and 7-Pin photocell receptacle.
    - Sign Lighting: Signify/Philips DuraForm luminaire with remote LED drivers and remote 22KA Surge Protection Device.
    - Underdeck: Visionaire BSX series luminaire with 7-pin photocell receptacle,

equipped with decorative shield for wall mounted underdeck luminaires, capability of remote driver and remote 22KA surge protection device.

231.3.8 - Remote LED Driver Cabinets

All fixtures must be able to accommodate a smart driver that will allow remote performance of diagnostics, adjustment of lighting levels and control with intelligent systems.

Remote mounted LED driver cabinets shall be utilized for all sign and pendant hung underdeck luminaires providing illumination of CFX facilities. Remote driver cabinets for pendant hung underdeck luminaires shall only be provided when the underdecks are illuminating CFX toll roads. Underdecks illuminating non-toll facilities shall be provided with integral drivers and surge protection devices eliminating the requirement for remote driver cabinets on these non-toll facilities.

231.7 - Lighting Design Analysis Report

Delete the section and replace with:

The design of all electrical systems for lighting must comply with FAC 61G15-33, Responsibility Rules of Professional Engineers Concerning the Design of Electrical Systems. These responsibilities are applicable for all new projects and any major modifications.

Prepare a Lighting Design Analysis Report (LDAR) that provides horizontal illumination photometric analysis, using AGI32 Lighting Software, for the mainline section, ramp section, interchange, signalized intersections including vertical illumination, overhead signs, structure with underdeck lighting, and veiling luminance for typical sections.

Provide load analysis, voltage drop calculations for combination of feeder and branch circuits, short circuit current analysis and device coordination, and arc flash hazard analysis.

The LDAR should include an evaluation of various lighting design alternatives which consider factors such as pole configurations, pole heights, arm lengths, luminaire wattages, and optics. A single alternative should be implemented on the project. The evaluation should be based on safety, constructability, maintainability, economics, and consistency with the adjacent projects.
In addition, the LDAR should include all correspondence with the local power company, coordination with other authorities having jurisdiction, meeting minutes, documentation on all gathered field data, FAA coordination, and any other related information.

232 – Signalization

232.1 - General

Add the following paragraph:

Make every reasonable effort to incorporate the design preferences of the local maintaining agency. These preferences may include but are not limited to pole types, conduit routing, specific equipment, signal timing methods, etc. Meet with the maintaining agency to ascertain their preferences and obtain all other pertinent information. Submit to the GEC for review and final approval. All documentation of preferences and correspondence with the local agencies shall be included in the signalization design documentation.

232.2 – Lane Configuration

Delete the last three sentences of the second paragraph and replace with:

Consultant is responsible for obtaining current turning movement counts.

232.5 – Vehicle Detection

Delete last sentence of first paragraph and replace with:

Video shall be the preferred detection type.

232.8.1 - Mast Arm Policy

Delete all paragraphs and replace with:

Mast arms shall be installed for all new or reconstructed signals.

232.9 - Span Wire Assemblies

Delete this section.

232.10 - Traffic Signal Project Coordination

Delete the third paragraph and replace with:

Utilities - The Utility Coordinator provides the coordination between the designer and the various utilities that may be involved in the project. The Utility Coordinator may assist in identifying or verifying conflicts with overhead and underground utilities. The designer should coordinate with the utility company providing power for the preferred location for the electrical service.

Delete the sixth paragraph.

233 - Intelligent Transportation Systems (ITS)

233.1 - General

Delete the first paragraph and replace with the following:

The CFX ITS Design Details establishes guidelines for the preparation of ITS Plans for CFX facilities.

Delete the third and sixth bullet from the second paragraph. Add the following to the list:

- CFX Design Guidelines
- CFX Signing and Marking Details
- CFX Lighting Details

Add the following after the last paragraph:

Change all references of the District ITS/TSM&O Engineer to CFX Manager of Traffic Operations.

233.1.3 - ITS Device Approval and Compatibility

Delete the last bullet point and replace with:

- Reference the CFX ITS Specifications that apply to each device to provide a uniform and compatible system.

233.3.2 – Local Back Up and Alternative Power Sources

Delete the last part of the first paragraph and the last sentence of the third paragraph and replace with:

…the CFX Manager of Traffic Operations.

233.3.8 - Grounding and Lighting Protection

Add the following paragraph.

The CFX ITS Design Details establishes guidelines for the grounding and lighting protection for ITS devices.

233.3.9.1 – Generator Design Requirements

Delete the last sentence of the fifth paragraph and replace with the following:

Coordinate with the CFX Manager of Traffic Operations to determine if remote monitoring is required.

233.7.3 – Equipment Shelter

Delete the first sentence of the first paragraph and replace with the following:

Coordinate with the CFX Traffic Operations Manager to determine if co-location is possible.

233.8.4 – Wireless Communication System

Delete the last paragraph.

233.10 – Closed Circuit Television Systems

Delete the eighth bullet in the second paragraph and replace with the following:

Identify location s for vegetation removal in the plans or propose closer spacing upon approval from the CFX Traffic Operations Manager and the CFX Landscape Architect representative.

233.11.1.1 - Express Lanes DMS

Delete FDM 233.11.1.1.

233.11.2 – Highway Advisory Radio (HAR)

Delete FDM 233.11.2.

233.13 – Maintenance of ITS Devices and Communication

Delete the first sentence of the first paragraph and replace with the following:

Coordinate with the CFX Traffic Operations Manager to determine if maintenance of ITS devices and communications during a construction project is required.

Delete the last paragraph and replace with the following:

The maintenance of ITS devices and communications plans must be approved by the CFX Traffic Operations Manager.

240 - Transportation Management Plan

240.1 - General

Delete FDM 240.1.

240.1.2 TMP Components

Delete the second sentence of the first paragraph.

240.2 – Temporary Traffic Control Plan

Add the following paragraphs:

Project specific conditions associated with milling and resurfacing require development of project specific notes for the plans. Generally, these notes are part of the TTCP. Stormwater ponding conditions during milling and resurfacing is prohibited. The Temporary Traffic Control Plan may require alternate stages/notes within a milling and resurfacing phase to meet this requirement. The plan may require the contractor to alternate stages or pave multiple lifts during the same work period to comply with the prevention of ponding requirement and drop off restrictions.

A TTCP is comprised of, but not limited to, specific plan sheets, typical sections and phasing notes, critical cross sections, detour and pacing details, temporary pavement details, and references to FDOT Standard Plans layouts describing how traffic will be controlled through a work zone.

TTCP plan sheets detail the proper delineation of traffic through the work zone during all construction phases. The complexity of the TTCP varies with the complexity of the project.

A TTCP generally provides the following information:

(1) The location of all advance warning signs

(2) Temporary pavement markings, (including raised pavement markers (RPMs)

(3) Location of temporary barriers and end treatments

(4) Temporary drainage design

(5) Channelizing devices at special locations

(6) Locations for special devices such as portable changeable message signs (PCMS), arrow panels, radar speed display units (RSDU), portable regulatory signs (PRS), and temporary signals

(7) PCMS messages for each phase

(8) Signal timing for each phase, including temporary actuation, to maintain all existing actuated or traffic responsive mode signal operations for main and side street movements for the duration of the Contract (Check with Traffic Operations Engineer)

(9) Location and geometry for transitions, detours, and diversions

(10) Typical sections for each phase of work with notes describing the general intent of work to be performed in each phase

(11) The proposed regulatory speed(s) for each phase

(12) References to specific *MUTCD Typical Applications* or *Standard Plans Index* sheets

(13) Appropriate pay item notes

(14) Provisions for the elimination of any conflicts between existing, permanent, and temporary (work zone) signing and pavement markings

(15) CFX Standard TTC General notes

(16) Project Specific Notes

(17) Work area access plan

240.2.1 - TTCP Details

240.2.1.1 – Emergency Shoulder Use

Delete FDM 240.2.1.1.

240.2.1.2 – Work Zone Speed

Replace paragraphs two and three with the following:

Work zone speed should be the existing posted speed. The existing posted speed is defined as the posted speed prior to the start of any work zone activity. A reduction from the existing posted speed should only be made when all other temporary design alternatives have been exhausted. Include the justification for reduction in existing posted speed in the project documentation. The TTCP and the project documentation will suffice as a traffic and engineering investigation.
All proposed reductions in work zone speed must be approved by CFX prior to the 90% Plans submittal. Work zone speed reductions are limited to 10 MPH (max) below the existing posted speed, except as directed by CFX.
.

240.2.1.3 – Tapers

Delete the last paragraph and replace with the following:

Except where temporary barrier wall is installed along the inside of a mainline/ramp horizontal curve at an offset to the travel lane of four (4) feet or less, refer to FDM 211 for required sight distance using the work zone speed.

240.2.1.5 - Lane Widths

Add the following paragraph:

The standard lane width for work zone travel lanes on CFX facilities is 12 feet for all mainline lanes. Prior to the 60% submittal, if the EOR finds or determines that the 12-foot lane width requirement cannot be met, the EOR shall evaluate the traffic control typical section and make a request to the GEC and CFX with a recommendation to reduce lane widths. The EOR is cautioned not to proceed with the design without approval from CFX.

240.2.1.6 - Lane Closure Analysis

Delete this section and replace with the following paragraph:

Upon request, the GEC will analyze the traffic and provide the hours of closure to the designer. This request can also be made for traffic pacing design hours.

240.2.1.7 - Traffic Pacing

Delete the second sentence of the first paragraph and replace with the following:

CFX prefers the use of road closures and detours but will approve the use of traffic pacing on a limited basis.

Delete the third paragraph.

240.2.1.8 - Detours, Diversions, and Lane Shifts

Delete the second and third bullet from the fourth paragraph (Special Detour).

240.2.1.9 - Bicycle, Pedestrian, and Transit Accommodation

Add the following to the beginning of the first sentence:

For temporary traffic control along local (non-CFX) facilities,…

Location of Temporary Routes for Pedestrians and Bicyclists

Delete 2(a), 2(b), 3(b)iii, 3(b)iv, and 3(b)v.

240.2.1.15 - Bridge Construction

Delete the paragraph and replace with:

To facilitate the development of an optimal design minimizing traffic disruption and construction costs, the roadway engineer and structures engineer must collaborate with each other prior to completion of the Bridge Concept Memorandum (BCM). For very complex urban projects, this collaboration should begin as early as the PD&E

Add the following sections:

240.2.1.16 - Emergency Pull Off Area

For all capacity improvements (widening, reconstruction, etc.) or interchange projects that are greater than 2 miles in length and where the outside mainline shoulder width is less than eight feet, provisions

for an emergency pull off area should be considered. The emergency pull off area should be located to the right of the outside travel lane for use by customers and emergency management personnel.

240.2.1.17 - Temporary Drainage

Design all temporary drainage facilities necessary during all construction phases. This includes but is not limited to designing temporary ditches, the size and length of pipes, placement of inlets and where necessary, calculating inlet hydraulics and spread where water may pool along temporary barrier wall or curbing adjacent to a lane. All temporary drainage items must be shown in the plans.

240.2.1.18 - Standard MOT General Notes

See CFX Exhibits 321-1 and 321-2 for Temporary Traffic Control Standard General Notes.

240.2.1.19 - Paving Milled Surfaces Prior to Opening to Traffic

The temporary traffic control plan must ensure that all milled surfaces are paved prior to opening to traffic.

240.2.1.20 – Overhead Structures Used in Multiple Phases

Sign structures used in multiple phases of a project shall be designed to accommodate the worst-case scenario. Temporary panels must be fully designed and detailed in the plans.

240.2.2.1 - Signs

Add the following to the third paragraph:

…and a “Speeding Fines Doubled” sign.

Add the following paragraphs:

Prepare details for nonstandard TTC signs that do not have a standard MUTCD or FTP number. Provide the details on guide sign worksheets in the plans.

Include the special design “TCP-1” (Your EPASS Tolls At Work) sign and sign details on all projects that include widening, mainline reconstruction, interchange modifications, or as directed by CFX. Placement of the TCP-1 sign shall be shown on the Advance Signing Detail or appropriate TTC Plan Sheet in advance of the work zone.

240.2.2.2 - Work Zone Pavement Markings

Add the following sentences to the first paragraph:

Resurfacing is the preferred method for obliterating existing pavement markings on asphalt. Water

blasting and grinding will not be permitted for the removal of gore or lane transition pavement markings. Temporary markings on concrete pavement e.g., bridge decks and toll plazas, shall be 3M brand Scotch-Lane Removable Tape Series 710, 711, and 715 or CFX approved equal.

240.2.2.7 - Portable Changeable Message Signs

Add the following paragraph:

For planned lane closures and detours, a PCMS must be placed and display an advanced notification message one week prior to a travel lane or ramp closure or detour. Time may be extended if deemed necessary but should not extend to more than 14 calendar days.

240.2.2.9 – Type III Barricades

Add the following paragraph:

An R11-2 (Road Closed) sign panel shall be provided on a minimum of one (1) of the Type III barricades at each closure location.

240.2.2.11 - Law Enforcement Officers

Delete second sentence and bullets of the first paragraph.

Speed and Law Enforcement Officers

Delete this section.

-Traffic Control Officer

Add the following sentence to the first paragraph:

A Traffic Control Officer is required for all CFX lane closures on CFX facilities, including ramps.

240.2.2.15 - Temporary Highway Lighting

Replace the first three sentences of the first paragraph with the following:

Existing highway lighting is to remain in service during all phases of construction or until new lighting is installed and placed in service. Temporary highway lighting is not required where it is necessary to remove existing lighting before new lighting is placed in service, i.e. replacement of light fixtures on an existing pole or replacement of light poles at the same location as existing.

240.2.2.18 - Temporary ACROW Panel Bridge

Delete FDM 240.2.2.18.

240.3 – Transportation Operations Plan

Delete FDM 240.3

240.4 – Public Information Plan

Delete the first two paragraphs and replace with the following:

Public information during construction is coordinated by CFX through the Authority's public relations consultant.

250 - Hydraulic Data and Agency Permits

250.1 - General

Add the following paragraph:

15% (roll plot) submittals for projects with bridges over water bodies should depict the existing and proposed bridge pile alignments (substructures) to indicate any impact or change to the hydraulics.

251 - Stormwater Pollution Prevention Plan (SWPPP) Development

251.1 – General

Delete the first paragraph and replace with:

A Stormwater Pollution Prevention Plan (SWPPP) must be developed and implemented for each CFX construction project that disturbs one or more acres of total land area or as directed by the GEC and discharges to waters of the United States. The State of Florida Department of Environmental Protection Generic Permit for Stormwater Discharges from Large and Small Construction Activities, herein referred to as the DEP Generic Permit, applies to projects where multiple, separate, and distinct construction activities may be taking place at different times and at different schedules under one contract plan. In these situations, the DEP Generic Permit will apply.

Delete the third paragraph and replace with:

The Contractor must prepare a plan that assures compliance with the terms and conditions of the DEP Generic Permit and any other State or Federal permits.

Delete the ninth paragraph and replace with:

The EOR will evaluate the site and describe the basic controls during the design phase which will be documented in the SWPPP sheets. The SWPPP sheets should be prepared in consultation with the

GEC. The SWPPP sheets must be placed in the Roadway Plans, or other lead component. Refer to FDM 320 and the CFX Guidelines for assistance in preparing the SWPPP sheets.

Add the following section:

252 - Drainage Design Documentation

252.1 - Introduction

This outline is not all-inclusive and the designer should anticipate that there may be circumstances when information is not included in this outline that should be prepared to provide adequate explanations/documentation for project specific issues. Unless specified by the scope or directed by CFX, the report shall include the following components.

252.2 - General Information

(1) Project Location

- Overall project location (county, city, section/township/range, etc.).
- Datum used for this project. Provide datum conversion.

(2) Purpose.

- Brief description of the intent of the report and purpose of the project.

(3) Existing Drainage Patterns.

- General drainage patterns in the vicinity of the project, on a regional basis.
- Address offsite areas draining toward the CFX right-of-way.
- Review KMZ file containing Drainage Connection Permits for projects that discharge to the project's right-of-way.
- Describe if project is in open and/or closed basins.
- Brief description of receiving water bodies and their classification (Outstanding Florida Water, etc.).
- Brief description of proximity to potable well fields and well field protection zones.
- Describe whether the project discharges to an impaired water body and what TMDL's are associated with it.

(4) Tailwater

- Discuss tailwater elevations used in the design for all cases such as ponds, storm sewers, ditches, underdrain, etc. Include pertinent information such as, previous studies from state or local agencies, etc. References should be made to the appropriate Appendix and/or Document for calculations and information related to tailwater determinations.

- Refer to the FDOT Drainage Manual and CFX Supplement to the FDOT Drainage Manual for tailwater requirements.

(5) Floodplain Impacts and Mitigation/Floodway Involvement

- Describe whether or not the project impacts adjacent floodplain areas. If so, describe how it is being mitigated.

- Describe whether or not the project will have any floodway involvement and if a no-rise certification is needed.

(6) Rules & Regulations/Regulatory Agency Coordination

- Describe all stormwater and right of way occupancy permits needed to construct this project.

- Summarize drainage criteria specific to this project.

  a. Describe water quality and quantity criteria applicable to this project.

  b. Describe all stormwater recovery requirements applicable to this project.

- Describe any Special Basin Criteria that may apply to the project such as Outstanding Florida Waters or Wellfield Protection Zones.

All maps and figures should be included in Appendix A. These include the Project Location Maps, USGS Quadrangle Maps, Soils Maps, FEMA Maps, WMD Basin Maps and Wellfield Protection Zone Maps

252.3 - Pre-Development Analysis

The intent of this section is to provide a brief narrative describing the existing condition of the project site as it relates to stormwater management. The narrative should include information on the number of drainage basins with their respective outfalls, as well as the type of existing stormwater management systems currently in use. Tables summarizing pre-development analysis should be included in this section. All supporting calculations, documentation, and the pre-development drainage map, for the pre-development analysis, should be presented in Appendix B.

Refer to the FDOT Drainage Manual and the FDOT Drainage Design Guides Chapter 9 for guidance.

For each basin, the documentation should include the following:

- Basin name.
- Begin and end station limits.
- Existing drainage patterns (i.e., time of concentration flowpaths).
- Land uses (i.e., curve numbers).
- Describe soils and hydrologic grouping.
- Ultimate outfall location for discharge comparison (open or closed basin?).
- Document/justify tailwater (provide source of information).
- Identify hazardous materials, utilities, archeological, historical, and environmental information affecting the design of the stormwater facility.
- Identify offsite areas draining towards the road and how offsite runoff is currently conveyed through the project.
- Existing permitted stormwater management system, if applicable.
- Previously permitted/required water quality, if applicable (is there surplus volume and/or discharge available).

252.4 - Post-Development Analysis

The intent of this section is to provide a brief narrative describing the proposed condition of the project site as it relates to stormwater management. The narrative should include information on the number of drainage basins with their respective outfalls, as well as the type of recommended stormwater management systems to be used for the basin. Tables summarizing post-development analysis should be included in this section. Discharge rates may be compared at the ultimate outfall locations if more than one basin shares the same downstream outfall. All supporting calculations and documentation, including the post-development drainage map, for the post-development analysis should be presented in Appendix C.

Refer to the FDOT Drainage Manual and the FDOT Drainage Design Guides Chapter 9 for guidance.

For each basin include the following:

- Basin name.
- Begin and end station limits.
- Proposed drainage patterns (flowpaths in ditches and swales for example, time of

concentration, etc.).

- Land uses (i.e., curve numbers).
- Discuss direct discharge to Outstanding Florida Waters, TMDLs or facilities within a Wellfield Protection Zones, if any.
- Describe soils and summarize results from the geotechnical investigation.
- Ultimate outfall point.
- Discuss any Special Basin Criteria that may apply to the project basin.
- Document/justify tailwater, seasonal high-water table, control, and weir elevations.
- Identify offsite areas draining towards the road and describe how it is to be conveyed through the project.
- Recommended stormwater management system.
- Total required and provided water quality (includes previously permitted, if applicable, as well as anything new) meet criteria.
- Treatment volume recovery meets criteria.
- Permanent pool volume meets criteria, if applicable.
- If compensating or over treatment to be used, provide detailed description of area of new impervious not being treated, area of existing pavement to be treated, etc.
- Retention system(s) infiltration rates certified by a Geotechnical Engineer.
- Post-development discharge rates compared to the pre-development discharge rates (meets critical duration criteria, as stated in Chapter 14-86, F.A.C.).
- Post-development stages provide for freeboard as stated in the FDOT Drainage Manual.

252.5 - Floodplain Analysis

The intent of this section is to provide a brief narrative describing the floodplain conditions at the project site and should include the following information. Tables summarizing floodplain impacts, locations, and compensation should be included in this section. All supporting calculations and documentation for the floodplain analysis should be presented in Appendix D.

- Brief narrative. Floodway involvement? No-rise certification required?
- Statement describing impacts have been avoided or minimized.

- Describe limits of impacts and final cut/fill quantities, if applicable.
- Describe where compensation is to occur, if applicable.

252.6 - Base Clearance Analysis

The intent of this section is to provide a brief narrative describing site specific base clearance issues as well as issues involved in determining the base clearance water elevation. Tables summarizing the calculated base clearances should be included in this section. All supporting calculations and documentation for the base clearance analysis should be presented in Appendix E.

Refer to the FDM 210.10.3 and the Flexible Pavement Design Manual for base clearance water elevation guidance.

- Describe how the base clearance water elevation was established.
- Describe limits of project which do not meet FDM base clearance requirements.
- Describe how sections that do not meet base clearance are to be handled.

252.7 - Cross Drain Analysis

The intent of this section is to provide a brief narrative discussing existing cross drains along the project alignment, how these structures will be impacted by the proposed design and discuss the need for any new cross drain structures along the project alignment. A table summarizing the pre-vs- post condition flows and stages should be included in this section. All supporting calculations and documentation for the cross-drain analysis should be presented in Appendix F.

Refer to the FDOT Drainage Manual and the FDOT Drainage Design Guides Chapter 4 for guidance.

For each cross drain, include the following:

- Brief narrative.
- Cross drain name, size, shape, material.
- Location (include stationing).
- Describe the contributing drainage area for the cross drain.
- Describe the condition of the cross drain, including, but not limited to, age, erosion issues, maintenance issues, structural deficiencies and if an extension or replacement is proposed.
- Document/justify tailwater used in the design and provide source of tailwater information.

- Document the pre-development and post-development flows and stages.
- Provide a statement verifying that stages on off-site properties are not increased in the proposed condition and that the allowable high-water conditions are met.

252.8 - On-Site Conveyance Analysis

The intent of this section is to provide a brief narrative discussing the proposed methods of conveyance for drainage from the project. All supporting calculations and documentation for the on- site conveyance analysis should be presented in Appendix G.

Refer to the FDOT Drainage Manual and Chapter 6 of the Drainage Design Guide for guidance.

- Brief narrative describing methods of conveyance for proposed drainage basins within the project (ditch flow, storm sewer, side drains, etc.) Include existing conveyance systems being utilized.
- Document/justify tailwater used in the design and provide source of tailwater information.
- Describe critical ditch sections (such as sign post obstructions, narrow sections, steep slopes) and lining requirements, if applicable.
- Discuss areas of superelevation transitions, bridge end-treatments, sag inlets, etc.
- Discuss design frequencies used for the analysis of each method of conveyance. Reference the software used.
- Include verification of wall zones for Wall Zone Pipes as outlined in the FDOT Drainage Manual Section 3.11 and Appendix D and follow the requirements set forth in section 430-4.1 of FDOT Standard Specifications.

252.9 - MOT Drainage

The intent of this section is to provide a brief narrative discussing the proposed methods of conveyance for project drainage for the temporary condition (during construction). All supporting calculations and documentation for MOT drainage should be presented in Appendix H and coordinated with the Traffic Control and Roadway EORs. Refer to the FDOT Drainage Manual for design frequencies and the FDOT Drainage Design Guides Chapter 10 for design guidance.

252.10 - Hydroplaning analysis

The intent of this section is to evaluate and document the hydroplaning risk associated with the proposed roadway typical and critical sections, particularly key areas where there can be potentially problematic cross slopes such as sections with additional auxiliary and /or ramp lanes that are in

superelevation. All supporting calculations and documentation associated with this analysis should be presented in Appendix I. Refer to FDM 211.2.3 and FDOT Drainage Manual Chapter 3.9.4 for guidance.

252.11 - Structure Analysis for Loaded Pipes

The intent of this section is to provide a structural pipe analysis anytime reinforced concrete pipe or ADS Class 2 Polypropylene pipe (HP Storm) is designed and installed under deep fill embankments in excess of 14' of cover, special loading conditions or wall zones. All supporting calculations and documentation associated with this analysis should be presented in Appendix J. Refer to the FDOT Drainage Design Guides Chapter 8 for guidance.

252.12 - References

At a minimum, the reference information should contain the pertinent information to the design and analysis of the systems located in the project.

- Survey information used to determine Tailwater (example: Photos showing stain lines)
- Geotechnical Information
- Existing Permit(s) and Calculations

252.13 - Appendices

Appendix A – Figures

- Project Location Maps
- USGS Quadrangle Maps
- Soils Maps
- FEMA Floodplain Maps
- WMD Basin Maps
- Maps
- Other

Appendix B – Pre-Development Calculations and Documentation including:

- Pre-development drainage map with aerial background. (Do not include storm sewer – only cross drains, ponds, and outfalls).

- If the stormwater management facility (SMF) is existing and permitted to accommodate the proposed improvements without modification, provide the relevant permit excerpts. Otherwise provide the information below:

  (a) Supporting pre-development stormwater facility calculations; Tc, CN, Areas, etc.

  (b) Pre-development ICPR Input and Output Data

  (c) Pre-development nodal diagram. Reference specific structure numbers and pond names as shown in the construction plans.

Appendix C – Post-Development Calculations and Documentation including:

- Post-development drainage map with aerial background. (Do not include storm sewer – only cross drains, ponds, and outfalls).
- If the SMF is existing and permitted to accommodate the proposed improvements without modification, provide the relevant permit excerpts. Otherwise provide the information below:
- Supporting post-development stormwater facility calculations; Tc, CN, Areas, etc.

  (a) Post-development ICPR Input and Output Data

  (b) Post-development nodal diagram. Reference specific structure numbers and pond names as shown in the construction plans.

  (c) Post-Development recovery analysis

Appendix D – Floodplain Encroachment/Compensation Calculations and Documentation

Appendix E – Base Clearance Calculations and Documentation

Appendix F – Cross Drain Calculations and Documentation

Appendix G – On-site Conveyance Calculations and Documentation:

- Ditch calculations – Document tailwater used in design. Describe critical ditch sections (narrow sections, steep slopes, etc.) and lining requirements. Include hydraulic worksheet and check freeboard.
- Storm sewer tabulations – Document tailwater used in design and check HGL clearance and outfall erosion protection needs.
- Spread calculations – Include spread worksheet. Make note of areas of superelevation

transition, bridge end treatment, sag inlets, auxiliary lanes etc.

- Shoulder capacity calculations – Include shoulder gutter conveyance worksheet.
- Noise Wall drainage analysis

Appendix H – MOT Drainage Calculations and Documentation

- Spread calculations; verify sufficient shoulder width in MOT plans.
- Shoulder gutter capacity calculations
- Storm tabs
- Ditch calculations
- Maintenance of flow, if needed, such as canal relocation or cross drain extension

Appendix I – Hydroplaning Calculations

- See **CFX Exhibits 252-1 thru 252-4** for sample Hydroplaning Risk Analysis spreadsheets.

Appendix J – Structural Analysis Calculations and Documentation

- Run FDOT Culvert Service Life Estimator software (use latest version available).
- Include copy of geotechnical table of soil chemistry.
- Check CSLE results against Drainage Manual Appendix C for maximum and minimum fill heights and material availability (max cover check now included in the CSLE program).

Appendix K – Correspondence, Excerpts from Previous Permits and Studies

CFX Exhibit 252-1
Hydroplaning Example

Hydroplaning Analysis Tool

General Inputs

FPID		Roadway Section Number	CFX Typical
District No.	CFX	Station	**Mainline+Gore+Ramp**
County	Osceola		
		Direction	EB

Analysis Options

Select Analysis Option: Deterministic (Default) — Show intermediate outputs? (e.g., Drainage Path Length): Yes

Risk Analysis? (Per FDOT's Design Guidance): Yes

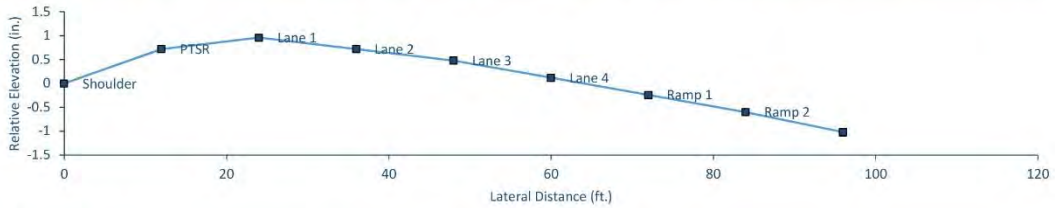
Pavement Inputs

Deterministic Analysis

Pavement Texture (Please Select MTD or MPD below)

Longitudinal Grade (%): 0.3
Surface Type: Open Graded Friction Course
Permeability (in/hr): 0
Mean Texture Depth (in.): 0.067

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Description	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4		Ramp 1	Ramp 2			
Design Speed (mph)		70	70	70	70	70		70	65			
Cross Slope (%)	-6	-2	2	2	3	3	2	3	3.5			
Width (ft.)	12	12	12	12	12	12	0	12	12			



Risk Analysis Results

(Based on Gallaway WFT and PAVDRN HPS Models)

Predicted Driver Speed (mph)

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Intensity (in/hr)	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4		Ramp 1	Ramp 2			
0.1		70.0	70.0	70.0	70.0	70.0		70.0	65.0			
0.25		70.0	70.0	70.0	70.0	70.0		70.0	65.0			
0.5		64.0	64.0	64.0	64.0	64.0		64.0	59.0			
1		62.0	62.0	62.0	62.0	62.0		62.0	57.0			
2		58.0	58.0	58.0	58.0	58.0		58.0	53.0			
3		45.0	45.0	45.0	45.0	45.0		45.0	45.0			
4		45.0	45.0	45.0	45.0	45.0		45.0	45.0			

Predicted Hydroplaning Speed (mph)

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Intensity (in/hr)	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4		Ramp 1	Ramp 2			
0.1		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
0.25		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
0.5		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
1		999.0	999.0	999.0	999.0	107.5		80.3	75.9			
2		74.0	999.0	73.8	68.7	60.7		56.3	55.0	Acceptable		
3		60.2	92.6	60.1	57.6	52.9		49.9	49.0			
4		54.4	71.2	54.3	52.5	48.8		53.5	53.3			

CFX Ultimate Typical, HP

Printed: 12/18/2020

CFX Exhibit 252-2
Hydroplaning Example

Hydroplaning Analysis Tool

General Inputs

FPID		Roadway Section Number	CFX Typical
District No.	CFX	Station	**Mainline+Gore+Ramp**
County	Osceola		
		Direction	EB

Analysis Options

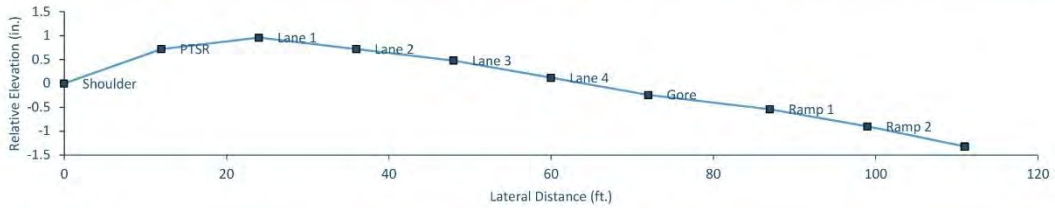
Select Analysis Option	Deterministic (Default)	: Show intermediate outputs? (e.g., Drainage Path Length)	Yes
Risk Analysis? (Per FDOT's Design Guidance)	Yes		

Pavement Inputs

Deterministic Analysis

		Pavement Texture (Please Select MTD or MPD below)	
Longitudinal Grade (%)	0.3	Mean Texture Depth (in.)	0.067
Surface Type	Open Graded Friction Course		
Permeability (in/hr)	0		

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Description	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4	Gore	Ramp 1	Ramp 2			
Design Speed (mph)		70	70	70	70	70		65	65			
Cross Slope (%)	-6	-2	2	2	3	3	2	3	3.5			
Width (ft.)	12	12	12	12	12	12	15	12	12			



Risk Analysis Results

(Based on Gallaway WFT and PAVDRN HPS Models)

Predicted Driver Speed (mph)

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Intensity (in/hr)	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4	Gore	Ramp 1	Ramp 2			
0.1		70.0	70.0	70.0	70.0	70.0		65.0	65.0			
0.25		70.0	70.0	70.0	70.0	70.0		65.0	65.0			
0.5		64.0	64.0	64.0	64.0	64.0		59.0	59.0			
1		62.0	62.0	62.0	62.0	62.0		57.0	57.0			
2		58.0	58.0	58.0	58.0	58.0		53.0	53.0			
3		45.0	45.0	45.0	45.0	45.0		45.0	45.0			
4		45.0	45.0	45.0	45.0	45.0		45.0	45.0			

Predicted Hydroplaning Speed (mph)

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Intensity (in/hr)	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4	Gore	Ramp 1	Ramp 2			
0.1		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
0.25		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
0.5		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
1		999.0	999.0	999.0	999.0	107.5		69.4	67.9			
2		74.0	999.0	73.8	68.7	60.7		52.8	52.2	Acceptable		
3		60.2	92.6	60.1	57.6	52.9		53.8	53.7			
4		54.4	71.2	54.3	52.5	48.8		52.8	52.6			

CFX Ultimate Typical, HP

Printed: 12/18/2020

CFX Exhibit 252-3
Hydroplaning Example

Hydroplaning Analysis Tool

General Inputs

FPID		Roadway Section Number	CFX Typical
District No.	CFX	Station	**Mainline+Gore+Ramp**
County	Osceola		
		Direction	EB

Analysis Options

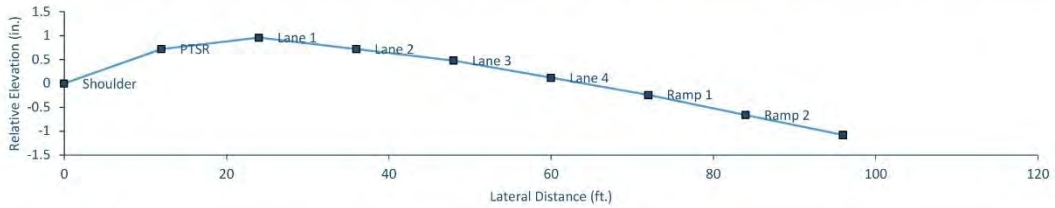
Select Analysis Option	Deterministic (Default)	: Show intermediate outputs? (e.g., Drainage Path Length)	Yes
Risk Analysis? (Per FDOT's Design Guidance)	Yes		

Pavement Inputs

Deterministic Analysis

		Pavement Texture (Please Select MTD or MPD below)	
Longitudinal Grade (%)	3	Mean Texture Depth (in.)	0.067
Surface Type	Open Graded Friction Course		
Permeability (in/hr)	0		

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Description	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4		Ramp 1	Ramp 2			
Design Speed (mph)		70	70	70	70	70		70	65			
Cross Slope (%)	-6	-2	2	2	3	3	2	3.5	3.5			
Width (ft.)	12	12	12	12	12	12	0	12	12			



Risk Analysis Results

(Based on Gallaway WFT and PAVDRN HPS Models)

Predicted Driver Speed (mph)

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Intensity (in/hr)	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4		Ramp 1	Ramp 2			
0.1		70.0	70.0	70.0	70.0	70.0		70.0	65.0			
0.25		70.0	70.0	70.0	70.0	70.0		70.0	65.0			
0.5		64.0	64.0	64.0	64.0	64.0		64.0	59.0			
1		62.0	62.0	62.0	62.0	62.0		62.0	57.0			
2		58.0	58.0	58.0	58.0	58.0		58.0	53.0			
3		45.0	45.0	45.0	45.0	45.0		45.0	45.0			
4		45.0	45.0	45.0	45.0	45.0		45.0	45.0			

Predicted Hydroplaning Speed (mph)

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Intensity (in/hr)	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4		Ramp 1	Ramp 2			
0.1		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
0.25		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
0.5		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
1		999.0	999.0	999.0	113.2	80.0		73.1	67.1			
2		75.6	999.0	67.1	61.2	56.2		54.1	51.8	Not Acceptable		
3		60.9	78.0	56.7	53.2	49.8		48.3	53.6			
4		54.9	65.3	51.8	49.1	53.5		53.1	52.5			

Increase cross slope

Acceptable

CFX Ultimate Typical, HP

Printed: 12/18/2020

CFX Exhibit 252-4
Hydroplaning Example

Hydroplaning Analysis Tool

General Inputs

FPID		Roadway Section Number	CFX Typical
District No.	CFX	Station	**Mainline+Gore+Ramp**
County	Osceola		
		Direction	EB

Analysis Options

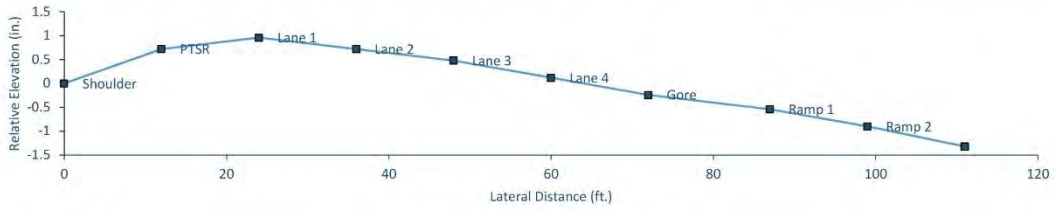
Select Analysis Option	Deterministic (Default)	: Show intermediate outputs? (e.g., Drainage Path Length)	Yes
Risk Analysis? (Per FDOT's Design Guidance)	Yes		

Pavement Inputs

Deterministic Analysis

		Pavement Texture (Please Select MTD or MPD below)	
Longitudinal Grade (%)	3	Mean Texture Depth (in.)	0.067
Surface Type	Open Graded Friction Course		
Permeability (in/hr)	0		

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Description	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4	Gore	Ramp 1	Ramp 2			
Design Speed (mph)		70	70	70	70	70		65	65			
Cross Slope (%)	-6	-2	2	2	3	3	2	3	3.5			
Width (ft.)	12	12	12	12	12	12	15	12	12			



Risk Analysis Results

(Based on Gallaway WFT and PAVDRN HPS Models)

Predicted Driver Speed (mph)

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Intensity (in/hr)	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4	Gore	Ramp 1	Ramp 2			
0.1		70.0	70.0	70.0	70.0	70.0		65.0	65.0			
0.25		70.0	70.0	70.0	70.0	70.0		65.0	65.0			
0.5		64.0	64.0	64.0	64.0	64.0		59.0	59.0			
1		62.0	62.0	62.0	62.0	62.0		57.0	57.0			
2		58.0	58.0	58.0	58.0	58.0		53.0	53.0			
3		45.0	45.0	45.0	45.0	45.0		45.0	45.0			
4		45.0	45.0	45.0	45.0	45.0		45.0	45.0			

Predicted Hydroplaning Speed (mph)

Plane Number	1	2	3	4	5	6	7	8	9	10	11	12
Intensity (in/hr)	Shoulder	PTSR	Lane 1	Lane 2	Lane 3	Lane 4	Gore	Ramp 1	Ramp 2			
0.1		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
0.25		999.0	999.0	999.0	999.0	999.0		999.0	999.0			
0.5		999.0	999.0	999.0	999.0	999.0		138.3	109.4			
1		999.0	999.0	999.0	113.2	80.0		62.4	60.9			
2		75.6	999.0	67.1	61.2	56.2		49.7	48.9	Not acceptable		
3		60.9	78.0	56.7	53.2	49.8		53.0	52.8			
4		54.9	65.3	51.8	49.1	53.5		52.0	51.8			

Increase cross slopes

Acceptable

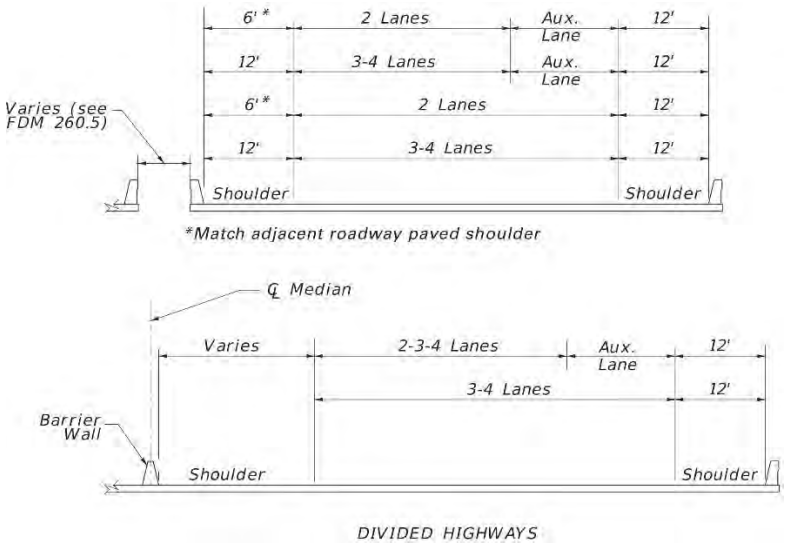
CFX Ultimate Typical, HP

Printed: 12/18/2020

260 - Bridge Structures

260.1.1 - Partial Bridge Sections

Revise FDM Figure 260.1.1 with the following:



260.6 - Vertical Clearance

Add the following paragraph:

Existing bridge vertical clearances between 16 and 16.5 feet must be maintained.

261 - Structural Supports for Signs, Signals, Lighting, and ITS

261.2 – Sign Support Structures

Note the following:

CFX does not adhere to the FDOT limitation of fifty (50) feet for overall cantilever length.

The main panels on overhead structures are to be designed with an overall height sufficient to completely cover the structural cross member as viewed in the direction of travel. The overall height shall also be sufficient to completely cover the hanger extensions necessary for installation (3" top and bottom, 6" total), i.e., no portion of the cross member or hangers shall be visible above or below the main panel.

Increase sign panel depth by 20% to accommodate future modifications.

All support columns for overhead sign assemblies shall be painted.

Add the following paragraphs:

(1) Tri-chords shall be used for all structures unless special conditions dictate the need for a box truss. All designs shall utilize single tubular uprights.

(2) Box truss designs shall only be allowed for toll plaza related static/single line DMS combination panels that are facing both directions of travel and are co-located on the same structure; or multi-line DMS (walk-in) boxes that are facing both directions of travel and are co-located on the same structure. All designs shall utilize a single tubular upright.

(3) Double column uprights with cross bracing for each support shall not be allowed for either tri-chord or box truss designs.

(4) Cantilever arms shall be designed and detailed in plans such that future arm lengths are accommodated by adding or removing a portion of the arm. Additions or removals of arm sections shall not impact the integrity of the structure

(5) Span structures with panels in one direction shall be designed to accommodate a future panel, including exit number, in the opposite direction. Refer to CFX Signing and Marking Details for dimensions of future panel.

261.7.2 - Category 2 Analytical Evaluation

Delete all paragraphs and replace with:

Sign panels, sizes, and/or locations may be modified on existing overhead sign structures that were designed to CFX's overdesign criteria in effect at time of the original design.

- Existing structures may be utilized subject to the following:
  - The sign structure shall be less than 35 years old.
  - If the new panel configuration is equal to or smaller than the originally upsized sign panel (20% overage)
    - It is the Consultant’s responsibility to document the original and proposed sign modification and certify the proposed sign panels do not exceed the original upsized sign panel.
    - A detailed analytical evaluation is not required.
- Existing structures recommended for re-use shall be in good condition per the latest inspection records and site observation. CFX will review and approve based on the merits of each case.
- It is the Consultant’s responsibility to request the approved shop drawings for existing sign structures.

- When possible, existing mainline toll plaza approach structures containing a single line DMS/static panel combination with an adjacent static panel are to be adjusted such that all static signs are mounted on the same vertical plane with the front of the DMS box.
- Existing structures (with additional loading) may be utilized subject to:
    - If the new panel configuration is greater than the originally upsized sign panel or if the approved shop drawings for the existing structure are unavailable, provide a detailed analytical evaluation of the existing structure with the proposed additional loading and new structure criteria in accordance with the **Structures Manual Volume 3, Section 18.3.** The analysis including calculations of the Demand/Capacity (D/C) ratios, Combined Stress Ratios (CSRs), and the EOR's recommendations shall be submitted to CFX's GEC for review.
    - CFX's approval will be based on the analysis, the EOR's recommendation, and CFX's GEC review results.
    - CFX will review and approve based on the merits of each case.
- Bridge mounted sign panels shall be evaluated on a case-by-case basis and adhere to the following:
    - Existing bridge mounted sign replaced with same size panel: sign is at least 1'-6" from the face of the traffic railing at the nearest point
    - Existing bridge mounted sign replaced with larger panel or new bridge mounted sign:
        - Bridge is oriented over the lower roadway such that the proposed sign is skewed away from the bridge and that the midpoint of that sign is at least 5' from the face of the traffic railing
        - Sign is at least 1'-6" from the face of the traffic railing at the nearest point
        - Sign panel does not cantilever above the mounting beams by more than 5 feet
        - Sign does not unduly add additional wind loading to the bridge
        - For sign panel replacements, sign panel does not extend vertically over the traffic railing more than the existing panel
    - Once these evaluations have been completed and reviewed by CFX and GEC, then the sign can be approved by CFX as warranted. If a sign cannot meet this approval, then it shall be placed on a separate structure, as appropriate.
- Sign structures supporting single direction multi-line (walk-in) or single line DMS panels shall be designed such that the DMS is installed on the front vertical plane of the truss tri-chord. The Consultant shall verify the design dead load weight for each type of DMS with the CFX GEC or GSC prior to beginning design.
    - The cross sections showing DMS signs shall have a note indicating the weight

and eccentricity of the DMS used in structural design.

- Consultant must coordinate the location of the DMS vertical supports and the truss diagonal locations with DMS manufacturer. The connection between truss and DMS must be such as to allow for easy installation.

262 - Retaining Walls

262.1 - General

Add the following to the first paragraph:

Design retaining walls in accordance with *FDM 105*.

262.2 - Retaining Wall Plans Submittal Procedures

Add the following paragraph:

If any wall system is proposed to be connected to an existing MSE wall, and the existing soil reinforcement provides resistance for the new wall, an analysis must be submitted for review with the 90% Plans. Internal and external wall stability analyses must use the lowest soil friction angle, as determined by direct shear tests in accordance with FM 3-D3080 to model existing MSE wall backfill.

263 - Geosynthetic Design

263.1 - General

Add the following to the second paragraph:

Prior to selecting Reinforced Soil Slopes, coordinate with CFX to assure that geosynthetic reinforcement is compatible with beautification goals and planned landscape projects.

264 - Noise Walls and Perimeter Walls

264.2.2.2 - Reasonableness

Add the following paragraph:

Maintenance access points must be provided for noise walls constructed along the CFX system. The spacing between openings or the ends of the noise wall must be no greater than one-half mile. Coordinate all maintenance openings with the CFX Maintenance Department.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

3.0 - Plans Production

2022 Design Guidelines

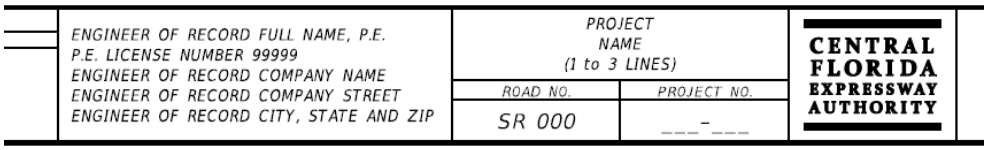
3.0 PLANS PRODUCTION

300 - Production of Plans

300.3 - Base Sheet Format

Delete the first two paragraphs and replace with:

All plan sheet formats are contained in the FDOT CADD Software and amended by CFX's Sheet Cell Library (to be provided by the GEC). Sheet borders include a project information block to place the CFX Project Name, state road designation, CFX's Project Number, and CFX's logo as shown below:



Replace the last paragraph with:

Plans sheets may use photography (aerial or other) when approved by the GEC. Using photography for Drainage Maps or SWPPP supplemental site maps does not require approval.

301 - Sequence of Plans Preparation

301.2 - Phase Submittals

Delete the third paragraph and replace with:

Standard submittal phases are: 15%, 30%, 60%, 90%, 100%, Pre-Bid, Bid, and Approved for Construction (AFC).

Delete the fourth paragraph and Table 301.2.2 and replace with:

Preliminary Line and Grade (15%) Submittal

Unless otherwise directed by CFX, the following elements are required for a 15% submittal:

TYPICAL SECTIONS

- Mainline and crossroad typical sections
- R/W lines

PLAN VIEW (ROLL PLOT)

- North arrow and scale
- Baseline of survey, equations
- Curve data (including superelevation)
- Existing topography
- Preliminary horizontal geometrics/dimensions
- Existing & proposed R/W lines (if available)
- Centerline of construction (if different from the baseline of survey)
- Begin and end stations for the project, bridges, bridge culverts and exceptions
- General locations of proposed retention/detention ponds

PROFILE VIEW (ROLL PLOT)

- Scale
- Preliminary profile grade line
- Equations
- Existing ground line with elevations at each end of sheet
- Begin and End Stations for the Project, bridges, bridge culverts and exceptions

INTERCHANGE DETAIL (ROLL PLOT)

- Schematic of traffic flow
- Preliminary configuration and geometrics
- Quadrant Identification
- Ramp Labels

DRAINAGE DESIGN DOCUMENTATION

- Preliminary Hydroplaning Analysis

Table 301.2.1 - Summary of Phase Submittals

Replace Table 301.2.1 with the following table:

ITEM	15%	30%	60%*	90%	100%
Key Sheet		P	P	C	F
Signature Sheet			P	C	F
Summary of Pay Items			P	C	F
Drainage Map		P	C	C	F
Interchange Drainage Map		P	C	C	F
Typical Section	P	P	C	C	F
Summary of Drainage Structures			P	C	F
Project Layout		P	C	C	F
Project Control		P	C	C	F
Curve and Coordinate		P	C	C	F
Roadway Plan-Profile	P**	P	P	C	F
Traffic Monitoring Site			P	C	F
Special Profile		P	P	C	F
Interchange Layout	P**	P	P	C	F
Ramp Terminal Details			P	C	F
Intersection Layout/Detail		P	P	C	F
Drainage Structures			P	C	F
Lateral Ditch Plan-Profile			P	C	F
Lateral Ditch Cross Section			P	C	F
Retention/Detention Ponds	P**	P	C	C	F
Cross Section Pattern			P	C	F
Roadway Soil Survey			P	C	F
Cross Sections		P	P	C	F
Stormwater Pollution Prevention Plan			C	C	F
Temporary Traffic Control Plans		P**	P**	C	F
Utility Adjustments			P	C	F
Selective Clearing and Grubbing			P	C	F
Developmental Standard Plans			C	C	F
Mitigation Plans			C	C	F
Miscellaneous Structures Plans			P	C	F
Signing and Pavement Marking Plans		P**	P**	C	F
Signalization Plans			P	C	F
Intelligent Transportation System (ITS) Plans			P	C	F
Lighting Plans			P	C	F
Landscape Plans		P	P	C	F
Utility Work by Highway Contractor Agreement Plans				C	F
Summary of Quantities				C	F
3D Model Files		P	P	C	F
KMZ Files			P	C	F
Toll Facility Plans		P	P	C	F

Status Key: P - Preliminary C - Complete but subject to change F - Final
* Projects with structures plans component must submit the 30% set with the 60% roadway submittal.
** Submittal will include a roll plot at an appropriate scale for the entire project

Delete the last paragraph in the section.

301.2.1 - 30% Submittal

Add the following section:

DRAINAGE DESIGN DOCUMENTATION

- Existing Conditions Analysis with Recommendations
- Pre-Development Treatment Computations
- Pre-Development Bridge and Cross Drain Analysis
- Hydroplaning Analysis, based on available information
- Reference Material

301.2.2 - 60% Submittal

Delete section: OPTIONAL MATERIALS TABULATION and add the following sections:

DRAINAGE DESIGN DOCUMENTATION

- All items outlined as part of CFX Design Guidelines Section 252 as relevant to the project.
- Bridge Hydraulic Recommendation

TOLL FACILITY

- Site/Civil
- Architectural
- Structural
- Electrical
- Mechanical

- Plumbing
- Communications
- Systems

301.2.3 - 90% Submittal

Add the following sections:

DRAINAGE DESIGN DOCUMENTATION

- All items outlined as part of CFX Design Guidelines Section 252 as relevant to the project.

STRUCTURAL DESIGN DOCUMENTATION (i.e. calculations)

TOLL FACILITY

- Site/Civil
- Architectural
- Structural
- Electrical
- Mechanical
- Plumbing
- Communications
- Systems

301.2.5 - PS&E Phase Submittal

*Revise title of this section to **Pre-Bid Submittal** and replace this section with the following:*
After changes to the Final Plans, Specifications Package, and Summary of Pay Items Report, have been completed and verified, deliver the Bid Submittal consisting of the following:

(1) Signed and Sealed Plans

(2) Clean set of Plans – Not signed and sealed

(3) Bid Form

(4) CADD Files

Add the following section:

301.2.6 – Approved for Construction (AFC) Submittal

Once the bid phase is complete, incorporate all revisions and addendum into the bid set and provide the revised sheets. Replace the revised sheets from the original Bid Submittal to create the Approved for Construction Submittal.

302 - Key Sheet

302.1 - General

Delete the last sentence of the first paragraph and replace with:

The Key Sheet cell can be found in the CFX cell library (provided by the GEC).

Delete the second paragraph and replace with:

See CFX Exhibit 302-1 for an example of a lead Key Sheet. See CFX Exhibit 302-2 for an example of a component Key Sheet. See CFX Exhibit 302-3 for an example of the structures and geotechnical sheet border.

302.2 - Financial Project ID. Federal Funds, County Name and State Road Number

*Revise the title to **CFX Project Number, Project Name, and State Road Number** and replace this section with the following:*

Place the Project Name immediately under the heading "CONTRACT PLANS" in the top center of the sheet. A description of the project limits shall be placed next; e.g., “Falk Avenue to Plant Street”. This shall be followed by the state road number. The CFX Project Number is the main number identifying each individual project within CFX. Place the CFX Project Number below the state road number.

302.3 - Construction Contract Number, Fiscal Year and Sheet Number

*Revise the title to **Fiscal Year and Sheet Number** and replace this section with the following:*

Show the fiscal year for which the letting is scheduled in the “Fiscal Year” box; i.e., enter “19” in the box for a project that has a Letting date during the July 1, 2018 to June 30, 2019 fiscal year. Show the sheet number in the lower right corner. The sheet number shall always be shown as a three-digit number, i.e. "001".

302.4 - Project Location Map and North Arrow

Delete the last paragraph and add the following paragraph:

Show a small-scale inset of counties under CFX's purview in the upper right portion of the lead component Key Sheet and indicate the location of the project thereon. Under the Engineer of Record's contact information add the name of the designated CFX Project Manager. The counties map shall also be shown on the component Key Sheets.

302.6 - Index of Roadway Plans

Add the following Note to end of the Section:

Each sheet in the plan set must have a unique sheet number. Do not duplicate sheet numbers within the plan set.

302.7 - Professional Responsibility

Delete paragraph three, including notes one and two and replace with:

Place the name of CFX's Project Manager below the EOR information.

302.8 - Governing Standard Plans and Standard Specifications

Add the following sentence after the first sentence in the first paragraph:

CFX currently utilizes FDOT's January 2022 Standard Specifications. Place the following note on the lead component Key Sheet:

Governing Standard Specifications:
Florida Department of Transportation, January 2022 Standard Specifications For Road and Bridge Construction at the following website:
http://www.fdot.gov/programmanagement/Implemented/SpecBooks

302.11 - Strung Projects

Delete FDM 302.11.

CONTRACT PLANS COMPONENTS

ROADWAY PLANS
SIGNING AND PAVEMENT MARKING PLANS
SIGNALIZATION PLANS
INTELLIGENT TRANSPORTATION SYSTEMS PLANS
LIGHTING PLANS
ARCHITECTURAL PLANS
STRUCTURE PLANS
TOLL FACILITIES PLANS

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	SUMMARY OF PAY ITEMS
4	TYPICAL SECTIONS
5	TYPICAL SECTION NOTES
6-7	GENERAL NOTES
8-15	ROADWAY PLANS
16-40	ROADWAY CROSS SECTIONS
41-50	TEMPORARY TRAFFIC CONTROL PLANS
SQ-1 - SQ-20	SUMMARY OF QUANTITIES

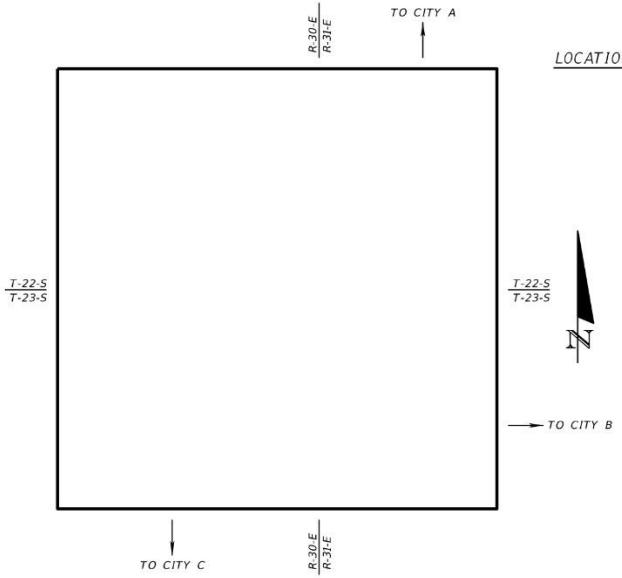
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

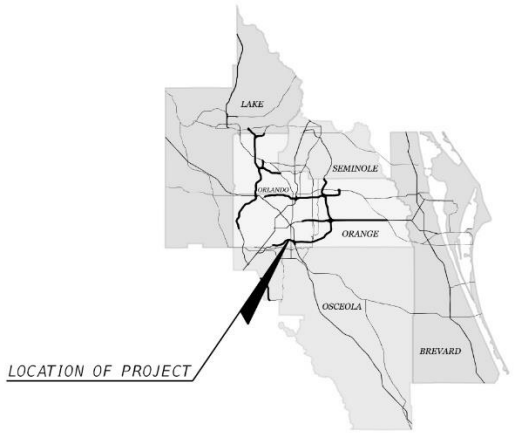
CONTRACT PLANS

PROJECT NAME

STATE ROAD NO. 000

CFX PROJECT NUMBER: 000-000





CENTRAL FLORIDA EXPRESSWAY AUTHORITY
GOVERNING BOARD

SEAN PARKS	CHAIRMAN, LAKE COUNTY REPRESENTATIVE
JERRY DEMINGS	VICE CHAIRMAN, ORANGE COUNTY MAYOR
LEE CONSTANTINE	TREASURER, SEMINOLE COUNTY REPRESENTATIVE
BRANDON ARRINGTON	OSCEOLA COUNTY REPRESENTATIVE
BUDDY DYER	CITY OF ORLANDO MAYOR
JAY MADARA	GOVERNOR'S APPOINTEE
CHRISTOPHER MAIER	GOVERNOR'S APPOINTEE
RAFAEL E. MARTINEZ	GOVERNOR'S APPOINTEE
VICTORIA SIPLIN	ORANGE COUNTY REPRESENTATIVE
CURT SMITH	BREVARD COUNTY REPRESENTATIVE

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY 2022-23 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs: IR___-___-__

Standard Plans for Bridge Construction are included in the Structures Plans Component

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, JULY 2019 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

REVISIONS:

CFX Exhibit 302-1
Lead Key Sheet

ROADWAY PLANS
ENGINEER OF RECORD:

ENGINEER OF RECORD FULL NAME, P.E.
P.E. NO.: 00000
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP
CONTRACT NO.: 00000
VENDOR NO.: 0000000000000

CFX PROJECT MANAGER:

CFX PROJECT MANAGER NAME, P.E.

__% PLANS
MONTH 20__

FISCAL YEAR	SHEET NO.
22	001

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

1/24/2022 1:38:30 PM W:\500881B\CFX Design Criteria\CADD Standards\Source Files\CADD Updates 01-24-22\key sht01.dgn dfeik

CENTRAL FLORIDA
EXPRESSWAY AUTHORITY

CONTRACT PLANS

PROJECT NAME

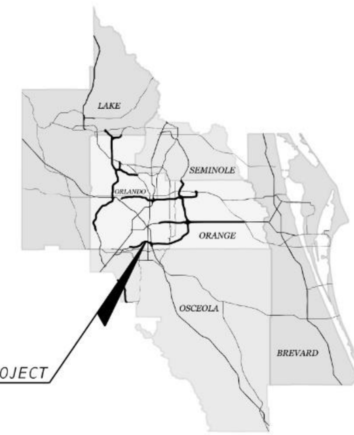
STATE ROAD NO. 000

CFX PROJECT NUMBER: 000-000

SIGNING AND PAVEMENT MARKING PLANS

INDEX OF SIGNING AND PAVEMENT MARKING PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	TABULATION OF QUANTITIES
4-6	GENERAL NOTES
7-20	PLAN SHEETS
21-25	GUIDE SIGN WORKSHEETS



LOCATION OF PROJECT

__% PLANS
MONTH 20__

SIGNING AND PAVEMENT MARKING PLANS ENGINEER OF RECORD:

ENGINEER OF RECORD FULL NAME, P.E.
P.E. NO.: 00000
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP
CONTRACT NO.: 00000
VENDOR NO.: 0000000000000

CFX PROJECT MANAGER:

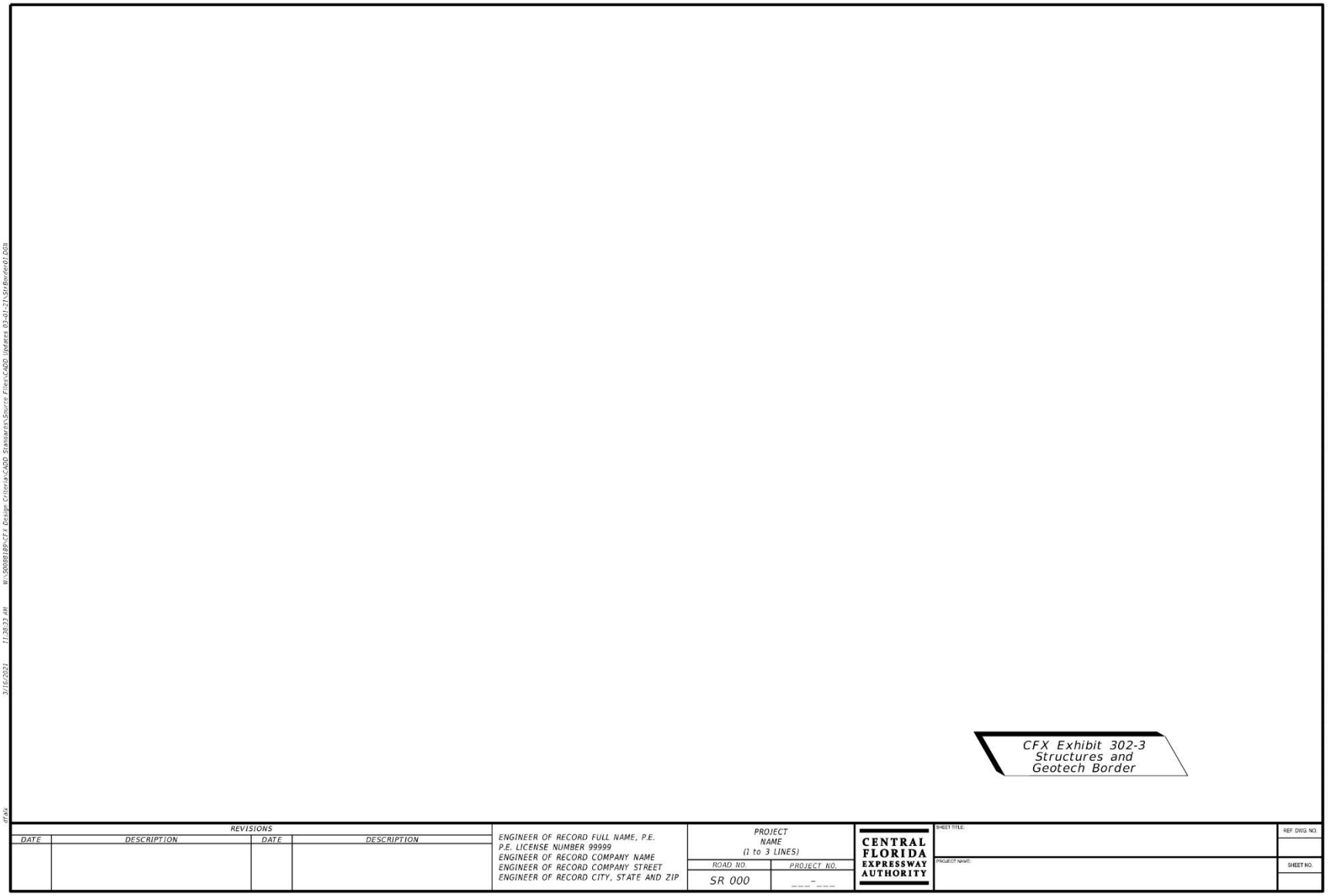
CFX PROJECT MANAGER NAME, P.E.

REVISIONS:

CFX Exhibit 302-2
Component Key Sheet

FISCAL YEAR	SHEET NO.
22	S-1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.


CFX Exhibit 302-3
Structures and
Geotech Border
REVISIONS
DATE
DESCRIPTION
DATE
DESCRIPTION
ENGINEER OF RECORD FULL NAME, P.E.
P.E. LICENSE NUMBER 99999
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP
PROJECT
NAME
(1 to 3 LINES)
ROAD NO.
PROJECT NO.
SR 000
CENTRAL
FLORIDA
EXPRESSWAY
AUTHORITY
SHEET TITLE:
PROJECT NAME:
REF. DWG. NO.
SHEET NO.
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.
3/16/2021 11:28:33 AM W:\500681BP\CFX Design Criteria\CADD Standards\Source Files\CADD Updates 03-01-21\Std\Border01.dgn

303 - Signature Sheet

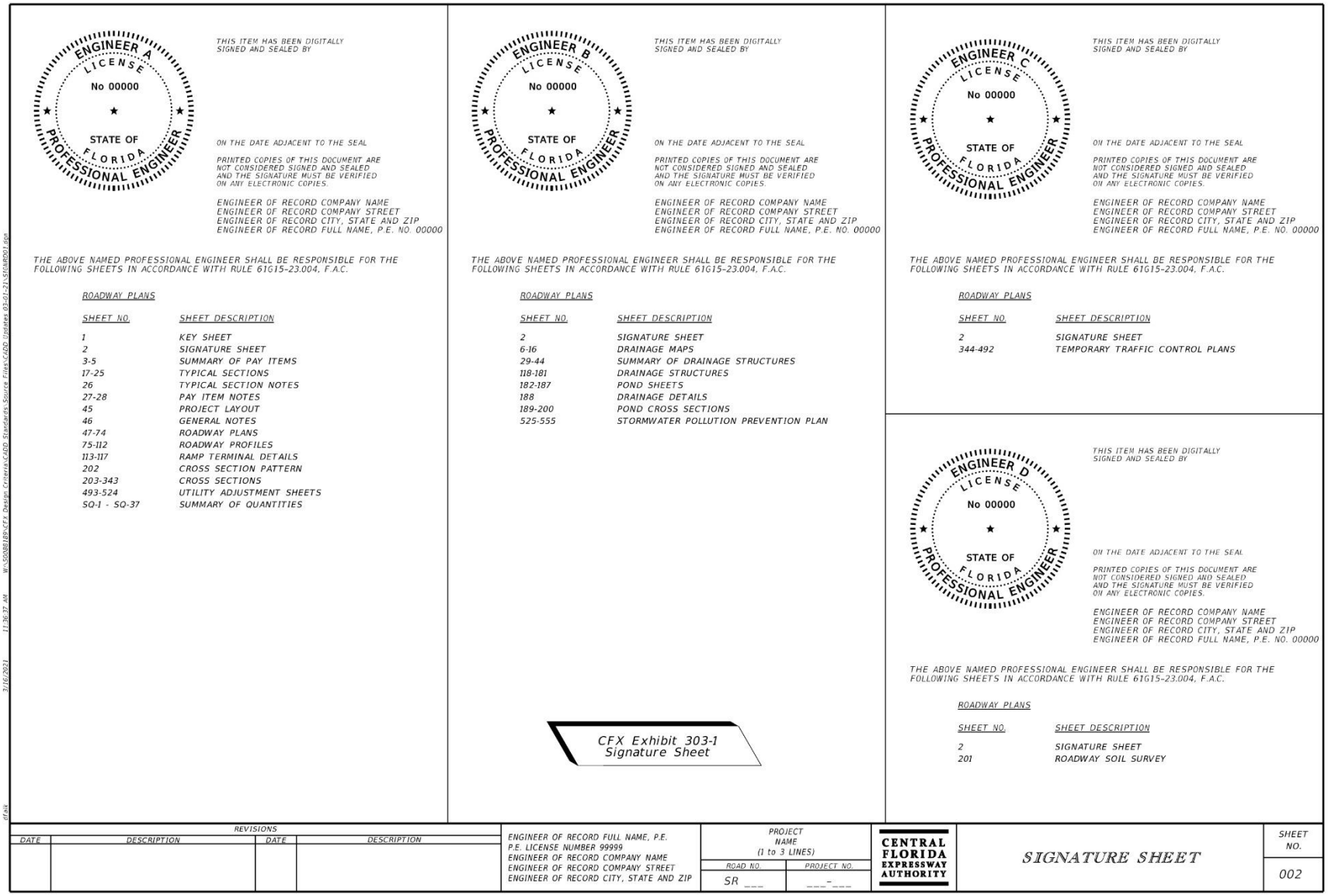
303.1 - General

Replace the second paragraph with the following:

See CFX Exhibit 303-1 for an example of a Signature Sheet.

Delete the last paragraph and replace with the following:

Projects are to be delivered as individual Signed and Sealed components of the contract plans; e.g., Roadway Plans, Signing and Pavement Marking Plans, Structure Plans. A Signature Sheet is required for component plans that are to be Signed and Sealed by one or more licensed professionals.


ENGINEER A
LICENSE
No 00000
STATE OF FLORIDA
PROFESSIONAL ENGINEER
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
ON THE DATE ADJACENT TO THE SEAL
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP
ENGINEER OF RECORD FULL NAME, P.E. NO. 00000
THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.
ROADWAY PLANS
SHEET NO. SHEET DESCRIPTION
1 KEY SHEET
2 SIGNATURE SHEET
3-5 SUMMARY OF PAY ITEMS
17-25 TYPICAL SECTIONS
26 TYPICAL SECTION NOTES
27-28 PAY ITEM NOTES
45 PROJECT LAYOUT
46 GENERAL NOTES
47-74 ROADWAY PLANS
75-112 ROADWAY PROFILES
113-117 RAMP TERMINAL DETAILS
202 CROSS SECTION PATTERN
203-343 CROSS SECTIONS
493-524 UTILITY ADJUSTMENT SHEETS
SQ-1 - SQ-37 SUMMARY OF QUANTITIES
ENGINEER B
LICENSE
No 00000
STATE OF FLORIDA
PROFESSIONAL ENGINEER
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
ON THE DATE ADJACENT TO THE SEAL
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP
ENGINEER OF RECORD FULL NAME, P.E. NO. 00000
THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.
ROADWAY PLANS
SHEET NO. SHEET DESCRIPTION
2 SIGNATURE SHEET
6-16 DRAINAGE MAPS
29-44 SUMMARY OF DRAINAGE STRUCTURES
118-181 DRAINAGE STRUCTURES
182-187 POND SHEETS
188 DRAINAGE DETAILS
189-200 POND CROSS SECTIONS
525-555 STORMWATER POLLUTION PREVENTION PLAN
CFX Exhibit 303-1
Signature Sheet
ENGINEER C
LICENSE
No 00000
STATE OF FLORIDA
PROFESSIONAL ENGINEER
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
ON THE DATE ADJACENT TO THE SEAL
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP
ENGINEER OF RECORD FULL NAME, P.E. NO. 00000
THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.
ROADWAY PLANS
SHEET NO. SHEET DESCRIPTION
2 SIGNATURE SHEET
344-492 TEMPORARY TRAFFIC CONTROL PLANS
ENGINEER D
LICENSE
No 00000
STATE OF FLORIDA
PROFESSIONAL ENGINEER
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
ON THE DATE ADJACENT TO THE SEAL
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP
ENGINEER OF RECORD FULL NAME, P.E. NO. 00000
THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.
ROADWAY PLANS
SHEET NO. SHEET DESCRIPTION
2 SIGNATURE SHEET
201 ROADWAY SOIL SURVEY
REVISIONS
DATE DESCRIPTION DATE DESCRIPTION
ENGINEER OF RECORD FULL NAME, P.E.
P.E. LICENSE NUMBER 99999
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP
PROJECT NAME (1 to 3 LINES)
ROAD NO. PROJECT NO.
SR
CENTRAL FLORIDA EXPRESSWAY AUTHORITY
SIGNATURE SHEET
SHEET NO.
002

304 - Summary of Pay Items

Delete FDM 304 and replace with:

304.1 - Summary of Pay Items Sheet

The summary of pay items sheet(s) lists all pay items and quantities for all components for the project, or projects, in a contract. Place the summary of pay items sheets directly behind the lead signature sheet.

A summary of pay items sheet without quantities is required at the 60% submittal, and a complete summary of pay items sheet with quantities is required at the 90%, 100%, and Bid submittals.

Pay item numbers shall be displayed in a 4-3-3 format. Both hyphens (-) and preceding zeros are to be included. For example, the pay item number format for Maintenance of Traffic, 102-1, shall be formatted as 0102-001-000. The exception to the 4-3-3 formatting are the 638 pay item numbers for ITS conduit, which are currently formatted as 4-4-4. These ITS pay items will be updated to the 4-3-3 format at a later date.

Quantities are to be displayed to three (3) decimal places. For example, a quantity of 35.1 TN will be displayed as 35.100 TN. This requirement is intended mitigate rounding errors in quantities often hidden in spreadsheets. Precision and rounding of quantities as defined in chapter 2 of the FDOT Basis of Estimates (BOE) Manual remain unchanged. Quantities shall also be right justified and columns for plan and final quantities are to be included.

Pay items are to be placed in numerical order and not be separated by component. If two component sets share a common pay item (e.g.: pull boxes, conductors, etc.), total all quantities under a single line item. See Exhibit 304-1 below.

Exhibit 304-1

SUMMARY OF PAY ITEMS

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	
			PLAN	FINAL
0101-001-000	MOBILIZATION	LS	1.000	
0102-001-000	MAINTENANCE OF TRAFFIC	LS	1.000	
0102-001-BRC	MAINTENANCE OF TRAFFIC FOR ROADWAY REPAIR CONTINGENCY	ED	5.000	
0102-99C-000	PORTABLE CHANGEABLE MESSAGE SIGN, TEMPORARY (CONTINGENCY)	ED	110.000	
0104-020-000	EROSION CONTROL	LS	1.000	
0110-001-001	CLEARING & GRUBBING	LS	1.000	
0120-001-000	REGULAR EXCAVATION	CY	1010.600	
0334-001-BRC	ROADWAY REPAIR, EMERGENCY BASE REPAIR CONTINGENCY	TN	500.000	
0430-004-008	VIDEO EXISTING STORM DRAIN PIPES	LF	225.000	
0560-003-000	EXISTING OVERHEAD SIGN STRUCTURE UPRIGHT PAINTING	EA	2.000	
0570-001-002	PERFORMANCE TURF, SOD	SY	2534.000	
0713-101-536	PAVEMENT MARKING - PREFORMED TAPE, CONTRAST, SKIP, 9"	GM	16.321	
0999-001-000	ALLOWANCE FOR DISPUTES REVIEW BOARD	N/A	N/A	
0999-002-000	WORK ORDER ALLOWANCE	N/A	N/A	

305 - Drainage Map and Bridge Hydraulic Recommendation Sheet

305.1 - Drainage Map

Replace the second sentence in the first paragraph with the following sentence:

Drainage maps must be developed using an aerial base map and must be included in the construction plans.

305.1.1 - Plan View

Add the following to Number (4):

(4) Show and label (in acres) pond drainage basins on maps and include pond basin names.

Add the following plan view requirements:

(8) General location of landfills or contamination sites must be indicated on the plan view of the drainage maps.

(9) Wellfield Protection areas, if any, must be shown on the plan view. Include the wellfield name and associated regulatory agency.

(10) FDEP impaired water body basin boundaries, if any, must be shown on the plan view. Include the impaired water body name.

(11) Place the datum conversion from NAVD to NGVD on the drainage map. For example, NAVD 88 EL. 1.00 = NGVD 29 EL. 2.50.

(12) Section, Township, and Range lines labeled with their respective directions

(13) Show the drainage area boundaries using a very heavy, broken line, with the area (in acres or square miles) shown within the boundary. The proposed structure location should be shown. Existing structures over the same water body and those structures that affect the hydraulics of the proposed structure should be located and numbered and corresponding existing structure information listed in the appropriate columns.

(14) Depressional areas (if closed basin)

305.1.2 - Profile View

Add the following profile requirements:

Seasonal high-water information within roadway limits as determined from the geotechnical report.

305.2.3 – Location Map and Drainage Area

Delete Section 305.2.3.

306 - Typical Sections

306.2 - Typical Section Sheet

Add the following sentence to the last paragraph:

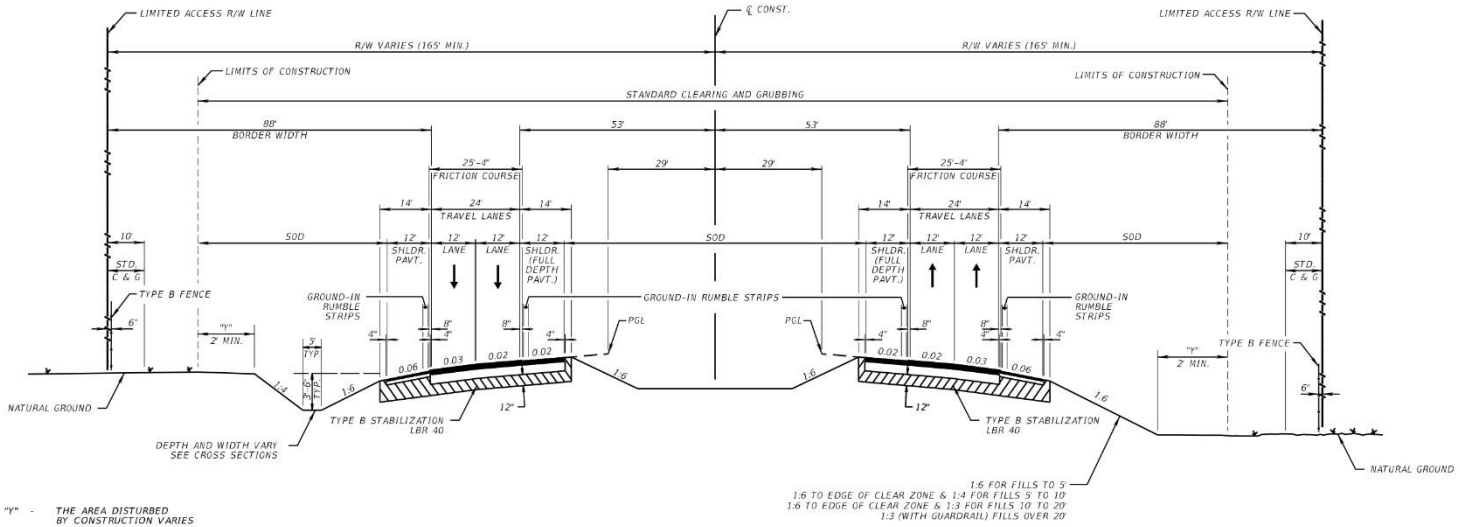
See CFX Exhibits 306-13 through 306-14 for illustrations of various typical sections.

306.5 - Standard Notes for Typical Section Sheets

Add the following standard note:

(4) Embankment slope requirements are as follows:

- 1:6 for fill to 5’
- 1:6 to edge of clear zone & 1:4 for fills 5’ to 10’
- 1:6 to edge of clear zone & 1:3 for fills 10’ to 20’
- 1:3 with guardrail for fills over 20’ and must include shoulder gutter
- Shoulder gutter is required in areas of guardrail where embankment slopes are steeper than 1:4 and any pavement is sloped toward the embankment



"Y" - THE AREA DISTURBED BY CONSTRUCTION VARIES

TYPICAL SECTION
4 LANE NEW ALIGNMENT
TYPICAL SECTION NO. 1

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2") (PG 76-22)
AND FRICTION COURSE FC-5 (¾") (PG 76-22)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 4 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (2") (PG 76-22)

CFX Exhibit 306-13
4 Lane Expressway

TRAFFIC DATA

CURRENT YEAR = TBD AADT = TBD
ESTIMATED OPENING YEAR = TBD AADT = TBD
ESTIMATED DESIGN YEAR = TBD AADT = TBD
K = TBD % D = TBD % T = TBD % (24 HOUR)
DESIGN SPEED = 70 MPH
POSTED SPEED = 70 MPH

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
					SR 000	___-___			

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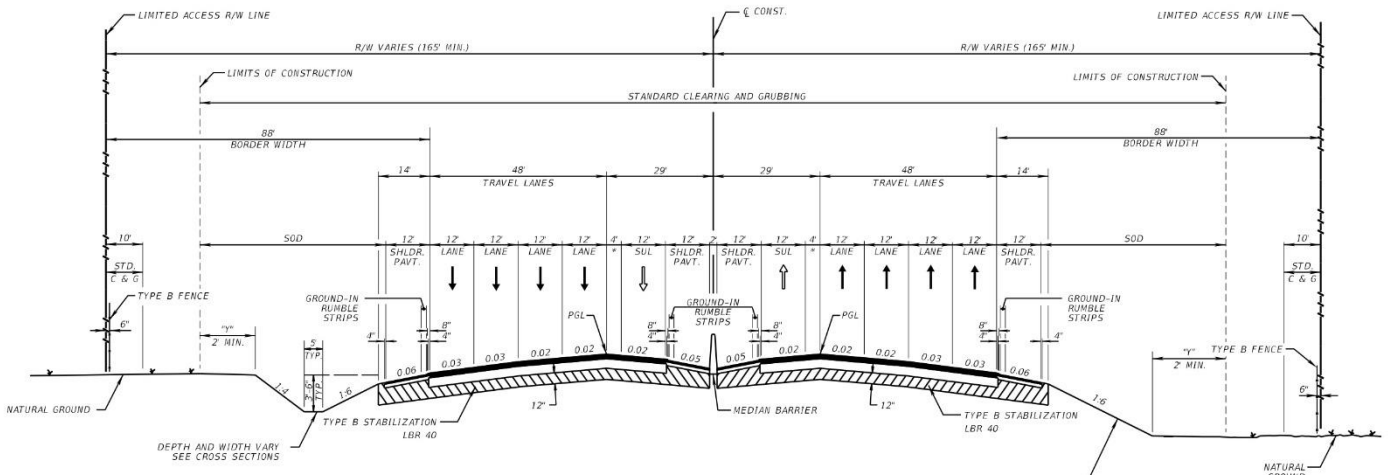


"Y" - THE AREA DISTURBED BY CONSTRUCTION VARIES

SUL - SPECIAL USE LANE

* - BUFFER

TYPICAL SECTION
8 LANE NEW ALIGNMENT
TYPICAL SECTION NO. 2

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2") (PG 76-22)
AND FRICTION COURSE FC-5 (¾") (PG 76-22)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 4 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (2") (PG 76-22)

NOTES TO DESIGNERS:

HYDROPLANING ANALYSIS MUST BE PERFORMED BY THE DESIGNER ON THEIR RESPECTIVE ROADWAY SECTIONS UTILIZING THE FDOT HYDROPLANING TOOL.

SAMPLE HYDROPLANING ANALYSIS FOR THIS TYPICAL SECTION (0.3% AND 3% PROFILE GRADE AND A 70 MPH MAINLINE DESIGN SPEED) CAN BE FOUND ON CFX EXHIBITS 252-1 THRU 252-4.

CFX Exhibit 306-14
8 Lane Expressway
+ 2 Special Use Lanes w/ Buffer

TRAFFIC DATA

CURRENT YEAR = TBD AADT = TBD
ESTIMATED OPENING YEAR = TBD AADT = TBD
ESTIMATED DESIGN YEAR = TBD AADT = TBD
K = TBD % D = TBD % T = TBD % (24 HOUR)
DESIGN SPEED = 70 MPH
POSTED SPEED = 70 MPH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD FULL NAME, P.E.
P.E. LICENSE NUMBER 99999
ENGINEER OF RECORD COMPANY NAME
ENGINEER OF RECORD COMPANY STREET
ENGINEER OF RECORD CITY, STATE AND ZIP

PROJECT NAME (1 to 3 LINES)

ROAD NO.	PROJECT NO.
SR 000	___-___

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

SHEET NO.

$FILES
$TIMES
$DATES
$USERS

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

307 - Summary of Quantities

Delete FDM 307 and replace with the following:

307.1 - General

The Summary of Quantities sheets contain plan summary boxes for all work to be performed on the project with the exception of work provided for on the Summary of Drainage Structure sheet(s). Document the quantities by location in the plan summary boxes. The Summary of Quantities sheets is the only location where quantities are to be documented. Do not place plan summary boxes in any other location in the plan set. ***Chapter 8*** of the ***Basis of Estimates Manual*** contains guidance on plan summary boxes. Refer to the 2021 FDOT Basis of Estimates Manual.

The Summary of Quantities sheets are to be placed after the numbered Plan Sheets. Number the Summary of Quantities sheets prefixed by the letter “SQ”; e.g., SQ-1, SQ-2, SQ-3.

Include with phase submittals the electronic shape file (QTDSRD.dgn) and other documentation (i.e., calculations, sketches, or spreadsheets) that support the quantities shown in the summary boxes, beginning with Phase III.

307.1.1 - Tabulation of Quantities Sheets

When signing and pavement marking, lighting, signal, ITS, or landscape improvements are shown in the roadway plan set, in lieu of a component plan set, place the Tabulation of Quantities sheet for those improvements behind roadway Summary of Quantities sheets. Number the Tabulation of Quantities sheet in sequence with the Summary of Quantities sheets using the prefix “SQ”.

307.2 - Plan Summary Boxes and Format

The plan summary boxes are provided in the FDOT CADD Software. Boxes should be placed on the sheets in order of pay item numbers. A continuation of a box onto subsequent plan sheets may be necessary. On contracts with multiple Financial Project ID numbers or federal aid and non-federal aid quantities, make provisions to tabulate and summarize their respective quantities. Refer to ***Chapter 8*** of the ***Basis of Estimates Manual*** for further guidance.

307.2.1 - Standard Notes

Place the following standard note below the Summary of Earthwork box:

Earthwork has been calculated using the _____ base option.

Place the following standard note below the Summary of Monitor Existing Structures box:

This list includes existing structures (as determined by CFX) located outside the limits specified in ***Article 108-2*** of the FDOT Specifications that are required to be monitored. This list should not be

considered all-inclusive and does not contain existing structures to be monitored that are located within the distances specified in Article 108-2.

307.2.2 - Pay Item Notes

Delete all paragraphs and replace with:

Place the following applicable pay item notes on the first Summary of Quantities Sheet;

(1) 102-1
THE LUMP SUM PAYMENT INCLUDES ALL COSTS ASSOCIATED WITH WORK, PERSONNEL, MATERIALS, AND EQUIPMENT NECESSARY TO MAINTAIN TRAFFIC WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT AS SPECIFIED UNDER SECTION 102 OF THE CFX TECHNICAL SPECIFICATIONS. LITTER REMOVAL SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

(2) 102-99C
A CONTINGENCY ITEM, TO BE INCLUDED AS DIRECTED BY THE ENGINEER.

(3) 285-7XX
ALL BASE MATERIAL SHALL BE LIMEROCK, UNLESS OTHERWISE NOTED.

(4) 327-70-XX
INCLUDES RETAINMENT OF 500 TONS OF MILLINGS, OWNED BY CFX. MATERIAL IS TO BE STORED AT THE CONTRACTOR'S FACILITIES FOR TWO YEARS FOLLOWING FINAL ACCEPTANCE OF THE PROJECT. WHEN NEEDED BY CFX, THE CONTRACTOR SHALL LOAD THE MATERIALS INTO CFX TRUCKS AT NO ADDITIONAL COST

(5) 436-1-1
MDH 12-12" ID TRENCH FORMER SYSTEM WITH E-COATED FRAME AND UNCOATED GRATE (HI-INTAKE) OR APPROVED EQUAL. INCLUDES ALL ITEMS NEEDED TO FURNISH AND INSTALL TRENCH DRAIN AS SHOWN IN THE PLANS. INCLUDES BUT NOT LIMITED TO, CONCRETE TRENCH DRAIN, 12" PIPE, GRATE, CONCRETE JACKETS, SPECIAL DESIGN CONCRETE SHOULDER GUTTER AND CONCRETE SHOULDER GUTTER TRANSITION SEGMENTS.

(6) 570-1-2
SOD QUANTITES INCLUDE THE AREAS IDENTIFIED TO RECEIVE PINE BARK NUGGET MULCH. ALL COSTS ASSOCIATED WITH THE PINE BARK NUGGET MULCH SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

307.3 Box Culvert

The structural design of any size concrete box culvert may be performed utilizing computer programs

as described in ***FDM 265.13.*** The ***LRFD Box Culvert Program*** complements the details shown on ***Standard Plans***, ***Index 400-289.***

Complete the Box Culvert Data Table (cell is included in the Structures workspace of the FDOT CADD Software) and the Reinforcing Bar List. Place the table and list on plan sheets in the Structures Component Plan Set.

For box culverts without FDOT assigned bridge numbers (typically ≤ 20-foot spans measured along the centerline of the roadway from face-face (inside) of the extreme abutments or sidewalls), place quantity totals in a Summary of Box Culverts box on a "BQ-" numbered plan sheet in the Structures Component Plan Set. Do not include the quantities in the Summary of Structure Quantities table. Load these planned quantities into AASHTOWare Project™ Preconstruction or Designer Interface in the Roadway Category.

For box culverts with FDOT assigned bridge numbers (bridge culverts), place quantity totals in the Box Culvert section of the Summary of Structure Quantities in the Structures Component Plan Set. Load these planned quantities into AASHTOWare Project™ Preconstruction or Designer Interface in the Structures Category under the assigned bridge number.

307.4 - Litter Removal and Mowing

Delete all paragraphs and replace with:

All elements of CFX's transportation system enjoy a high maintenance standard that provides a safe, efficient and effective facility for its customers. Litter removal shall occur once per week and in advance of each mowing cycle. As such, litter removal shall be incidental to the Maintenance of Traffic pay item.

307.5 - Monitor Existing Structures

Monitor Existing Structures includes settlement, vibration, and groundwater monitoring of existing structures during construction as described in Section 108 of the Standard Specifications. Structures requiring consideration for monitoring typically include buildings, bridges, and retaining walls which are adjacent to construction activities. When there is a concern regarding vibration, structures to be monitored may also include historic features and buildings in which sensitive business operations are conducted; e.g., eye surgery, medical treatments, rehabilitation operations, recording and broadcasting operations, places of worship, antique shops, or museums.

When appropriate, include a note on the General Notes sheet that:

(1) Restricts hours of construction operations.
(2) Restricts the type of construction equipment to be used.

Pay item 108-1 is to be used to mitigate the risk for damage occurring to an existing structure due to settlement.

Pay item 108-2 is to be used to mitigate the risk for interfering with the intended use of an existing structure. This pay item is not typically used for residential properties.

Pay item 108-3 is to be used only when recommended by a geotechnical firm and concurred with by the District Geotechnical Engineer. The use of this pay item is not common.

307.5.1.1 - Miscellaneous Structures

Activities that may cause harm to existing structures include the construction of foundations for mast arm signal poles, strain poles, cantilever signs, overhead truss signs, high mast light poles and ITS.

Based on visual field observations, the EOR will identify existing structures that are recommended to be monitored during these activities. CFX will make the final determination of the existing structures to be monitored.

307.5.1.2 - Structures other than Miscellaneous Structures

Activities that may cause harm to existing structures include the construction of retaining walls, noise walls, sheet pile walls, deep excavations and foundations for bridges and other structures.

(1) If any existing structure is within the distances specified in ***Section 108-2*** of the ***Standard Specifications***, include pay item 108-1 in the Summary of Monitor Existing Structures summary box. Use a distance of 250 feet as the limit for pile driving. Do not list or identify these structures in the Contract Plans.

(2) Based on visual field observations, the EOR may recommend monitoring existing structures located beyond the distances specified in ***Section 108-2*** during these activities. CFX will make the final determination of the existing structures to be monitored.

307.5.1.3 - Roadway Compaction Operations

Activities that may cause harm to existing structures include embankment and asphalt vibratory compaction.

(1) If an existing structure is within the distances specified in ***Section 108-2*** of the ***Standard Specifications***, include pay item 108-1 in the Summary of Monitor Existing Structures summary box. Do not list or identify these structures in the Contract Plans.

(2) Based on visual field observations, the EOR may recommend monitoring existing structures located beyond the distances specified in ***Section 108-2*** during these activities. CFX will make the final determination of the existing structures to be monitored.

307.5.2 - Vibration Monitoring

Activities that may cause harm to existing structures include pile driving, sheet pile and casing installation, and embankment and asphalt vibratory compaction. Based on visual field observations, the EOR will identify existing structures that are recommended to be monitored during these activities. CFX will make the final determination of the existing structures to be monitored.

307.5.3 - Groundwater Monitoring

Based on visual field observations, the EOR will identify existing structures that are recommended to be monitored during anticipated dewatering operations. CFX will make the final determination of the existing structures to be monitored.

308 - Summary of Drainage Structures and Optional Materials Tabulation

308.1 - General

Delete paragraph 2.

308.2 - Optional Materials Tabulation

Delete FDM 308.2 Optional Materials Tabulation and replace with:

Unless otherwise approved, it is CFX preference to utilize reinforced concrete pipe (RCP) or ADS Class 2 Polypropylene pipe (HP Storm) for all storm sewer pipes. ADS single wall HDPE meeting AASHTO M294 standards and bituminous coated corrugated metal pipe (BCCCMP) are approved for gutter drains. Culvert extensions are to match the existing culvert material. HP Storm is required to be installed with an RCP end section. For the case of wall zone pipes, HP Storm should be utilized. In areas where conditions warrant, steel pipe may be used in lieu of HP Storm for wall zone applications. Pipes to be installed via jack and bore shall utilize the steel casing as the carrier pipe. The steel casing should extend from structure to structure, where reasonable. All drainage pipe must be produced from an FDOT approved production facility.

311 - General Notes

311.2.1 - Required General Notes

Delete with 311.2.1 and replace with:

See CFX Exhibit 311-1 for required standard general notes and CFX Exhibit 311-2 for project specific general notes.

312 - Roadway Plan-Profile

312.2.2 - Horizontal Curves

Add the following paragraph:

Horizontal curve information must also be shown on its own individual sheet(s) known as “Curve and Coordinate Data” and must contain all horizontal curve information as identified in the FDM as well providing the “Northing/Easting” information for the PC, PI, PT, and CC of the curves.

The Design Speed (DS) of the curve shall also be identified.

312.2.6 - Plan Layout

Add the following label requirement:

(14) Plot the locations of roadway soil borings in the roadway plan view using a target symbol and boring number label.

312.3.4 - Superelevation and Special Profiles

Add the following sentence the beginning of the first paragraph:

For standard superelevated sections, superelevation transitions shall be plotted above the roadway profiles, with stationing labels indicating the beginning and ending points of the superelevation transitions as well as the location of zero cross slope.

STANDARD ROADWAY GENERAL NOTES

1. BENCHMARK ELEVATIONS SHOWN ON THE PLANS ARE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29) OR THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88) (EOR to specify). ALL SURVEY INFORMATION WAS OBTAINED FROM A LICENSED FLORIDA PROFESSIONAL SURVEYOR AND MAPPER AND UTILIZED AS SUPPORTING DATA IN THE PRODUCTION OF DESIGN PLANS AND FOR CONSTRUCTION ON SUBJECT PROJECT. THE PROFESSIONAL SURVEYOR AND MAPPER OF RECORD IS:

   SURVEYOR NAME, P.S.M.
   P.S.M. NO.: 00000
   COMPANY NAME
   STREET ADDRESS
   CITY, FL 00000

2. THE LOCATION(S) OF THE UTILITIES SHOWN IN THE PLANS (INCLUDING THOSE DESIGNATED Vv, Vh, AND Vvh) ARE BASED ON LIMITED INVESTIGATION TECHNIQUES AND SHOULD BE CONSIDERED APPROXIMATE ONLY. THE VERIFIED LOCATIONS/ELEVATIONS APPLY ONLY AT THE POINTS SHOWN. INTERPOLATIONS BETWEEN THESE POINTS HAVE NOT BEEN VERIFIED.

3. UTILITY/AGENCY OWNERS:

COMPANY	CONTACT	TELEPHONE NUMBER
SPRINT/FLORIDA, INC.	CHERYL FLORES	(850) 555 – 1234
CFX ITS	STEVE GEISS	(407) 690 – 5335
CFX FIBER	PAT COLLINS	(407) 690 5056

4. SPECIAL EVENT DAYS FOR THIS PROJECT INCLUDE:

   (List applicable special event days e.g., UCF HOME SPORTING EVENTS)

5. ANY NGVD 29 OR NAVD 88 MONUMENT WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF IN DANGER OF DAMAGE, NOTIFY:

   BUREAU OF SURVEYING & MAPPING
   DEPARTMENT OF ENVIRONMENTAL PROTECTION
   COMMONWEALTH BOULEVARD, MP 105
   TALLAHASSEE, FL 32399-3000
   TELEPHONE (850) 245-2606

6. MAINTAIN THE INTEGRITY OF THE LIMITED ACCESS FENCING AT ALL TIMES.

7. DO NOT BRING ANY HAZARDOUS MATERIALS ONTO THE PROJECT. SHOULD SUCH MATERIALS BE REQUIRED FOR PERFORMING THE CONTRACTED WORK, SUBMIT A WRITTEN REQUEST TO THE ENGINEER FOR APPROVAL. PROVIDE THE ENGINEER WITH A COPY OF THE MATERIAL SAFETY DATA SHEET (SDS) FOR EACH HAZARDOUS MATERIAL PROPOSED FOR USE. BECAUSE STATE LAW DOES NOT TREAT PETROLEUM PRODUCTS THAT ARE PROPERLY CONTAINERIZED AND INTENDED FOR EQUIPMENT USE AS A HAZARDOUS MATERIAL, SUCH PRODUCTS DO NOT NEED A SDS SUBMITTAL. ANY KNOWN OR SUSPECTED HAZARDOUS MATERIAL FOUND ON THE PROJECT SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER, WHO SHALL DIRECT THE CONTRACTOR TO PROTECT THE AREA OF KNOWN OR SUSPECTED CONTAMINATION FROM FURTHER ACCESS. THE ENGINEER IS TO NOTIFY CFX OF THE DISCOVERY. CFX WILL ARRANGE FOR INVESTIGATION, IDENTIFICATION, AND REMEDIATION OF THE HAZARDOUS MATERIAL. DO NOT RETURN TO THE AREA OF CONTAMINATION UNTIL APPROVAL IS PROVIDED BY THE ENGINEER.

8. NOTIFY ALL CONCERNED UTILITY COMPANIES 48 HOURS IN ADVANCE OF WORKING NEAR THEIR EXISTING FACILITIES. NO UNDERGROUND EXCAVATION SHALL COMMENCE UNTIL EXISTING UTILITIES HAVE BEEN PROPERLY MARKED.

9. A CFX FIBER OPTIC OWNER REPRESENTATIVE SHALL BE PRESENT DURING CONSTRUCTION IN THE VICINITY OF CFX ITS FACILITIES.

10. OUT OF SERVICE BURIED UTILITIES WITHIN THE LIMITS OF ROADWAY EXCAVATION SHALL BE REMOVED.

11. LIMITS OF CONSTRUCTION AS SHOWN ON THE TYPICAL SECTIONS REPRESENT THE LIMITS OF STANDARD CLEARING AND GRUBBING. ADDITIONAL AREAS ARE SHOWN ON THE APPLICABLE PLAN AND POND SHEETS.

12. ALL WASTE MATERIALS SHALL BE REMOVED FROM CFX'S RIGHT OF WAY AND PROPERLY DISPOSED OF IN AREAS PROVIDED BY THE CONTRACTOR.

STANDARD ROADWAY GENERAL NOTES

13. DISPOSE OF MILLED MATERIAL AWAY FROM THE PROJECT SITE AT A LOCATION PROVIDED BY THE CONTRACTOR. NO MILLED MATERIAL SHALL BE STOCKPILED WITHIN THE PROJECT RIGHT OF WAY. THIS SHALL INCLUDE MATERIAL REMOVED BY THE CONSTRUCTION OF THE GROUND IN RUMBLE STRIPS. DO NOT SWEEP MILLED ASPHALT ONTO UNPAVED SHOULDERS.

14. DURING MILLING OPERATIONS, ENCROACHMENT INTO THE LIMEROCK BASE IS ANTICIPATED IN SOME OF THE MILLING SCHEMES. REMOVE ANY LOOSE ASPHALT REMNANTS AND ROLL THE EXPOSED LIMEROCK BASE COURSE WITH A MINIMUM OF TWO PASSES OF A 5 TO 12 TON RUBBER TIRE ROLLER. AN APPLICATION OF PRIME OR TACK COAT AND A MINIMUM OF ONE LIFT OF ASPHALT IS REQUIRED BEFORE OPENING THE LANE TO TRAFFIC.

15. CONSTRUCT RETENTION/DETENTION PONDS AND OUTFALL STRUCTURES PRIOR TO ROADWAY CONSTRUCTION.

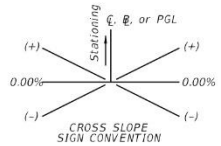
16. EXISTING DRAINAGE STRUCTURES WITHIN THE CONSTRUCTION LIMITS SHALL REMAIN/BE REMOVED UNLESS OTHERWISE NOTED.

17. ALL TYPE S INLETS (INDEX 425-040) ARE TO BE PROVIDED WITH PARALLEL BAR TYPE GRATES.

18. ALL STORM SEWER CULVERTS AND PIPES SHALL BE BE CLASS I/II/III/IV/V (EOR to specify) REINFORCED CONCRETE PIPE OR CLASS II POLYPROPYLENE PIPE UNLESS OTHERWISE NOTED. ALL GUTTER DRAIN PIPES SHALL BE BITUMINOUS COATED CORRUGATED METAL PIPE OR CORRUGATED HDPE (EOR to specify BCCMP OR HDPE) UNLESS OTHERWISE NOTED. ALL WALL ZONE PIPES SHALL BE POLYPROPYLENE PIPE UNLESS STEEL PIPE IS SPECIFIED IN THE PLANS.

19. WHERE A CONCRETE COLLAR/JACKET IS IDENTIFIED IN THE PLANS TO JOIN A NEW PIPE TO AN EXISTING PIPE, THE EXISTING PIPE MUST BE REMOVED TO THE NEAREST JOINT TO BEGIN THE PLACEMENT OF THE NEW PIPE, UNLESS IT WOULD REQUIRE ENCROACHMENT INTO THE ADJACENT TRAVEL LANE. THE CONCRETE MUST BE CURED AND INSPECTED TO CONFIRM THE INTEGRITY OF THE COLLAR PRIOR TO PLACEMENT OF FILL MATERIAL.

20. THE CROSS SLOPES AND SUPERELEVATIONS SHALL ADHERE TO THE FOLLOWING SIGN CONVENTION:



CROSS SLOPE SIGN CONVENTION

21. VIBRATORY AND OSCILLATORY ROLLING OF PAVEMENT SHALL NOT BE PERMITTED.

22. EXISTING LIMEROCK BASE THAT IS REMOVED SHALL NOT BE USED IN THE CONSTRUCTION OF THE NEW LIMEROCK BASE. EXISTING LIMEROCK THAT IS REMOVED MAY BE INCORPORATED INTO THE STABILIZED PORTION OF THE SUBGRADE OR DISPOSED OF PROPERLY OFF THE PROJECT SITE.

23. BITUMINOUS PRIME COAT SHALL BE APPLIED TO ALL LIMEROCK BASES ON WHICH PAVEMENT IS TO BE PLACED AT A RATE NOT LESS THAN 0.15 GALLONS PER SQ. YD., OR AS DIRECTED BY THE ENGINEER.

24. THE CONSTRUCTION JOINT BETWEEN LANES FOR SP LIFTS SHALL BE OFFSET 6" MIN. FROM THE LIFT BENEATH.

25. PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGES. SURVEY AND PLOT THE PROFILE SHOWING THE TRANSITION OF THE BRIDGE, THE BRIDGE APPROACH/DEPARTURE SLAB, AND STRUCTURAL COURSE. SUBMIT THE PROFILE TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF FRICTION COURSE.

26. WHEN MEASURING FOR SURFACE IRREGULARITIES, STRAIGHT EDGE ASPHALT, APPROACH SLABS, AND BRIDGE DECKS (15' ONTO BRIDGE DECK).

27. THE FRICTION COURSE ON CFX ROADS SHALL BE MADE WITH BLACK GRANITE AGGREGATE ONLY.

28. THE FRICTION COURSE OVERLAP SHALL BE INSTALLED TO THE DIMENSION PROVIDED ON THE TYPICAL SECTIONS WITHIN A 1/2" TOLERANCE.

CFX Exhibit 311-1
General Notes

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	STANDARD NOTES FOR ROADWAY PROJECTS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
					SR 000	___-___			

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STANDARD ROADWAY GENERAL NOTES

29. TAPE PAVEMENT MARKINGS SHALL NOT BE PLACED OVER LONGITUDINAL FRICTION COURSE JOINTS.

30. ALL DISTURBED AREAS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE GRADED AND SODDED, UNLESS OTHERWISE NOTED.

31. ALL PERMANENT GRASS AREAS, EXCEPT POND BOTTOMS, SHALL RECEIVE A 6" FINISH SOIL LAYER MEETING THE REQUIREMENTS OF CFX TECHNICAL SPECIFICATION SECTION 162.

32. ALL A-8 MATERIAL SHALL BE STOCKPILED AND USED AS EMBANKMENT OR FINISH SOIL LAYER IN ACCORDANCE WITH INDEX NO 120-001 & 120-002.

33. ALL PERMANENT AND TEMPORARY CRASH CUSHIONS ON CFX'S SYSTEM SHALL BE REDIRECTIVE AND NON-GATING. ALL TEMPORARY CRASH CUSHIONS USED ON CFX'S SYSTEM SHALL BE DESIGNED AT THE ORIGINAL POSTED SPEED NOT AT THE REDUCED TCP SPEED.

34. (New alignment) THE STATION/OFFSETS AT RIGHT OF WAY BREAKPOINTS AND CORNERS REFER TO THE R/W LINE AND NOT THE FENCE LOCATION AND ARE BASED UPON CENTERLINE CONSTRUCTION STATIONING.

35. (New alignment) PERMANENT TURNOUTS AND DRIVEWAY CONNECTIONS TO PRIVATE PROPERTY THAT LIE OUTSIDE THE LIMITS OF LIMITED ACCESS RIGHT OF WAY AND WHERE ACCESS RIGHTS HAVE NOT BEEN ACQUIRED SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TURNOUT DETAILS AND STATE STANDARD SPECIFICATIONS REFERENCED ON THE KEY SHEET OF THESE PLANS. DO NOT ISOLATE ADJACENT AND/OR THE REMAINDER OF THE PROPERTY UNLESS ACCESS RIGHTS ARE ACQUIRED. ACCESS SHALL BE PROVIDED TO SUCH PROPERTY WHENEVER THE CONSTRUCTION INTERFERES WITH THE EXISTING MEANS OF ACCESS.

PROJECT SPECIFIC GENERAL NOTES

1. ENGINEER OF RECORD TO DETERMINE ADDITIONAL NOTES AS REQUIRED.

NOTES TO DESIGNERS:

STANDARD NOTES AS SHOWN ARE APPLICABLE TO THE MAJORITY OF PROJECTS ALONG THE CFX SYSTEM

WHERE A NOTE DOES NOT APPLY, IT SHALL BE REVISED TO "NOT USED" SUCH THAT THE NUMBERING OF STANDARD NOTES DOES NOT CHANGE

ADDITIONAL NOTES MAY BE ADDED UNDER "PROJECT SPECIFIC GENERAL NOTES" AS DETERMINED BY THE SECTION ENGINEER

DELETE THIS BOX AND ALL "NOTES TO DESIGNERS" PRIOR TO SUBMITTAL OF PLANS FOR REVIEW

CFX Exhibit 311-2
Project Specific
General Notes

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	STANDARD NOTES FOR ROADWAY PROJECTS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
					SR 000	___-___			

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313 - Special Profile and Back-of-Sidewalk Profile

Add the following section:

313.4 - Treatment/Attenuation Swales

Identify treatment swales in the profile view of the plans and include the following:

Begin Treatment/Attenuation Swale @ Sta. XXX LT (or RT) Construct Ditch Block; Sta. XXX LT (or RT); Top Elevation xx.xx
End Treatment/Attenuation Berm Sta. XXX LT (or RT); Top Elevation, if required DHW and SHWT elevations

For plan sets that do not have a profile view, the stations and elevations above must be summarized in a table that uses the same naming convention.

Note that treatment/attenuation berm locations need to be specified only if a special longitudinal berm is constructed above natural ground to increase storage in the swale. If the outside boundary of the treatment/attenuation swale is the intersection between the backslope and natural ground confirm that the design high-water does not exceed 0.5 feet below the elevation of the intersection point and that no special berm information is necessary in the plans.

314 - Intersection and Interchange Layout and Details

314.3.2 - Ramp Terminal Details

After the first paragraph add the following:

(14) A combined Plan and Profile Sheet is preferred

(15) Use 1”=2’, 1”=4’ or 1”= 5’ for the vertical scale.

(16) At a minimum the Plan/Profile sheet should provide coverage for 100 ft. in advance of the ramp EOP flare to 100 ft. beyond the 17 or 19 ft. physical gore.

(17) Show elevations at 25 ft. incremental stations (i.e. 1+25, 1+50, 1+75, 2+00, etc.), in profile only, at all roadway edges, plus break lines.

(18) Provide a section through the 17 or 19 ft. physical gore.

315 - Drainage Structures

315.2 - Required Information

Delete paragraph nine and requirement in the non-conventional projects and replace with:

Include soil boring and SHWT elevation at the nearest station to the soil boring. For Cross Drains, include HW and tailwater elevations for the design storm as calculated per Section 252.7 of the CFX Design Guidelines. For Outfall structures shown on the plans, include tailwater elevations used in the storm sewer calculations

320 - Stormwater Pollution Prevention Plan (SWPPP)

320.1 - General

Delete the second paragraph and replace with:

For an example of SWPPP sheets on construction projects, see CFX Exhibits 320-1 and 320-2. Additional guidance for developing a SWPPP may be found in the DEP SWPPP template, found on the DEP web page.

320.2 - Narrative Description

Delete the first paragraph and replace with:

The SWPPP sheets include a narrative that refers to other documents such as but not limited to the Standard Specifications or the Standard Plans as necessary. Use the following outline to prepare the narrative:

320.4 - Controls

Delete the first paragraph and replace with:

The SWPPP must include a description of the controls that will be implemented at the construction site. For each of the major activities identified in the narrative, describe the timing of the implementation of control measures during the construction process. Also describe the stormwater management measures that will be installed during construction to control pollutants in the stormwater discharges that will occur after construction.

Delete the third and fourth paragraph.

320.5 - Maintenance, Inspection and Non-Stormwater Discharges

Delete the first and second paragraphs and replace with:

Include a narrative describing any additional maintenance and inspection requirements that are not stated in the standard specifications or amended by CFX. Include the inspection requirements, which will be either requirements of the DEP or the applicable requirements of another regulatory agency. If special procedures have been developed to minimize turbidity associated with normal construction dewatering, the designer will include a description of those procedures.

Special monitoring requirements described in the DEP Generic Permit may apply where the project discharges to waters listed in Section 303(d) of the Clean Water Act. Consult with the GEC environmental permitting staff to determine if the monitoring requirements are applicable. If applicable and at the direction of the GEC, the EOR will describe the special monitoring requirements in the inspection section of the narrative.

THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS PROVIDED TO ASSIST THE CONTRACTOR IN DEVELOPING THE REQUIRED SITE SPECIFIC EROSION CONTROL PLAN AND OTHER ITEMS NECESSARY TO OBTAIN COVERAGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION GENERIC PERMIT (CGP). REFER TO THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL FOR ADDITIONAL REQUIREMENTS.

1.0 SITE DESCRIPTION:

(1.A.) NATURE OF CONSTRUCTION ACTIVITY:

THE PROJECT IS THE _____[TYPE OF CONSTRUCTION ACTIVITY]_____ OF _____[ROADWAY]_____ IN ____[COUNTY]____. THIS INVOLVES _____[LIST MAJOR ACTIVITIES SUCH AS CONSTRUCTING ROADWAY SURFACE, CURB AND GUTTER, SIDEWALK, STORMWATER MANAGEMENT FACILITIES, ETC.]_____. THE PROJECT EXTENDS A DISTANCE OF __.__ MILES.

(1.B.) INTENDED SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES:

IN THE CONTRACTOR'S SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN, PREPARE A DETAILED CONSTRUCTION SCHEDULE TO INDICATE DATES OF MAJOR GRADING ACTIVITIES AND SEQUENCES OF TEMPORARY AND PERMANENT SOIL DISTURBING ACTIVITIES ON ALL PORTIONS OF THE PROJECT. FOR ADDITIONAL INFORMATION, REFER TO SECTION 4.7 OF THE NPDES CGP.

LIST OF INTENDED ACTIVITIES:

(1.B.1.) FOR EACH CONSTRUCTION PHASE, INSTALL PERIMETER CONTROLS PRIOR TO CLEARING AND GRUBBING OR ANY OTHER CONSTRUCTION ACTIVITIES. REMOVE PERIMITER CONTROLS ONLY AFTER ALL UPSTREAM AREAS AREAS ARE STABILIZED AND PERMANENT VEGETATION IS ESTABLISHED.

(1.B.2.) TIME CONSTRUCTION ACTIVITIES TO LIMIT IMPACT FROM SEASONAL CHANGES OR WEATHER EVENTS.

(1.B.3.) THE CONTRACTOR WILL PROVIDE POLLUTION CONTROL BY IMPLEMENTING DUST CONTROL DURING ALL PHASES OF CONSTRUCTION.

(1.B.4.) OFFSITE RUNOFF SHOULD BE DIVERTED AWAY OR THROUGH THE CONSTRUCTION AREA, IF POSSIBLE. THIS ADDITIONAL FLOW, IF NOT DIVERTED, CAN ADD VOLUME AND SIZE TO STRUCTURAL PRACTICES, REQUIRING MORE FREQUENT MAINTENANCE AND LIMITING EFFECTIVENESS OF EROSION AND SEDIMENT CONTROLS.

(1.C.) PROJECT AREA ESTIMATES:

TOTAL SITE AREA: ___ ACRES.

TOTAL AREA TO BE DISTURBED: ___ ACRES.

(1.D.) RUNOFF DATA:

RUNOFF COEFFICIENTS BEFORE Cw (B), DURING Cw (D) AND AFTER Cw (A) CONSTRUCTION.

RUNOFF COEFFICIENTS FOR:

GRASSED SHOULDERS ADJACENT TO ROADWAY: C=0.35

IMPERVIOUS ROADWAYS AND PAVED SHOULDER: C=0.95

DISTURBED AREAS, EXPOSED SOIL, ETC., DURING CONSTRUCTION: C=0.40

WEIGHTED RUN-OFF COEFFICIENT:

BEFORE: Cw (B) = _.__ DURING: Cw (D) = _.__ AFTER: Cw (A) = _.__

THE RUN-OFF COEFFICIENT Cw (D), IS CALCULATED ASSUMING THAT THE MAXIMUM ALLOWABLE AREA OF SOIL IS DISTURBED DURING CONSTRUCTION AND THE REMAINING AMOUNT IS THE EXISTING IMPERVIOUS AND GRASSED SHOULDER AREAS.

SOIL DATA:

__[DELETE IF NO SURVEY IS INCLUDED]__. THE RESULTS OF THE SOIL BORINGS ALONG THE ROADWAY ARE SHOWN IN THE ROADWAY SOIL SURVEY SHEET(S). THE RESULTS OF SOIL BORINGS DONE IN THE PONDS ARE SHOWN ON THE POND DETAIL SHEETS. THE SHEET NUMBERS FOR THESE ARE IDENTIFIED ON THE KEY SHEET OF THESE CONSTRUCTION PLANS.

IN GENERAL, THE SOILS ARE:

SOIL TYPE	HYDROLOGIC GROUP	DEPTH TO SHWE
9 - ASTATULA SAND	A	5.0' - 12.0'
_____	__	__.__' - __.__'
_____	__	__.__' - __.__'

REFERENCE: USDA SOIL SURVEY OF _____ COUNTY FLORIDA

OUTFALL INFORMATION:

THERE ARE ___ OUTFALL(S).

THE OUTFALLS DISCHARGE INTO THE FOLLOWING BASINS:

BASIN	WBID	PARAMETER(S) OF CONCERN FOR 303(d) LISTING
HARNEY POND CANAL	3204	CHOLRAPHYLL-A, MACROPHYTES, NUTRIENTS
_____	_____	_____

OUTFALL LOCATIONS: (TEMPORARY AND PERMANENT)

	DESCRIPTION	DRAINAGE AREA	LATITUDE	LONGITUDE	RECEIVING WATERBODY
(a)	1 - __" ___	__.__ AC	__° __ '__" N	__° __' __" W	_____
(b)	_ - __" ___	__.__ AC	__° __ '__" N	__° __' __" W	_____

THIS FACILITY__[DOES/DOES NOT]__ DISCHARGE TO WATERS LISTED ON THE ADOPTED FDEP VERIFIED LIST OR ADOPTED TMDL FOR IMPAIRMENT DUE TO TOTAL SUSPENDED SOLID, TURBIDITY, NUTRIENTS, DISSOLVED OXYGEN, OR FECAL COLIFORM.

WETLAND AND/OR SURFACE WATER IMPACTS SHALL BE LIMITED TO THE AREAS DESCRIBED IN THE APPROVED PERMITS FOR THE PROJECT.

(1.E.) SITE MAP:

THE SITE MAP SHALL BE COMPRISED OF THE CONSTRUCTION PLANS AND THE CONTRACTOR'S SITE-SPECIFIC EROSION AND SEDIMENT CONTROL PLAN.

(1.F.) STORMWATER MANAGEMENT (EXISTING/PROPOSED)

(1.F.1.) EXISTING DRAINAGE FLOWS ARE TYPICALLY ___[PROJECT SPECIFIC, I.E. FROM SOUTH TO NORTH TOWARDS THE ST JOHNS RIVER]___. THE CROSS SECTION SHEETS AND PLAN-PROFILE SHEETS PROVIDE THE APPROXIMATE SLOPE, AREAS OF SOIL DISTURBANCE AND AREAS TO BE STABILIZED. UNLESS OTHERWISE APPROVED BY THE PERMITS, THE CONSTRUCTION ACTIVITIES SHALL NOT MODIFY OR AFFECT THE EXISTING OFFSITE FLOW PATTERNS.

(1.F.2.) THE PROPOSED SEDIMENT BASINS, CONTAINMENT SYSTEMS AND/OR STORMWATER MANAGEMENT FACILITIES SHALL BE CONSTRUCTED DURING THE INITIAL PHASE OF CONSTRUCTION AND USED DURING CONSTRUCTION OF THE ROADWAY. THE OUTFALL STRUCTURES ARE TO BE PROTECTED WHEN TEMPORARY SEDIMENT BASINS, CONTAINMENT SYSTEMS OR PERMANENT STORMWATER MANAGEMENT FACILITIES ARE USED FOR EROSION AND SEDIMENT CONTROL TO PREVENT DOWNSTREAM SEDIMENTATION.

2. CONTROLS:

(2.A.) SEDIMENT AND EROSION CONTROLS

(2.A.1.) PER SECTION 5.4 OF THE NPDES CGP, STABILIZATION SHALL TAKE PLACE AS SOON AS PRACTICAL IN PORTIONS OF THE PROJECT WHERE CONSTRUCTION ACTIVITIES HAVE CEASED, BUT NO LATER THAN 7 DAYS AFTER ANY CONSTRUCTION ACTIVITY CEASES EITHER TEMPORARILY OR PERMANENTLY.

(2.A.2) SEDIMENT BARRIERS SHALL BE USED AROUND THE PERIMETER OF STOCKPILE AREAS.

CFX Exhibit 320-1
SWPPP Sheets

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	STORMWATER POLLUTION PREVENTION PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
					SR 000	___-___			

(2.A.3.)STRUCTURAL PRACTICES

IN THE CONTRACTOR'S SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN, DESCRIBE THE PROPOSED STRUCTURAL PRACTICES TO CONTROL OR TRAP SEDIMENT AND OTHERWISE PREVENT THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE. SEDIMENT CONTROLS SHALL BE IN PLACE BEFORE DISTURBING SOIL UPSTREAM OF THE CONTROL. STRUCTURAL PRACTICE EXAMPLES INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING, AS APPROVED BY THE CONSTRUCTION ENGINEERING INSPECTOR (CEI):

TEMPORARY DEVICES:

* SILT FENCE
* STAKED TURBIDITY BARRIERS
* SOIL TRACKING PREVENTION DEVICES AT CONSTRUCTION ENTRANCES/EXITS
* FLOATING TURBIDITY BARRIERS
* INLET PROTECTION SYSTEMS INCLUDING SYNTHETIC BALES AND SANDBAGS
* SEDIMENT BASIN/CONTAINMENT SYSTEMS
* CHEMICAL TREATMENTS SUCH AS POLYACRYLAMIDES AND ALUM

PERMANENT:

* STORMWATER PONDS
* SOD (MAY ALSO BE USED FOR TEMPORARY CONTROLS)
* VELOCITY DISSIPATION DEVICES SUCH AS RIPRAP OR OTHERS

(2.B.) WATER QUALITY MONITORING

(2.B.1.) WATER QUALITY MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE SPECIAL CONDITIONS OF ANY ENVIRONMENTAL PERMIT, OR BY THE CONTRACTOR UPON THE OBSERVATION THAT WATER QUALITY STANDARDS MAY BE VIOLATED BY THE CONTRACTOR'S ACTIVITIES. MONITORING LOCATIONS MAY BE SPECIFIED IN THE ENVIRONMENTAL PERMIT OR MAY BE DESIGNATED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

(2.B.2.)THE ENGINEER WILL BE RESPONSIBLE FOR MONITORING ANY ACTIVITIES FOR VIOLATION OF WATER QUALITY STANDARDS AS THEY RELATE TO TURBIDITY (NO GREATER THAN 29 NEPHELOMETRIC TURBIDITY UNITS (NTUs) ABOVE BACKGROUND OR GREATER THAN 0 NTUs ABOVE BACKGROUND FOR DIRECT DISCHARGES TO OUTSTANDING FLORIDA WATERS (OFWs)).

(2.B.3.)IF WATER QUALITY STANDARDS ARE VIOLATED, CONSTRUCTION SHALL BE STOPPED IMMEDIATELY. THE ENVIROMENTAL PERMIT CONDITIONS FOLLOWED AND EROSION AND SEDIMENT CONTROL DEVICES REEVALUATED AND APPROVED BY THE ENGINEER PRIOR TO ANY CONTINUATION OF ACTIVITY. MONITORING ACTIVITIES AND TURBIDITY READINGS SHALL BE RECORDED ON THE CONSTRUCTION INSPECTION REPORT AND CONTINUED UNTIL TURBIDITY READINGS FALL BELOW AN ACCEPTABLE LEVEL (LESS THAN 29 NTUs ABOVE BACKGROUND OR LESS THAN 0 NTUs ABOVE BACKGROUND FOR DIRECT DISCHARGES TO OFWs).

(2.B.4.)WATER QUALITY MONITORING MAY BE CONDUCTED DURING ANY PHASE OF CONSTRUCTION AS DIRECTED BY THE ENGINEER.

(2.C.) DEWATERING CONTROLS

THE SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN SHALL INCLUDE A DESCRIPTION OF THE BMPs THAT WILL BE USED TO ENSURE THAT DISCHARGES OF NONCONTAMINATED GROUND WATER FROM DEWATERING OPERATIONS DO NOT CAUSE OR CONTRIBUTE TO VIOLATIONS OF STATE WATER QUALITY STANDARDS.

(2.D.) OTHER CONTROLS

(2.D.1.) THE SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN SHALL IDENTIFY CHEMICAL AND FUEL STORAGE AREAS, MEANS OF MINIMIZING EXPOSURE TO STORMWATER, AND SPILL PREVENTION.

(2.D.2.)OFFSITE VEHICLE TRACKING & GENERATION OF DUST

IN THE SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN, DESCRIBE THE PROPOSED METHODS FOR MINIMIZING OFFSITE VEHICLE TRACKING OF SEDIMENTS AND GENERATING DUST. THE PROPOSED METHODS SHALL INCLUDE AT LEAST THE FOLLOWING, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

(2.D.2.a.) LOADED HAUL TRUCKS ARE TO BE COVERED BY A TARPAULIN.

(2.D.2.b.) REMOVING EXCESS DIRT FROM ROADS DAILY.

(2.D.2.c.) USING WATER TRUCKS DURING DUST-GENERATING ACTIVITIES.

(2.D.2.d.) SEDIMENT CONTROL MAY BE ACCOMPLISHED BY USING STREET OR VACUUM SWEEPERS.

3. MAINTENANCE

MAINTAIN AND REPAIR ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVE EROSION AND SEDIMENT CONTROL DEVICES WHEN NOTICE OF TERMINATION IS MAILED. REMOVE AND PROPERLY DISPOSE OF SEDIMENT BUILDUP THROUGH THE LIFE OF THE INSTALLED EROSION AND SEDIMENT CONTROL DEVICES.

(3.A.) NECESSARY REPAIRS SHALL BE INITIATED WITHIN 24 HOURS OF NOTICE FOM THE CEI.

(3.B.) SEDIMENT BARRIERS SHALL BE REPLACED WHEN IT IS NO LONGER EFFECTIVE OR AS DIRECTED BY THE ENGINEER.

(3.C.) STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED TO PREVENT CLOGGING OF ROCK BEDDING WHICH MAY IMPEDE THE USEFULNESS OF THE STRUCTURE.

(3.D.) REMOVE SEDIMENT FROM SEDIMENT BASINS WHEN IT BECOMES MORE THAN HALF THE AVAILABLE VOLUME.

4. INSPECTION, TRACKING, AND REPORTING

INSTALL AND MAINTAIN RAIN GAUGES ON THE PROJECT SITE AND RECORD RAINFALL.

(4.A.) SUBMIT A WEEKLY REPORT TO THE CONSTRUCTION ENGINEERING INSPECTOR DOCUMENTING THE DAILY INSPECTIONS AND MAINTENANCE OR REPAIRS TO THE EROSION AND SEDIMENT CONTROL DEVICES. MAINTAIN ALL REQUIRED REPORTS AND COMPLETE ALL SWPPP INSPECTION FORMS.

(4.B.) PREPARATION OF ALL THE CONTRACTOR'S REPORTS OF INSPECTION, MAINTENANCE AND REPAIRS REQUIRED FOR THE CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION, SHALL BE INCLUDED IN THE INDIVIDUAL COSTS OF THE EROSION AND SEDIMENT CONTROL DEVICES.

5. NON-STORMWATER DISCHARGES

THE SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN SHALL IDENTIFY ALL ANTICIPATED NON-STORMWATER DISCHARGES AND DESCRIBE THE PROPOSED MEASURES TO PREVENT POLLUTION. THE PLAN SHALL INCLUDE PROCEDURES FOR SPILL CONTAINMENT, REPORTING AND RESPONSES. THE PLAN SHALL SPECIFY WHAT MANAGEMENT PRACTICES AND CONTAINMENT METHODS WILL BE USED TO PREVENT POTENTIAL POLLUTANTS (FUEL, LUBRICANTS, HERBICIDES, ETC.) FROM SPILLING ONTO THE SOIL OR INTO THE SURFACE WATERS. IF A SPILL DOES OCCUR OR IF CONTAMINATED SOIL OR GROUNDWATER IS ENCOUNTERED, CONTACT THE CONSTRUCTION ENGINEERING INSPECTOR IMMEDIATELY. IF A RELEASE CONTAINING HAZARDOUS SUBSTANCES OCCURS, THE CONTRACTOR SHALL ADHERE TO SECTION 9.2 OF THE NPDES CGP.

CFX Exhibit 320-2
SWPPP Sheets Cont.

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REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	STORMWATER POLLUTION PREVENTION PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
					SR 000	___-___			

321 - Temporary Traffic Control Plan

321.3 - Required Information

Add the following sentence:

See CFX Exhibits 321-1 and 321-2 for Temporary Traffic Control Standard General Notes.

Add the following paragraph:

When a system-to-system or complicated interchange will be partially open to traffic during construction, the Consultant shall provide a fully developed construction guide signing plan (CGSP) for each phase of construction.

The CGSP shall clearly identify the construction phase in which:

- A proposed structure is required for temporary and/or permanent signing.
- An existing structure is needed for temporary signing.
- An existing structure could be relocated for temporary use (CFX approval required prior to including in plans).
- A temporary ground mount guide sign is to be installed.
- Relevant VMS are to be used and proposed text.

321.4.2 - Level II

Replace note (7) with:

Special Details, as necessary; e.g., temporary drainage, slope requirements due to diversions, temporary signalization, railroad work; intersection details, construction guide sign plan and worksheets, overhead sign structure cross section sheets for different phases

Add the following section:

321.4.3 - Level III

Project Type: Complex projects.

Components of the TTC Plan:

(1) General Notes

(2) Phase Notes (including any references to the applicable ***Standard Plans*** Index)

(3) Phase Typical Section(s)

(4) Detailed Plan Sheets

(5) Cross Sections

(6) Temporary Signalization Plans (if required)

(7) Special Details, as necessary; e.g., temporary drainage, slope requirements due to diversions, temporary signalization, railroad work; intersection details, construction guide sign plan and worksheets, overhead sign structure cross section sheets for different phases

STANDARD TTC GENERAL NOTES

1. ALL TRAFFIC CONTROL PROCEDURES AND DEVICES SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD, 2009 EDITION), THE FDOT STANDARD PLANS (INDEX 102-600-SERIES), AND THE FOLLOWING NOTES AND DETAILS INCLUDED THIS PLAN.
2. DURING OPERATIONS, NO LANE SHALL BE CLOSED FOR MORE THAN 2 MILES. A LANE SHALL NOT BE CLOSED OVERNIGHT EXCEPT AT AN ACTIVE WORK ZONE. IN THE EVENT OF AN ANTICIPATED EXTENDED STOPPAGE OF WORK EXCEEDING 24 HOURS, ELEVATION OF ADJACENT LANES SHALL NOT EXCEED 1-1/2 INCHES.
3. LANE CLOSURES OR OTHER TRAFFIC CONTROL NECESSARY FOR THE PLACEMENT, RELOCATION, OR REMOVAL OF BARRICADES, BARRIER WALL OR OTHER TRAFFIC CONTROL DEVICES SHALL BE EXECUTED IN ACCORDANCE WITH FDOT STANDARD PLANS INDEX 102-600-SERIES.
4. TEMPORARY PAVEMENT SHALL BE AT A MINIMUM, 2" OF TYPE S ASPHALT ON 6" OF LIMEROCK BASE. TYPE SP ASPHALT MAY BE SUBSTITUTED FOR THE TYPE S ASPHALT FOR NO ADDITIONAL COMPENSATION.
5. MAINTAIN ADEQUATE DRAINAGE AND HISTORICAL DRAINAGE PATTERNS TO PREVENT FLOODING OR DRAINAGE TO FLOW TO ROADWAY OR ROADSIDE AREAS EXISTING, UNDER CONSTRUCTION, OR COMPLETED. PROVIDE ANY TEMPORARY DRAINAGE MEASURES AS REQUIRED TO ADEQUATELY DRAIN THE PROJECT AND TEMPORARY TRAVELED ROADWAYS. ANY ADDITIONAL COSTS ASSOCIATED WITH DRAINAGE (TEMPORARY DRAINAGE STRUCTURES AND THE REMOVAL OF THE SAME INCLUDING THE DESILTING OF THE PERMANENT DRAINAGE STRUCTURES TO REMAIN) SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM NO. 102-1 MAINTENANCE OF TRAFFIC.
6. SUBMIT A DRAINAGE CONTROL PLAN PRIOR TO CONSTRUCTION.
7. ALL DRAINAGE INLETS THAT ARE CONSTRUCTED PRIOR TO FINAL SURROUNDING GRADE BEING ACHIEVED WILL REQUIRE TEMPORARY COVERING THAT WILL ALLOW DRAINAGE FLOW AND PROTECT THE INLET DURING TCP PHASES AND SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM NUMBER 102-1.
8. REGULATORY SPEED FOR SR ___ DURING CONSTRUCTION SHALL BE MAINTAINED AT __ MPH UNLESS OTHERWISE NOTED IN THE PLANS.
9. COMPLY WITH NOISE LEVEL RESTRICTIONS STATED IN THE LOCAL NOISE ORDINANCE. METHODS TO MAINTAIN NOISE LEVELS WITHIN ACCEPTABLE LIMITS SHALL INCLUDE BUT NOT BE LIMITED TO TEMPORARY NOISE BARRIERS, ENCLOSURES FOR EQUIPMENT, MUFFLERS, ETC.
10. HEAVY TRAFFIC CONDITIONS, ACCIDENTS, AND ANY UNFORESEEN EMERGENCIES MAY REQUIRE RESTRICTION OR REMOVAL OF ANY LANE CLOSURE. MAKE THE NECESSARY ADJUSTMENTS WITHOUT DELAY AT THE DIRECTION OF THE CFX CONSTRUCTION ENGINEER.
11. A TRAFFIC CONTROL OFFICER IS REQUIRED FOR ALL MAINLINE AND RAMP LANE CLOSURES AND SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM NO. 102-1 MAINTENANCE OF TRAFFIC.
12. REQUEST PERMISSION FOR ANY RAMP OR FULL ROAD CLOSURE AT LEAST 14 DAYS PRIOR TO THE CLOSURE FROM THE CFX CONSTRUCTION ENGINEER OR REPRESENTATIVE. COORDINATE DETOURS WITH ALL ADJACENT CONSTRUCTION PROJECTS INCLUDING PROJECTS AT AJOINING INTERCHANGES.
13. COORDINATE ALL LANE CLOSURES, DIVERSIONS, OR OTHER MAINTENANCE OF TRAFFIC ACTIVITIES WITH CFX TOLL OPERATIONS (TOLLCLOSURES@CFXWAY.COM) AT LEAST 72 HOURS PRIOR TO THE ACTIVITY.
14. SINGLE LANE CLOSURES ARE LIMITED TO THE HOURS OF:
    SR ___: ____ PM TO ____ AM
    RAMP: ____ PM TO ____ AM
    SIDE STREET: ____ PM TO ____ AM
15. MULTI-LANE CLOSURES ARE LIMITED TO THE HOURS OF:
    SR ___: ____ PM TO ____ AM, ____DAY THROUGH ____DAY ONLY
16. TRAFFIC PACING PROCEDURES PER STANDARD PLANS INDEX 102-655 ARE LIMITED TO THE HOURS OF:
    ____ AM TO ____ AM, ____DAY THROUGH ____DAY ONLY
17. MAINLINE ROADWAY CLOSURES WITH OFF-SITE DETOURS ARE LIMITED TO THE HOURS OF:
    ____ AM TO ____ AM, ____DAY THROUGH ____DAY ONLY.
    REFER TO THE DETOUR DETAILS FOR ADDITIONAL INFORMATION.
18. RAMP CLOSURES WITH OFF-SITE DETOURS ARE LIMITED TO THE HOURS OF:
    ____ AM TO ____ AM, ____DAY THROUGH ____DAY ONLY.
    REFER TO THE DETOUR DETAILS FOR ADDITIONAL INFORMATION.

STANDARD TTC GENERAL NOTES

19. WHEN CONSTRUCTION EQUIPMENT IS BEING TRANSPORTED OR DRIVEN ON OPEN TRAVEL LANES, COMPLY WITH THE FDOT STANDARD PLANS INDEX 102-600-SERIES. MAINTAIN CLEAR ZONE REQUIREMENTS FOR EQUIPMENT, MATERIAL STORAGE, AND WORK ZONE PROTECTION AS SPECIFIED IN STANDARD PLANS INDEX 102-600.
20. ALTERNATE TRAFFIC CONTROL PLANS AND/OR CHANGES MADE TO THE TRAFFIC CONTROL PLAN SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA AND BE APPROVED BY CFX AND THE TRAFFIC CONTROL MANAGER PRIOR TO IMPLEMENTATION.
21. A CERTIFIED TRAFFIC CONTROL SUPERVISOR (TCS) SHALL BE ON SITE WHEN CONTRACTOR IS WORKING AND SHALL BE ON CALL FOR EMERGENCIES. PROVIDE THE ENGINEER WITH A 24 HOUR ON-CALL NUMBER.
22. ARROWS (→) SHOWN IN THESE PLANS DENOTE NUMBER OF LANES AND DIRECTION OF TRAFFIC ONLY AND DO NOT INDICATE PAVEMENT MARKINGS.
23. ACCELERATION/DECELERATION OF CONSTRUCTION VEHICLES WITHIN AN ACTIVE TRAVEL LANE IS PROHIBITED DURING ALL PHASES OF TRAFFIC CONTROL. MAKE PROVISIONS FOR CONSTRUCTION INGRESS/EGRESS, INCLUDING MATERIALS DELIVERY.
24. TRAFFIC SHALL NOT BE MAINTAINED ON A MILLED/GROOVED SURFACE. DURING MILLING AND RESURFACING OPERATIONS, ALL MILLED LANES SHALL BE RESURFACED AND BROUGHT TO WITHIN 1-1/2" OF THE ADJACENT TRAVEL LANE IN ACCORDANCE WITH STANDARD PLANS INDEX 102-600.
25. MILLING, RESURFACING, AND OVERBUILD OPERATIONS ARE TO BE PHASED SUCH THAT ALL DROP-OFFS COMPLY WITH STANDARD PLANS INDEX 102-600. ANY TRAVEL LANE TREATMENTS OR ADDITIONAL TEMPORARY PAVEMENT NECESSARY TO REMOVE DROP-OFF HAZARDS SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM NO. 102-1.
26. EXISTING GORE STRIPING WHICH IS TO BE REMOVED AND RE-STRIPED AS PART OF THE TRAFFIC CONTROL PLANS SHALL BE MILLED AND RESURFACED PRIOR TO PLACING THE TEMPORARY MARKINGS. WATER BLASTING, AS A MEANS OF MARKING REMOVAL, WILL NOT BE PERMITTED WITHIN THE GORE AREAS.
27. ALL TEMPORARY BARRIER WALL TRANSITIONS SHALL COMPLY WITH STANDARD PLANS INDEX 102-100; IMPACT ATTENUATORS SHALL BE INSTALLED PER STANDARD PLANS INDEX 102-100 AND AS SHOWN IN THE PLANS.
28. MAINTAIN EXISTING ROADWAY LIGHTING LEVELS DURING ALL PHASES OF TRAFFIC CONTROL.
29. MAINTAIN EXISTING WARNING AND REGULATORY SIGNAGE DURING ALL PHASES OF TRAFFIC CONTROL AS APPLICABLE.
30. REMOVE ALL UNUSED TRAFFIC CONTROL DEVICES AND WORK ZONE SIGNS UPON COMPLETION OF THEIR USE. POST-MOUNTED SIGNS MAY BE COVERED OR TURNED TO FACE AWAY FROM TRAFFIC.
31. UNLESS OTHERWISE DIRECTED BY CFX, ALL CHANNELIZING DEVICES USED SHALL BE DRUMS.
32. WITH THE EXCEPTION OF FRICTION COURSE AND FINAL PAVEMENT MARKINGS, PROPOSED WORK IN ANY PHASE MAY BE CONSTRUCTED CONCURRENTLY PROVIDED THE WORK DOES NOT AFFECT THE TRAFFIC PATTERNS SHOWN IN APPLICABLE TTC PHASE.
33. FRICTION COURSE AND FINAL MARKINGS ARE TO BE PLACED DURING PHASE ____ AS NOTED ON THE APPLICABLE TTC PLAN SHEETS.
34. OBTAIN PERMITS FROM THE LOCAL MAINTAINING AGENCY PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN THE LOCAL MAINTAINING AGENCY'S ROAD RIGHT-OF-WAY.

CFX Exhibit 321-1
TTC General Notes

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	STANDARD NOTES FOR TTC PLANS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
					SR 000	___-___			

PROJECT SPECIFIC TTC GENERAL NOTES

1. SECTION ENGINEER TO DETERMINE ADDITIONAL NOTES AS REQUIRED

NOTES TO DESIGNERS:

STANDARD NOTES AS SHOWN ARE APPLICABLE TO THE MAJORITY OF PROJECTS ALONG THE CFX SYSTEM

WHERE A GENERAL OR PAY ITEM NOTE DOES NOT APPLY, IT SHALL BE REVISED TO "NOT USED" SUCH THAT THE NUMBERING OF STANDARD NOTES DOES NOT CHANGE

ADDITIONAL NOTES MAY BE ADDED UNDER "PROJECT SPECIFIC TTC GENERAL NOTES" AS DETERMINED BY THE SECTION ENGINEER

DELETE THIS BOX AND ALL "NOTES TO DESIGNERS" PRIOR TO SUBMITTAL OF PLANS FOR REVIEW

TTC PAY ITEM NOTES

1. PAYMENT FOR TRAFFIC CONTROL WILL BE PER PAY ITEM NO. 102-1, MAINTENANCE OF TRAFFIC (LUMP SUM.)
2. THE FOLLOWING LIST IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND IS NOT INTENDED TO BE THE SOLE BASIS OF THE CONTRACTOR'S BID. THE FOLLOWING ITEMS ARE CONSIDERED INCIDENTAL TO PAY ITEM NO. 102-1:
   a. ALL LANE CLOSURES ALONG SR ___ ARE TO UTILIZE THE MOTORIST AWARENESS SYSTEM (M.A.S.) PER STANDARD PLANS INDEX 102-613.
   b. ALL TEMPORARY PAVEMENT AND ALL CLEARING, GRUBBING, AND EARTHWORK NECESSARY FOR PLACEMENT OF TEMPORARY PAVEMENT.
      PHASE __: ____ SY TEMPORARY PAVEMENT
      PHASE __: ____ SY TEMPORARY PAVEMENT
      PHASE __: ____ SY TEMPORARY PAVEMENT
      PHASE __: ____ SY TEMPORARY PAVEMENT
   c. CROSS STREET AND SIDE STREET TEMPORARY TRAFFIC CONTROL FOR INCIDENTAL CONSTRUCTION NOT SHOWN ON THE TTC PLANS.
   d. MAINTENANCE OF GUIDE SIGNING IN ACCORDANCE WITH TTC PLANS.
   e. ALL SIGNAGE AND TRAFFIC CONTROL DEVICES FOR ROAD CLOSURES AND DETOURS.
   f. MAINTENANCE OF EXISTING ROADWAY LIGHTING AND/OR TEMPORARY LIGHTING IS REQUIRED AS NECESSARY TO MAINTAIN EXISTING ROADWAY LIGHTING LEVELS UNTIL THE PROPOSED ROADWAY LIGHTING IS IN PLACE AND OPERATIONAL.
   g. TRAFFIC CONTROL OFFICERS ARE REQUIRED FOR ALL LANE CLOSURES ALONG SR ___ PER CFX SPECIFICATIONS.
   h. TRAFFIC CONTROL OFFICERS ARE REQUIRED FOR ALL RAMP CLOSURES AT THE INTERCHANGES.
   i. ALL TEMPORARY DRAINAGE INCLUDING ANY TEMPORARY PIPES, STRUCTURES, TEMPORARY SWALES OR DITCHES, PARTIAL CONSTRUCTION OF PERMANENT STRUCTURES, ETC.
   j. REMOVAL OF TEMPORARY ATTENUATORS AS SOON AS POSSIBLE WHEN THEY ARE NO LONGER REQUIRED BY THE PLANS. ONLY THE QUANTITY OF TEMPORARY ATTENUATORS SHOWN IN THE PLANS WILL BE PAID FOR BOTH THEIR INSTALLATION AND ANY REPAIRS AS NECESSARY.
   k. ALL FHP TROOPERS AND PCMS BOARDS REQUIRED FOR TRAFFIC PACING PROCEDURES PER STANDARD PLANS INDEX 102-655 DURING OVERHEAD SIGN REMOVALS AND INSTALLATIONS.
   l. ALL COORDINATION AND/OR PERMITS REQUIRED FOR WORK WITHIN THE MAINTAINING AGENCY'S RIGHT-OF-WAY.
   m. MAINTENANCE OF ALL EXISTING LA R/W FENCING DURING CONSTRUCTION ACTIVITIES. IF EXISTING FENCING IS IN CONFLICT WITH CONSTRUCTION ACTIVITIES, PROVIDE TEMPORARY FENCING AT A LOCATION DESIGNATED BY THE ENGINEER AND CFX. RESTORE THE EXISTING LA R/W FENCE IN LOCATIONS WHICH ARE TO REMAIN THAT WERE REMOVED OR RELOCATED TO ACCOMMODATE CONSTRUCTION ACTIVITIES.
   n. MAINTAINING EXISTING WARNING, REGULATORY, AND EXIT (E5-1A) SIGNS AT ALL TIMES UNLESS OTHERWISE SHOWN IN THE PLANS. COVER, RELOCATE OR REMOVE CONFLICTING OR MISLEADING SIGNS DURING THE APPLICABLE TCP PHASES UNLESS OTHERWISE SHOWN IN THE PLANS.
   o. EXTENSIVE COORDINATION WITH CFX, THE ENGINEER, AND THE TOLL EQUIPMENT CONTRACTOR REQUIRED DURING THE INSTALLATION, MODIFICATION, REMOVAL, PARTIAL DEMOLITION, AND/OR CONSTRUCTION OF TOLL FACILITIES AND EQUIPMENT.
   p. TEMPORARY MARKINGS ON CONCRETE PAVEMENT (BRIDGE DECKS AND TOLL PLAZAS) SHALL BE 3M BRAND SCOTCH-LANE REMOVABLE TAPE SERIES 710, 711, AND 715 OR CFX APPROVED EQUAL.

CFX Exhibit 321-2
TTC General Notes Cont.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

$FILE$ $TIME$ $DATE$ $USER$

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP	PROJECT NAME (1 to 3 LINES)		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	STANDARD NOTES FOR TTC PLANS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			
					SR 000	___-___			

322 - Utility Adjustments

322.2 - Required Information

Replace the first and second sentences of the fourth paragraph with the following:

Place the following notes in the General Notes (see CFX Exhibit 311-1):

325 - Signing and Pavement Marking Plans

325.1 - General

Delete the last sentence and replace with the following:

Comply with the requirements in the CFX Design Guidelines Section 230 in the selection of permanent pavement marking materials to be used.

325.1.1- Signs Mounted on Signal Installations

Add the following paragraph

When Signalization Plans are not included in the project and signal-mounted signing modifications are proposed see the CFX Signal Details for direction.

325.4 – Tabulation of Quantities and Pay Item Notes

Prepare the Tabulation of Quantities sheet using the standard plan format showing quantities, standard sign numbers, pay item numbers (except for pavement markings pay items) and size of sign for all pay items. The sign size and standard sign number is not required if shown in the plan sheets. List pay items in numerical order and tabulate quantities per sheet or by station. When the number of pay item columns exceed one page, the additional sheet is to be labeled using an alphabetic suffix; e.g., S-3 and S-3A, S-4 and S-4A. Provisions must be made to show the original and final quantities.

On contracts with multiple Financial Project ID numbers, or Federal Aid and non-Federal Aid quantities, provisions must be made to tabulate and summarize their respective quantities.

Pay item numbers and quantities for painted pavement markings shall not be shown.

When there is not a roadway component, see ***CFX Design Guidelines 307.1*** for placing Summary of Quantities sheets in the Signing and Pavement Marking plan set.

Add the following section:

325.4.1 – Pay Item Numbers

The pay item number for the Option Lane Directional Arrow shall be counted as two arrows, Option Lane Arrow and Directional Lane Arrow.

0700-001-0AB: Single post signs mounted to either bridge railing or outside barrier walls, use A=2 or 3 (dependent on location). Revise description to read “Barrier Wall Mount- Special Design” or “Bridge Mount- Special Design”

0700-003-ABB: Supplemental Panels attached to a main panel shall be coded using the appropriate non-lighted range and associated number for BB and add the special design sign number to the description.

0700-003-ABB: Crossroad street name signs and CFX Logo 2 that are mounted to overpassing bridges that do not require steel support structures shall use A=2, BB= applicable SF range, and revise the description to read Sign Panel (F&I) (Bridge) (Flush Mount).

0700-004-ABC: Use the correct linear feet range, disregard “span only” and add the unique structure number to the description.

0705-011-1AA shall be used for surface mounted roadside delineators and the description shall read Surface Mounted Delineator (Flat Flexible) (Flexstake).

0705-11B-000 (LF): 3M Linear Delineation System description shall read 3M Linear Delineation System (Barrier Wall) or (Guardrail).

0713-1AA-BCD Preformed Tape: See CFX Signing and Marking Details for pay item descriptions.

325.5 - General Notes Sheet

Add the following paragraphs:

See CFX Signing and Marking Details for Signing and Pavement Marking Standard General Notes.

All notes shall be shown in the project plan set. For notes not applicable to the project, the Consultant shall revise the note to read “Not Used”. For notes needing modification, the Consultant shall modify the note to meet project specific requirements. The consultant shall add project specific notes as needed.

325.6.1 – Required Information

Add the following:

(10) Walls shall be shown and labeled per type, i.e. sound wall, barrier wall, MSE wall, etc.

(11) Plans sheets shall have a key map if the project contains an interchange with an intersecting roadway, a system to system interchange, or an interchange with loop/

partial loop ramps.

(12) Mainline and ramp toll plaza stations and begin/end of concrete deck plaza.

(13) The centerline of each toll plaza with stations.

(14) CFX Fiber Optic Network

(15) Special design sign panels shall be assigned a unique sign number.

(16) Radii labels for all dotted lines used as turning guidelines.

(17) Station ties at the following locations:

- Each point where a lane line is changed from one striping pattern or material to another
- All lane and edge line begin and end taper points.
- All stop bars
- All crosswalks
- Merge arrow and pavement message sets

(18) Spacing for 18" white and yellow diagonal striping and painted gore areas

325.7 - Guide Sign Worksheet

Add the following paragraphs.

All dimensions shall be shown to the nearest tenth of an inch. Word lengths shall be shown as the total for each word. The individual space between each whole element in a line of copy shall be shown. Guide Sign Worksheet sheet number shall be referenced on the plan sheets for the respective sign panel.

Guide sign worksheets shall show the maximum number of panels possible. The following note shall appear on each sheet: “Width - horizontal spacing dimensions are in inches. End dimensions include border width and margin.”

325.8 - Multi-Post Sign Supports

Add the following paragraphs:

Multi-post support calculations shall be signed and sealed by a Professional Engineer licensed in the state of Florida.

A single unique structure number shall be assigned to each multi-post sign assembly. Use the format GM-XX.

325.9 - Overhead Sign Cross Sections and Support Structure

Add the following paragraphs:
Cross sections are required when existing sign structures have proposed panels that are lane specific or when relocating existing lane specific signs along the truss.

The Consultant shall identify on the sign structure cross section what panel sizes the structure must ultimately accommodate, as well as the panels required at interim installations.

Overhead sign support calculations shall be signed and sealed by a Professional Engineer licensed in the state of Florida.

A single unique structure number shall be assigned to each overhead assembly. Use the following format:

- OT-XX for overhead truss (half or full span).
- OC-XX for overhead cantilever.
- BM-XX for bridge mount

When panels are lane specific and the location of individual lanes cannot be clearly identified, lane line locations shall be shown.

326 - Lighting Plans

326.2 - Key Sheet

Delete the order of lighting plan sheets and replace with:

(1) Key Sheet

(2) Signature Sheet (If required)

(3) Tabulation of Quantities

(4) General and Pay Item Notes

(5) Legend

(6) Pole Data (Roadway Lighting)

(7) Luminaire Data (Sign and Underdeck Lighting)

(8) Project Layout

(9) Lighting Plan

(10) Underdeck Lighting Plan

(11) Maintenance Lighting (If required)

(12) Underdeck Lighting Mounting Details

(13) Remote LED Driver Cabinet Details

(14) Sign Lighting Details

(15) Service Point Details

(16) Panelboard Schedules

(17) Arc Flash Warning Label and Notes

Note: Refer to current CFX lighting details for additional information.

326.4 – Tabulation of Quantities and Standard Notes

Delete FDM 326.4 and replace with:

The Tabulation of Quantities sheet lists the item numbers, description and quantity of materials.

List pay items in numerical order. Provisions must be made to show the original and final quantities per sheet or by station. When the number of pay item columns exceed one page, the additional sheet is to be numbered using an alphabetic suffix; e.g., L-3 and L-3A, L-4 and L-4A.

When there is not a roadway component, see ***FDM 307.1*** for placing Summary of Quantities sheets in the Lighting plan set.

Place pay item notes and standard notes that refer to item numbers on this sheet.

See current CFX lighting details for standard lighting notes.

326.5 - General Notes Sheet

*Revise the title of the section to **General and Pay Item Notes Sheet** and replace with the following:*

Refer to current CFX lighting details for additional information related to general notes, pay item notes, and maintenance related pay items, notes, and quantity percentages used for new and retrofitting lighting projects.

For notes not applicable to the project, the Consultant shall revise the note to read “Not Used”. For notes needing modification, the Consultant shall modify the note to meet project specific requirements. The consultant shall add project specific notes as needed.

326.6 - Lighting Data Table and Legend Sheet

Add the following paragraph:

Refer to current CFX lighting details for additional information related to preparation of pole data, sign luminaire data, and underdeck luminaire data tables; and legend sheet.

326.7.1 - Required Information

Delete reference to high mast poles in sub-note (6).

Delete sub-notes (7)(a) through (7)(c) and replace with:

(a) Service Point Location

(b) Power Service-Entrance Location stationing and Offset

(c) Voltage and Phases (e.g. 240/480 Volt, Single Phase)

Add the following paragraph:

Refer to current CFX lighting standards as relate to service point details for additional information.

326.8 - Foundation Details Sheet

Delete the second sentence of the first paragraph.

Delete the first bullet of the second paragraph.

326.9 – Boring Data Sheet

Delete the sentence and replace with the following:

Boring Data sheets provide the boring data for non-standard foundation details.

327 - Signalization Plans

327.2 - Key Sheet

Add the following items to the signalization plans assembly list:

(9) Internally Illuminated Street Name Signs Detail(s) (if required)

(10) Electrical Power Service Detail (if required)

327.5 - General Notes Sheet

Add the following after last paragraph:

Coordinate with the maintaining agency of the traffic signal and include the appropriate notes that comply with maintaining agency requirements. Review the agency notes with CFX to verify there is no contradictions.

For notes not applicable to the project, the Consultant shall revise the note to read “Not Used”. For notes needing modification, the Consultant shall modify the note to meet project specific requirements. The consultant shall add project specific notes as needed.

327.6.1 - Required Information

Replace item (7) in the list of signalization plan sheet requirements:

(7) Electrical service location and proposed electrical service routing.

328 - Intelligent Transportation Systems Plans

Add the following paragraph:

The CFX ITS Design Details establishes guidelines for the preparation of ITS Plans that can be found on the CFX website.

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Appendix A - CFX File Directory Structure

2022 Design Guidelines

CFX Document File Naming

Plans Component PDF Files

ProjectNumber-PLANS-XX-COMPONENT-*Submittal*.pdf

XXX-XXXA-

PLANS-01-ROADWAY

PLANS-02-SIGNINGMARKING

PLANS-03-SIGNALIZATION

PLANS-04-ITS

PLANS-05-LIGHTING

PLANS-06-LANDSCAPE

PLANS-07-ARCHITECHTURAL

PLANS-08-STRUCTURES

PLANS-09-TOLLFACILITIES

PLANS-10-UTILITYWORK

-*Submittal*

30, 60, 90, 100, PREBID, BID, AFC, REV#

EXAMPLE: *100% Submittal of Signing and Pavement Markings Plans for Contract 417-134:*

417-134-PLANS-02-SIGNINGMARKING-100.pdf

Technical Reports and Memos PDF Files

ProjectNumber-REPORT_NAME-*Submittal-Date*.pdf

PrelimDesignReport

RoadwayDesignNotebook

CrossSlopeEvaluation

BridgeConceptMemo

PavementDesignReport

BridgeHydraulicsReport

DrainageReport

StructuralDesignCalcs

MiscStructureDesignCalcs

BridgeLoadRatingMemo

RoadwayGeotechReport

StructuresGeotechReport

SignStructuresGeotechReport

LightingDesignAnalysis

TrafficAnalysisReport

NoiseStudyReport

-*Submittal (*DRAFT or FINAL)

-*Date* (mo.da.yr)

EXAMPLE: *Final Submittal of Preliminary Design Report for Contract 417-134:*

417-134-PrelimDesignReport-FINAL-08.22.18.pdf

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Appendix B - CFX Document Naming

2022 Design Guidelines

CFX File Directory Structure

ProjectNumber

1_Administration

2_CADD

3_Submittals

4_Bidding

5_Construction

6_Permanent_Records

CFX File Directory Structure (Expanded)

ProjectNumber

- 1_Administration
  - 1.1_Board_Memos
  - 1.2_Contract
    - 1.2.1_Consultant_Contract
    - 1.2.2_Supplemental_Agreements
    - 1.2.3_Scope_of_Services
    - 1.2.4_Project_Schedule
    - 1.2.5_Invoices
  - 1.3_Coordination
    - 1.3.1_Correspondence
    - 1.3.2_Progress_Meetings
    - 1.3.3_Meetings
      - /Agenda
      - /Meeting_Minutes
    - 1.3.4_InterAgency_Coordination
    - 1.3.5_Stakeholder_Coordination
    - 1.3.6_Utility_Coordination
    - 1.3.7_Design
  - 1.4_Existing_Data
    - 1.4.1_Traffic_Data
    - 1.4.2_Crash_Data
    - 1.4.3_ESAL
    - 1.4.4_Lane_Closure
    - 1.5.5_Bridge_Inspection

1.4_Permits

1.5.X_(Permit_Agency)

2_CADD

(FDOT File Structure and Naming Convention)

3_Submittals

3.1_Concepts

3.1.1_Preliminary_Design_Report

3.1.2_Concept_Exhibits

3.1.3_Supporting_Documentation

3.2_30%

3.2.1_Plans

3.2.2_Reports

3.2.3_QC

3.2.4_Review_Comments

3.3_60%

3.3.1_Plans

3.3.2_Reports

3.3.3_QC

3.3.4_Review_Comments

3.4_90%

3.4.1_Plans

3.4.2_Reports

3.4.3_QC

3.4.4_Review_Comments

3.4.5_CADD

- 3.5_100%
  - 3.5.1_Plans
  - 3.5.2_Reports
  - 3.5.3_QC
  - 3.5.4_Review_Comments
  - 3.5.5_CADD
- 3.6_Pre-Bid
  - 3.6.1_Plans
  - 3.6.2_Reports
  - 3.6.3_QC
  - 3.6.4_Review_Comments
  - 3.6.5_CADD
- 3.7_Bid
  - 3.7.1_Plans
  - 3.7.2_Reports
  - 3.7.3_QC
  - 3.7.4_Review_Comments
  - 3.7.5_CADD

4_Bidding

- 4.1_Special_Provisions
- 4.2_Technical_Specifications
- 4.3_Technical_Special_Provisions
- 4.4_Addenda
- 4.5_Bid_Form
- 4.6_Schedule
- 4.7_Permits

- 4.8_Utility_Work_Schedules
- 4.9_Bid_Review

5_Construction

- 5.1_AFC
- 5.2_Revisions
- 5.3_RFIs
- 5.4_Shop_Drawings
- 5.5_Correspondence

6_Permanent_Records

- 6.1_AFC_Revisions
- 6.2_As-Builts
- 6.3_Record_Drawings
- 6.4_Final_Reports_Memos
- 6.5_Final_Permits
  - 6.5.1_Environmental
  - 6.5.2_Utilities
- 6.6_Agreements
- 6.7_Final_CADD

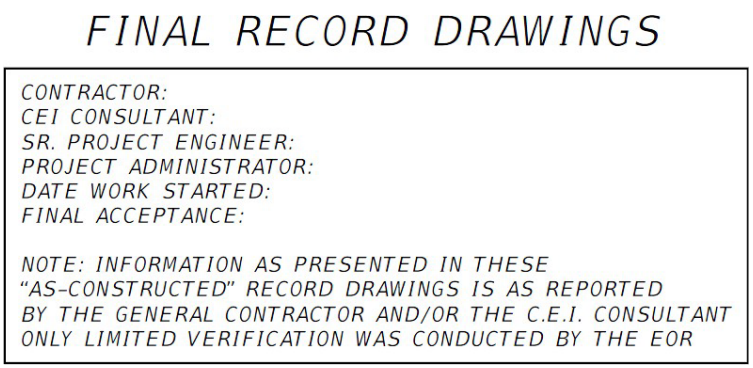
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Appendix C - Record Drawings Guidelines

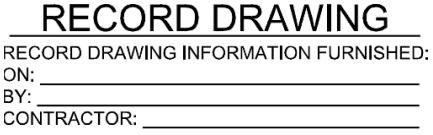
2022 Design Guidelines

Central Florida Expressway Authority
Record Drawings Guidelines

1. Plan Sheet Preparation
    a. The project CEI will prepare and send the Final As-Built PDF's to the CFX PM.
    b. The CFX PM will send the As-Built plans to the EOR.
    c. The EOR shall make all plan updates in the CAD files as listed below:
        i. Remove ALL revision clouds
        ii. Remove revision triangles
        iii. Leave revision dates and descriptions on the key sheet
        iv. Leave revision dates and descriptions in the revision block at the bottom left corner of the plan sheets
        v. Incorporate all as-built conditions into the plans:
            1. Redline hand markups
            2. Redline pdf markups
            3. Fill in final quantities
    d. Stamp all sheets with PDF software (i.e.: Adobe Acrobat or Bluebeam Revu) as described below:
        i. The key sheet stamp shall include the following information:



        ii. All sheets (including the key sheet shall contain the following information



        iii. Lock all stamps once placement is complete

2. Submittal to CFX:
    a. One electronic copy via e-mail or SharePoint:
        i. Include ALL record drawing CADD files
        ii. Include ALL Record Drawings PDF's. Each component set of the drawings (roadway, structures, S/PM, signalization, etc.) shall be its own Record Drawing.
    b. One hard copy:
        i. Printed on 11" x 17" paper
        ii. Laminated card stock key sheet front cover and blank back cover
        iii. 3-hole punched and bound with screw posts