



2024 FDOT Design Manual
900 Series: NexGen Plans Production

900 Production of NexGen Plans

900.1 General

The requirements provided in the **FDM 900 series** and the **FDOT [CADD Manual](#)** form the basis for format and assembly of the Contract Plans Set.

The **FDM 900 series** reflects adopted practices, processes, and procedures for plans production and delivery using Bentley's OpenRoads Designer (ORD) Edition or Autodesk Civil3D.

The **FDM 900 series** also provides instruction when Building Information Model (BIM) files are provided. BIM files are required for:

- All related surfaces for earthwork operations and used to determine earthwork quantities.
- All related surfaces for automated machine guidance (AMG) milling and pavement operations are anticipated.
- When appropriate, other files where the Level of Development (LOD) is considered construction ready (LOD 300 and higher).

The **FDM 900 series** is divided into three sections:

- (1) Plans Production – This section provides general plans production information, and requirements for documents that are not delivered within a Contract Plans Set.
- (2) Roadway Plans Set – This section provides specific information concerning the content of each required sheet delivered within the Roadway Plans Set.
- (3) Component Plans Set – This section provides supplemental information concerning the content of a Component Plans Set.

Placing the Consultant's business logo on any plan sheet contained in the Contract Plans is prohibited.

900.1.1 Exhibits

Many chapters contain "generic" exhibits that provide examples of the plan sheets covered by that chapter. These exhibits were developed using criteria and standards in force at the time of their creation. These exhibits are not to be used as a source for criteria unless specified as such within the **FDM** chapter.

900.1.2 Symbols and Abbreviations

Standard symbols for Roadway Design are shown in the CADD Symbol Cell Library.

Abbreviations may be used to save space. A list of standard abbreviations is contained in the [Standard Plans](#). Minor deviations from these standard abbreviations are allowed, provided that the abbreviation used is clear and easily understood.

900.1.3 Photography

Plan sheets may use photography (aerial or other) when appropriate (e.g., for Drainage Maps, supplemental site maps, bridge repair plans).

900.2 Labeling and Dimensioning Requirements

Orient horizontal and diagonal text to read left to right. Orient vertical text to read bottom to top.

Display information and data in accordance with the following:

- **Typical Section Elements** (e.g., lane widths, shoulder widths) - in feet, typically as a whole number.
- **Cross Slopes** (e.g., pavement, shoulder surfaces, sidewalks, bridge decks) - as a decimal part of a foot vertical per foot horizontal. These cross slopes are typically rounded to two decimal places (i.e., 0.02, 0.06) but may be shown to three decimal places when required.
- **Horizontal Control Points** (e.g., survey centerline, baseline, intersections, and alignment) - in feet to 2 decimal places.
- **Vertical Control Points** (e.g., PVC, PVI, PVT) - in feet to 2 decimal places.
- **Profile Grade Elevations** - in feet to 2 decimal places.
- **Profile Grade Slope** - in percent to 3 decimal places.
- **Flow Line Elevations** - in feet to 2 decimal places.
- **Drainage Structure Elevations** (e.g., manhole tops, grate elevations) - in feet to 2 decimal places.
- **Ditch Elevations** - in feet to 1 decimal place (to nearest 0.05 when controlled by percent of grade).

- **Box or Three-sided Culvert Spans and Heights** - Show inside dimensions using “span by height” format (10 x 6 means the span is 10 feet and the height is 6 feet). In feet as a whole number for new construction; in feet to 2 decimal places for extensions of existing box culverts.
- **Alignment Bearings, Degree of Curve and Delta Angles** - in degrees, minutes, and seconds, rounded to the nearest second.
- **Slope Ratios** - in vertical to horizontal (V:H) format; e.g., 1:6, 1:4.

900.3 Sheet Borders (Sheet Print Size)

Plan sheet borders are contained in the FDOT CADD Software. There are four allowable sheet border sizes that can be selected: standard-format sheet (11”x17”) or large-format sheet (24”x36”, 36”x48”, or 36”x72”). Each **FDM 900 series** chapter specifies the allowable sheet border that may be used. When multiple sizes are allowed, select the size that will most efficiently display the information. **Table 900.3.1** provides a summary of allowable border sizes for each sheet used in the Contract Plans.

Sheet borders include an information block and revision block.

900.3.1 Project Information Block

The information block is in the lower right corner of the border. Enter the following information into the information box:

- (1) Sheet Number (far right corner) – Number plan sheets in sequential order as shown in the Index of Plans Sheets that is placed on the Key Sheet.
- (2) Sheet Title (immediately left of the sheet number) – This should be the same title that is shown in the Index of Plans Sheets that is placed on the Key Sheet.
- (3) Project Information (immediately left of the sheet title) - This should be the same information that is shown on the Key Sheet.
 - (a) State Road Number – Place the prefix “SR” before the number for clarification. When a county road is shown in the box use the prefix “CR”. The box should remain blank when the facility is neither a state nor county road. If a project Key Sheet lists multiple state roads:
 - Place all State Road Numbers in the box when there is adequate space (without reducing required font size)
 - Place “Districtwide” when there are more roadways than available space allows

- (b) County
- (c) Financial Project ID - On projects which have multiple Financial Project IDs, show only the lead Financial Project ID
- (4) Designer Information (immediately left of the project information) – provide information for the Professional of Record that Signs and Seals the sheet, as discussed in **FDM 130**.

900.3.2 Revision Block

Revision blocks are along the bottom of the sheet for standard (11"x17") sheet borders

The Key Sheet and large-format sheets (24"x36", 36"x48", or 36"x72") require the placement of a revision block cell on the sheet when a revision to that sheet is necessary. Place the revision block cell at the following locations:

- Bottom center on the Key Sheet
- Far right on large format plan sheets, just above the project information block

See **FDM 132** for required information to be placed in the revision block.

Table 900.3.1 Allowable Sheet Border Sizes

FDM	Sheet	11 x 17	24 x36	36 x 48	36 x 72
904	Landscape Opportunity	X	X	X	X
905	Cross Sections	X	X	X	X
906	Bridge Hydraulics Recommendation	X	X		
	Roadway Plans				
910	Key Sheet & Signature Sheet	X			
911	Model Management	X	X	X	X
912	PNC	X	X		
913	Typical Sections	X			
914	General Notes	X			
915	Plan-Profile	X	X	X	X
916	Drainage Structures	X	X	X	X
917	Stormwater Facilities	X	X	X	X
918	Drainage Map	X	X	X	X
919	Lateral Ditch	X	X	X	X
920	Soil Survey	X	X		
	Report of Core Borings	X	X		
921	TTC Plan	X	X	X	X
922	Misc Structures	X			
923	Utility Adj	X	X	X	X
924	Selective C&G	X	X	X	X
940	S&PM Plans				
	S&PM Plan Sheets	X	X	X	X
	Overhead Sign Cross Section Sheets	X	X		
	All other S&PM Sheets	X			
941	Signal Plans				
	Signalization Plan Sheet	X	X	X	X
	Interconnect/Communication Plan Sheet	X	X	X	X
	All other Signal Sheets	X			
942	ITS Plans				
	ITS Plan Sheet	X	X	X	X
	ITS Cross Section Sheet	X	X	X	X
	All other ITS Sheets	X			

Table 900.3.1 Allowable Sheet Border Sizes Con't

FDM	Sheet	11 x 17	24 x36	36 x 48	36 x 72
943	Lighting Plans				
	Lighting Plan Sheets	X	X	X	X
	All other Lighting Sheets	X			
944	Landscape Plans				
	Landscape Plan Sheets	X	X	X	X
	Landscape Detail Sheets	X			
947	Toll Fac Plans				
	All (excluding BHRS)	X			
948	Utility Work by Contractor Plans				
	UWHC Plan-Profile Sheets	X	X		
	UWHC TTC Plan Sheets	X	X		
	All other UWHC Sheets	X			

901 Sequence of Plans Preparation

901.1 General

The set of plans depicting the proposed construction work is known as the "Contract Plans Set" and is comprised of component plans that are associated with a primary work type. The contract plans set should be prepared systematically, undergoing phases of review and updates to ensure technically correct and clear plans. Additional information can be found in **FDM 110, 111, 112, and 120**. These chapters contain a comprehensive discussion of design processes and activities from initial to final engineering.

Component plans are included in the Contract Plans Set in the following order:

- | | |
|--|---|
| (1) Roadway | (7) Architectural |
| (2) Signing and Pavement Marking | (8) Structures |
| (3) Signalization | (9) Toll Facilities |
| (4) Intelligent Transportation Systems (ITS) | (10) Utility Work by Highway Contractor |
| (5) Lighting | |
| (6) Landscape | |

Prepare Toll Facility Plans in accordance with the Florida's Turnpike Enterprise **General Tolling Requirements (GTR)**. Contact the Florida's Turnpike Enterprise Project Manager to request a copy of the GTR.

901.2 Optional Line and Grade Submittal

At the discretion of the district, submit preliminary horizontal and vertical geometry depicting the proposed design at approximately mid-point between Notice to Proceed (NTP) and Phase I Plans. Include horizontal geometry for mainline roadways, ramps, cross streets, and side roads. Provide vertical geometry for mainline roadways and cross streets, and when critical to the project for ramps and side roads as well.

These sheets are typically produced using large format (24"x36", 36"x48", or 36"x72") sheets with a scale of 1" = 50' horizontal and 1" = 5' vertical.

Show base clearance water, seasonal high groundwater, and flood plain elevations in profile view.

Identify potential impacts or constraints (e.g., R/W, utilities, wetlands, existing bridge structures) on plan view.

901.2.1 Requirements

The Line and Grade sheets should address the following objectives:

- (1) Check consistency with the intent and scope of the Project Concept Report
- (2) Evaluate the impacts of changes to the project concept, resulting from the normal design development process as well as those due to changes in scope and the identification of adverse site conditions
- (3) Verify the geometric viability of the project for the desired design speed and traffic volumes.
- (4) Provide a basis for early coordination with other disciplines
- (5) Provide a basis for early identification of design constraints or problems
- (6) Document off-site and pavement drainage constraints, such as flood plain elevations, base clearance, and seasonal high-water table
- (7) Establish design criteria specific to horizontal and vertical geometry
- (8) Identify Design Variations and Design Exceptions associated with horizontal and vertical alignment.

Include supporting calculations and documentation with the Line and Grade Submittal that address the following:

- Design speed
- Lane widths
- Shoulder widths
- Bridge widths
- Base clearance
- Access management
- Aesthetics
- Landscape Opportunity
- Stopping sight distance
- Intersection sight distance
- Horizontal and vertical clearances
- Existing bridge approach slab evaluation
- Auto-turn exhibits for vehicle movements

901.3 Conventional (Design-Bid-Build) Projects

See **FDM 120** for design submittal requirements and guidance in preparing submittals for review by the Department. For bridge submittal requirements see **FDM 121**.

Standard phase submittals are: Phase I, Phase II, Phase III, Phase IV, and PS&E. RRR, operational improvement, and safety improvement projects often omit some of these phase submittals.

Sheets typically required for each phase submittal and required level of completion are noted in **Table 901.3.1**. Levels of completion are indicated as follows:

- (1) Preliminary (P): Basic shapes, geometry, and information to convey the concept.
- (2) Complete but Subject to Change (C): The design, drawings and details are complete. Only reviewer-initiated changes should be expected at this level.
- (3) Final (F): All drawings and designs are complete. No changes are expected at this level. Plans are ready to be signed and sealed by the EOR.

Roadway sheets that support permit applications (e.g., Plan-Profile, Stormwater Facility Plan, Drainage Plan, Mitigation Plan) should be permit ready level of completion for the Phase II Submittal.

Table 901.3.1 Phase Submittals for Conventional Projects

ITEM	PHASE I	PHASE II*	PHASE III	PHASE IV
Roadway Plans Set				
Key Sheet	P	P	C	F
Signature Sheet		P	C	F
Typical Section	P	C	C	F
Model Management	C	C	C	F
Project Control	P	C	C	F
Roadway Plan-Profile	P	P	C	F
Traffic Monitoring Site		P	C	F
Drainage Structures		P	C	F
Stormwater Facility Plan		P	C	F
Drainage Map	P	P	C	F
Roadway Soil Survey		P	C	F
Temporary Traffic Control Plans	P	P	C	F
Utility Adjustments		P	C	F
Selective Clearing and Grubbing		P	C	F
Mitigation Plan	P	P	C	F
Miscellaneous Structures		P	C	F
Component Plans Set				
Signing and Pavement Marking Plans		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
Landscape Maintenance Guide			C	F
Utility Work by Highway Contractor Plans			C	F
Toll Facility Plans				
Site/Civil, Architectural, and Structural	P	P	C	F
Electrical, Mechanical, and Plumbing		P	C	F
Communications and Systems		P	C	F

Status Key: P - Preliminary C - Complete but subject to change F - Final

* Projects with structures plans component must submit the latest set with the 60% roadway submittal.

901.3.1 Phase I Submittal

Develop Phase I Plan sheets to include the following:

KEY SHEET

- All applicable Financial Project IDs
- (Federal Funds) notation, if applicable
- County Name and State Road Number
- Fiscal Year and sheet number
- Consultants name, address, and contract number, if applicable
- Department's Project Manager's Name
- List of Component Plan Sets
- Project Location URL and Work Limits
- Governing Standards and Specifications

TYPICAL SECTIONS

- Proposed typical section(s)
- R/W lines
- Special details and notes
- Traffic data

MODEL MANAGEMENT

- Complete

PROJECT CONTROL

- Benchmarks
- Reference points
- Control points

ROADWAY PLAN-PROFILE

Plan View

- Existing topography
- Existing utilities, and V_{vh} data when available.
- North arrow and scale
- Centerline of construction or baseline of survey
- Equations and exceptions
- Curve data
- Preliminary horizontal geometrics
- Existing R/W lines
- Begin & end stations for the project

- Begin & end bridge stations

Profile View

- Scale
- Appropriate existing utilities
- Preliminary profile grade line
- Equations
- Existing ground line
- Begin & end stations for the project
- Begin & end bridge stations
- Preliminary highwater elevation

DRAINAGE MAP

- Photographic (aerial) base map
- Centerline of construction or baseline of survey and stationing
- North arrow and scale
- Street names and R/W lines
- Begin & end of project stations
- Begin & end of bridges stations
- Drainage areas and flow direction
- Drainage divides and ground elevations
- Highwater information
- Existing structures and pipes with relevant information
- State, Federal, and county highway numbers
- Label existing water bodies (e.g., lakes, rivers)

TEMPORARY TRAFFIC CONTROL PLANS

- Typical section for each phase.
- Description of the phasing sequence and work involved.
- Other worksheets as necessary to convey concept and scope.

MITIGATION PLANS

- Project Specific

LANDSCAPE PLANS

- Conceptual landscape plan

TOLL FACILITY PLANS

- Site/Civil, Architectural, And Structural

901.3.2 Phase II Submittal

Typically, the work to be done during this phase is the following:

- (1) Address Phase I comments.
- (2) Load pay item numbers into Designer Interface for AASHTOWare Project™ Preconstruction and print a PDF of the Summary of Pay Items Report. Notify the Department Project Manager when this is completed via email with the PDF report attached.
- (3) Develop Phase II Plans to include the following:

KEY SHEET

- Index of sheets including Developmental Standard Plans (if appropriate)
- Contract plans and component plans list (lead component only)

SIGNATURE SHEET

- Sections for each Professional of Record with Index of Sheets
- Image of the seals (if appropriate)

TYPICAL SECTIONS

- Complete

MODEL MANAGEMENT

- Complete

PROJECT CONTROL

- Complete

ROADWAY PLAN-PROFILE

Plan View

- | | |
|---|---|
| • Begin & end stations for construction | • Proposed drainage structures with pipes |
| • Curb return numbers, station ties, and elevations | • Proposed R/W lines |
| | • Proposed side drainpipes |

- Preliminary horizontal geometrics and dimensions
- Limits of wetlands

Profile View

- Final profile grades and vertical curve data
- Mainline storm drainpipes
- Special ditch gradients with DPI station and elevation
- Special gutter grades with DPI station and elevation.
- Nonstandard superelevation transition details
- Highwater elevations
- Existing utilities

TRAFFIC MONITORING SITE

- Complete

DRAINAGE STRUCTURES

- Drainage tabular information
- Vertical and horizontal scale
- Special sections at conflict points

Plan View

- Centerline of construction or baseline of construction with stationing
- All elements of roadway template and R/W lines
- Proposed drainage system with structure and pipe labeling
- Underground utilities

Profile View

- Sectional view along pipe runs with structure and pipe labeling
- Existing and proposed surface
- Underground utilities

STORMWATER FACILITY PLAN

- North arrow and scale
- Proposed baseline with stationing with ties to roadway centerline of construction or baseline of survey
- Existing topography, drainage structures, and utilities
- R/W lines
- Soil boring locations
- Fence and gate locations
- Drainage structures with structure and pipe labeling
- Stormwater facility delineation with side slopes, dimensions, and elevations
- Stormwater facility section views
- Outlet structure details and notes
- 100-year flood plain boundaries and elevations, contamination sites, delineated wetlands, and sink holes and depressions

DRAINAGE MAP

- Proposed drainage structures with structure numbers
- Proposed cross drains with pipe sizes and structure numbers
- Flow arrows along proposed ditches
- Retention and detention ponds, pond number and area size
- Bridges and bridge culverts with begin & end stations
- Flood Data Summary (if applicable)

ROADWAY SOIL SURVEY

- Soil data

TEMPORARY TRAFFIC CONTROL PLANS

- General and Phasing notes complete
- TTCP and Detour Plans mostly complete
- R/W and Utilities information

UTILITY ADJUSTMENTS

- All existing utilities highlighted
- Develop conflict matrix

SELECTIVE CLEARING AND GRUBBING

- Existing vegetation to be protected, relocated, or removed
- Project-specific notes and details

MITIGATION PLANS

- Project specific

MISCELLANEOUS STRUCTURES

- Retaining walls (cast in place, proprietary, or temporary) if required

SIGNING AND PAVEMENT MARKING PLANS - PLAN SHEETS

- North arrow and scale
- Basic roadway geometrics
- Begin & end stations and exceptions
- Station equations
- Conflicting utilities, lighting, and drainage
- Pavement markings
- Sign locations
- Applicable pay items

SIGNING AND PAVEMENT MARKING PLANS - SIGN DETAIL SHEETS, GUIDE SIGN WORK SHEETS

- Project specific

SIGNALIZATION PLANS

- North arrow and scale
- Basic roadway geometrics
- Begin & end stations and exceptions
- Station equations
- Conflicting utilities, lighting, and drainage
- Signal pole location
- Type and location of loops
- Type and location of signal heads
- Pedestrian signal
- Location of stop bars
- Location of crosswalks
- Sheet title
- Applicable pay items

SIGNALIZATION PLANS - POLE SCHEDULE

- Pole location, number, and type
- Pole dimensions
- Pay item number and quantity
- Joint-use pole details, if applicable
- Foundation design

SIGNALIZATION PLANS - INTERCONNECT/ COMMUNICATION CABLE PLAN

- Placement of interconnect/communication cable
- Conflicting utilities, lighting, and drainage
- Other project-specific details

ITS PLANS - PLAN SHEETS

- North arrow and scale
- Basic roadway geometrics
- Begin & end stations and exceptions
- Station equations
- Conflicting utilities, lighting, and drainage
- Applicable pay items

ITS PLANS - DETAIL SHEETS

- Project specific

LIGHTING PLANS - POLE DATA AND LEGEND SHEET

- Each pole listed by number with location, arm length, mounting height, and luminaire wattage
- Design value for light intensities and uniformity ratios shown
- Legend and sheet title

LIGHTING PLANS - PLAN SHEETS

- North arrow and scale
- Baseline of construction
- Begin & end stations and equations
- Basic roadway geometrics
- Conflicting utilities, drainage, signal poles, etc.
- Sheet title
- Applicable pay items

- Pole symbols shown at correct station location and approximate offset

LIGHTING PLANS - HIGH MAST

- Project-specific foundation detail sheets
- Project-specific boring data sheets
- Conflicting utilities, drainage, and lighting

LANDSCAPE PLANS

- Complete

TOLL FACILITY PLANS

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

901.3.3 Phase III Submittal

Typically, the remaining work to be done is to:

- (1) Address Phase II comments
- (2) Complete all remaining Plan Sheets
- (3) Complete the development of models to be contained in the BIM.zip file
- (4) Complete the Estimated Quantities Report (see **FDM 902**) and input quantities into Designer Interface for AASHTOWare Project™ Preconstruction. Submit the Estimated Quantities Report with the Phase III Submittal.

Estimate the Work Zone Traffic Control items paid for on a 'per day' basis and include them in the Estimated Quantities Report. The Department's Construction Office will perform a biddability review and will establish construction duration as a part of the Phase III review after receiving the plan set. Include this information in the Phase III review comments transmitted back to the EOR.

Utility Work by Highway Contractor (UWHC) Agreement Plans consisting of a Key Sheet and mainline plan-profile showing proposed utility horizontal and vertical locations are also to be included in the Phase III submittal.

901.3.4 Phase IV Submittal

Typically, the work to be done during this phase is the following:

- (1) Address Phase III review comments
- (2) Update the Work Program Administration (WPA) system (see **FDM 111.2.1**) to reflect the project begin and end project milepost.
- (3) Finalize all plan sheets, including:
 - (a) Place the assigned Construction Contract Number on the Key Sheet
 - (b) Update Work Zone Traffic Control pay items based on established construction duration.
- (4) Finalize the models to be contained in the BIM.zip file
- (5) Finalize the Estimate of Quantities Report and update quantities in Designer Interface for AASHTOWare Project™ Preconstruction. Submit the Estimated Quantities Report with the Phase IV Submittal
- (6) Provide an EOR's construction cost estimate to the Department Project Manager (when requested).

After corrections noted during the Phase IV submittal review are completed and verified, the plans are referred to as Final Plans.

901.3.5 PS&E Submittal

There are two required submittals during the Plans, Specifications, and Estimates (PS&E) phase. Coordinate with the District Final Plans Office for scheduling these required submittals.

The first submittal consists of the Final Plans and BIM.zip, draft Specifications Package and Estimated Quantities Report. See the [Specifications Handbook](#) for information on preparing Specifications Packages and Supplemental Specifications Packages.

A review of the first submittal by the District Final Plans Office often require changes (e.g., pay item numbers and quantities, notes, design details). After changes to the Final Plans, Specifications Package, and Estimated Quantities Report, have been completed and verified, deliver the second submittal consisting of the following:

- (1) Signed and Sealed Plans
- (2) Signed and Sealed Specifications

- (3) Signed and Sealed Estimated Quantities Report
- (4) BIM.zip or CADD.zip file

Provide the Total Roadway Length, Total Bridge Length, and Total Project Length to the Department Project Manager (when requested).

Information on District activities during PS&E Phase is described in **FDM 131**.

Sign and seal As-Built Plans and BIM files in accordance with **FDM 130**.

Information on the delivery of Project Documentation is described in **FDM 111.7**.

901.4 Non-conventional (Design-Build) Projects

The following are required submittals for Design-Build projects:

- (1) Technical Proposal
- (2) 60% Plans for IDR associated with Category 2 structures
- (3) 90% Component Plans
- (4) Final Component Plans
- (5) As-Built Plans

Required level of completion for each phase submittal are noted in **Table 901.4.1**. Levels of completion are Preliminary (P), Complete (C), and Final (F).

Table 901.4.1 Phase Submittals for Non-conventional Projects

Plan Sheet	Technical Proposal	90% Plans	Final Plans
Roadway Plans Set			
Key Sheet		C	F
Signature Sheet		C	F
Typical Section	P	C	F
Model Management		C	F
Project Control	P	C	F
Roadway Plan-Profile	P	C	F
Special Profiles		C	F
Traffic Monitoring Site	P	C	F
Drainage Structures		C	F
Stormwater Facility Plan		C	F
Drainage Map	P	C	F
Roadway Soil Survey		C	F
Temporary Traffic Control Plans	P	C	F
Utility Adjustments		C	F
Selective Clearing and Grubbing		C	F
Mitigation Plan		C	F
Miscellaneous Structures		C	F
Component Plans Set			
Signing and Pavement Marking Plans	P	C	F
Signalization Plans		C	F
Intelligent Transportation System (ITS) Plans		C	F
Lighting Plans		C	F
Landscape Plans		C	F
Utility Work by Highway Contractor Plans		C	F
Toll Facility Plans			
Site/Civil, Architectural, and Structural	P	C	F
Electrical, Mechanical, Plumbing, Communications, and Systems		C	F

Status Key: P - Preliminary C - Complete but subject to change F - Final

901.4.1 Discipline Phase Reviewer Requirements

There are two types of comments that may be provided during the review of submittals:

- **Response Required Comment:** These comments refer to direct violations of contract requirements and must be responded to.
- **FYI Comment:** These comments are informational, and do not require a response. Phase reviews should focus on compliance with contract requirements, however, “for information only” comments may also provide valuable feedback.

Enter comments in the Electronic Review Comments (ERC) system in the boxes labeled “Response Required Comment” or “FYI Comment”. The ERC system will automatically add a statement at the end of each comment indicating “A written response is required.” or “This comment is for information only. A written response is NOT required.”

When providing a Response Required Comment, include the specific contract reference or requirement that is being violated, such as:

- an **AASHTO** provision that is being violated.
- a Governing Regulation (e.g., **FDM**, [Structures Design Guidelines](#)) requirement that is being violated.
- a Technical Proposal commitment that is not being met.
- a Request For Proposal (RFP) requirement that is being omitted or violated.
- an omission in the plans or calculations.
- an inconsistency between the plans and calculations.
- an obvious error in math or basic engineering principles.
- an environmental commitment or permit commitment that is not being met.

The Department may provide mark-ups to support a review comment. The Department may allow the EOR to include supplemental details or revised plan sheets with their written responses, in lieu of resubmitting a component plan set.

901.4.1.1 Example of Response Required Comment

Example Comment: *The vertical curve length does not meet the minimum requirements of **Table 210.10.4** in the **FDM**. A written response is required.*

In this example, a requirement from the **FDM** is being violated. The plans must be corrected to address this situation, and a written response from the Design-Build Firm or Concessionaire is required.

Example Comment: *Calculations are consistent with two-phased post tensioning of the pier cap, but the plans indicate post-tensioning in a single phase. Update plans to be consistent with the calculations so that the cap will not be overstressed in the unloaded condition. A written response is required.*

In this example, the intent of the comment is to alert the Design-Build Firm or Concessionaire of an inconsistency between the calculations and the plans that result in the pier cap being overstressed. The plans must be corrected to address this situation, and a written response from the Design-Build Firm is required.

901.4.1.2 Example of FYI Comment

Example Comment: *The plans as submitted depict a land pier located very close to the shoreline of a major body of water and steel sheet piling are not shown along the water face of the footing. Ensure that the footing can be constructed in the dry per the requirements of the Specifications. This comment is for information only. A written response is NOT required.*

In this example, the intent of the comment is to ensure that the footing concrete is placed in the dry per the [Standard Specifications](#). Regardless of the action the Design-Build Firm or Concessionaire takes in response to the comment, the [Standard Specifications](#) requirements must be met; the reviewer is putting the Design-Build Firm or Concessionaire on notice.

901.4.2 Technical Proposal Submittal

Plan sheets contained in the Technical Proposal Submittal must adhere to the requirements of the **FDM 900 Series**. Large-format sheets (36"x48" or 36"x72") may be used when producing plan sheets when allowed by specific **FDM 900** chapters.

Do not submit CADD files with the Technical Proposal Submittal.

When required by RFP, develop Technical Proposal Submittal plan sheets to include the following:

TYPICAL SECTIONS

- Mainline and crossroad typical sections
- R/W lines
- Traffic data
- Pavement Design

PROJECT CONTROL

- Benchmarks
- Reference Points
- Control Points

ROADWAY PLAN - PROFILE PLAN VIEW

- North arrow and scale
- Baseline of survey, equations
- Curve data (including superelevation)
- Existing topography including utilities
- Preliminary horizontal geometrics and dimensions
- R/W lines (if available)
- Centerline of construction (if different from the baseline of survey)
- Begin and end stations for the project and stations of equations and exceptions
- Existing utilities
- Guide sign locations
- Limits of wetlands

ROADWAY PLAN - PROFILE VIEW

- North arrow and scale
- Appropriate existing utilities
- Preliminary profile grade line
- Existing ground line with elevations at each end of sheet
- Begin and end stations for the project and stations of equations and exceptions

- Final profile grades and vertical curve data
- High water elevations

DRAINAGE MAP

- Drainage divides and flow direction arrows
- High water information as required
- Preliminary horizontal alignment with stationing
- State, Federal, County highway numbers (as appropriate)
- Proposed storm drain trunk line and outfall locations
- Proposed Retention/Detention Pond Location

TRAFFIC MONITORING SITE

- Project Specific

TEMPORARY TRAFFIC CONTROL PLANS

- General and Phasing notes complete
- Preliminary TTCP and Detour Plans
- Typical section for each phase
- R/W and Utilities information

SIGNING AND PAVEMENT MARKING PLANS - SIGN DETAIL SHEETS

- Preliminary layout of multi-column and overhead guide sign worksheets

TOLL FACILITY PLANS

- Project specific
- Site/Civil
- Architectural
- Structural

901.4.3 90% Plans Component Submittal

After all comments associated with the Technical Proposal Submittal have been resolved, the required plan sheets must be completed in accordance with the ***FDM 900 Series***.

Submit CADD files with the completed plans sets for the 90% Plans Component Submittal.

901.4.4 Final Plans Component Submittal

After all comments associated with the 90% Plans Component Submittal have been resolved, the required plan sheets and CADD files must be finalized.

Submit CADD files with the final plans sets for the Final Plans Component Submittal.

901.4.5 Released for Construction Plans

After all comments associated with the Final Plans Submittal have been resolved, the EOR must submit signed and sealed plan sets and BIM files for Department approval. The Department's Project Manager will initial, date, and stamp each submittal as "Released for Construction". Only signed and sealed plans and BIM files that have been stamped "Released for Construction" by the Department's Project Manager are valid.

Submit the BIM.zip file with the Released for Construction plan sets.

Sign and seal Final Plans and BIM files in accordance with **FDM 130**.

901.4.6 As-Built Plans

As-Built requirements are specified in the Design Build RFP. The Final As-Built Plans include all revisions and changes, both design and construction, that indicate precisely how the project was constructed.

Submit the BIM.zip or CADD.zip file with the As-Built plan sets.

Sign and seal As-Built Plans and BIM files in accordance with **FDM 130**.

Provide Project Documentation in accordance with **FDM 111.7**.

901.5 Alternative Intersection and Interchange Submittals

Alternative Intersection and Interchange reviews are generally required for the following configurations:

- Roundabout
- Median U-Turn (MUT)
- Restricted Crossing U-Turn (RCUT)
- Diverging Diamond Interchange (DDI)
- Jug Handle
- Displaced Left Turn

- Continuous Green-T
- Quadrant Roadway

Include Alternative Intersection and Interchange Review Packages with the Phase I Submittal and designate a representative of the State Roadway Design Office as a Lead Reviewer in ERC.

The following items are required for an Alternative Intersection and Interchange Review Package:

- (1) Geometric Layout (PDF and CADD):
 - (a) North Arrow and scale, Survey Baseline, equations
 - (b) Significant topographic features including buildings, driveways, bridges, drainage structures, utilities, bicycle and pedestrian facilities, and transit facilities
 - (c) Preliminary horizontal geometry including pavement edges, curb and gutter, traffic separators, islands, sidewalks, and curb ramps
 - (d) Preliminary pavement markings including edge lines, interior lane lines, extension lines, stop bars, crosswalks, direction arrows, and gore markings
- (2) Design Vehicle Turning Movements (PDF and CADD):
 - (a) Design vehicle swept path diagrams for all through movements, left turn movements, and right turn movements
- (3) Traffic Forecast (PDF)
 - (a) Opening year and design year, a.m. and p.m., peak hour volumes for all movements through the intersection
 - (b) Peak hour factor
 - (c) Percentage of heavy vehicles
 - (d) Volume distribution across lanes for multi-lane entries
- (4) Operational Analysis input and output (PDF)

901.5.1 Roundabouts

The following additional items are required for Roundabout Review Packages:

- (1) Fastest Path Speed Checks in accordance with **NCHRP 672 Section 6.7.1** (PDF and CADD)
- (2) Sight Distance Checks in accordance with **NCHRP 672 Section 6.7.3** (PDF and CADD)

901.5.2 Diverging Diamond Interchanges

The following additional items are required for Diverging Diamond Interchange Review Packages:

- (1) Horizontal alignment data including baseline locations, curve data, stationing, and cardinal points (PC, PT, etc.)
- (2) Vertical alignments
- (3) Cross slopes
- (4) Conceptual Drainage Plan

902 Estimated Quantities Report

Modification for Non-Conventional Projects:

Delete **FDM 902** and replace with the following:

Provide a Summary of Pavement summary box with planned asphalt quantities on a General Notes sheet within the “Released for Construction” plan set. Develop and report quantities in accordance with the [Basis of Estimates Manual](#). Include documentation that supports the asphalt quantities shown in the summary box.

The Estimated Quantities (EQ) Report is required for all projects that begin the design phase starting in January 2021. The EQ Report is also required for projects being produced in OpenRoads Designer that began design prior to January 2021.

902.1 General

The EQ Report is a single PDF file that contains all pay item and quantity information for the project. The EQ Report consists of a signature page and a series of summary tables, and must be developed and delivered according to the guidelines and formats defined by:

- [Basis of Estimates Manual](#)
- [CADD Manual](#), Section 8.4.3
- [Structures Manual](#)
- **FDM 902**

The FDOT Automated Quantities Training Guides provide additional instructional information.

Beginning with the Phase III submittal include the EQ Report with each required phase submittal. Submittals are to include the electronic shape files and other appropriate documentation (e.g., calculations, sketches, or spreadsheets) that support the quantities shown in the report.

For a strung project with two or more FPID numbers, develop an EQ Report for each FPID number.

For a single project with multiple FPID number sequencing, develop a single EQ Report with separate summary tables for each sequencing.

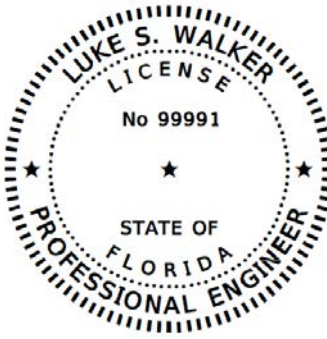
902.2 Signature Page

The signature page is typically an 11"x17" sheet (landscape). Place this page at the front of the EQ Report and include the information shown in **Figure 902.2.1**. Show all FPID numbers on the signature page when a project has multiple funding sources.

The final EQ Report document is digitally signed and sealed only by the Department's lead designer or lead consultant firm Engineer of Record (EOR). The page must show the Digital Signature Appearance of the EOR along with a representation of their Seal.

See **FDM 130** for digital Signing and Sealing requirements.

Figure 902.2.1 Signature Page Information

ESTIMATED QUANTITIES REPORT	
Financial Project ID: 123456-1-52-01	
Contract Number: T0000	
Project Description: SR 22 (Wewa Highway), Bay County	
	This item has been digitally signed and sealed by: Luke S. Walker 2020.10.14 16:52:48 – 4'00' 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. Roadway Engineers, Inc. 123 Main Street Tallahassee, FL 32301 Luke S. Walker, P.E. No. 99991
The estimated quantities contained in this document:	
<ol style="list-style-type: none">1. Were developed in compliance with Florida Department of Transportation procedures, processes, and requirements.2. Contain no known errors or omissions.3. Match the pay item numbers and quantities in Designer Interface for AASHTOWare Project Preconstruction™.	

902.3 Summary Tables

The summary tables to be used to create the EQ Report must be generated using the Quantity Takeoff Manager (QTM). The [CADD Manual](#) provides a list of summary tables that will be generated by the QTM. Do not modify the filename of the spreadsheets or format of the summary tables. Any modification to file name or format creates errors in the generated EQ Report.

Place quantity and location information into the created summary tables for those items that are not auto populated (extracted quantities from the design files). Once the Excel summary tables are fully populated use the Summary Reports Builder tool to create the EQ Report. The created report is done on 11"x17" pages (landscape) and are generally in ascending order of pay item numbers.

Each page of the report will contain only one summary table type. A continuation of a summary table onto subsequent pages may occur.

Place summary tables in the Calculations Folder within the CADD folder structure for delivery with the CADD.zip or Bim.zip file.

See **FDM 132.5** when a revision to the PS&E Package includes changes to the EQ Report. The Estimated Quantities (EQ) Report will not be regenerated during the construction phase. See **FDM 151.2.1** for post let revision requirements.

902.3.1 Designer Notes and Construction Remarks

Designer notes can be added to the summary tables prior to generating the EQ Report. The Designer Notes column is used to provide clarification on how the quantities were derived. Do not use this column to provide direction to the contractor.

Do not place any data or information in the Construction Remarks column.

902.4 EQ Report Requirements

The Department's lead designer or lead firm Engineer of Record (EOR) is responsible for generating the EQ Report and for validating that the pay items and quantities contained in the report are the same as those loaded into Designer Interface for AASHTOWare Project™ Preconstruction.

Title the EQ Report PDF file with the FPID number followed by "-ESTIMATES-QUANTITIES.pdf" (e.g., 12345615201-ESTIMATES-QUANTITIES.pdf).

902.5 Loading Pay Item Information into Designer Interface

For the Phase II submittal the designer is typically responsible for loading only pay item numbers into Designer Interface for AASHTOWare Project™ Preconstruction. When only loading pay item numbers, create a PDF file of the Summary of Pay Item Report generated in AASHTOWare Project™ Webgate Reporting. Notify the Department Project Manager when this is completed via email with the report PDF file attached.

When including preliminary quantities at Phase II (at request of the district), create the EQ Report and include with Phase II submittal. Creating the Summary of Pay Item Report and notifying the Department Project Manager is not required.

For the Phase III submittal, and subsequent submittals, the designer is responsible for entering (or updating) pay items and quantities into Designer Interface.

902.5.1 Designer Interface Quantities Builder

When the summary tables are populated with quantities, the Designer Interface Quantities Builder tool can be used to upload pay item number and quantity information into Designer Interface for Phase III submittal and all subsequent submittals.

Only the Department's lead designer or the lead consultant firm EOR may use the quantity tool to upload pay items and quantities. Each time the export tool is used the existing Designer Interface information is over-written.

904 Landscape Opportunity Plan

904.1 General

This chapter provides the criteria and requirements for development of Landscape Opportunity Plan. These sheets are used for coordination purposes between projects, and between the various disciplines of a project. Do not place the Landscape Opportunity Plan sheets within the Contract Plans Set. Signing and sealing the Landscape Opportunity Plan is not required.

A Landscape Opportunity Plan is prepared when landscape is not part of a roadway construction project, but landscaping will be installed:

- (1) Within a subsequent stand-alone landscape project.
- (2) As part of a simultaneous JPA or LAP project.
- (3) Within a future safety or roundabout project.

A Landscape Opportunity Plan is typically prepared during the roadway concept plan development, but when developed during the design phase should be preliminary by Phase II submittal, complete at Phase III, and final at Phase IV. Coordinate with other disciplines (e.g., Roadway, Utility, Drainage, Signage, ITS, R/W) when developing the Landscape Opportunity Plan.

Submit the completed Landscape Opportunity Plan to the Department Project Manager and District Landscape Architect. Place the completed Landscape Opportunity Plan in Project Suite Enterprise Edition (PSEE) within the Design Development Documentation Module (see **FDM 111.7**).

See **Exhibit 904-1** for an example of a Landscape Opportunity Plan sheet.

904.2 Landscape Opportunity Plan Development

A Landscape Opportunity Plan identifies areas within the upcoming roadway project that should be set-aside or prepared for the future landscape project. Common areas are:

- areas requested by a municipality
- median plantings or other safety enhancements
- high-visibility areas or embankments, or areas adjacent to barriers or sound walls

- scenic highways or areas programmed for Highway Beautification Grants
- areas indicated in the District's Landscape Branding Document

904.3 Landscape Opportunity Plan Sheet

The Landscape Opportunity Plan sheet provides a plan view of the project illustrating the intent of the future landscape project. This sheet is typically produced on large format sheets (24"x36", 36"x48" or 36"x72"). Use landscape orientation regardless of sheet size selected. Use standard symbols contained in the [CADD Manual](#).

The standard horizontal scale is 1" = 100', however an alternate scale may be approved by the Project Manager.

Provide a legend, notes, and details as needed.

904.4 Required Information

Display aerial photography or available topographic surveys as gray scaled in the background. Information from a prior construction project may also be used. Display and label elements that are relevant to the future landscape design, including:

- Proposed improvements and existing elements to remain
- Existing vegetation or areas to remain undisturbed
- Wetland jurisdictional lines
- Drainage retention areas
- Utilities
- Outdoor advertising view zones

The Landscape Opportunity Plan provides requirements for the development of roadway design to support a future landscape design. Locations of landscape opportunity planting areas are typically illustrated in a bubble format which identifies various vegetation groupings in a hatched or colorized manner (e.g., "trees/palms/shrubs", "shrubs only", "buffer plantings").

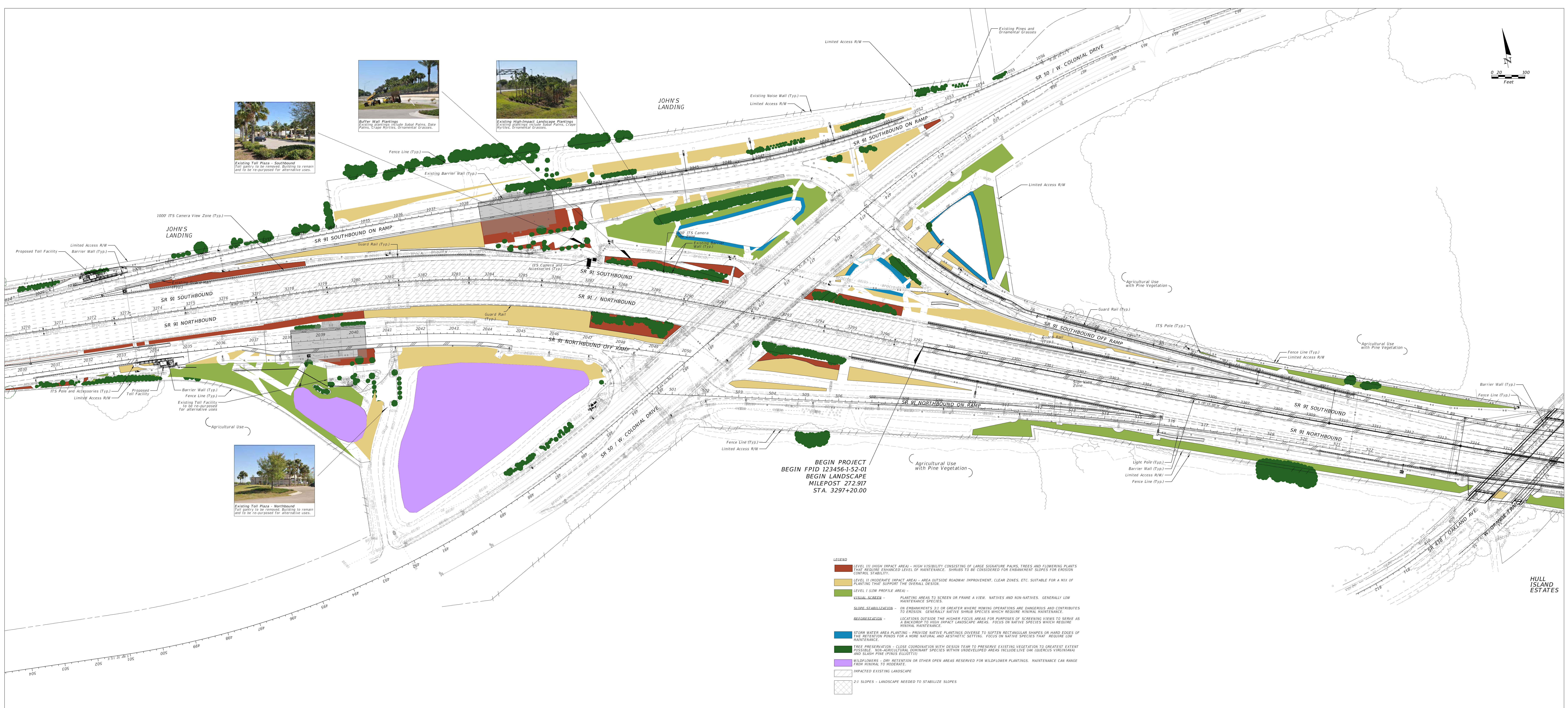
The Landscape Opportunity Plan should also identify or designate the following:

- (1) Essential elements of landscape design intent.

- (2) Anticipated location of irrigation sleeves. See **FDM 271.3** for irrigation sleeve requirements.
- (3) Preservation areas. Preserve existing trees and vegetation, and natural vistas to the greatest extent possible.
- (4) Areas requiring soil amendments. Assure landscape areas will have soil suitable for plants viability.
- (5) Areas to be set aside to accommodate future plantings considering visibility, clear zone and site distance requirements, and maintenance. Provide adequate space (both above and below ground) for plant growth. Delineate areas in bubble format and indicate as high, medium, or low priority, such as:
 - (a) Areas with trees and shrubs for screening distracting views
 - (b) Trees to frame desirable views
 - (c) Trees and ground cover areas for stabilization of embankments
 - (d) Trees to shade sidewalks
 - (e) Shrubs for pedestrian channelization
- (6) Use of Select Clearing and Grubbing to preserve the existing and future landscape planting areas and to relocate trees.
- (7) Display applicable clear zone, horizontal clearance, setback dimensions on the plans which reflect AASHTO, FDOT, and Department guidelines for landscape installation and maintenance operations.
- (8) Indicate potential areas for wildflower plantings.
- (9) Objectionable and desired views.
- (10) Location of Outdoor Advertising sign faces and view zones within project limits; see **FDM 276**.

904.5 Optional Summary of Analysis

At the Districts discretion, provide a Summary of Analysis in a graphic and written format.



LANDSCAPE SETBACK

PLANT TYPE	Number of Plants	Minimum Spacing (ft)	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note	Minimum Spacing (ft) - Note
CANOPY TREES	30'	10'	10'	10'	10'	10'	10'	10'	10'	10'	10'	10'	10'
PALMS & NARROW TREES	30'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'
SHRUBS & ORNAMENTAL GRASSES	20'	4'	4'	4'	4'	4'	4'	4'	4'	4'	4'	4'	4'

SETBACK NOTES:
 (1A) LESS THAN 45 MPH SPEED LIMIT.
 (1B) 45-50 MPH SPEED LIMIT.
 (1C) 50 MPH SPEED LIMIT.
 (1D) GREATER THAN 50 MPH SPEED LIMIT.
 (2) DISTANCES MAY BE GREATER DEPENDING ON THE MAINTAINED TREE SPECIES CANOPY WIDTH AND HEIGHT. VERIFY DIMENSIONS AS APPLICABLE.
 (3) REFERENCED TO AVAILABLE LANDSCAPE AREA.
 (4) COMPLY WITH UTILITY COMPANY GUIDELINES AS APPLICABLE PERTAINING TO UNDERGROUND AND OVERHEAD UTILITIES AND TRANSFORMER SETBACKS.
 (5) DIMENSIONS SHOWN ARE FROM LIGHT AND SIGN STRUCTURES. NO TREES OR PALMS WILL BE PLANTED WITHIN 5' OF SIGN.
 (6) SIGNAGE SETBACKS TO ADDRESS SIGHT FROM FACILITY ONLY. ITS SETBACK TO ADDRESS VIEW TO ROADWAY ONLY.
 (7) FOR THE WALL, NO LANDSCAPE WILL BE INSTALLED ON THE FILL SIDE OF THE WALL WHERE STRAPS ARE PLACED. VERIFY ALL STRAP LOCATIONS. SETBACKS SHOWN ARE TO END OF STRAPS.

- LEGEND**
- LEVEL III (HIGH IMPACT AREA) - HIGH VISIBILITY CONSISTING OF LARGE SIGNATURE PALMS, TREES AND FLOWERING PLANTS THAT REQUIRE FREQUENT LEVEL OF MAINTENANCE. SHOULD BE CONSIDERED FOR ENHANCEMENT SCOPES FOR DESIGN CONTROL STABILITY.
 - LEVEL II (MODERATE IMPACT AREA) - AREA OUTSIDE ROADWAY IMPROVEMENT, CLEAR ZONES, ETC. SUITABLE FOR A MIX OF PLANTING THAT SUPPORTS THE OVERALL DESIGN.
 - LEVEL I (LOW PROFILE AREA) - PLANTING AREAS TO SCREEN OR FRAME A VIEW. NATIVES AND NON-NATIVES. GENERALLY LOW MAINTENANCE SPECIES.
 - VISUAL SCREEN - PLANTING AREAS TO SCREEN OR FRAME A VIEW. NATIVES AND NON-NATIVES. GENERALLY LOW MAINTENANCE SPECIES.
 - SLOPE STABILIZATION - ON ENHANCEMENTS 2:1 OR GREATER WHERE ROWING OPERATIONS ARE DANGEROUS AND CONTRIBUTES TO EROSION. GENERALLY NATIVE SHRUB SPECIES WHICH REQUIRE MINIMAL MAINTENANCE.
 - REVEGETATION - LOCATIONS OUTSIDE THE HIGHER FOCUS AREAS FOR PURPOSES OF SCREENING VIEWS TO SERVE AS A BACKDROP TO HIGH IMPACT LANDSCAPE AREAS. FOCUS ON NATIVE SPECIES WHICH REQUIRE MINIMAL MAINTENANCE.
 - STORM WATER AREA PLANTING - PROMOTE NATIVE PLANTINGS DIVERSE TO SOFTEN RECTANGULAR SHAPES OR HARD EDGES OF THE RETENTION PONDS FOR A MORE NATURAL AND AESTHETIC SETTING. FOCUS ON NATIVE SPECIES THAT REQUIRE LOW MAINTENANCE.
 - TREE PRESERVATION - CLOSE COORDINATION WITH DESIGN TEAM TO PRESERVE EXISTING VEGETATION TO GREATEST EXTENT POSSIBLE. NON-AGRICULTURAL DOMESTIC SPECIES WITHIN HIGHER FOCUS AREAS INCLUDE LIVE OAK (QUERCUS VIRGINIANA) AND SLASH PINE (PINUS ELIOTTII).
 - WILDLIFE CORRIDORS - OPEN RETENTION OR OTHER OPEN AREAS RESERVED FOR WILDLIFE PLANTINGS. MAINTENANCE CAN RANGE FROM MINIMAL TO MODERATE.
 - IMPACTED EXISTING LANDSCAPE
 - 2:1 SLOPES - LANDSCAPE NEEDED TO STABILIZE SLOPES

- GENERAL NOTES:**
- THE FDOT STUDY ENDING AT RP 273 (SR 91 - SR 50 INTERCHANGE) MAY AFFECT DESIGN CONSIDERATIONS DELINEATED ON THE LANDSCAPE OPPORTUNITY PLANS.
 - THE LANDSCAPE OPPORTUNITY PLANS PROVIDE UTILITY INFORMATION, FINAL ROADWAY ALIGNMENTS, GUARD RAILS, BARRIER WALL AND OTHER IMPROVEMENTS THAT ARE SUBJECT TO CHANGE. THE OFFSETS SHOWN ON THE PLANS MAY REQUIRE CHANGE TO REFLECT THE FINAL DESIGN.
 - MAINTAIN THE PRESERVATION AND PLANTING AREAS SHOWN IN THE LANDSCAPE OPPORTUNITY PLANS TO THE GREATEST EXTENT POSSIBLE.
 - FINAL DESIGN MUST COMPLY WITH THE FDOT DESIGN MANUAL, FDOT STANDARD PLANS, APPLICABLE STANDARD SPECIFICATIONS, AND THE SETBACK GUIDELINES.
 - PRESERVE AND PROTECT EXISTING TREES AND VEGETATION ALONG THE PROJECT CORRIDOR THAT IS NOT IN CONFLICT WITH PROPOSED IMPROVEMENTS. COORDINATE THE LOCATIONS OF EXISTING AND PROPOSED UTILITIES THROUGHOUT THE ROADWAY DESIGN DEVELOPMENT.
 - UPDATE LANDSCAPE OPPORTUNITY PLANS DURING FINAL DESIGN AS NEEDED.
 - NO PROPOSED PLANTINGS ARE TO BE LOCATED WITHIN FEDERAL OR STATE JURISDICTIONAL WETLANDS OR OTHER SURFACE WATERS OPEN WATER BODIES. THE DESIGN OF HIGH WATER OR DITCHES THE BOTTOM OF STORM WATER MANAGEMENT FACILITIES.
 - NO FACULTATIVE WET OR OBLIGATE SPECIES ARE TO BE PLANTED WITHIN 25' OF WETLAND OR OTHER SURFACE WATERS.

POTENTIAL PLANT PALETTE

BOTANICAL NAME	COMMON NAME	LEVEL I	LEVEL II	LEVEL III	GRASSY	STORM WATER	USES
CANOPY TREES							
<i>Acer rubrum</i>	Red Maple	x	x			x	Storm water area, visual screen
<i>Pinus elliotii</i>	Slash Pine	x		x		x	Reforestation, visual screen
<i>Pinus taeda</i>	Loblolly Pine	x		x		x	Reforestation, visual screen
<i>Quercus virginiana</i>	Live Oak	x	x			x	Reforestation, visual screen
<i>Taxodium distichum</i>	Bald Cypress					x	Storm water area, visual screen
<i>Ulmus alata</i>	Winged Elm	x				x	Visual screen
TREES - SMALL							
<i>Ilex opaca</i>	American Holly	x	x			x	Visual screen
<i>Jungferns silicicola</i>	Southern Red Cedar	x		x		x	Visual screen
<i>Lagerstroemia indica</i>	Lavender Crape Myrtle		x	x	x		Accent color
<i>Lagerstroemia indica</i>	White Crape Myrtle		x	x	x		Accent color
<i>Lagerstroemia indica</i>	Red Crape Myrtle		x	x	x		Accent color
<i>Nagnolia grandiflora</i>	Southern Magnolia	x	x	x	x		Dense color and texture
<i>Myrica cerifera</i>	Wax Myrtle	x	x			x	Visual screen
<i>Nyctanthes fragrans</i>	Simpson's Stopper	x	x	x		x	Visual screen
<i>Pinus umbellata</i> / <i>angustifolia</i>	Christmas Palm	x	x	x	x		Accent color
PALMS							
<i>Boroporus nelsonianus</i> Beauty	Wale Palm		x	x			High impact accent
<i>Sabal lewisianum</i>	Puerto Rican Palm			x			High impact accent
<i>Sabal palmetto</i>	Cabbage Palm	x	x	x			Continuity
<i>Phoenix sylvesteris</i>	Redtail Date Palm			x			High impact accent
<i>Phoenix sylvestris</i>	Synsepalma Date Palm			x			High impact accent
PALMS - SMALL							
<i>Buriti copifera</i>	Pineau Palm		x	x	x		High impact
<i>Chamaecyparis thymifolia</i>	European Fan Palm		x				Visual screen accent
<i>Livistona chinensis</i>	Chinese Fan Palm		x				Visual screen accent
<i>Phoenix roebelenii</i>	Pagoda Palm		x	x	x		Visual screen accent
SHRUBS							
<i>Ilex umbellata</i>	Tragop Holly	x	x	x			Visual screen
<i>Viburnum obtusatum</i>	Water's Viburnum	x	x	x			Reforestation, visual screen
SHRUBS - SMALL							
<i>Muhlenbergia capillaris</i>	Mulley Grass	x	x	x	x		Visual screen, slope stabilization, erosion control
<i>Serenoa repens</i>	Saw Palmetto	x	x	x	x		Visual screen, slope stabilization, erosion control
<i>Serenoa repens</i> 'Silver'	Silver Saw Palmetto	x	x	x	x		Visual screen, slope stabilization, erosion control
<i>Spartina bakeri</i>	Cord Grass	x	x	x	x		Visual screen, slope stabilization, erosion control
<i>Zamia pumila</i>	Coontie Palm	x	x	x	x		Visual screen, slope stabilization, erosion control

ABBREVIATION INDEX

ABBREVIATION	DESCRIPTION	CLEAR ZONE - MINIMUM SETBACKS FOR TREES & PALMS
DOT	ROADWAY DESIGN	SET FROM BACK OF SHOULDER (NOT BY CURB)
CAL	CONCRETE	SET FROM BACK OF SHOULDER (NOT BY CURB)
SPR	SPREAD	SET FROM BACK OF SHOULDER (NOT BY CURB)

905 Roadway Cross Sections

905.1 General

Cross sections depict the existing ground and manmade features, and proposed roadway template as sections perpendicular to the respective stations along a centerline or baseline of construction.

Cross section sheets are used to convey supplemental information during the plans phase review process. These sheets may also be used for coordination purposes (e.g., permit or utility, local agency, public meetings). These sheets are not to be placed within the Contract Plans Set. Signing and sealing these sheets is not required.

Enter a PDF of these sheets into the Electronic Review Comments (ERC) system with the Phase II and Phase III plans submittals. Include these sheets with the Phase IV ERC submittal when there are Phase III comments related to the cross sections. Provide a PDF of the cross-section sheets for coordination purposes as needed (e.g., permits, utilities, public meetings).

Place the final Cross Section sheets in Project Suite Enterprise Edition (PSEE) within the Design Development Documentation Module (see **FDM 111.7**)

See **Exhibit 905-1** for an example of a Cross Section Sheet.

905.2 Sheet Set Up

This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48" or 36"x72"). Use landscape orientation regardless of sheet size selected.

Place as many cross sections on a sheet as possible using multiple columns of sections when appropriate. Create cross sections using a scale of 1" = 20' horizontal and 1" = 10' vertical. The standard cross section interval is 50 feet. Another interval may be used when appropriate based on the type and complexity of the project.

Show cross sections with stations increasing from the bottom to the top of the sheet and multiple columns placed from the left to the right.

Cross sections for mainline, side streets, and ramps are typically shown on separate sheets within a single PDF. The order of cross sections contained in the PDF should be the mainline, side streets, then ramps.

Display the begin and end construction limits and include the name of the mainline (e.g., SR 22), side street (e.g., Easy Street), or ramp (e.g., Ramp A). Indicate exception limits (e.g., Bridge No. 770175 STA 105+20 to 109+60).

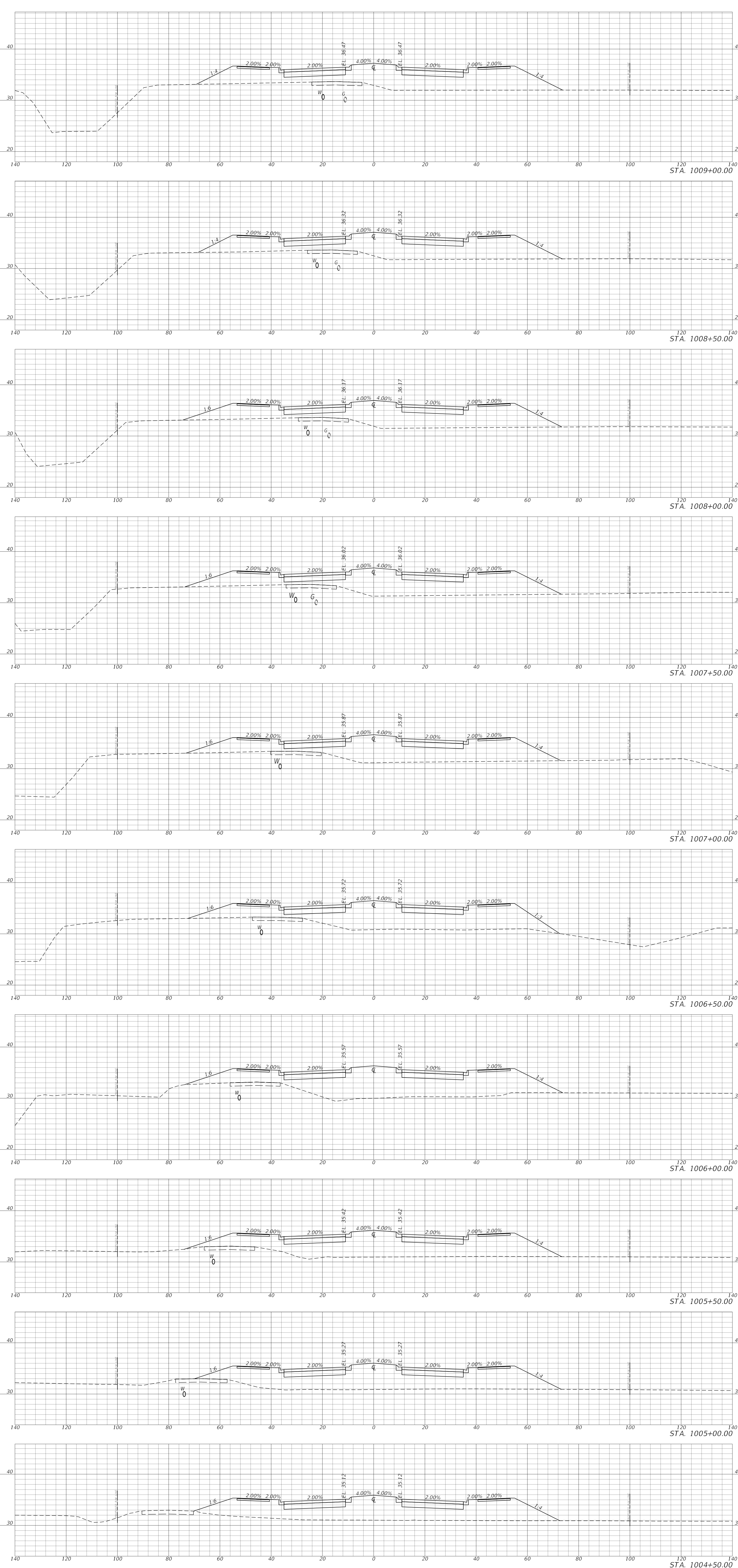
905.3 Required Information

As illustrated in **Exhibit 905-1**, each cross section must include a background grid at the appropriate scale. Display the station for each cross section must be shown in the lower right area of the grid. Display (in feet) the horizontal offset from centerline along the bottom of the grid. Display the vertical elevation along both sides of the grid.

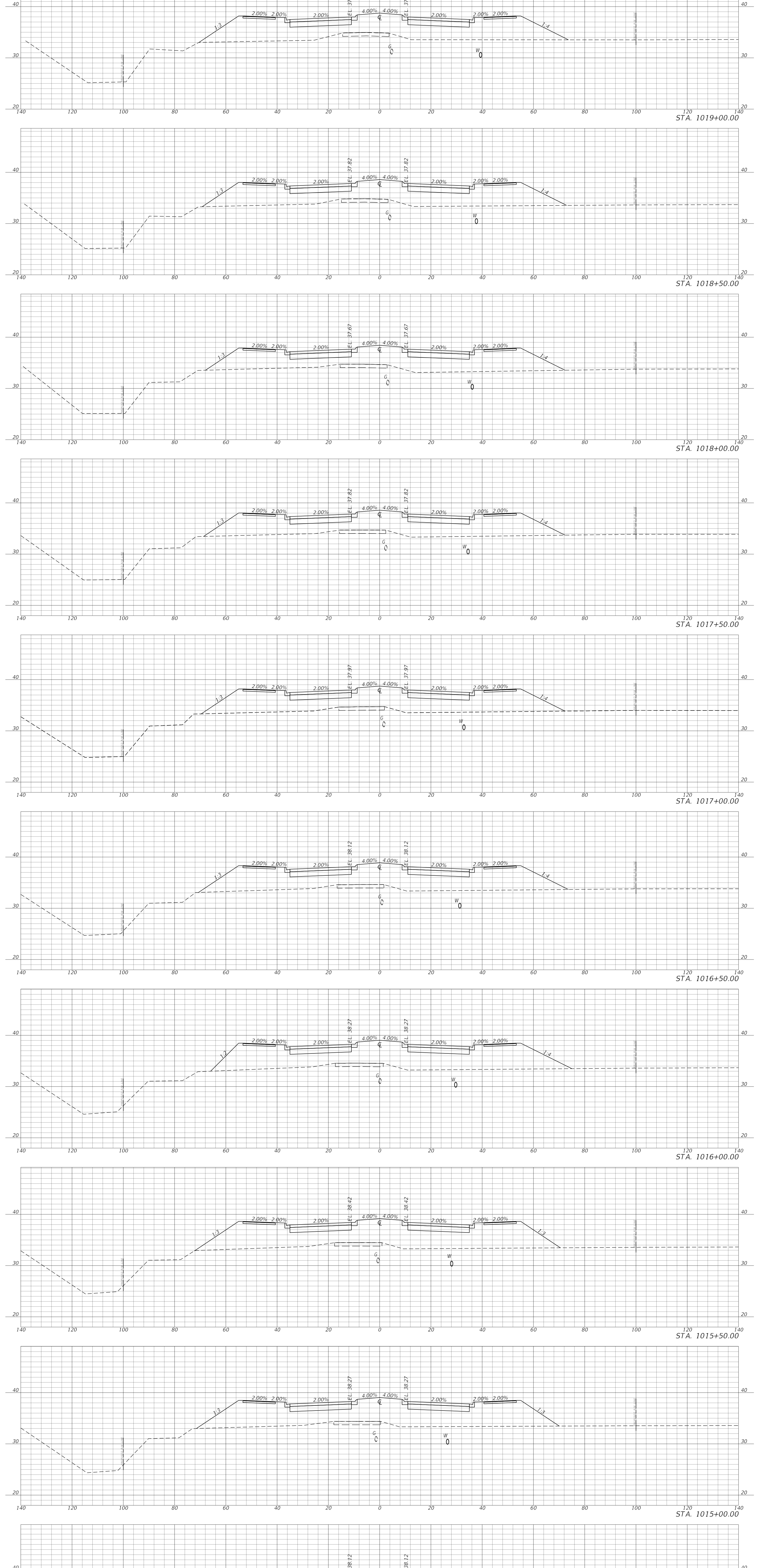
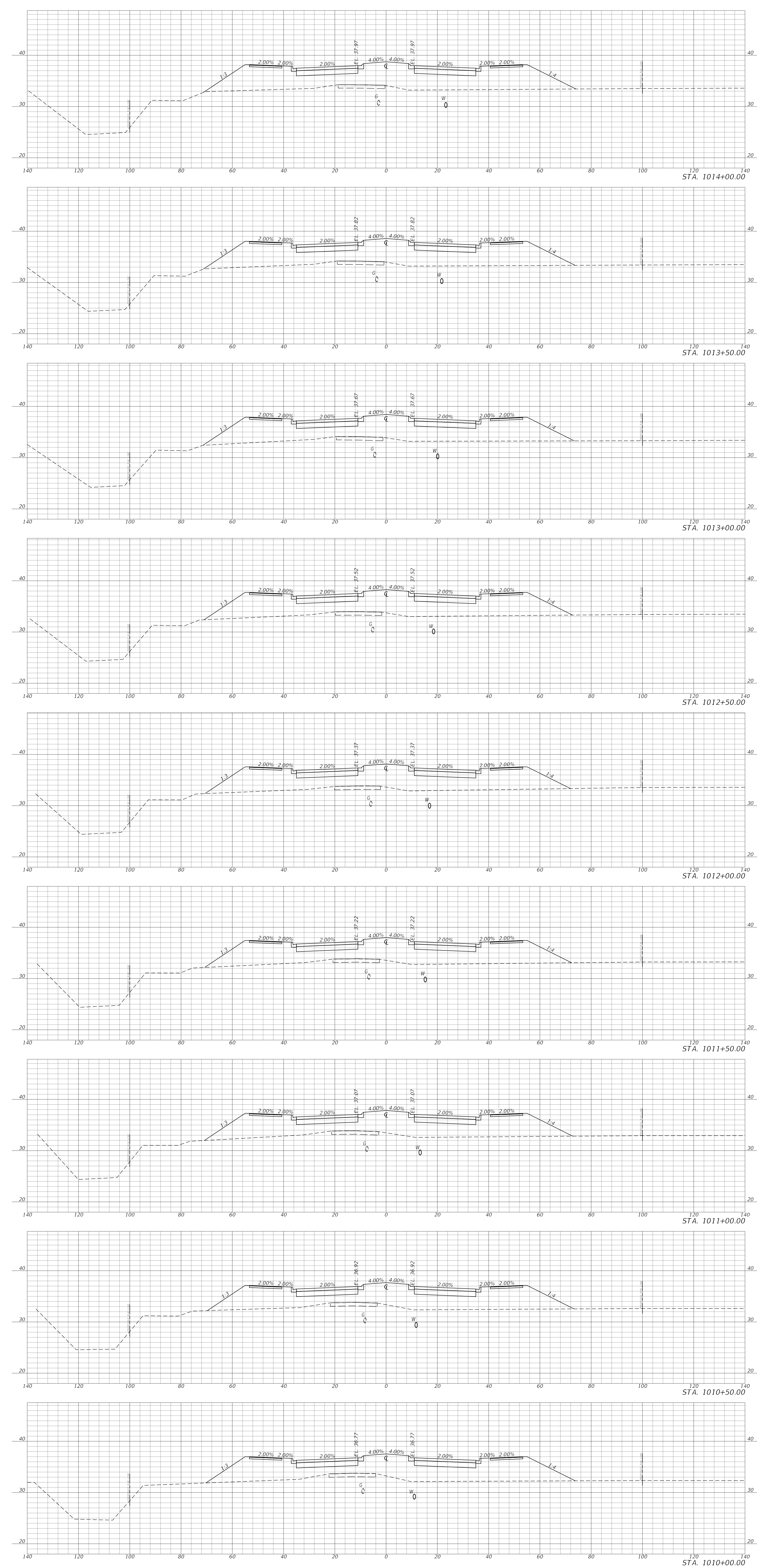
Each cross section must provide the following:

- (1) Label the centerline or baseline of construction.
- (2) Show and label R/W limits.
- (3) Show existing ground lines.
- (4) Show below ground portions of existing features, e.g., pavement, curb, sidewalk.
- (5) Show and label parallel underground utilities. Label only the utility type (e.g., "G", "W"); the size of pipe is not required.
- (6) Show the proposed roadway template and include:
 - (a) Profile grade elevation
 - (b) Special ditch elevation
 - (c) Pavement and sidewalk cross slope
 - (d) Median and outer slope ratio
- (7) Show, and label, the lower limits (undercut line) of the removal of organic or plastic material. See **FDM 216** and [Standard Plans, Index 120-002](#) for the requirements of subsoil excavation; i.e., removal of unsuitable organic or plastic soils.

Showing parallel drainage pipes or structures is not required.



Begin Earthwork Station 1004+50.00



End Earthwork Station 1020+00.00

Exhibit 905-1
Date: 1/1/23

906 Bridge Hydraulic Recommendations Sheet

906.1 General

A Bridge Hydraulic Recommendations Sheet (BHRS) is required for each proposed bridge structure; not bridge culverts. This sheet summarizes the findings and recommendations of the bridge hydraulic analysis contained within the Bridge Hydraulics Report. The BHRS consists of four sections:

- (1) Plan View
- (2) Profile View
- (3) Location Map and Drainage Area
- (4) Bridge Hydraulic Data Table

The BHRS is appended to the Bridge Hydraulics Report and included in the Structures Plans. This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36"). Use landscape orientation regardless of sheet size selected.

See **Exhibit 906-1** for an example of a Bridge Hydraulic Recommendations sheet.

906.2 Plan View

The plan view is typically located in the upper left area of the sheet. A common horizontal scale for the plan view is 1" = 40' or 1" = 50'.

The plan view on the BHRS is often created by referencing the CADD file that was used to create the bridge plan view for the Plan and Elevation sheet included in the Structures Plans. Do not display information and graphic data from the reference file that is not germane.

Include the following information in the plan view:

- (1) Stationing, scale, and north arrow. Include the channel baseline if one was created.
- (2) Label bridge begin and end station, the name of the road and the water body (e.g., St. Johns River), and R/W lines.
- (3) Show contour lines (existing or proposed) with elevations, and arrows illustrating the direction of the flow through the channel opening.
- (4) Show limits of abutment protection.

906.3 Profile View

The profile view is typically located in the lower left area of the sheet. Profile view must include a background grid using the same horizontal scale that was used for the plan view, and a vertical scale of 1" = 10' (typical).

The profile view on the BHRS is often created by referencing the CADD file that was used to create the bridge profile view for the Plan and Elevation sheet included in the Structures Plans. Do not display information and graphic data from the reference file that is not germane, such as labeling of grade line and vertical curve data.

Include the following information in the profile view:

- (1) Show stationing along the bottom of the background grid and horizontal grid line elevations along both sides.
- (2) Display the proposed bridge, low member, piers, and approaches.
- (3) Label the begin and end stations for the proposed structure and indicate the Bridge Number.
- (4) Dimension and label the overall bridge length, and the width of each span and approach.
- (5) Label abutment locations (e.g., toe of slope).
- (6) Show limits of abutment protection and label the protection type.
- (7) For non-tidal crossings, indicate the Normal High Water (NHW) and Design Flood elevations. For tidal crossings, indicate the Mean High Water (MHW) and Design Flood Stage elevations.
- (8) When practical, show the profile of the expected design scour (contraction and long-term scour along the entire unprotected cross section and the local scour at the intermediate piers/bents). Display local scour holes as beginning at the foundation element edges at the design scour depth and extending up at a 1:2 slope to meet the contraction or long-term scour profile.

906.4 Location Map and Drainage Area

The location map is typically located in the upper right area of the sheet. When practicable, use a scale so that the entire drainage area for the proposed structure is shown.

Any suitable graphics file may be used to create the map. A common source is the county maps in MicroStation (*.dgn) format or in Portable Document format (PDF) that can be

downloaded from the [County General Highway Maps](#) web page. Place a north arrow on the right side of the map. Orient the map so that the north arrow points toward the top of the sheet.

Flag and label the bridge location as “Proposed Bridge”, and provide a google maps hyperlink (e.g., <https://goo.gl/maps/zmmkmmoLDvk>). Flag and label bridge structures located immediately upstream and downstream that affect the hydraulics of the proposed structure.

Display the drainage area boundaries using a very heavy dashed line, with the area (in acres or square miles) shown within the boundary.

906.5 Bridge Hydraulic Data Table

The Bridge Hydraulic Table consists of five sections:

- (1) Existing and Proposed Structures
- (2) Hydraulic Design Data
- (3) Hydraulic Recommendations
- (4) Scour Predictions
- (5) Remarks

906.5.1 Existing and Proposed Structures

Provide information on existing and proposed structures in the following table:

Table 906.5.1 Existing Structures

(REFERENCE)	EXISTING STRUCTURES				PROPOSED STRUCTURE
	(1)	(2)	(3)	(4)	
FOUNDATION	(1)				
OVERALL LENGTH (ft)	(2)				
SPAN LENGTH (ft)	(3)				
TYPE CONSTRUCTION	(4)				
AREA OF OPENING @ D.F. (sf)	(5)				
ELEV. LOW MEMBER (ft)	(6)				
ELEV. LOW MEMBER (ft)	(7)				

NOTES: Existing Structures - (1) structure being replaced or modified. (2), (3), and (4) are immediate upstream and downstream structures that affect the hydraulics of the proposed structure.

- (1) Foundation: Describe the type of foundation (e.g., timber piles, concrete piles).
- (2) Overall Length (ft): Provide the total length of the structure. The length is measured from the top of the abutment. Use the total length shown in the final plans for the proposed structure.
- (3) Span Length (ft): Provide the length of the main span of the structure.
- (4) Type Construction: Describe the construction material(s) used for the structure (e.g., steel, concrete, steel, and concrete).
- (5) Area of Opening (ft²) @ D.F.: Provide the area of opening below the design flood elevation at the bridge section. Subtract the pile area when pile area is significant.
- (6) Bridge Width (ft): Provide the distance from outside rail to outside rail.
- (7) Elev. Low Member (ft): Provide the elevation of the lowest point along the low member of the structure.

906.5.2 Hydraulic Design Data

Provide hydraulic design data for the proposed structure in the following table:

Table 906.5.2 Hydraulic Design Data

HYDRAULIC DESIGN DATA					
The hydraulic data shown in this table indicate the flood discharges and water surface elevations which may be anticipated in any given year. Engineering judgement and assumptions are necessary to determine this data with no assurance of precision.					
WATER SURFACE ELEVATIONS: (1)	N.H.W. (Non-Tidal)	_____	M.H.W. (Tidal)	_____	
	CONTROL (Non-Tidal)	_____	M.L.W. (Tidal)	_____	
FLOOD DATA:	MAX. EVENT OF RECORD	DESIGN FLOOD	BASE FLOOD	OVERTOPPING	GREATEST FLOOD
STAGE ELEV. NAVD (ft)	(2)	_____	_____	_____	_____
DISCHARGE (cfs)	(3)	_____	_____	_____	_____
AVERAGE VELOCITY (f/s)	(4)	_____	_____	_____	_____
EXCEEDANCE PROB. (%)	(5)	_____	_____	_____	_____
FREQUENCY (yr.)	(6)	_____	_____	_____	_____
NOTES:	Max. Event of Record: Maximum event recorded based on historical information (if available). Design Flood: Utilized to assure a desired level of hydraulic performance. Base Flood: Has a 1% chance of being exceeded in any given year (100 year frequency). Overtopping/Greatest Flood: Only show data for event with lower return period. Overtopping: Causes flow over the highway, watershed divide, or thru relief structures. Greatest flood: The most severe that can be predicted where overtopping is not practicable..				

- (1) **Water Surface Elevations (ft):** Provide elevation of the following water surfaces at the bridge section, when applicable:
 - (a) N.H.W. (Non-Tidal): The Normal High Water elevation applicable only to non-tidal areas.
 - (b) CONTROL (Non-Tidal): Water surface elevation controlled by the operation of pump stations, dams, or other hydraulic structures. This applies only to non-tidal areas.
 - (c) M.H.W. (Tidal): The Mean High Water elevation applicable only to tidal areas.
 - (d) M.L.W. (Tidal): The Mean Low Water elevation applicable only to tidal areas.
- (2) **Stage Elevation (ft):** For freshwater flow, provide stage elevation (NAVD 88 or NGVD 29) using data from hydraulic model at the approach section. For tidal flow, use the maximum elevation during the flood or ebb storm surge at the bridge. Add a remark that stage, discharge, and the velocity described in the flood data do not occur at the same time.
- (3) **Discharge (cfs):** For freshwater flow, provide total discharge using data from the simulations for the design flood, base flood, overtopping flood, and/or greatest flood. For tidal flow, use the maximum discharge during the flood or ebb storm surge at the bridge. Add a remark that stage, discharge, and the velocity described in the flood data do not occur at the same time.
- (4) **Average Velocity (fps):** For freshwater flow, provide average velocity using data from the simulations for the design flood, base flood, overtopping flood, and/or greatest flood. For tidal flow, use the maximum velocity during the flood or ebb storm surge at the bridge.
- (5) **Exceedance Prob. (%):** Provide the probability that the conditions will be exceeded. Probability is determined as 100% times unity over the return interval (e.g., $100\% \times (1/100) = 1\%$).
- (6) **Frequency (yr):** Provide the return period in years.

906.5.3 Scour Predictions

Provide scour predictions for the proposed structure in the following table:

Table 906.5.3 Scour Predictions for Proposed Structure

SCOUR PREDICTIONS FOR PROPOSED STRUCTURE				
(1) PIER INFORMATION		(2) TOTAL SCOUR ELEVATION (FT)		
NUMBERS	SIZE AND TYPE	LONG TERM SCOUR ELEVATION	WORST CASE < 100 yr. FREQ. (yr.) _____	WORST CASE < 500 yr. FREQ. (yr.) _____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

- (1) Pier Information: Provide the following pier information for the proposed structure:
 - (a) Numbers: Pier number(s) that correspond to the pier size, type, and scour elevations.
 - (b) Size and Type: Pier size and type that produce the greatest scour. If necessary, place a reference to the appropriate details of the bridge plans for clarity.

- (2) Total Scour Elevation (ft): Provide the following scour information for the proposed structure:
 - (a) Long-Term Scour elevation: Applicable only to structures required to meet extreme event vessel collision load. Place "N/A" when not applicable. Refer to Chapter 4 of the Drainage Design Guide for additional information on long-term scour.
 - (b) Worst-Case (< 100-year) Scour Elevation: The predicted total scour elevation for the worst-case scour condition up through the scour design flood frequency. This includes aggradation or degradation, channel migration, local scour (pier and abutment) and contraction scour.
 - (c) Worst-Case (< 500-year) Scour Elevation: The predicted total scour elevation for the worst-case scour condition up through the scour design check flood frequency. This includes aggradation or degradation, channel migration, local scour (pier and abutment), and contraction scour.

906.5.4 Hydraulic Recommendations

Provide hydraulic recommendations in the following table:

Table 906.5.4 Hydraulic Recommendations

HYDRAULIC RECOMMENDATIONS									
BEGIN BRIDGE STATION _____	END BRIDGE STATION _____			SKEW ANGLE BETWEEN BRIDGE AND ROADWAY _____					
CLEARANCE PROVIDED (ft): (1)	NAV: HORIZ. _____	VERT. _____	ABOVE EL. _____	DRIFT: HORIZ. _____	VERT. _____	ABOVE EL. _____			
MINIMUM CLEARANCE (ft): (2)	NAV: HORIZ. _____	VERT. _____	ABOVE EL. _____	DRIFT: HORIZ. _____	VERT. _____	ABOVE EL. _____			
ABUTMENTS: (3)	BEGIN BRIDGE			END BRIDGE					
RUBBLE GRADE:	_____			_____					
SLOPE:	_____			_____					
BURIED OR NON-BURIED HORIZ. TOE:	_____			_____					
TOE HORIZ. DISTANCE (ft):	_____			_____					
LIMIT OF PROTECTION (ft):	_____			_____					
DECK DRAINAGE: (4)	_____								

- (1) Clearance Provided (ft): Provide the following navigational and drift clearance information for the proposed structure:
- (a) Navigation Horizontal: The actual horizontal navigation clearance provided between fenders or piers.
 - (b) Navigation Vertical: The actual vertical navigational clearance in feet provided between fenders or piers.
 - (c) Navigation Above Elevation: For freshwater flow, use the elevation at the NHW elevation or control elevation. For tidal flow, use the elevation at MHW.
 - (d) Drift Horizontal: The actual minimum horizontal clearance provided.
 - (e) Drift Vertical: The actual minimum vertical clearance provided above the design flood elevation.
 - (f) Drift Above Elevation: The design flood elevation used to determine Drift Vertical clearance. For freshwater flow, use NHW elevation or control elevation. For tidal flow, use the maximum stage associated with an average velocity of 3.3 fps through the bridge section during the flood or ebb for the storm surge for the design flood. If the maximum velocity due to the storm surge is less than 3.3 fps, use the stage associated with the maximum velocity through the bridge section.

If either of these stages causes the profile to be higher than the profile of the bridge approaches, discuss having less drift clearance and designing the structure for debris loads with the District Structures Design Office:

- (2) Minimum Clearance (ft): Vertical and horizontal clearances are subject to regulatory agency requirements (e.g., Coast Guard, Corps of Engineers, Water Management District), and may exceed Department requirements. Provide the following minimum navigational and drift clearance information for the proposed structure:
 - (a) Navigation Horizontal: Provide a minimum 10-foot horizontal navigation clearance, or the minimum clearance specified by regulatory agency.
 - (b) Navigation Vertical: See **FDM 260.8** for information on minimum vertical clearance for navigational purposes.
 - (c) Drift Horizontal and Vertical: Consistent with debris conveyance needs and structure economy where no boat traffic is anticipated.
- (3) Provide the following information for the begin and end bridge abutments:
 - (a) Rubble Grade: Provide the type of rubble to be constructed at the begin and end bridge abutments.
 - (b) Slope: Provide the slope of the abutments at the begin and end bridge.
 - (c) Non-buried or Buried Horizontal Toe: Indicate whether the toe of the abutment will be non-buried or buried when extended horizontally from the bridge. The horizontal and vertical extents should be determined using the design guidelines contained in **HEC-23**.
 - (d) Toe Horizontal Distance (ft): Provide the horizontal extent of the rubble protection measured from the toe of the abutment. Refer to the Drainage Design Guide for additional information.
 - (e) Limit of Protection (ft): Provide the limits of protection, distance in feet measured parallel to the stationing, from the edge of the rubble protection to the begin or end bridge station. If the distance is different on each side, indicate both distances with their corresponding sides.
- (4) Deck Drainage: Describe how the rainfall runoff is collected and conveyed from the proposed structure deck (e.g., scuppers, storm drain system).

906.5.5 Remarks

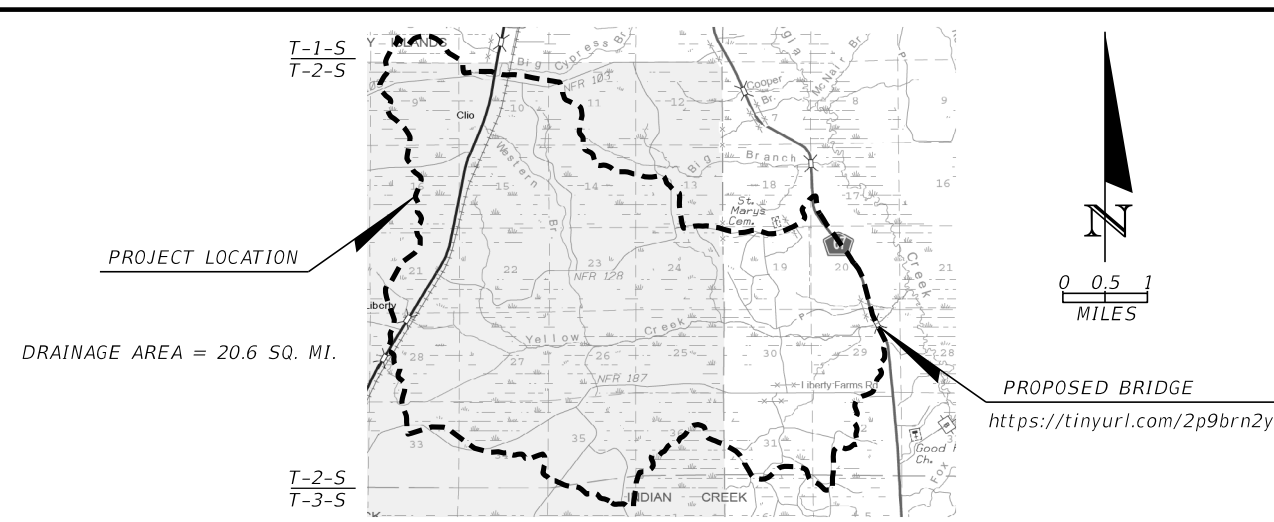
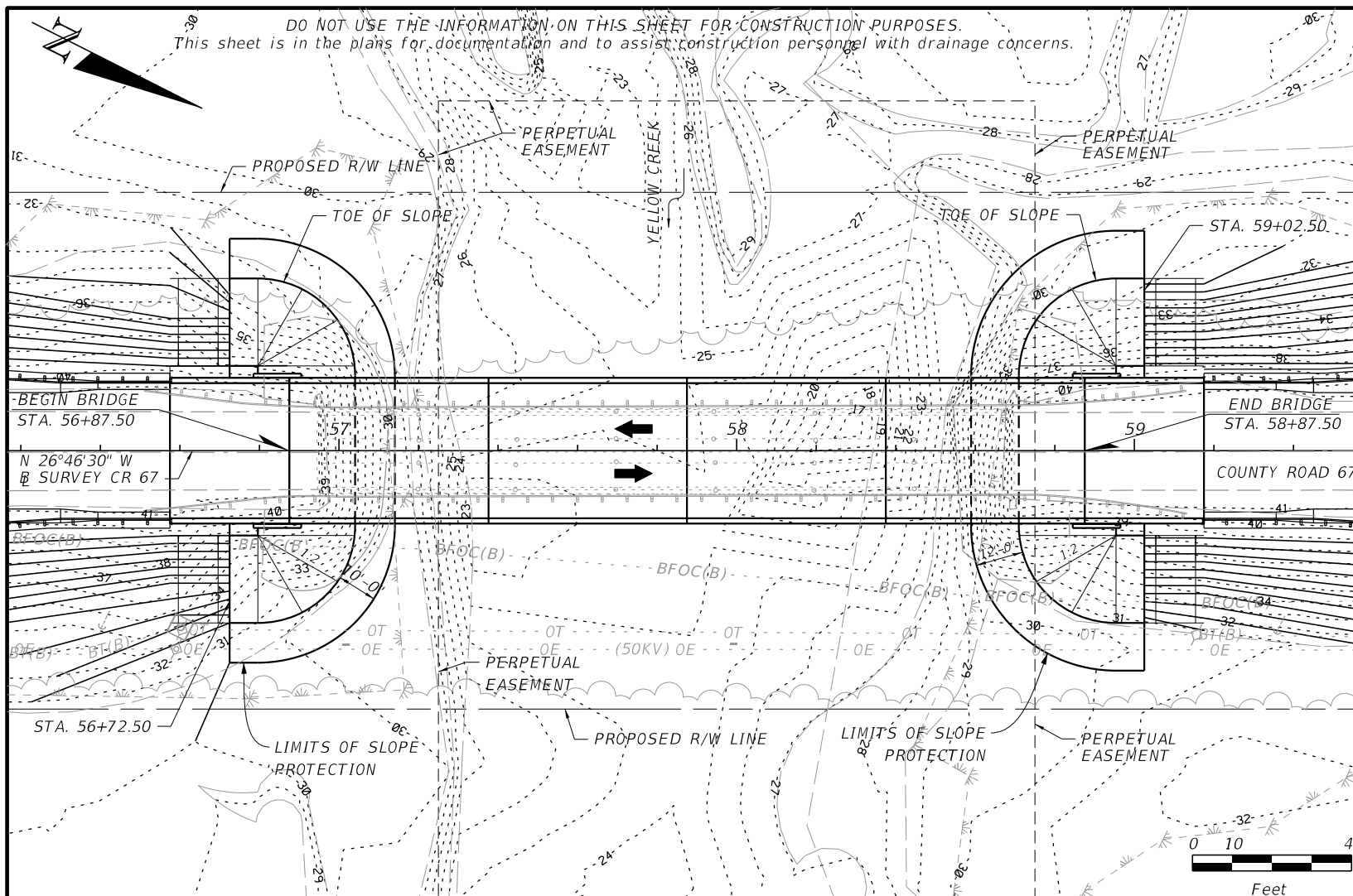
Provide any pertinent remarks for the proposed structure in the following table:

Table 906.5.5 Remarks

REMARKS	
(1)	ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88)

Include information for the 100-year design wave crest elevation in feet, including the storm surge elevation and wind setup. The vertical clearance of the superstructure must be a minimum of 1 foot above the wave crest elevation.

DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES.
This sheet is in the plans for documentation and to assist construction personnel with drainage concerns.

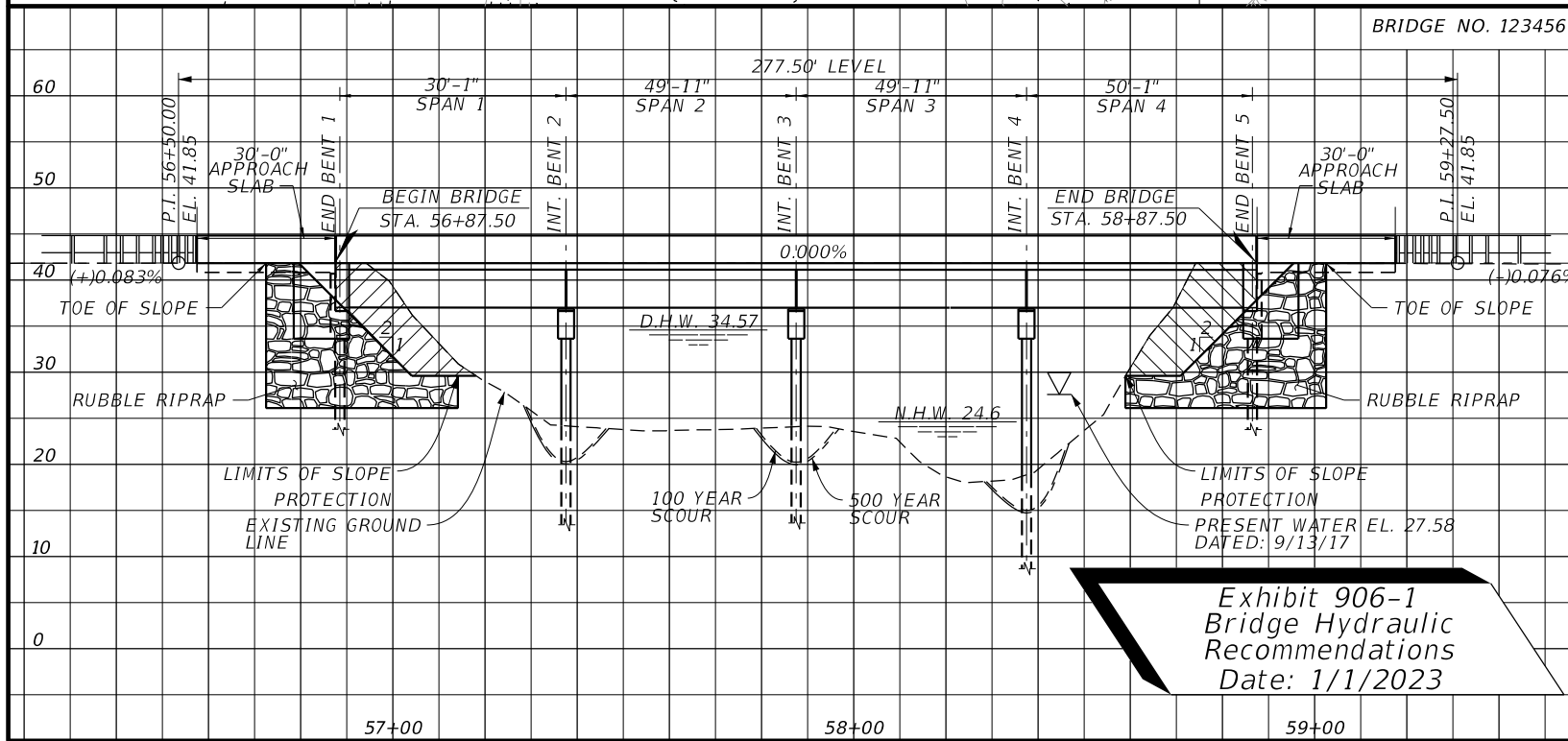


(REFERENCE)	EXISTING STRUCTURES				PROPOSED STRUCTURE
	(1)	(2)	(3)	(4)	
FOUNDATION	TIMBER PILE				24" **
OVERALL LENGTH (ft)	175'				200'
SPAN LENGTH (ft)	25'				50'
TYPE CONSTRUCTION	STEEL				CONCRETE
AREA OF OPENING @D.F. (sf)	1207.31				1343.41
BRIDGE WIDTH	20'				36'-8"
ELEV. LOW MEMBER (ft)	39.3				37.75

NOTES: Existing Structures - (1) structure being replaced or modified. (2), (3), and (4) are immediate upstream and downstream structures that affect the hydraulics of the proposed structure.

HYDRAULIC DESIGN DATA					
WATER SURFACE ELEVATIONS:	N.H.W. (Non-Tidal)	24.6	M.H.W. (Tidal)	N/A	
	CONTROL (Non-Tidal)	N/A	M.L.W. (Tidal)	N/A	
FLOOD DATA:	MAX EVENT OF RECORD	DESIGN FLOOD	BASE FLOOD	OVERTOPPING	GREATEST FLOOD
STAGE ELEV. NAVD (ft)	36.36 (REM. #2)	34.57* / 31.64	35.26* / 32.00		37.24* / 32.88
DISCHARGE (cfs)	UNKNOWN	1915	2204		2964
AVERAGE VELOCITY (f/s)	UNKNOWN	1.52* / 2.64	1.59* / 2.81		1.68* / 3.18
EXCEEDANCE PROB. (%)	UNKNOWN	2%	1%		0.2%
FREQUENCY (yr.)	UNKNOWN	50	100		500

NOTES: Max. Event of Record: Maximum event recorded based on historical information (if available).
Design Flood: Utilized to assure a desired level of hydraulic performance.
Base Flood: Has a 1% chance of being exceeded in any given year (100 year frequency).
Overtopping/Greatest Flood: Only show data for event with lower return period.
Overtopping: Causes flow over the highway, watershed divide, or thru relief structures.
Greatest flood: The most severe that can be predicted where overtopping is not practicable.



SCOUR PREDICTIONS FOR PROPOSED STRUCTURE DESCRIBED ABOVE	(1) PIER INFORMATION		(2) TOTAL SCOUR ELEVATION (FT)		
	NUMBERS	SIZE AND TYPE	LONG TERM SCOUR ELEVATION	WORST CASE <100 yr FREQ. 100 YR.	WORST CASE <500 yr FREQ. 500 YR.
	2 - 3	24" SO. PILES	N/A	20.10	19.90
4	24" SO. PILES	N/A	14.96	14.76	

HYDRAULIC RECOMMENDATIONS				
BEGIN BRIDGE STA. 56+87.50	END BRIDGE STA. 58+87.50	SKEW ANGLE BETWEEN BRIDGE AND ROADWAY 0°		
CLEARANCE PROVIDED (ft):	NAV: HORIZ. 50	NAV: VERT. 13.2	NAV: ABOVE EL. 24.6	
	DRIFT: HORIZ. 50	DRIFT: VERT. 3.2	DRIFT: ABOVE EL. 34.57	
MINIMUM CLEARANCE (ft):	NAV: HORIZ. 10	NAV: VERT. 6	NAV: ABOVE EL. 24.6	
	DRIFT: HORIZ. 10	DRIFT: VERT. 2	DRIFT: ABOVE EL. 34.57	
ABUTMENTS:	BEGIN BRIDGE		END BRIDGE	
RUBBLE GRADE:	BANK AND SHORE PROTECTION		BANK AND SHORE PROTECTION	
SLOPE:	1V:2H		1V:2H	
BURIED OR NON-BURIED HORIZ. TOE:	NON-BURIED		NON-BURIED	
TOE HORIZ. DISTANCE (ft):	10'		12'	
LIMIT OF PROTECTION (ft):	53.33 LT & RT		LT & RT	
DECK DRAINAGE:	SPREAD CONTAINED IN SHOULDER, DRAINED VIA 4" SCUPPERS.			

REMARKS

1. VALUE INCLUDES BACKWATER EFFECTS FROM PEAK STAGES OF TELOGIA CREEK
2. AS REPORTED BY J.T. HATHAWAY, LIBERTY COUNTY ROAD SUPERINTENDENT.

Exhibit 906-1
Bridge Hydraulic Recommendations
Date: 1/1/2023

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

LUKE S. WALKER, P.E.
LICENSE NUMBER: 99991
ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO. CR 67 COUNTY LIBERTY FINANCIAL PROJECT ID 123456-1-52-01

SHEET TITLE: BRIDGE HYDRAULIC RECOMMENDATIONS

PROJECT NAME: BRIDGE OVER YELLOW CREEK

REF. DWG. NO. SHEET NO.

10/27/2022 4:02:31 PM P5972BW C:\Worksets\FDOT\123456\15201\Structures\B1BRIDGE\HYDR001.DGN

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

907 RFP Concept Plans

907.1 General

This Chapter provides minimum requirements for the development of RFP Concept Plans that are included as an Attachment to the Request for Proposal (**RFP**). The requirements of this chapter must be met for Adjusted Score Design-Build Projects, and Low Bid Design-Build Projects.

The requirements provided in the **FDM 900 Series** and the **FDOT CADD Manual** form the basis for format and assembly of the plans.

Additional information regarding Design-Build contracting method can be found at:

<https://www.fdot.gov/construction/designbuild/design-build.shtm>

907.2 Index of RFP Concept Plans

Place an index of sheets on the left side of the Key Sheet. Assemble RFP Concept Plans in the following order:

- (1) Key Sheet (see **Exhibit 907-1**)
- (2) Typical Section Details
- (3) Model Management
- (4) Project Control
- (5) Roadway Plan-Profile
- (6) Stormwater Facilities
- (7) Drainage Map
- (8) Soil Survey
- (9) Report of Core Borings
- (10) Selective Clearing and Grubbing
- (11) Mitigation Plan
- (12) Traffic Plan (S&PM, Signalization, ITS, Lighting)
- (13) Landscape Plan
- (14) Architectural Plan

- (15) Structures Plan
- (16) Utility Work by Highway Contractor

907.3 RFP Concept Plans Development

Table 907.3.1 provides the minimum information that is to be shown on each sheet of the RFP Concept Plans. Written approval is required from the District Construction Engineer and the Chief Engineer when deviating from the minimum information set forth in **Table 907.3.1**.

Consider exceeding the minimum level of completion for higher risk elements.

Table 907.3.1 RFP Concept Plans Development

SHEET / CONTENT
KEY SHEET
Financial Project IDs
(Federal Funds) notation, if applicable
County Name and State Road
Fiscal Year and sheet number
Consultant’s name, address, and contract number, if applicable
Department’s Project Manager's name
List of Component Plan Sets
Project Location URL and Work Limits
Index of sheets including Developmental Standard Plans (when required in RFP)
Contract plans and component plans list (lead component only)
TYPICAL SECTION DETAILS
Project Specific Details
MODEL MANAGEMENT
Proposed Roadway Design and R/W Lines
Baselines
Model Information
PROJECT CONTROL
Benchmarks, Reference points, Control points

Table 907.3.1 RFP Concept Plans Development cont'

SHEET / CONTENT
ROADWAY PLAN-PROFILE
Plan View
Existing topography including utilities
North arrow and scale
Centerline of construction or baseline of survey
Equations and exceptions
Curve data
Existing R/W lines
Begin & end stations for the project
Begin & end bridge stations
Proposed drainage structures with pipes
Proposed R/W lines
Proposed side drainpipes
Proposed geometrics
Limits of wetlands
Profile View
Scale
Equations
Existing ground line
Begin & end stations for the project
Begin & end bridge stations
Highwater elevation
Final profile grades and vertical curve data
Nonstandard superelevation transition details
Highwater elevations

Table 907.3.1 RFP Concept Plans Development cont'

SHEET / CONTENT
STORMWATER FACILITIES
North arrow and scale
Centerline of construction or baseline of survey
Existing topography, drainage structures, and utilities
R/W lines
Soil boring locations
Fence and gate locations
Drainage structures with structure and pipe labeling
Stormwater facility delineation with side slopes, dimensions, and elevations
Stormwater facility section views
Outlet structure details and notes
100-year flood plain boundaries and elevations
Contamination sites, delineated wetlands, and sink holes and depressions
DRAINAGE MAP
Photographic (aerial) base map
Centerline of construction or baseline of survey and stationing
North arrow and scale
Street names and R/W lines
Begin & end of project stations
Begin & end of bridges stations
Drainage areas and flow directions
Drainage divides and ground elevations
Highwater information
Existing structures and pipes with relevant information
State, Federal, and county highway numbers
Label existing water bodies (e.g., lakes, rivers)
Proposed drainage structures with structure numbers
Proposed cross drains with pipe sizes and structure numbers
Flow arrows along proposed ditches
Retention and detention ponds, pond number and area size
Bridges and bridge culverts with begin & end stations
Flood Data Summary (if applicable)
SOIL SURVEY & REPORT OF CORE BORINGS
Soil data

Table 907.3.1 RFP Concept Plans Development cont'

SHEET / CONTENT
TEMPORARY TRAFFIC CONTROL PLAN
Typical section for each phase
Description of the phasing sequence and work involved
Other worksheets as necessary to convey concept and scope
Detour Plans with off-site detour routing
UTILITY ADJUSTMENTS
All existing utilities highlighted with dispositions
Develop conflict matrix
General Notes sheet including any work restrictions stipulated by UAOs and limitations on relocations, protections, or adjustments
Verified utility locations (SUE data)
SELECTIVE CLEARING AND GRUBBING
Existing vegetation to be protected, relocated, or removed
Project-specific notes and details
MITIGATION PLANS
Project specific
TRAFFIC PLAN
North arrow and scale
Basic roadway geometrics
Begin & end stations and exceptions
Station equations
Conflicting utilities, lighting, and drainage
Guide sign locations with panel legends depicted
Pavement markings including stop bars and crosswalks
Signal pole locations shown at correct station location and offset
Signal head locations
ITS device locations shown at correct station location and offset
Light pole symbols shown at correct station location and offset
LANDSCAPE PLAN
Contents are Project Specific
ARCHITECTURAL PLAN
Contents are Project Specific

Table 907.3.1 RFP Concept Plans Development cont'

SHEET / CONTENT
STRUCTURES PLAN
Plan and Elevation
Substructures: For end bents, piers, or intermediate bents, show substructure elements and sizes including all deviations from the typical dimensions, foundation type including element spacing and the arrangement of piles or drilled shafts
Superstructure: Include cross section showing lanes, shoulders, railings, slab thickness, beam type and spacing and web depth for steel girders. If applicable, show geometric changes in shapes of various components. Also show construction phases and maintenance of traffic data, outline of the existing structure and portions to be removed, and utilities (existing and proposed as available)
Retaining Walls: 1) Submit preliminary control drawings when proprietary or standard cast-in-place walls are proposed. 2) Control drawings for critical temporary walls.
Bridge Hydraulics Recommendation Sheet
Report of core borings.
Proposed construction sequence and methods indicate construction easements and methods of construction access
Aesthetic details.
Post-tensioning layouts
Foundation layouts and pile/shaft data table
Sidewalks: If provided, show preliminary accessible elements
Special details required by the Engineer or details which are not normally used on Department projects
UTILITY WORK BY HIGHWAY CONTRACTOR
Key Sheet
Mainline plan-profile showing proposed utility horizontal and vertical locations
Summary of Quantities Sheet

907.4 RFP Concept Plans Delivery

After the RFP Concept Plans have been reviewed, District comments addressed, and plans updated, submit the following:

- (1) Final RFP Concept Plans
- (2) CADD.zip file
- (3) Typical Section Package
- (4) Toll Siting Technical Memorandum in accordance with GTR, when applicable

INDEX OF RFP CONCEPT PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	TYPICAL SECTION DETAILS
3	MODEL MANAGEMENT
4 - 5	PROJECT CONTROL
6	ROADWAY PLAN-PROFILE
7 - 9	STORMWATER FACILITIES
10	DRAINAGE MAP
11	SOIL SURVEY
12 - 14	REPORT OF CORE BORINGS
15 - 16	SELECTIVE CLEARING AND GRUBBING
17	MITIGATION PLAN
18	TRAFFIC PLAN (S&PM, SIGNALIZATION, ITS, LIGHTING)
19 - 26	LANDSCAPING PLAN
27 - 32	ARCHITECTURAL PLAN
33 - 36	STRUCTURES PLAN
37 - 40	UTILITY WORK BY HIGHWAY CONTRACTOR

**STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION**

RFP CONCEPT PLANS

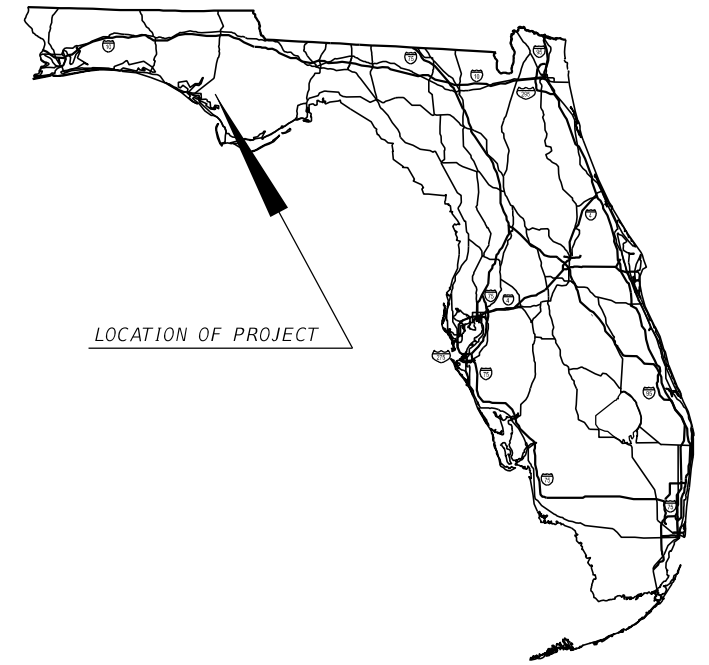
FINANCIAL PROJECT ID 123456-1-52-01

(FEDERAL FUNDS)

BAY COUNTY (46080)

STATE ROAD NO. 22 (WEWA HWY)

ADD LANES AND RECONSTRUCT FROM CRIM BLVD. TO KURT ST.



PROJECT LOCATION URL:	https://tinyurl.com/367v2589
PROJECT LIMITS:	BEGIN MP 1.560 - END MP 7.560
EXCEPTIONS:	NONE
BRIDGE LIMITS:	BR#469998 MP 3.422 - MP 3.471
RAILROAD CROSSING:	NONE

**Exhibit 907-1
RFP Concept Plans
Date: 1/30/2023**

**RFP CONCEPT PLANS
DEVELOPED BY:**

LUKE S. WALKER, P.E.
P.E. LICENSE NUMBER 99991
ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301
CONTRACT NO.: C0000
VENDOR NO.: 99-999999

FDOT PROJECT MANAGER:

BEN K. UWAIBI, P.E.

FISCAL YEAR	SHEET NO.
23	1

908 Stormwater Runoff Control Concept Worksheet

908.1 General

Stormwater Runoff Control Concept (SRCC) worksheet is provided to the Contractor to facilitate Contractor compliance with **Standard Specifications, Section 104**. These sheets may also be used to convey supplemental information during the plans phase review process. These sheets are not to be placed within the Contract Plans Set. Signing and sealing these sheets is not required.

Enter a PDF of these sheets into the “Permits” Project CADD folder. The worksheet may be entered into the Electronic Review Comments (ERC) system with the Phase III and Phase IV plans submittals, for review by District MS4 permit coordinators and District construction staff.

See **Exhibit 908-1** for an example of a SRCC Worksheet.

908.2 Sheet Set Up

This sheet may be produced on a standard-format sheet (11”x17”) or a large-format sheet (24”x36”, 36”x48” or 36”x72”). Use landscape orientation regardless of sheet size selected.

Use the following horizontal scales:

	<u>Standard</u>	<u>Optional</u>
Curbed Roadways	1” = 40’	1” = 50’
Flush-shoulder Roadways	1” = 50’	1” = 100’

908.3 Required Information

As illustrated in *Exhibit 908-1*,

The worksheet must display the following:

- (1) Centerline or Baseline of construction
- (2) R/W limits
- (3) Limits of Construction activities
- (4) Overland flow drainage patterns
- (5) Areas of soil disturbance
- (6) Areas which will not be disturbed
- (7) Locations of major structural and nonstructural controls
- (8) Locations of areas where stabilizations practices are expected to occur
- (9) Location of surface waters and wetlands
- (10) Location of project discharge locations (to surface water or MS4)

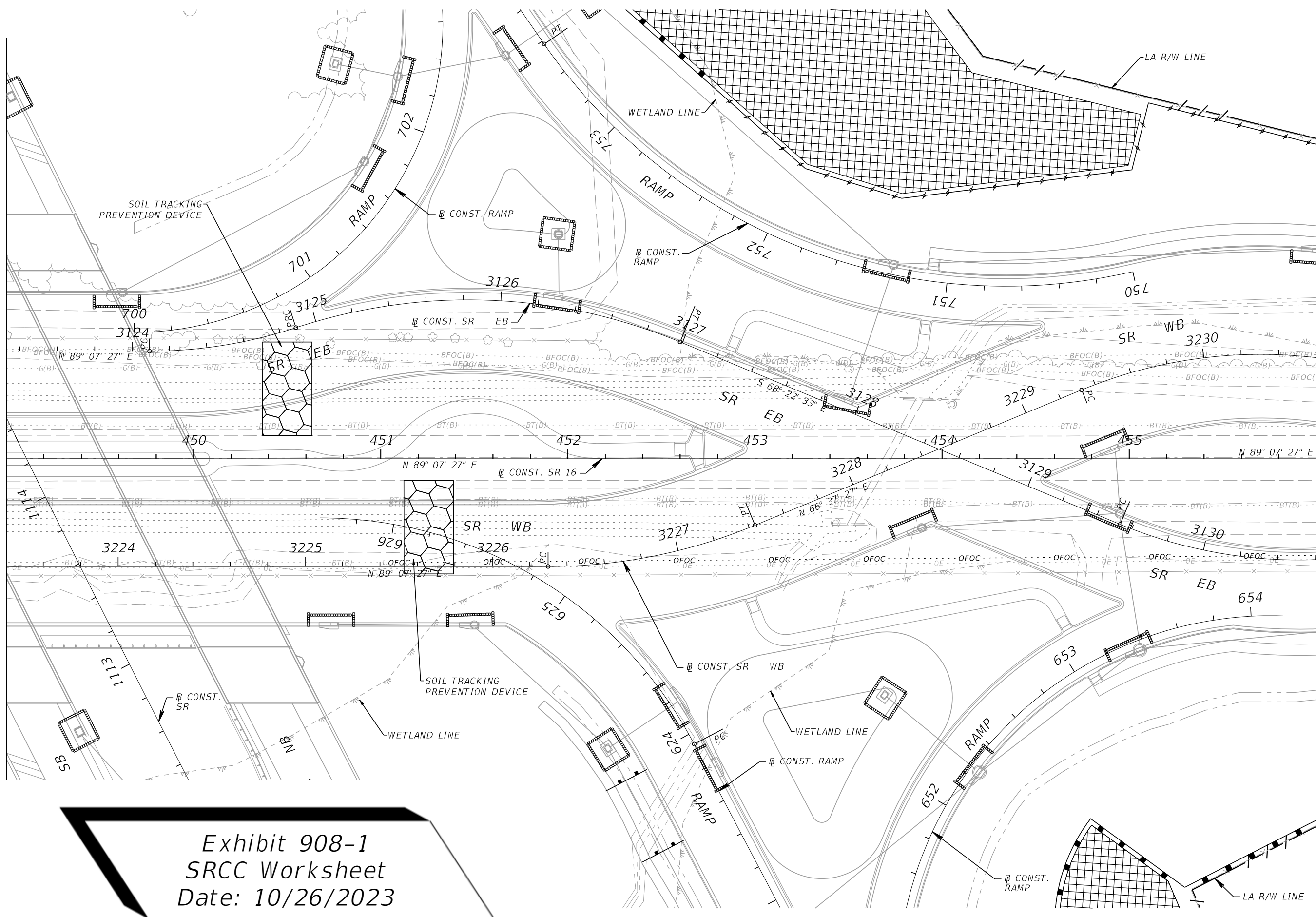


Exhibit 908-1
 SRCC Worksheet
 Date: 10/26/2023

910 Key Sheet and Signature Sheet

910.1 General

The Key Sheet is the first sheet of each contract plans. The Signature Sheet, when required, is typically the second sheet of the contract plans. Produce these sheets using standard-format plan sheets (11"x17").

Projects are to be delivered as individual Signed and Sealed components of the Contract Plans set; e.g., Roadway Plans, Signing and Pavement Marking Plans, Structure Plans.

910.2 Key Sheet

The Key Sheet describes the project and the contents of the Contract Plans set. The Key Sheet is created using the FDOT CADD Software.

The top center of the sheet is to display "STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION" followed by the contract plans title of the component; e.g., "ROADWAY PLANS", "LIGHTING PLANS", "LANDSCAPE PLANS". See **FDM 910.2.5** for a full list of allowable component names.

See **Exhibit 910-1** for an example of a Lead Key Sheet (typically Roadway Plans). See **Exhibit 910-2** for a Lead Key Sheet with revisions. See **Exhibit 910-3** for an example of a Component Key Sheet.

910.2.1 Work Program Data

Work program data is placed directly below component contract plans designation, and includes the Financial Project ID, Federal Funds designation, County name and roadway section number, and State Road number with local name.

Financial Project ID

The Financial Project ID is the main number identifying each individual project within the Work Program. On projects which have one Contract Plans set, but multiple Financial Project IDs, list all the Financial Project IDs on the key sheet. Show only the lead Financial Project ID in the title block on all other plan sheets.

Federal Funds

When any of the Financial Project IDs listed on the Key Sheet involves Federal funds, display the words "(Federal Funds)" directly under the list.

Do not display the words "(Federal Funds)" for projects that use only State funds, even when strung with a project that uses Federal funds.

County Name and State Roadway Section Number

Place the county name and (in parentheses) the roadway section number directly under the Financial Project ID or "(Federal Funds)". The roadway section number can be found with the [Straight Line Diagrams](#) (SDL). On projects which involve multiple counties, or multiple roadways, list all counties and associated roadway section numbers.

State Road Number and Project Description

Place the state road number and (in parentheses) the local road name directly under the county name and roadway section number. Under the state road number display a general description of work type and limits; e.g., "RRR from Crim Boulevard to Kurt Street".

910.2.2 Project Work Limits and Features

Show project work limits and features directly below the State Road number and project description. This data is reported in milepost (MP), correct to three decimals. A box is typically used as shown in **Exhibit 910-1**, and includes the following required information:

- (1) Provide a Project Location URL. The intent of the project location link is to provide a visual of the project location using the Work Program GIS. Create the full URL using a set string, with the first seven digits of the FPID number appended. For example, FPID number **217932-1-52-01** would display the following URL: https://owpbstandardmap.fdot.gov/?query=WorkProgram_Tbl15_Dissolved_2004,itemseq,2179321.

Optional: Convert the full URL to a condensed URL using <https://tinyurl.com/app/> (or equivalent). The converted URL displays as <https://tinyurl.com/367v2589>.

- (2) Begin and end project MP limits for each State Road included in the project. Include Turnpike mile marker (MM) limits for Turnpike projects.
- (3) Begin and end MP limits of bridge structures, including the structure number(s). Do not include bridge culverts. When an existing bridge structure is being replaced, indicate the proposed structure and not the existing.

- (4) Begin and end MP limits for each Project Exception (i.e., excluded roadway limits from project)
- (5) Center line MP for each railroad crossing within the limits of construction, including name of railroad and DOT/AAR crossing number.

Project work limits must be consistent with milepost information entered into the Work Program Administration (WPA) system during final design. See **FDM 111.2.1** for information on updating the WPA system.

910.2.3 Project Location

Show a small-scale state map at the upper right portion of the Key Sheet and indicate with leader line the general location of the project within the state.

910.2.4 Construction Contract Number and Fiscal Year

Provide the Construction Contract Number and Fiscal Year in the data block located in the lower right corner of the sheet. The Key Sheet of each component of the Contract Plans set will be numbered as the first sheet of that component.

The Construction Contract Number is typically issued late in the design process and may remain blank until provided. Show the fiscal year for which the Letting is scheduled in the "Fiscal Year" box; i.e., enter "24" in the box for a project that has a Letting date during the July 2023 to June 2024 fiscal year.

910.2.5 Contract Plans Set Components

The Contract Plans Set is typically assembled as component plans that are associated with a primary work type. List all component plans included in the Contract Plans Set in the upper left corner of the Key Sheet in the following order:

- | | |
|--|---|
| (1) Roadway | (7) Architectural |
| (2) Signing and Pavement Marking | (8) Structures |
| (3) Signalization | (9) Toll Facilities |
| (4) Intelligent Transportation Systems | (10) Utility Work by Highway Contractor Plans |
| (5) Lighting | |
| (6) Landscape | |

No alterations or modifications to the component names listed above is allowed.

Roadway plans are most often the lead component of the Contract Plans set; however, another component may become the lead component when there are no roadway plans. Details and plan sheets typically found within the roadway plans, such as Temporary Traffic Control Plans, may be included in the lead component plans and numbered consecutively.

Utility Work by Highway Contractor Plans have a separate Financial Project ID and are typically treated as a strung project (see **FDM 910.2.10**). When utility work is minimal, Utility Work by Highway Contractor Plans may be included as component plans within the Contract Plans set.

See the **Structures Manual, Volume 2 – [Structures Detailing Manual](#)** when Structures plans become the lead component.

910.2.6 Index of Roadway Plans

Place an index of roadway sheets on the left side of the Key Sheet below the list of component plans. Each component Key Sheet will have an index of sheets contained in that component.

Assemble Roadway Plans in the following order:

- (1) Key Sheet
- (2) Signature Sheet
- (3) Drainage Map
- (4) Typical Sections
- (5) Typical Section Details
- (6) Model Management
- (7) Project Control
- (8) General Notes
- (9) Roadway Plan-Profile
- (10) Traffic Monitoring Site
- (11) Special Details
- (12) Drainage Structures

- (13) Soil Survey
- (14) Report of Core Borings
- (15) Verified Utility Locate
- (16) Temporary Traffic Control Plan
- (17) Utility Adjustments
- (18) Selective Clearing and Grubbing
- (19) Miscellaneous Structures

Do not place Box Culvert plan sheets in the Roadway component plans. These sheets are to be placed in a Structure component, even when there are no bridge plans.

910.2.6.1 Early Works

Plan sets may require insertion of sheets that were prepared early, or prior to the design process. These sheets may be identified and numbered with the following prefixes:

- (1) GR-# Soil Survey and Soil Boring Cross Sections or Report of Core Borings
- (2) TR-# Tree Survey
- (3) UTV-# Verified Utility Locate

When submitted as early works, list these sheets below the index of plan sheets with an asterisk and a note as shown in ***Exhibit 910-1***.

No plan sheets other than those listed above are to be separated from the component plans.

910.2.7 Engineer of Record (EOR) and Project Manager

Place on the right side of the Key Sheet the following information in the order shown:

- (1) Name and license number of the EOR, name, address, and phone number of the engineering business or agency where the EOR is employed. Include consultant contract number and vendor number when appropriate. For non-engineering licensed professionals, change title to “Licensed Professional of Record”, and include similar information that applies to their profession.
- (2) Name of the Department’s Project Manager below the EOR information. Show only the Department’s Project Manager at this location, except for:

- (a) When plans are prepared by the Department, the name of the Department's designer may be placed immediately below the name of the Department's Project Manager.
- (b) When appropriate, the name of the GEC Project Manager may be placed immediately below the Department's Project Manager.

910.2.8 Governing Standards

Indicate the governing [Standard Plans](#) and [Standard Specifications](#) in the lower left corner of the Key Sheet as shown on *Exhibit 910-1*.

For requirements of the Structures General Notes and inclusion of the relevant bridge related [Standard Plans](#) in the structures component plan set, see the [Structures Detailing Manual](#). For additional information on the [Standard Plans](#) and [Standard Specifications](#), see *FDM 115*.

When [Standard Plans Interim Revisions \(IRs\)](#) are released, the engineer must determine if any *IRs* apply to the project and reference those applicable *IRs* as shown on *Exhibit 910-1*.

910.2.8.1 Developmental Standard Plans

List *Developmental* [Standard Plans](#) to be included in the component plans below either the "Index of Sheets" or the early works note as shown on *Exhibit 910-1*.

Insert *Developmental* [Standard Plans](#) sheets at the end of each applicable component plan set as applicable. When included in structure component plans, insert *Developmental* [Standard Plans](#) sheets before existing bridge plans.

910.2.9 Revisions

For information on the process and requirements for completing plan revisions:

- See *FDM 132* for revisions prior to Letting
- See *FDM 151* for revisions during construction

Show a complete record of all revisions made to a component plans set on the correlating component Key Sheet under a "REVISIONS" header located in the bottom center of the sheet. For each revision, record the revision number, the sheet numbers, and the date

of the revision. Show the unique numbered symbol that corresponds to the revision number on the Revision Memo and modified plan sheets.

Show revisions to the Key Sheet in the Key Sheet Revisions block placed to the right of the “REVISIONS” header. List the revision date and a brief description of the revision. The Key Sheet Revisions block is only used to record changes to the Key Sheet other than recorded revisions under the “REVISIONS” header.

Do not show the “REVISIONS” header or the Key Sheet Revisions block on the Key Sheet until needed.

910.2.10 Strung Projects

Contract Plans sets that are independently prepared but are let in the same construction contract are referred to as strung projects. Show the strung project note only on lead component Key Sheet for each project that is being strung together. The note is shown in the top right corner above the small-scale state map as shown in *Exhibit 910-1*. The note must contain all Financial Project IDs (lead project first) being strung together, including project numbers without contract plans.

When a federally funded project is strung with a non-federal eligible (NFE) project, the federally funded project is often the lead project.

When a federally funded project is strung with a state funded project, the entire contract becomes federalized; i.e., both the state funded project and the federally funded project must comply with all applicable federal laws, rules, and regulations related to the federalized contract. Do not put “(Federal Funds)” on the Key Sheet of a state funded project that is being strung with a federal project, even though that project has become federalized.

910.3 Signature Sheet

The Signature Sheet defines a professional’s area of responsibility for those portions of the document being digitally signed. The Signature Sheet shows the Digital Signature Appearance of the Professional(s) of Record.

When component plans are Signed and Sealed by a single licensed professional a signature block can be placed on the Key Sheet in lieu of using a Signature Sheet. When the component plans are signed by more than one licensed professional, or a BIM file manifest is required, a Signature Sheet is often needed.

See **Exhibits 910-4** for an example of a Signature Sheet.

910.3.1 Title Block

The Signature Sheet title block is to contain the information for the licensed professional that is responsible for the creation and content of the sheet. Do not place the Official Record note along the right edge of this sheet.

See **FDM 130** for digital Signing and Sealing requirements.

910.3.2 Digital Signature Placement

By placing a digital signature on the Signature Sheet of a multi-sheet plans set, the licensed professional associates their professional signature with the entire plans set. The Signature Sheet provides a Statement of Responsibility delineating the extent of the professional's responsibility and identifies the specific sheets for which the professional is accepting responsibility.

910.3.2.1 Digital Signature Appearance

A Digital Signature Appearance is the visual representation of a Digital Signature applied to a document. The Digital Signature Appearance is composed of combinations of informational fields; e.g., dates or text, and other information. The Digital Signature Appearance must include the professional's name, and the date and time of signing stamp.

910.3.2.2 Seal

The professional will include a representation of their Seal next to the Digital Signature Appearance. Seal representations are provided with the FDOT CADD Software. Each respective Board of Professional Regulation has enacted in their section of the Florida Administrative Code the requirements for the size and representation of a Seal.

910.3.2.3 Statement of Responsibility

The Statement of Responsibility is used to define the licensed professional's limits of responsibility and any exculpatory language. Place this statement below the Seal and Digital Signature Appearance and above the sheet index. The Statement of Responsibility must indicate the applicable Rule of the Florida Administrative Code (F.A.C.).

910.3.3 Index of Sheets

List the plan sheets below the Statement of Responsibility that the licensed professional is signing and sealing. Exculpatory language should be included in cases where professionals share responsibility for content on any given sheet.

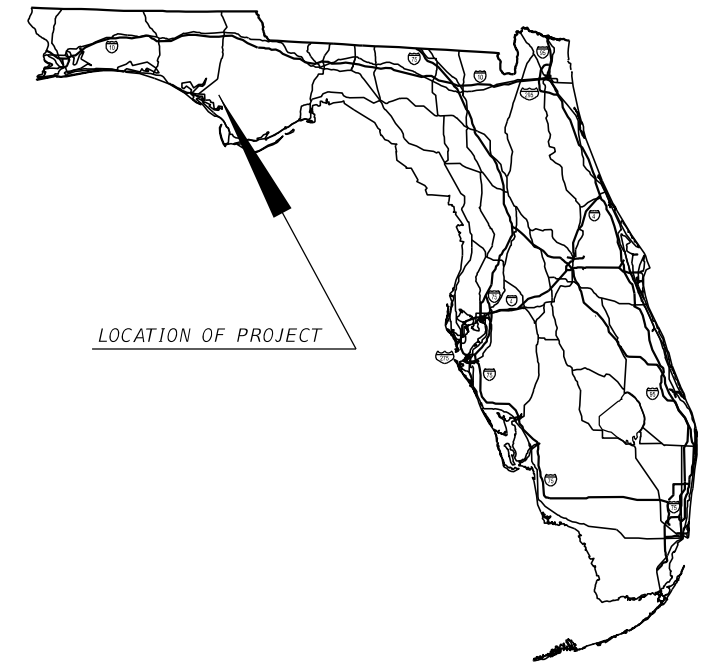
910.3.4 BIM File Manifest

The BIM file manifest is table placed below the Index of Sheets.

910.3.5 Revisions

A revision Signature Sheet is created when more than one licensed professional is required to Sign and Seal a revision package. The revision Signature Sheet is numbered using an alphabetic suffix; e.g., 2A, 2B. Only the licensed professionals required to Sign and Seal the revision are to be included on the revision Signature Sheet.

See **Exhibit 910-5** for an example of a revision Signature Sheet.



LOCATION OF PROJECT

CONTRACT PLANS COMPONENTS

- ROADWAY
- SIGNING AND PAVEMENT MARKING
- SIGNALIZATION
- INTELLIGENT TRANSPORTATION SYSTEMS
- LIGHTING
- LANDSCAPE
- ARCHITECTURAL
- STRUCTURES
- TOLL FACILITIES
- UTILITY WORK BY HIGHWAY CONTRACTOR PLANS

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	DRAINAGE MAP
4 - 5	TYPICAL SECTIONS
6	TYPICAL SECTION DETAILS
7 - 9	MODEL MANAGEMENT
10	PROJECT CONTROL
11	GENERAL NOTES
12 - 14	ROADWAY PLAN-PROFILE
15 - 16	TRAFFIC MONITORING SITE
17	SPECIAL DETAILS
18 - 19	DRAINAGE STRUCTURES
20 - 23	VERIFIED UTILITY LOCATE
24 - 31	TEMPORARY TRAFFIC CONTROL PLAN
32 - 37	UTILITY ADJUSTMENTS
38 - 41	SELECTIVE CLEARING AND GRUBBING
42	MISCELLANEOUS STRUCTURES
GR-1*	SOIL SURVEY
GR-2*	REPORT OF CORE BORINGS

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROADWAY PLANS

FINANCIAL PROJECT ID 123456-1-52-01
(FEDERAL FUNDS)
BAY COUNTY (46080)

STATE ROAD NO. 22 (WEWA HWY)

ADD LANES AND RECONSTRUCT FROM CRIM BLVD. TO KURT ST.

PROJECT LOCATION URL: <https://tinyurl.com/367v2589>

PROJECT LIMITS: BEGIN MP 1.560 - END MP 7.560

EXCEPTIONS: NONE

BRIDGE LIMITS: BR#469998 MP 3.422 - MP 3.471

RAILROAD CROSSING: NONE

Exhibit 910-1
Lead Key Sheet
Date: 1/1/2024

* These sheets are included in the Index of Roadway Plans only to indicate that they are part of the Roadway Plans. These sheets are contained in a separate digitally signed and sealed document.

DEVELOPMENTAL STANDARD PLANS (DSPs):
D591-001 LANDSCAPE IRRIGATION SLEEVES

GOVERNING STANDARD PLANS:
Florida Department of Transportation, FY2023-24 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: IR536-001-01, IR521-001-01

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

GOVERNING STANDARD SPECIFICATIONS:
Florida Department of Transportation, FY 2023-24 Standard Specifications for Road and Bridge Construction at the following website: <http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

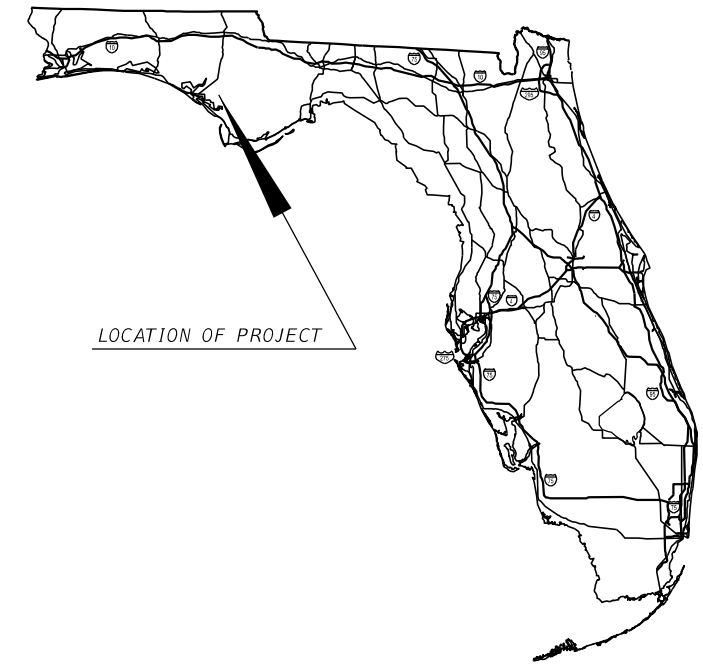
ROADWAY PLANS
ENGINEER OF RECORD:

LUKE S. WALKER, P.E.
P.E. LICENSE NUMBER 99991
ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301
(850) 671-1313
CONTRACT NO.: C0000
VENDOR NO.: 99-999999

FDOT PROJECT MANAGER:

BEN K. UWAIBI, P.E.

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
T0000	22	1



LOCATION OF PROJECT

CONTRACT PLANS COMPONENTS

- ROADWAY
- SIGNING AND PAVEMENT MARKING
- SIGNALIZATION
- INTELLIGENT TRANSPORTATION SYSTEMS
- LIGHTING
- LANDSCAPE
- ARCHITECTURAL
- STRUCTURES
- TOLL FACILITIES
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INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROADWAY PLANS

FINANCIAL PROJECT ID 123456-1-52-01
(FEDERAL FUNDS)
BAY COUNTY (46080)

STATE ROAD NO. 22 (WEWA HWY)

ADD LANES AND RECONSTRUCT FROM CRIM BLVD. TO KURT ST.

PROJECT LOCATION URL: <https://tinyurl.com/367v2589>

PROJECT LIMITS: BEGIN MP 1.560 - END MP 7.560

EXCEPTIONS: NONE

BRIDGE LIMITS: BR#469998 MP 3.422 - MP 3.471

RAILROAD CROSSING: NONE

Exhibit 910-2
Revised Lead Key Sheet
Date: 1/1/2024

* These sheets are included in the Index of Roadway Plans only to indicate that they are part of the Roadway Plans. These sheets are contained in a separate digitally signed and sealed document.

DEVELOPMENTAL STANDARD PLANS (DSPs):
D591-001 LANDSCAPE IRRIGATION SLEEVES

GOVERNING STANDARD PLANS:
Florida Department of Transportation, FY2023-24 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: IR536-001-01, IR521-001-01

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

GOVERNING STANDARD SPECIFICATIONS:
Florida Department of Transportation, FY 2023-24 Standard Specifications for Road and Bridge Construction at the following website: <http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

REVISIONS:
FINANCIAL PROJECT ID 123456-1-52-01
 Roadway Sheets 1, 2A, 5, & 19 (Revised 04-20-22)

KEY SHEET REVISIONS	
DATE	DESCRIPTION
04-20-22	Added Sheet Number 2A to the Index and Revised Sheet Numbers 5 & 19.

ROADWAY PLANS
ENGINEER OF RECORD:

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TALLAHASSEE, FL 32301
(850) 671-1313
CONTRACT NO.: C0000
VENDOR NO.: 99-999999

FDOT PROJECT MANAGER:

BEN K. UWAIBI, P.E.

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
T0000	22	1

CONTRACT PLANS COMPONENTS

- ROADWAY
- SIGNING AND PAVEMENT MARKING
- SIGNALIZATION
- INTELLIGENT TRANSPORTATION SYSTEMS
- LIGHTING
- LANDSCAPE
- ARCHITECTURAL
- STRUCTURES
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- UTILITY WORK BY HIGHWAY CONTRACTOR PLANS

INDEX OF SIGNING AND PAVEMENT MARKING PLANS

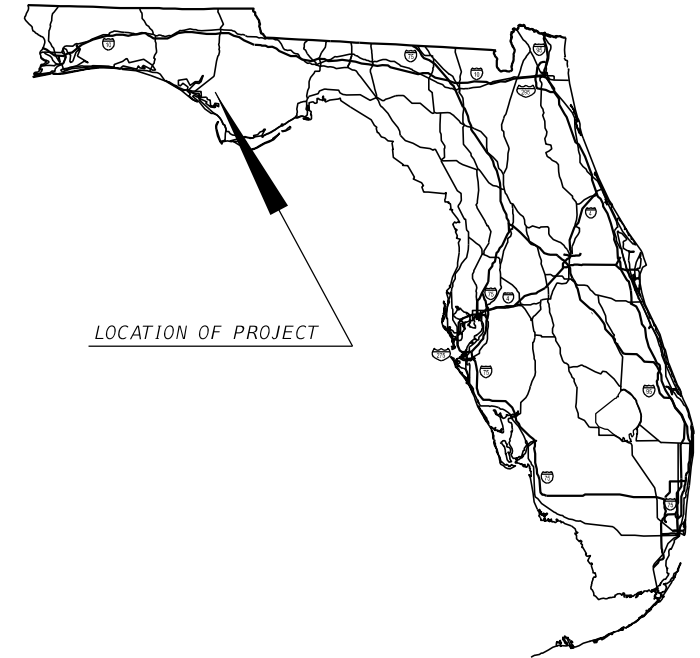
SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	GENERAL NOTES
4 - 7	S&PM PLAN
8	GUIDE SIGN WORKSHEET
9	OVERHEAD SIGN CROSS SECTION
10	SIGN STRUCTURES DATA TABLE
11	FOUNDATION DETAILS
12	BRIDGE MOUNTED SIGN DETAILS
13	REPORT OF CORE BORINGS

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
SIGNING AND PAVEMENT MARKING PLANS

FINANCIAL PROJECT ID 123456-1-52-01
(FEDERAL FUNDS)
BAY COUNTY (46080)

STATE ROAD NO. 22 (WEWA HWY)

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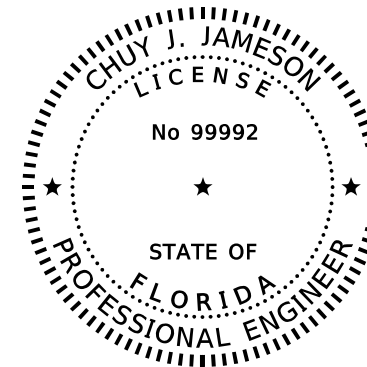
PROJECT LOCATION URL: <https://tinyurl.com/367v2589>

PROJECT LIMITS: BEGIN MP 1.560 - END MP 7.560

EXCEPTIONS: NONE

BRIDGE LIMITS: BR#469998 MP 3.422 - MP 3.471

RAILROAD CROSSING: NONE



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

Chuy J. Jameson
2022.07.13 11:02:26 - 04'00'

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.

SIGNING AND PAVEMENT MARKING PLANS ENGINEER OF RECORD:

CHUY J. JAMESON, P.E.
P.E. LICENSE NUMBER 99992
ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301
(850) 671-1313
CONTRACT NO.: C0001
VENDOR NO.: 99-999999

FDOT PROJECT MANAGER:
BEN K. UWAI BI, P.E.

Exhibit 910-3
Component Key Sheet
Date: 1/1/2024

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2023-24 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>

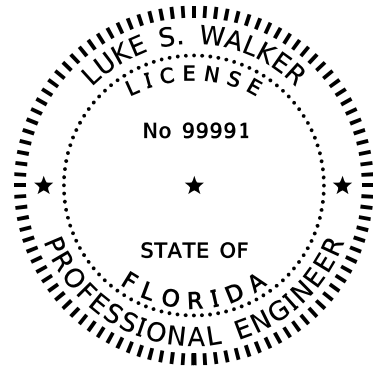
APPLICABLE IRs: IR536-001-01, IR521-001-01

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

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, FY 2023-24 Standard Specifications for Road and Bridge Construction at the following website: <http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
T0000	22	1



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

Luke S. Walker
2022.07.14 16:52:48 - 4'00'

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301
LUKE S. WALKER, P.E. NO. 99991

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

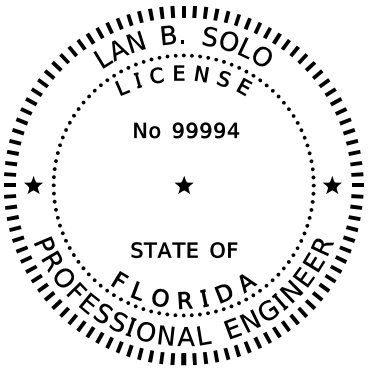
SHEET NO.	SHEET DESCRIPTION
1	KEYSHEET
2	SIGNATURE SHEET
3	DRAINAGE MAP
4 - 5	TYPICAL SECTIONS
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12 - 14	ROADWAY PLAN-PROFILE
18 - 19	DRAINAGE STRUCTURES
32 - 37	UTILITY ADJUSTMENTS

THE ABOVE NAMED PROFESSIONAL IS RESPONSIBLE FOR THE FOLLOWING BIM FILES IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

BIM FILES IDENTIFIED AS PLANS TO SUPPORT EARTHWORK		
FILE NAME	FILE DESCRIPTION	SHA256 Encryption Code
12345615201\3DDeliverables\AMG-2DSGNRD01.dgn	AMG file for 3D-Deliverables	8300BBC34652B4CFA33508126A9CA83D4AE283AE44691047C4E73BCDD2A2AD8E
12345615201\3DDeliverables\AMG-MODLRD01.i.dgn		BC738EA02F35571B8B04F32EF04AE12D0192CDC9F2531249CC207944092A12E9
12345615201\3DDeliverables\AMG-ALGNSR61.xml		BA08AC3CFBB7489B6AC129DD064CA81DD0B8B9ABD5A33691357B0AE768D50E4D
12345615201\3DDeliverables\AMG-ALGNBL98.xml		D8A843AA08EC77069804AD774D0EBA984F1BBB4713F66474589DF70745CF6B62
12345615201\3DDeliverables\AMG-3SURFACEPRO1.xml		56AECC56379686F8F0CB91C97B41739AAE76DB6B5D0C90F58486B32D0AB1B098
12345615201\3DDeliverables\AMG-3SURFACEEX01.xml		58793EFDD20A3452E7B521C101E5FFACB081B57FADE42401E3AB58AE2ABEA121
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12345615201\3DDeliverables\AMG-3DSGNRD01.dwg	AMG file for 3D-Deliverables	7F25DF5C0D3F3799E3A457B93CD1AA97255E1B3C1C40361925A3B7294F140745
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https://emn178.github.io/online-tools/sha256_checksum.html

Exhibit 910-4
Signature Sheet
Date: 1/1/2024



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

Lan B. Solo
2022.07.14 16:42:28 - 4'00'

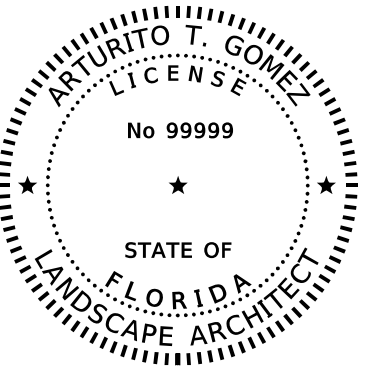
ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301
LAN B. SOLO, P.E. NO. 99994

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
32 - 37	UTILITY ADJUSTMENTS



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

Arturito T. Gomez
2022.07.14 15:35:15 - 8'00'

ON THE DATE ADJACENT TO THE SEAL

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LAND DESIGN, LLC.
345 IVY LANE
ORLANDO, FL 32801
ARTURITO T. GOMEZ, L.A. NO. 99999

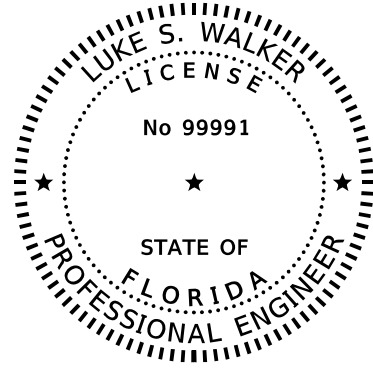
THE ABOVE NAMED LANDSCAPE ARCHITECT SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G10-11.011, F.A.C.

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
38 - 41	SELECTIVE CLEARING AND GRUBBING

10/24/2023 2:22:11 PM RD960DL C:\Projects\standards\roadway\FDM_900_Exhibit_Master.dgn

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		SR 22	BAY	123456-1-52-01	2

SIGNATURE SHEET



THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY:

Luke S. Walker
2022.07.14 17:06:51 - 4'00'

ON THE DATE ADJACENT TO THE SEAL

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ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301
LUKE S. WALKER, P.E. NO. 99991

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
2A	SIGNATURE SHEET
5	TYPICAL SECTIONS
19	DRAINAGE STRUCTURES

THE ABOVE NAMED PROFESSIONAL IS RESPONSIBLE FOR THE FOLLOWING BIM FILES IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

BIM FILES IDENTIFIED AS PLANS TO SUPPORT EARTHWORK			
FILE NAME	FILE DESCRIPTION	SHA256 Encryption Code	REVISION
12345615201\3DDeliverables\AMG-3DSGNRD01.dgn	AMG file for 3D-Deliverables	9E41F7E20C9EA63B4FF41E9FD59085C18B79D7487E865BC2E9B00DE4663EF47B	Updated Drainage System
https://emn178.github.io/online-tools/sha256_checksum.html			

Exhibit 910-5
Revision Signature Sheet
Date: 1/1/2024

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SIGNATURE SHEET	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	2A		
				LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301	SR 22	BAY			123456-1-52-01

911 Model Management Sheet

911.1 General

The Model Management sheet provides information for the order and naming of the models developed for the project.

The Model Management sheet is produced as a contract document and placed within the Roadway Plans. The sheet may be a standard-format plan sheet (11"x17") or a large-format plan sheet (24x36", 36"x48", or 36"x72") and may use any scale provided that the required information is clearly depicted.

The required information should be shown on a single plan sheet. Development of this sheet early in the design phase establishes an effective segmentation of the project.

See **Exhibit 911-1** for an illustration of the Model Management sheet.

911.2 Creation of Model Management Sheet

Display and label the centerline or baseline of construction on the sheet with station numbers close to station ticks. Include a north arrow, typically in the upper right portion.

Display proposed limits of pavement, curbs, traffic separators, sidewalks, curb ramps, and driveways. Show proposed bridges and approach slabs by simple outline. The labeling of any of these features is not required. If the topographic file is displayed, it should be gray scale. The intent is to show an outline of the proposed roadway to give context to the limits of each model segment.

Indicate the segments (portions of the centerline) that the project is broken into for the purpose of model development. Provide labeling that includes:

- (1) File name of model(s) associated with a segment.
- (2) Name of roadway centerline or baseline construction.
- (3) Station limits contained within the model.

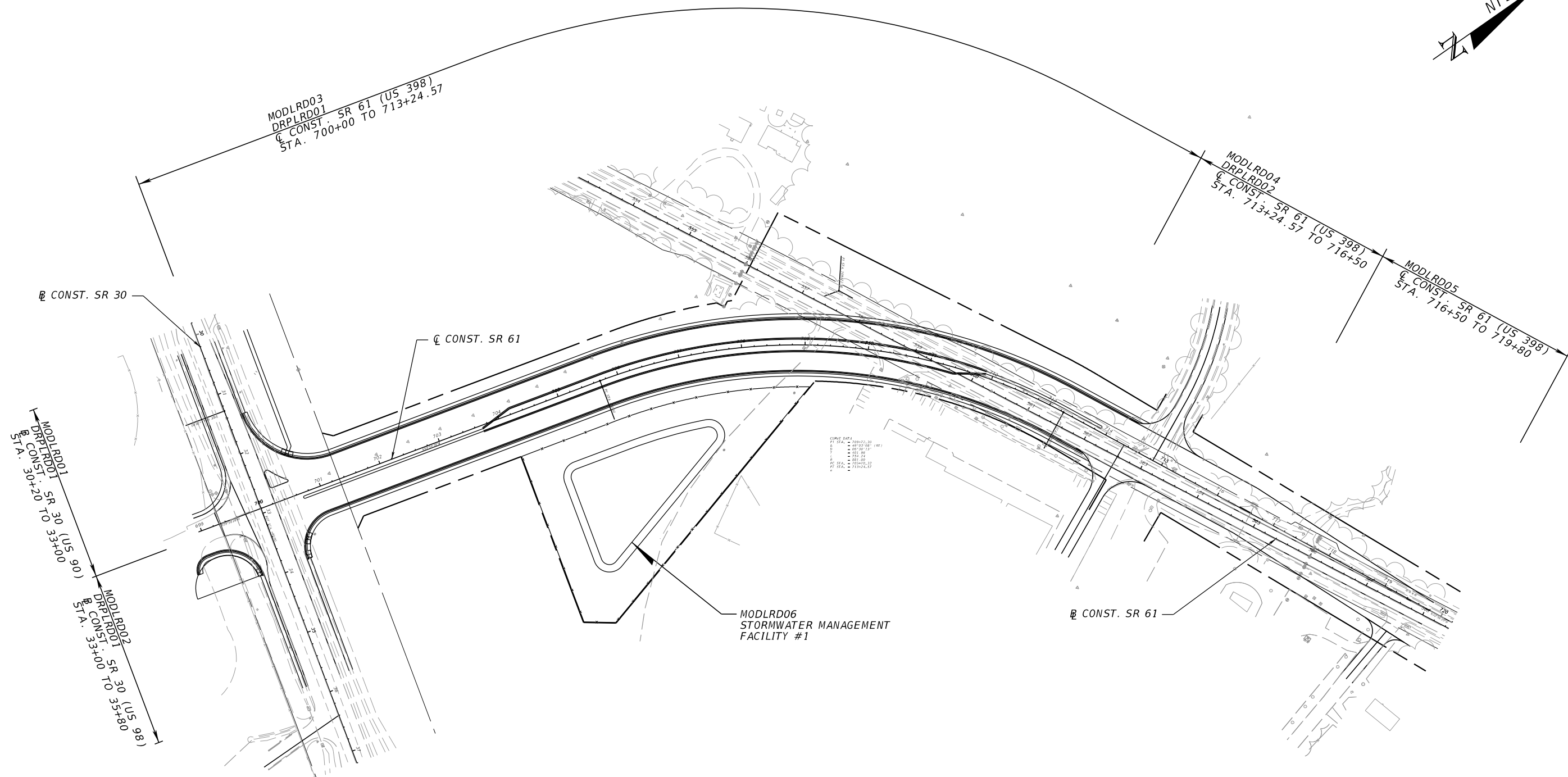
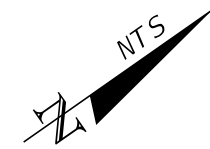


Exhibit 911-1
Model Management Plan
 Date: 1/1/2023

8/30/2022 1:46:56 PM P5972BW
 C:\work\sets\FDOT\12345615201\Roadway\PLAYRD01.dgn

REVISIONS				PROFESSIONAL ENGINEER	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				GARTH REVAN, P.E. LICENSE NUMBER: 12288 STAR FORGE ENGINEERING 603 MANDALOR WAY KORRIBAN, FL 56789	SR 61	WAKULLA	123456-1-52-01	MODEL MANAGEMENT

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912 Project Control

912.1 General

The Project Control sheet provides a summary of horizontal and vertical datum (i.e., reference points, benchmarks, and control points). The reported datum shown on this sheet must provide clear and sufficient information to establish horizontal and vertical control during the construction of the project. The data shown can be extracted from the project network control survey and historical control data or reflect assumed datum.

The Engineer of Record will create the Project Control sheet from data extracted from the project survey and sign and seal the Project Control sheet. These sheets are to be placed in the component plans in accordance with **FDM 910.2**.

See **Exhibit 912-1** for example of a Project Control sheet.

912.2 Sheet Setup

Prepare the Project Control sheet on a standard-format sheet (11"x17") or large-format sheet (24"x36") . Use landscape orientation regardless of sheet size selected. Use standard symbols contained in the [CADD Manual](#).

Provide a note on the Project Control sheet that identifies horizontal and vertical datum that the survey is based on.

912.3 Reference Points

Reference points are prominent, easily located points in the terrain used to define a location of another point that is located on the baseline of survey. The purpose of reference points is to provide horizontal location to re-establish primary control points along the baseline of survey. Reference points should not be located on the baseline. Detailed descriptions of each reference point are illustrated with a sketch normally not drawn to any scale.

Place survey reference points on the Project Control sheet along the top of the sheet or where other space allows. Clearly indicate the baseline of survey and reference points, including all ties. Complete length of survey baseline between two consecutive reference points need not be shown. Clearly label each reference point, beginning at the first reference point within the limits of the project, and progressing in the direction of

stationing. Reference points need not be drawn to any scale, but distances and angles shown must be proportionate.

912.4 Benchmarks

Benchmarks provide a known elevation that is used as the basis for measuring the elevation of other topographical points. When benchmarks are not used to provide horizontal control, they may be placed on the Project Control sheet along the bottom of the sheet or where other space allows. At a minimum, benchmarks are to include:

- (1) Identifying name (e.g., BM No. 9)
- (2) Description (e.g., nail in tree, concrete monument)
- (3) Station and offset
- (4) Elevation (in feet to two decimal places)

912.5 Control Points (Horizontal and Vertical Datum)

Control points provide information for the location and elevation of established monuments. Control points that provide vertical datum are also known as benchmarks.

Place the following information for the control points in a table titled Horizontal and Vertical Control:

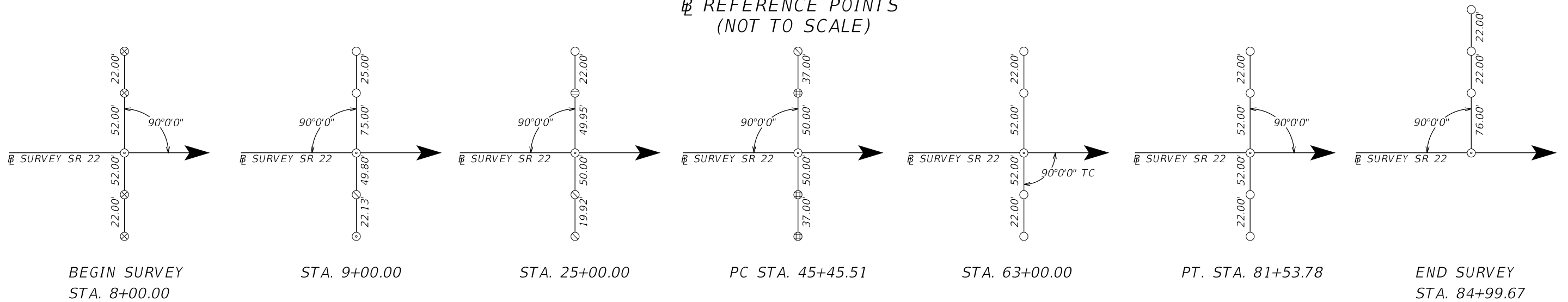
- (1) Point Name – Often identified on the stamped disk placed on the established monument.
- (2) Northing and Easting – Show to three decimal places. Show Northing and Easting to the nearest foot when control point serves only as a Benchmark.
- (3) Scale Factor – Show to eight decimal places.
- (4) Latitude and Longitude – Show seconds to five decimal places. If control point serves only as a Benchmark show Latitude and Longitude to the nearest second.
- (5) Baseline Station and Offset – Show to two decimal places.
- (6) Elevation – If control point only serves as horizontal control show elevation as “N/A”.
- (7) Description – Indicate the size, type, if the monument is “found” or “set” and include the monument ID number.

When this table is the sole means to convey horizontal and vertical datum, include a project sketch on the Project Control sheet that provides a visual reference for the location

of the control points. The sketch normally is not to scale but must provide clarity and legibility. Include the following information on the sketch:

- (1) Show the baseline of survey with stationing.
- (2) Flag and label beginning and ending stations for project.
- (3) Show bearings for all tangent sections, in the direction of stationing.
- (4) Label PC and PT points and show horizontal curve data.
- (5) Indicate graphically the location of intersecting roadways and railroads.
- (6) Indicate Township, Range and Sections that the survey traverses. Show the location where section lines cross the baseline of survey.
- (7) Place a north arrow and scale in a conspicuous location, typically in the upper right portion of the sheet.

☒ REFERENCE POINTS
(NOT TO SCALE)



LEGEND

- = SET 5/8" IRC STAMPED F.D.O.T. REF.
- ⊙ = SET NAIL W/ DISC STAMPED F.D.O.T. CONTROL
- ⊗ = SET X CUT IN CONCRETE NO ID
- ⊖ = FOUND 100D NAIL NO ID
- ⊕ = FOUND 1/2" IRON ROD NO ID
- ⊕ = FOUND 5/8" IRON ROD NO ID

☒ STATION	(Y) NORTHING	(X) EASTING	SCALE FACTOR
08+00.00	731006.941	1104363.972	1.00002712
09+00.00	730958.261	1104451.323	1.00002771
25+00.00	730179.373	1105848.941	1.00002829
45+45.51	729183.610	1107635.714	1.00002892
63+00.00	728109.980	1109014.692	1.00002967
81+53.78	726580.821	1110048.276	1.00003004
84+99.67	726266.795	1110193.287	1.00003049

PROJECT CONTROL NOTES

1. PROJECT IS BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM NAD 1983 / 2011 HORIZONTAL DATUM.
2. ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88)

HORIZONTAL AND VERTICAL CONTROL

CONTROL POINT	☒ SURVEY STATION	OFFSET	(Z) ELEVATION	DESCRIPTION	(Y) NORTHING	(X) EASTING	LATITUDE	LONGITUDE	SCALE FACTOR
C-02	08+22.65	44.80' LT.	3.05'	FOUND FDOT BRASS DISK IN CONCRETE STAMPED "842 86 1"	731019.964	1104363.964	26°07'18.96289"	80°09'56.29283"	1.00002712
B-01	14+66.25	33.25' LT.	7.23'	SET FDOT BRASS DISK IN CONCRETE STAMPED "842 86 1 B1"	730958.234	1104451.326	26°07'18.90268"	80°09'45.88657"	1.00002967
C-03	25+73.33	36.96' RT.	4.18'	FOUND FDOT BRASS DISK IN CONCRETE STAMPED "842 1 C3"	730456.349	1105848.917	26°07'18.38998"	80°09'35.78475"	1.00003088
B-02	31+18.07	25.60' RT.	4.05'	SET FDOT BRASS DISK IN CONCRETE STAMPED "842 86 B2"	730229.364	1108642.646	26°07'18.79454"	80°09'24.88094"	1.00003148
C-04	46+75.51	83.53' LT.	4.12'	FOUND FDOT BRASS DISK IN CONCRETE STAMPED "842 C04"	729283.642	1109014.635	26°07'20.21998"	80°09'11.99337"	1.00003203
B-03	55+98.14	22.04' LT.	4.84'	SET FDOT BRASS DISK IN CONCRETE STAMPED "842 8 B03"	729002.211	1109544.542	26°07'19.77658"	80°08'41.06068"	1.00003253
C-05	63+00.00	40.41' RT.	4.23'	FOUND FDOT BRASS DISK IN CONCRETE STAMPED "842 8 C5"	728109.925	1110193.265	26°07'19.35577"	80°08'31.67213"	1.00003301

Exhibit 912-1
Project Control
Date: 1/1/2023

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REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				SR 22	BAY	123456-1-52-01	PROJECT CONTROL			
										10

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913 Typical Sections

913.1 General

The primary purpose of Typical Section sheets is to provide sectional depictions of the roadway, bridge, and toll site elements that illustrate “typical” conditions found between specified station or milepost limits. Typical Section sheets also provide traffic data and pavement design associated with the typical section being displayed.

The typical section design files used to create the Typical Section Package (see **FDM 120**) should be used to prepare the Typical Section sheets.

This sheet is produced on a standard-format sheet (11”x17”) provided in the FDOT CADD Software. For illustrations of various typical sections, see **Exhibits 913-1 to 913-13**.

913.2 Typical Sections

Typical sections must cover the entire project limits; i.e., omit only Project Exceptions. Include the limits of typical section transitions with the typical section that begins the transition. Conditions that occur for short distances should not be shown as a separate typical section, such as turn lanes.

Include typical sections for each proposed toll site. These typical sections must represent the required 100 feet of loop pavement underneath the toll gantry, tolling equipment building, gantry, and foundation outlines.

To aid in the development of typical section depictions, the FDOT CADD Software contains templates for generic typical sections that can be modified to reflect project conditions.

Typical Section sheets should contain only one typical section. Place Typical Section sheets in the plans in the following order:

- (1) Roadway mainline
- (2) Bridges for projects including bridges (new or widened)
- (3) Toll Sites
- (4) Ramps and service roads for projects which include an interchange
- (5) Intersecting roadways when significant work length is required
- (6) Sideroads or streets when significant work length is required

913.2.1 Required Information

Show the road name and station (or milepost) limits below the TYPICAL SECTION header.

Typical Sections are typically not drawn to scale, but horizontal distances and slope angles shown must be proportionate. Existing typical section elements are shown as dashed lines and proposed as solid lines. Typical sections must label and dimension the following information, as applicable:

- (1) Centerline or Baseline of Construction.
- (2) Natural ground.
- (3) Profile grade point.
- (4) R/W or easements, and limits of Construction.
- (5) Limits of Clearing and Grubbing (Standard and Selective).
- (6) Limits of sod and turf.
- (7) Total shoulder width and paved shoulder width. Label shoulder treatment on RRR projects.
- (8) Travel lane width (total and individual lanes), and limits of friction course.
- (9) Show median or roadside barrier when continuous (or mostly continuous) through the typical section limits.
- (10) Bicycle lanes.
- (11) Indicate width of existing pavement and proposed pavement on widening projects.
- (12) Curb location and type (show Type E or F Curb, not the dimension).
- (13) Sidewalk location and width.
- (14) Cross slopes of roadway pavement, shoulder surfaces, sidewalks, and bridge decks as a decimal part of a foot vertical per foot horizontal. These cross slopes should be rounded to two decimal places, i.e., 0.02, 0.06. Three decimal places may be required for pavement cross slope.
- (15) Median width and type, show slopes by ratio, vertical to horizontal, i.e., 1:4, 1:2.

- (16) Roadside slopes and ditches, show slopes by ratio, vertical to horizontal.
- (17) Depict pavement construction by indicating the LBR requirement and the thickness of the subgrade stabilization, subbase, or base, as well as thickness for structural course, friction course and shoulder pavement. Use 4 inches for both base extension on rural sections and for stabilization extension on curbed sections.
- (18) Toll equipment building, gantry and foundation outlines.
- (19) For Turnpike projects only, show and label Florida Gas Transmission (FGT). Dimension location to center of utility from the Construction Centerline or Baseline.

913.2.2 Required Notes and Details

Show the following notes and details on Typical Section sheets as applicable:

- (1) For projects using Selective Clearing and Grubbing include the following note:

See Selective Clearing and Grubbing sheets for details and limits of selective clearing and grubbing.

- (2) For new construction flush shoulder projects, include a Shoulder Pavement Detail (shown on **Exhibit 913-1**) with the following note:

This area may be constructed of base material (granular only) at no additional compensation.

- (3) For widening projects include the following note:

Actual width of base widening may vary due to actual existing pavement width. A uniform width base widening strip may be constructed at no additional compensation.

- (4) For projects constructing ditches include the following note:

Depth and bottom width of ditch may vary.

- (5) For new construction curbed roadway projects with Asphalt Base, Type B-12.5 only, indicate the asphalt curb pad on the typical section and include an Asphalt Base Curb Pad Detail.

- (6) For resurfacing projects on curbed roadways where the milling depth is less than the overlay thickness, include a feathering detail with notes.

913.2.3 Partial Sections

Partial sections are used to illustrate a changed condition (e.g., ditch or drainage features, bicycle or pedestrian features, longitudinal barriers) that occur for significant limits with the typical section being shown. **Exhibit 913-4** demonstrates the use of a partial section.

Place partial sections on the same sheet as the typical section to which they apply.

913.3 Traffic Data

Traffic data is required only for mainline roadways and bridges, and ramps. Show the following traffic data (consistent with the data used for pavement design) below and to the left of the typical section:

- (1) Current Year and AADT
- (2) Estimated Opening Year and AADT (not required for skid hazard projects)
- (3) Estimated Design Year and AADT (not required for skid hazard projects)
- (4) K, D, T (24 hour) and T (Design Hour) factors
- (5) Design Speed (do not show Posted Speed or Target Speed)
- (6) Context Classification

913.4 Pavement Design

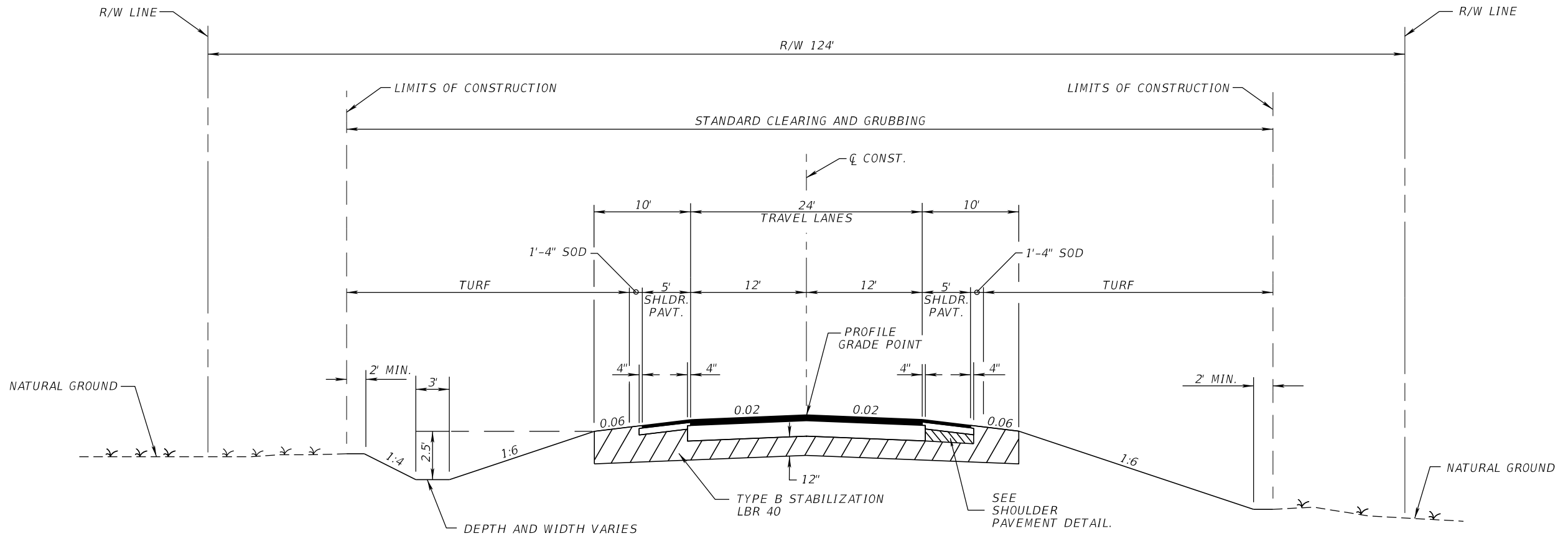
Show the approved pavement design directly below the typical section described in the order of construction as follows:

- For new construction start with Option Base Group and end with friction course.
- For resurfacing projects start with milling depth, then list the structural courses and end with friction course.

913.5 Cross Slope Correction Details

When cross slope correction is necessary, include special milling and layering details showing the method of correction in the plans.

Exhibit 913-13 provides an example of overbuild details.



TYPICAL SECTION
SR 22
STA. 10+00.00 TO STA. 98+40.00

TRAFFIC DATA

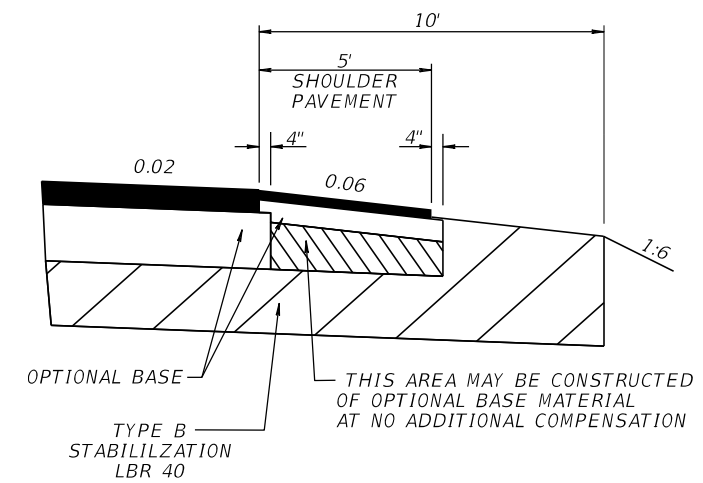
CURRENT YEAR = 2018 AADT = 6800
 ESTIMATED OPENING YEAR = 2020 AADT = 7600
 ESTIMATED DESIGN YEAR = 2040 AADT = 12000
 K = 6% D = 55% T = 2% (24 HOUR)
 DESIGN HOUR T = 1%
 DESIGN SPEED = 55 MPH
 CONTEXT CLASSIFICATION = C2

TRAVEL LANES

OPTIONAL BASE GROUP 8
 TYPE SP STRUCTURAL COURSE (TRAFFIC C) (2")
 FRICTION COURSE FC-12.5 (TRAFFIC C) (1 1/2") (PG 76-22)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1
 FRICTION COURSE FC-12.5 (TRAFFIC C) (1 1/2") (PG 76-22)



SHOULDER PAVEMENT DETAIL

Exhibit 913-1
2-Lane Flush Shoulder
Date: 1/1/2023

10/26/2022 4:23:41 PM PS972BW C:\Worksets\FDOT\12345615201\Roadway\TYPSRD01.dgn

REVISIONS		REVISIONS	
DATE	DESCRIPTION	DATE	DESCRIPTION

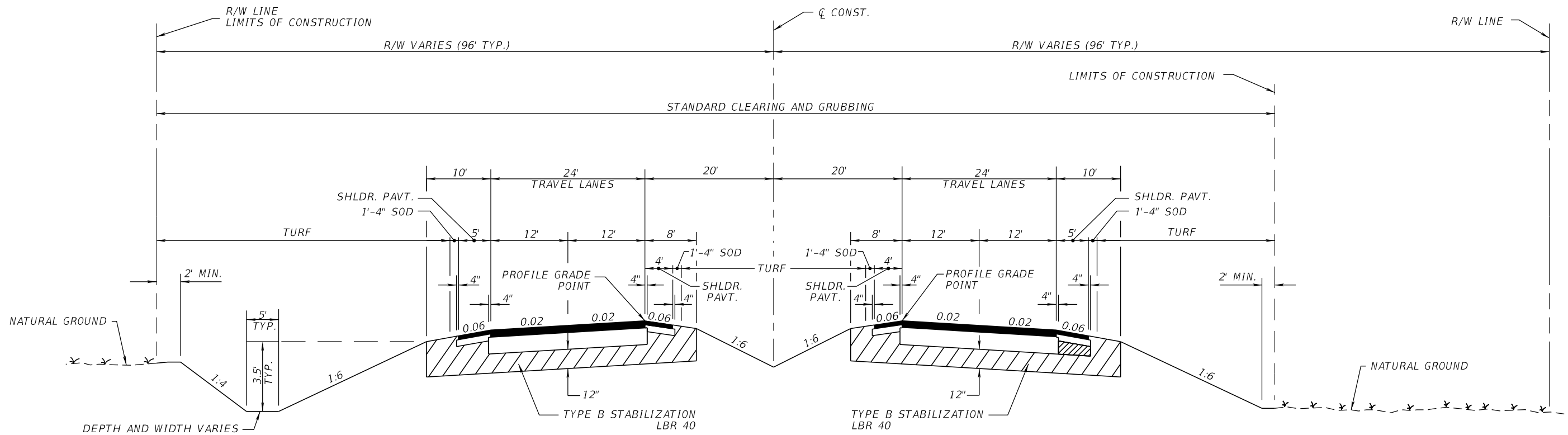
ENGINEER OF RECORD
 LUKE S. WALKER, P.E.
 LICENSE NUMBER: 99991
 ROADWAY ENGINEERS, INC.
 123 MAIN STREET
 TALLAHASSEE, FL 32301

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 22	BAY	123456-1-52-01

TYPICAL SECTION

SHEET NO.

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TRAFFIC DATA

CURRENT YEAR = 2018 AADT = 22300
 ESTIMATED OPENING YEAR = 2020 AADT = 23300
 ESTIMATED DESIGN YEAR = 2040 AADT = 51500
 K = 9% D = 56% T = 10% (24 HOUR)
 DESIGN HOUR T = 5%
 DESIGN SPEED = 55 MPH
 CONTEXT CLASSIFICATION = C1 STA. 63+65.42 TO STA. 108+35.00
 C2 STA. 108+35.00 TO STA. 328+65.14

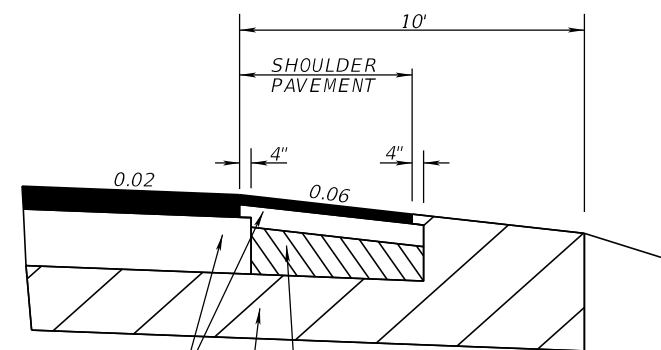
**TYPICAL SECTION
 SR 22
 STA. 63+65.42 TO STA. 328+65.14**

TRAVEL LANES

OPTIONAL BASE GROUP 9
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (2")
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

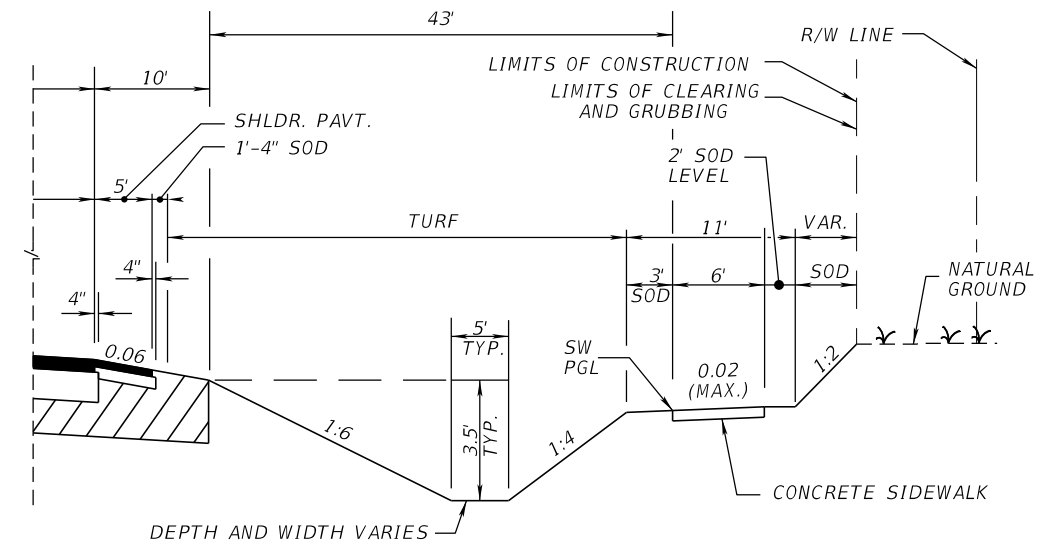
SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 FRICTION COURSE FC-5 (3/4") (PG 76-22)



OPTIONAL BASE
 STABILIZATION
 THIS AREA MAY BE CONSTRUCTED OF OPTIONAL BASE MATERIAL (GRANULAR ONLY) AT NO ADDITIONAL COMPENSATION

SHOULDER PAVEMENT DETAIL



**TYPICAL SECTION DETAIL
 STA. 157+75.40 TO STA. 215+45.22**

**Exhibit 913-2
 4-Lane Flush Shoulder
 Date: 1/1/2023**

10/31/2022 1:54:31 PM PS972BW
 C:\Work\sets\FDOT\12345615201\Roadway\TY\PSR001.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

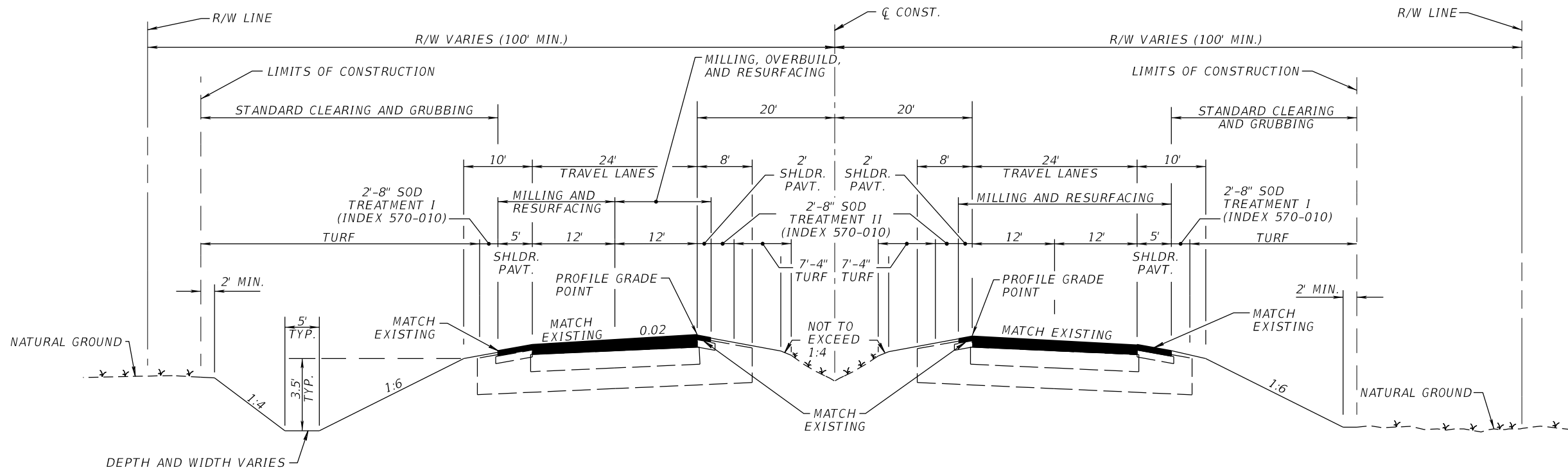
ENGINEER OF RECORD
 LUKE S. WALKER, P.E.
 LICENSE NUMBER: 99991
 ROADWAY ENGINEERS, INC.
 123 MAIN STREET
 TALLAHASSEE, FL 32301

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 22	BAY	123456-1-52-01

TYPICAL SECTION

SHEET NO.

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



NOTE: SEE OVERBUILD AND RESURFACING DETAIL FOR INSIDE EASTBOUND LANE.

**TYPICAL SECTION
SR 22
STA. 145+00.00 TO STA. 166+00.00**

TRAFFIC DATA

CURRENT YEAR = 2018 AADT = 18100
 ESTIMATED OPENING YEAR = 2020 AADT = 21000
 ESTIMATED DESIGN YEAR = 2036 AADT = 38900
 K = 11% D = 58% T = 22% (24 HOUR)
 DESIGN HOUR T = 11%
 DESIGN SPEED = 60 MPH
 POSTED SPEED = 55 MPH
 CONTEXT CLASSIFICATION = C2

**EASTBOUND
INSIDE TRAVEL LANE**

MILL EXISTING ASPHALT PAVEMENT (3" DEPTH)
 OVERBUILD TYPE SP STRUCTURAL COURSE (TRAFFIC E) (THICKNESS VARIES)
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

**EASTBOUND OUTSIDE TRAVEL LANE
WESTBOUND TRAVEL LANES**

MILL EXISTING ASPHALT PAVEMENT (1 1/2" DEPTH)
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

SHOULDER PAVEMENT

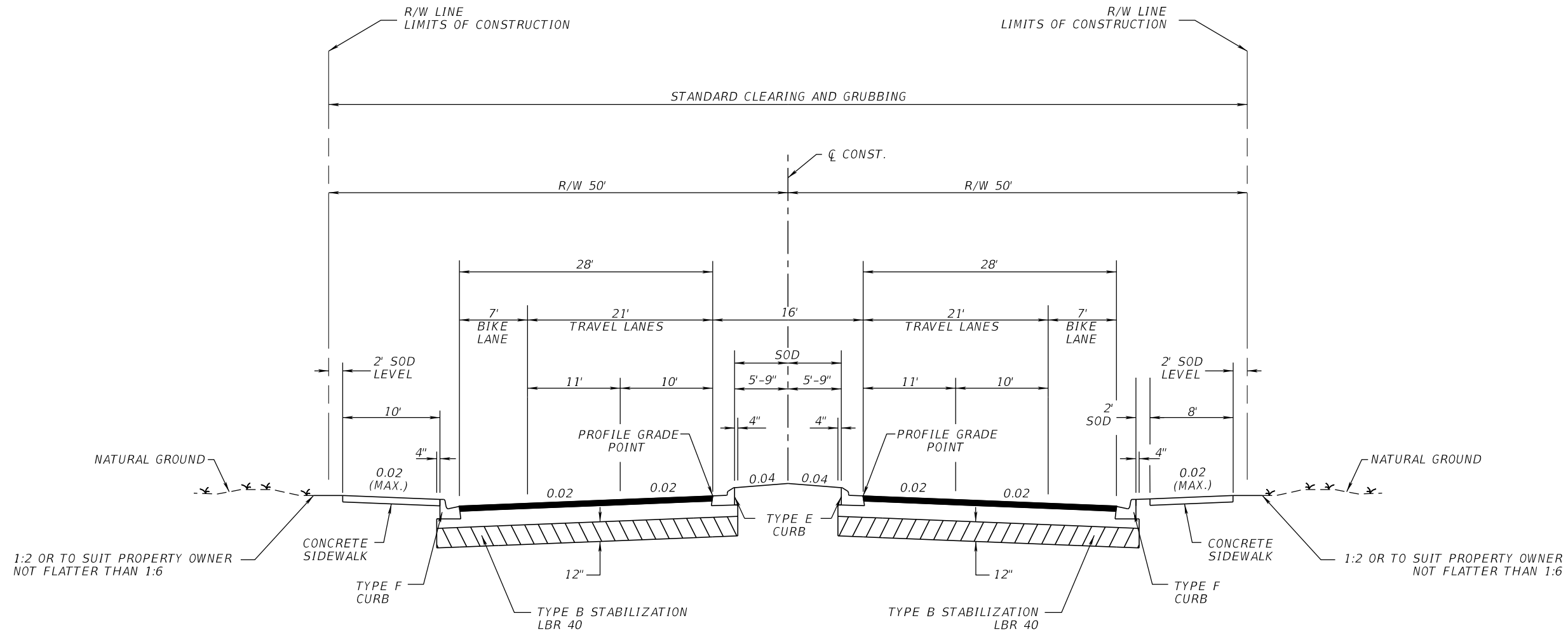
MILL EXISTING ASPHALT PAVEMENT (1 1/2" DEPTH)
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

**Exhibit 913-3
4-Lane Flush Shoulder
Resurfacing
Date: 1/1/2023**

10/20/2023 4:09:16 PM RD960DL C:\Projects\Standards\Roadway\FDM_900_Exhibit_Master.dgn

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

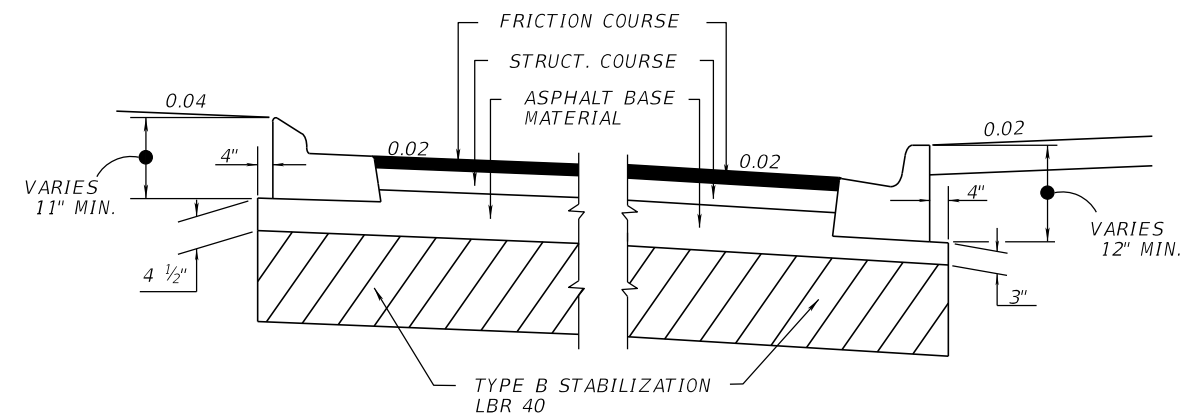
REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		SR 22	BAY	123456-1-52-01	6
TYPICAL SECTION									



TYPICAL SECTION
SR 22
STA. 98+40.00 TO STA. 202+33.00

TRAVEL AND BIKE LANES

OPTIONAL BASE GROUP 9 (TYPE B-12.5 ONLY)
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (2")
FRICTION COURSE FC-12.5 (TRAFFIC C) (1 1/2") (PG 76-22)



DETAIL OF ASPHALT BASE CURB PAD

TRAFFIC DATA

CURRENT YEAR = 2018 AADT = 22800
ESTIMATED OPENING YEAR = 2020 AADT = 25800
ESTIMATED DESIGN YEAR = 2040 AADT = 30600
K = 6% D = 55% T = 2% (24 HOUR)
DESIGN HOUR T = 1%
DESIGN SPEED = 30 MPH
CONTEXT CLASSIFICATION = C2T

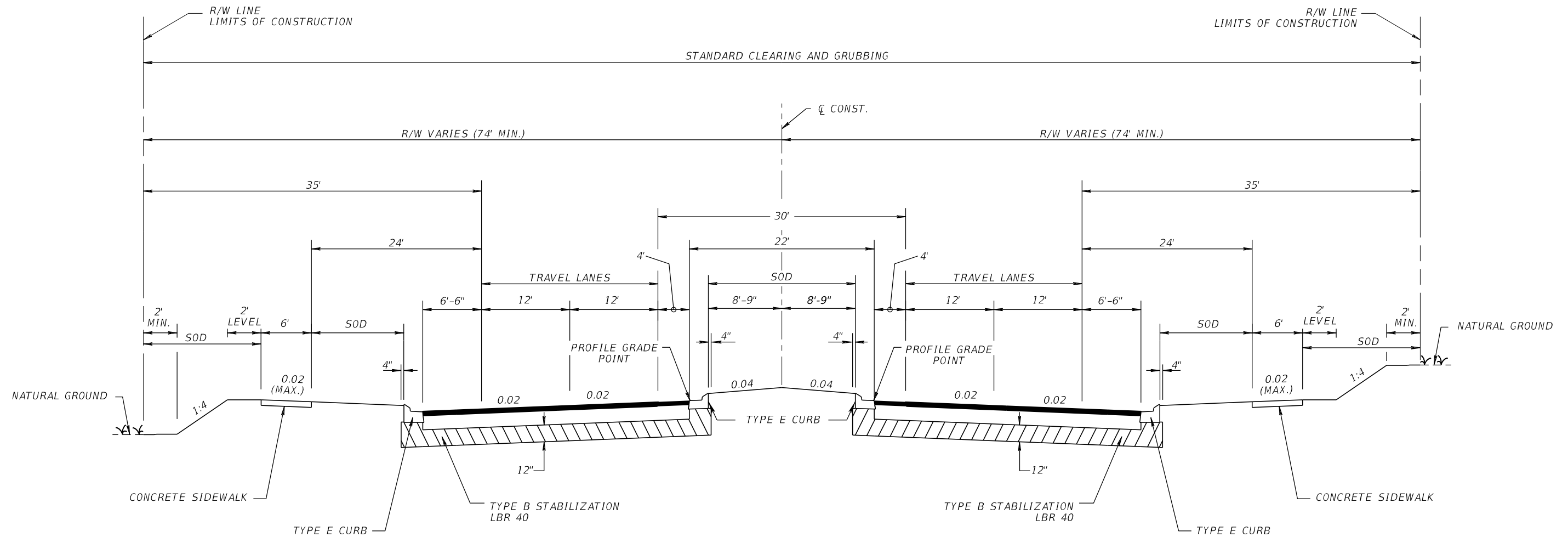
Exhibit 913-4
4-Lane Curbed
Date: 1/1/2023

10/26/2022 4:37:26 PM P5972BW
C:\worksets\FDOT\12345615201\Roadway\TYPSRD01.dgn

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 22	BAY	123456-1-52-01	

TYPICAL SECTION

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TRAFFIC DATA

CURRENT YEAR = 2018 AADT = 22800
 ESTIMATED OPENING YEAR = 2020 AADT = 25800
 ESTIMATED DESIGN YEAR = 2040 AADT = 30600
 K = 6% D = 55% T = 2% (24 HOUR)
 DESIGN HOUR T = 1%
 DESIGN SPEED = 50 MPH
 CONTEXT CLASSIFICATION = C3

**TYPICAL SECTION
 SR 22
 STA. 560+50.00 TO STA. 882+25.00**

TRAVEL LANES AND SHOULDER PAVEMENT

OPTIONAL BASE GROUP 9
 TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2 1/2")
 FRICTION COURSE FC-12.5 (TRAFFIC B) (1 1/2") (PG 76-22)

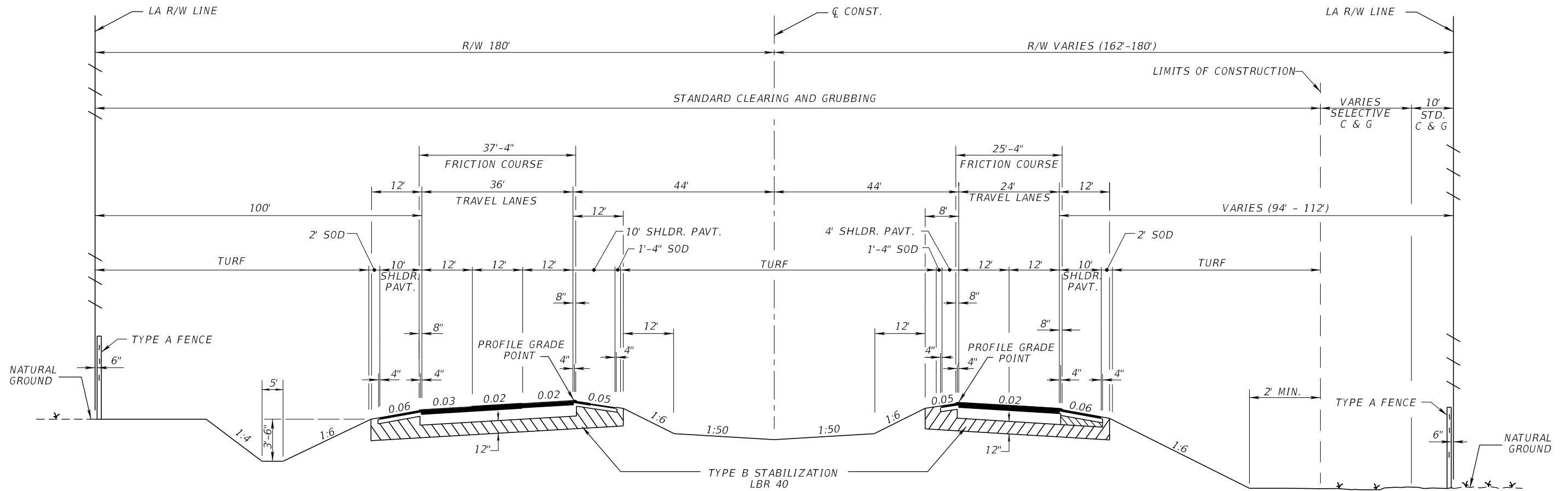
**Exhibit 913-5
 4-Lane High Speed
 Curbed
 Date: 1/1/2023**

10/26/2022 4:26:42 PM P5972BW C:\work\sets\FDOT\12345615201\Roadway\TYP\PSRD01.dgn

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 22	BAY	123456-1-52-01	

TYPICAL SECTION

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

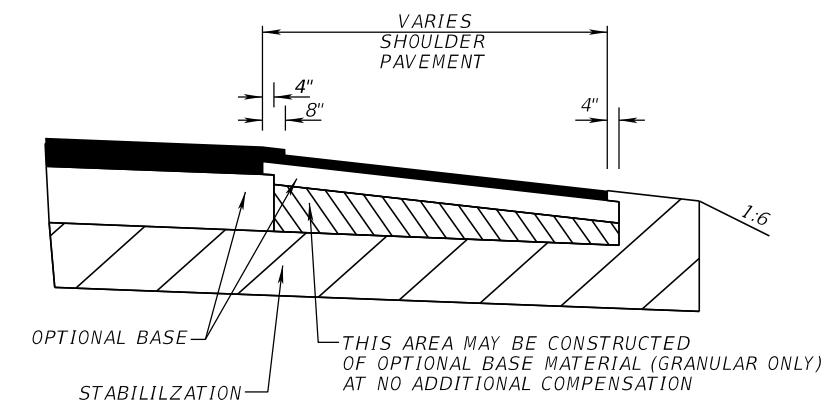


**TYPICAL SECTION
I-10 (SR 8)
STA. 567+25.67 TO STA. 1056+84.35**

TRAFFIC DATA
 CURRENT YEAR = 2018 AADT = 22300
 ESTIMATED OPENING YEAR = 2020 AADT = 23300
 ESTIMATED DESIGN YEAR = 2040 AADT = 51500
 K = 9 % D = 56 % T = 10 % (24 HOUR)
 DESIGN HOUR T = 5 %
 DESIGN SPEED = 70 MPH
 CONTEXT CLASSIFICATION = N/A

TRAVEL LANES
 OPTIONAL BASE GROUP 9
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (2 1/2")
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

SHOULDER PAVEMENT
 OPTIONAL BASE GROUP 1
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 GROUND-IN RUMBLE STRIPS (INDEX 546-010)



SHOULDER PAVEMENT DETAIL

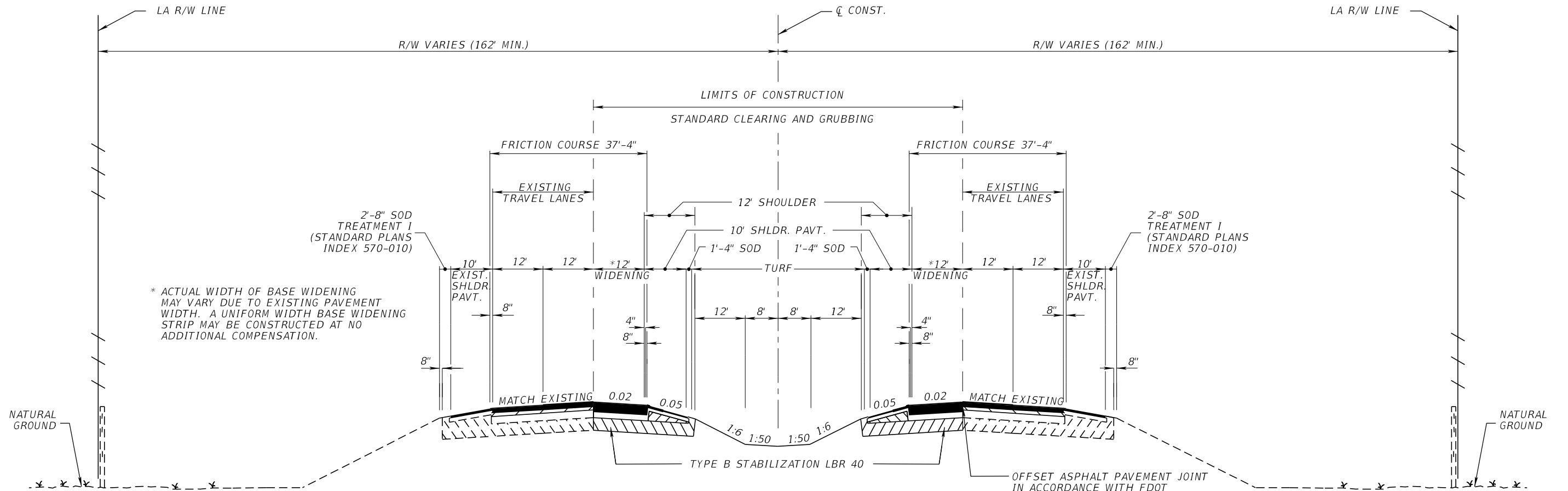
Exhibit 913-6
 4-Lane Limited Access
 Facility
 Date: 1/1/2023

10/26/2022 4:29:50 PM P5972BW C:\work\sets\FDOT\12345615201\Roadway\TY\PSRD01.dgn

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 8	BAY	123456-1-52-01	

TYPICAL SECTION

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



TRAFFIC DATA

CURRENT YEAR = 2018 AADT = 22300
 ESTIMATED OPENING YEAR = 2020 AADT = 23300
 ESTIMATED DESIGN YEAR = 2040 AADT = 51500
 K = 9 % D = 56 % T = 10 % (24 HOUR)
 DESIGN HOUR T = 5 %
 DESIGN SPEED = 70 MPH
 CONTEXT CLASSIFICATION = N/A

**TYPICAL SECTION
 I-75 (SR 93)
 STA. 1342+25.00 TO STA. 1950+85.75**

WIDENING

OPTIONAL BASE GROUP 9
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (2 1/2")
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

EXISTING TRAVEL LANES

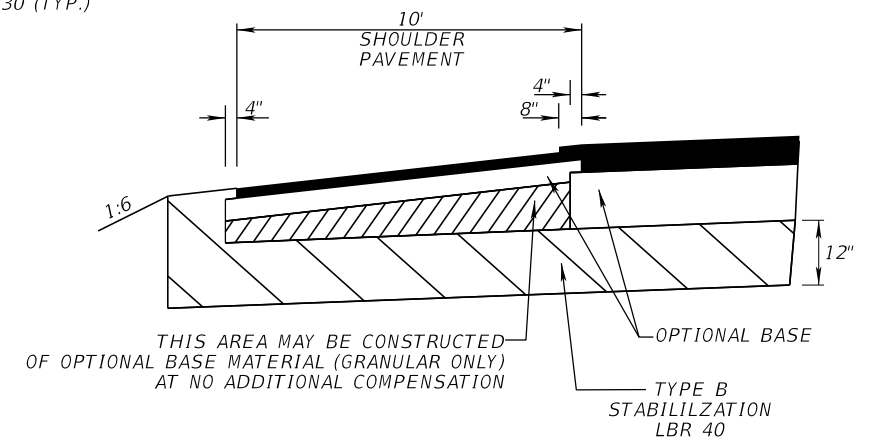
MILL EXISTING ASPHALT PAVEMENT (2 1/4" DEPTH)
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 FRICTION COURSE FC-5 (3/4") (PG 76-22)

EXISTING OUTSIDE SHOULDER PAVEMENT

MILL EXISTING ASPHALT PAVEMENT (1 1/2" DEPTH)
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 GROUND-IN RUMBLE STRIPS (INDEX 546-010)

NEW INSIDE SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1
 TYPE SP STRUCTURAL COURSE (TRAFFIC E) (1 1/2") (PG 76-22)
 GROUND-IN RUMBLE STRIPS (INDEX 546-010)



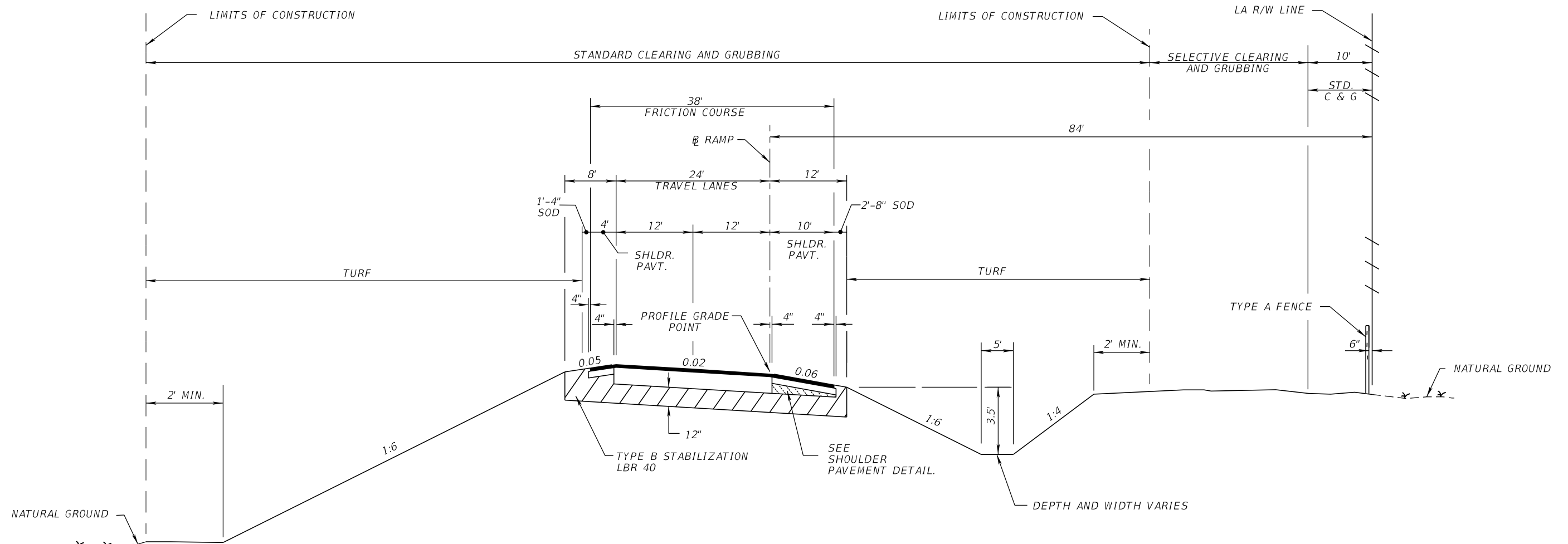
INSIDE SHOULDER PAVEMENT DETAIL

Exhibit 913-7
 6-Lane Limited Access
 Facility
 Date: 1/1/2023

12/19/2023 3:41:47 PM P5972CT
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REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
							SR 93	BAY	123456-1-52-01	10
TYPICAL SECTION										

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**TYPICAL SECTION
RAMP "C"
STA. 623+28.64 TO STA. 629+13.78**

TRAFFIC DATA

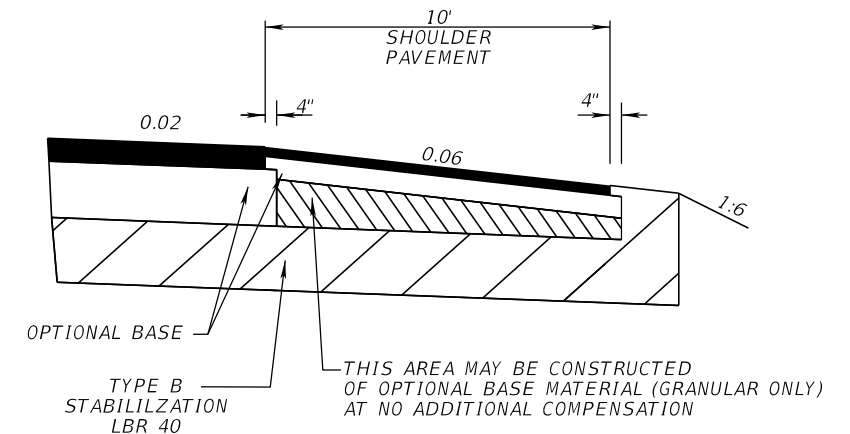
CURRENT YEAR = 2018 AADT = 8,000
 ESTIMATED OPENING YEAR = 2020 AADT = 8,800
 ESTIMATED DESIGN YEAR = 2040 AADT = 12,000
 K = 10% D = 100% T = 8% (24 HOUR)
 DESIGN SPEED = 30 MPH
 CONTEXT CLASSIFICATION = N/A

TRAVEL LANES

OPTIONAL BASE GROUP 9
 TYPE SP STRUCTURAL COURSE (TRAFFIC B) (1 1/2")
 FRICTION COURSE FC-12.5 (TRAFFIC B) (1 1/2") (PG 76-22)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1
 FRICTION COURSE FC-12.5 (TRAFFIC B) (1 1/2") (PG 76-22)



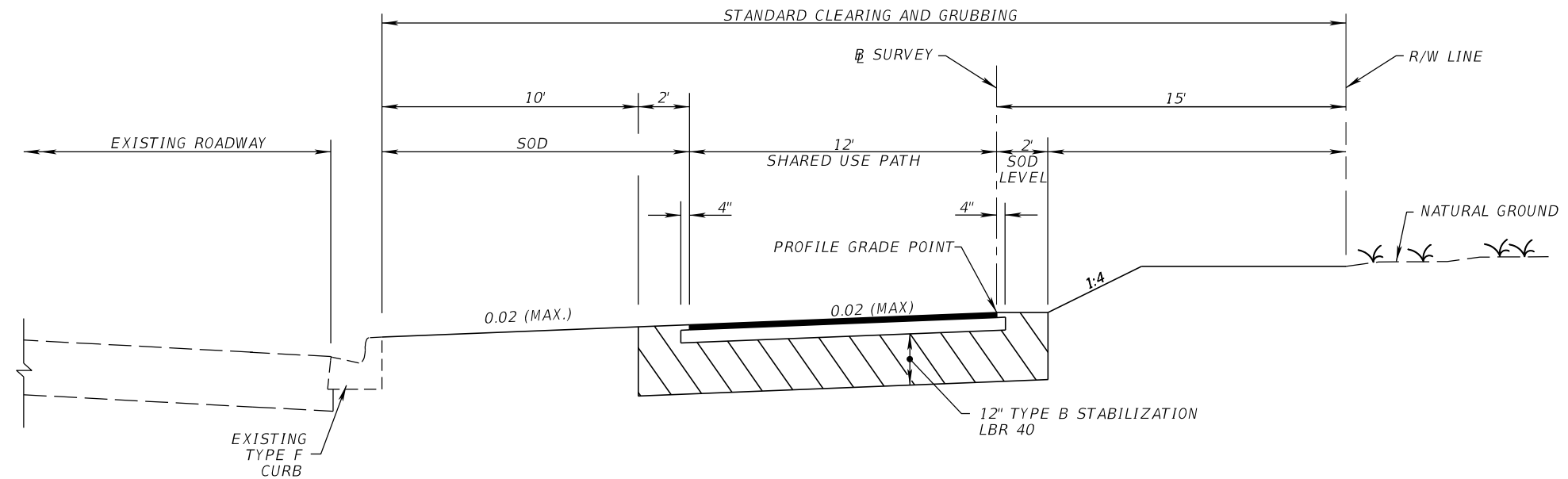
SHOULDER PAVEMENT DETAIL

**Exhibit 913-8
Ramp
Date: 1/1/2023**

9/14/2022 3:17:37 PM ps972bw C:\Worksets\FDOT\12345615201\Roadway\TYPSRD01.dgn

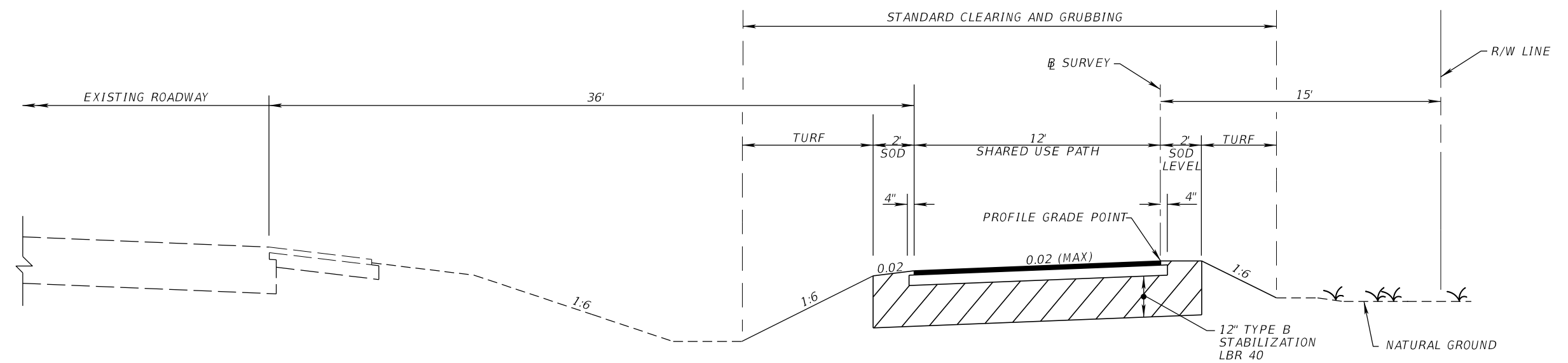
REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 93	BAY	123456-1-52-01	
TYPICAL SECTION									

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TYPICAL SECTION
SR 22 (WILLOW BEND WAY)
STA. 122+00.000 TO STA. 210+65.000

SHARED USE PATH
 OPTIONAL BASE GROUP 1
 TYPE SP STRUCTURAL COURSE (TRAFFIC B) (1 1/2")



TYPICAL SECTION
SR 22 (WILLOW BEND WAY)
STA. 210+65.000 TO STA. 305+15.000

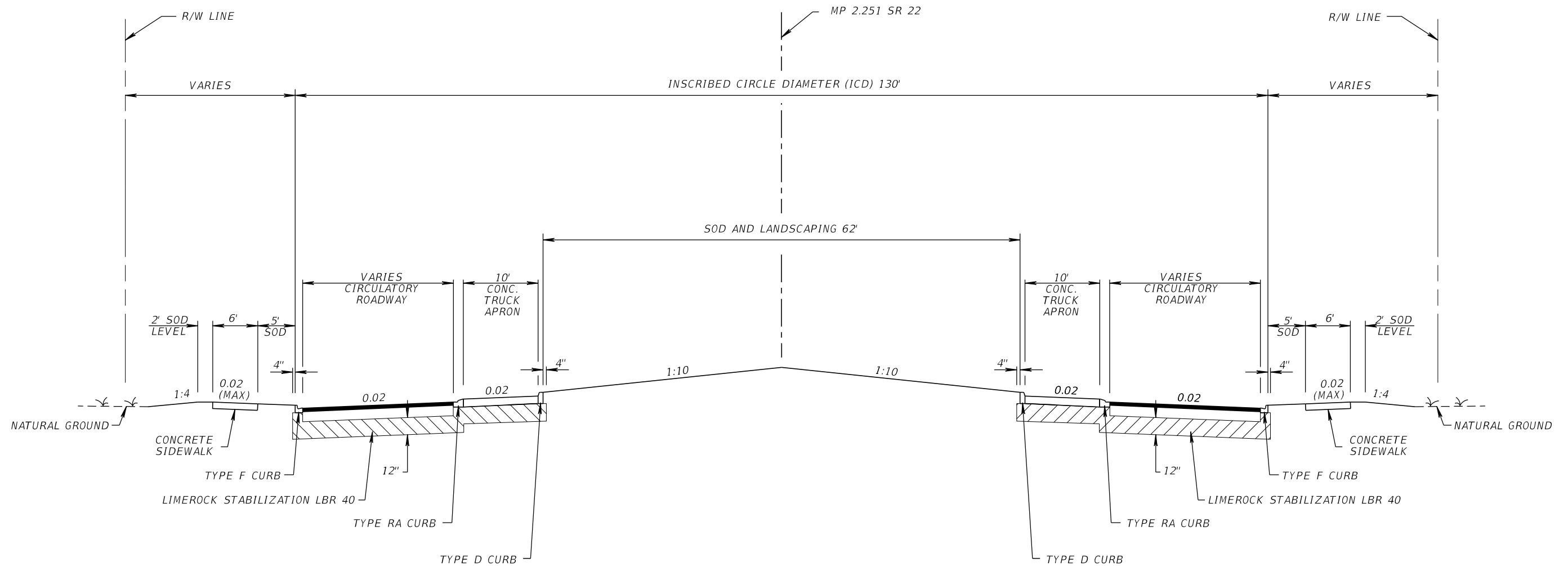
SHARED USE PATH
 OPTIONAL BASE GROUP 1
 TYPE SP STRUCTURAL COURSE (TRAFFIC B) (1 1/2")

Exhibit 913-9
Shared Use Path
Date: 1/1/2023

10/26/2022 4:53:34 PM PS972BW C:\worksets\FDOT\12345615201\Roadway\TYPSRD01.dgn

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 22	BAY	123456-1-52-01	
TYPICAL SECTION									

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TYPICAL SECTION
 MP 2.251 SR 22 = Q ALDERAAN RD.

TRAFFIC DATA

CURRENT YEAR	= 2018	AADT	= 22800
ESTIMATED OPENING YEAR	= 2020	AADT	= 25800
ESTIMATED DESIGN YEAR	= 2040	AADT	= 30600
K = 6% D = 55% T = 2% (24 HOUR)			
DESIGN HOUR T = 1%			
CONTEXT CLASSIFICATION = N/A			

CIRCULATORY AND CONNECTING ROADWAYS

OPTIONAL BASE GROUP 9
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (1 1/2")
FRICTION COURSE FC-9.5 (TRAFFIC C) (1 1/2")

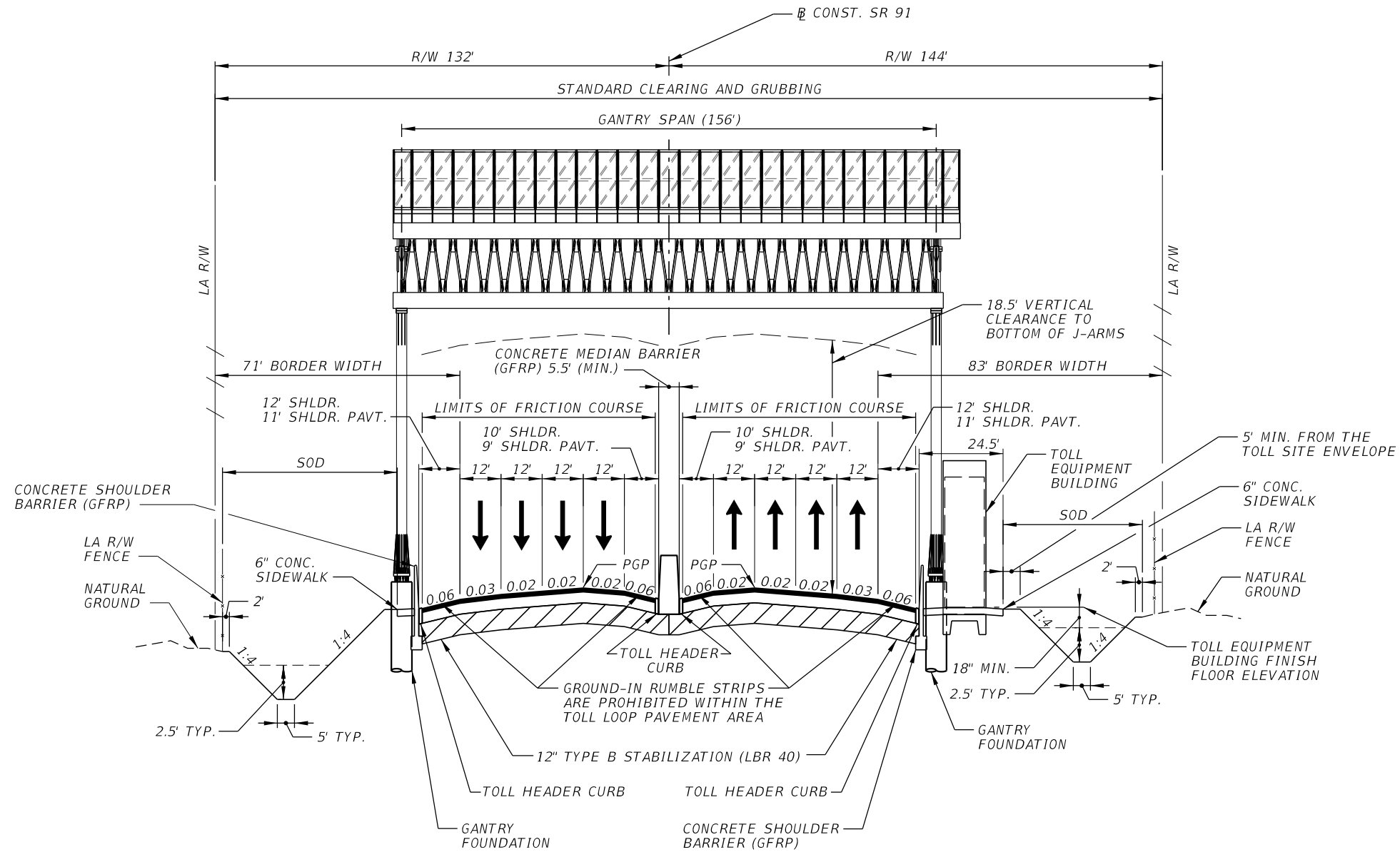
Exhibit 913-10
Roundabout
Date: 1/1/2023

9/14/2022 2:51:41 PM ps972bw C:\work\sets\FDOT\12345615201\Roadway\TYP\SRD01.dgn

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 22	BAY	123456-1-52-01	

TYPICAL SECTION

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**TYPICAL SECTION
SR 91 - MAINLINE
SITE 3 - TES 3M ACCESSIBLE GANTRY
STA. 2677+77.82 TO STA. 2678+77.82**

TOLL SITE LANES AND SHOULDERS

OPTIONAL BASE GROUP 11 (TYPE B-12.5) (7") WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2 1/2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-12.5 (TRAFFIC D) (1 1/2") (PG 76-22)

TOLL FACILITY MAINTENANCE PULL-OFF AREA

TYPE B STABILIZATION (12")
OPTIONAL BASE GROUP 6 (8") WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2")

TRAFFIC DATA

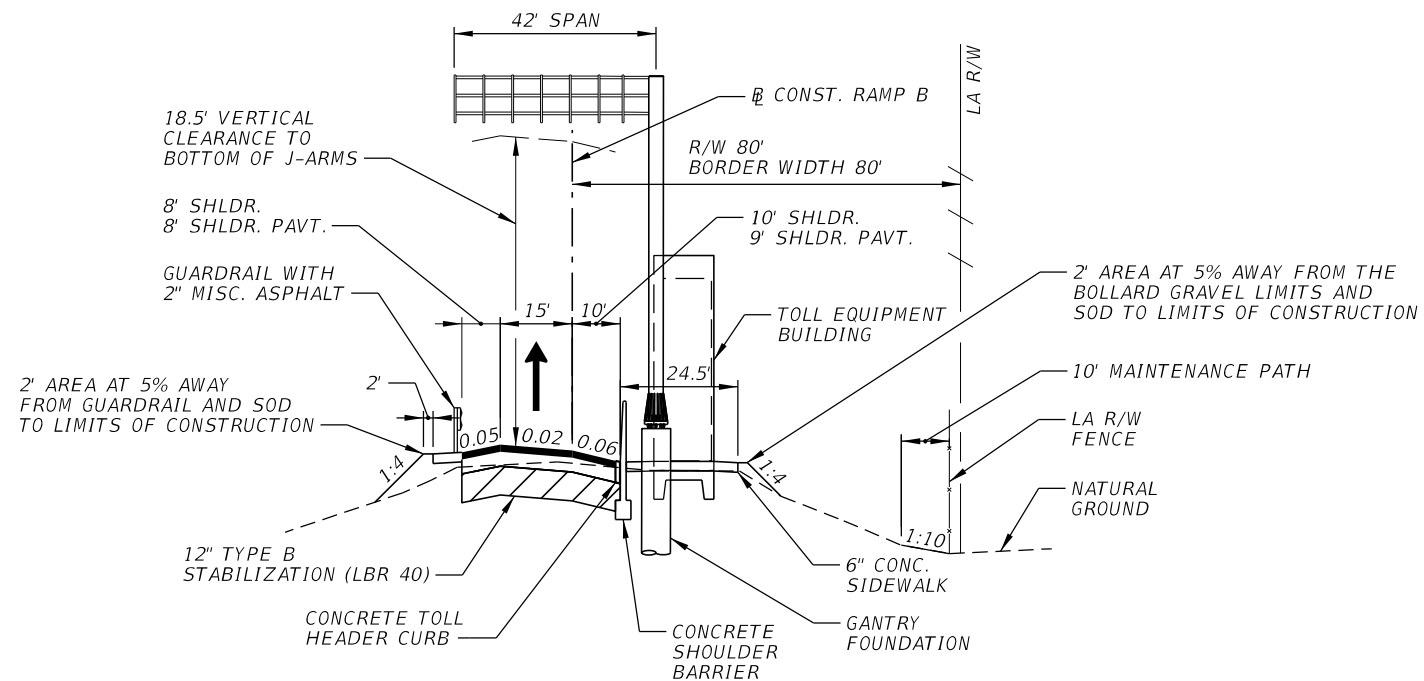
CURRENT YEAR = 2015 AADT = 69,200
ESTIMATED OPENING YEAR = 2022 AADT = 83,300
ESTIMATED DESIGN YEAR = 2042 AADT = 126,900
K = 9.50% D = 52% T = 12.8% (24 HOUR)
DESIGN HOUR T = 6.5%
DESIGN SPEED = 70 MPH

Exhibit 913-11
Mainline Toll Gantry
Date: 1/1/2023

9/14/2022 2:52:01 PM ps972bw C:\work\sets\FDOT\12345615201\Roadway\TYPSRD01.dgn

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301	SR 91	ORANGE	123456-1-52-01	TYPICAL SECTION

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**TYPICAL SECTION
RAMP B - TOLL SITE
STA. 2033+50.00 TO STA. 2034+00.00**

TOLL SITE LANES AND SHOULDERS

OPTIONAL BASE GROUP 11 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2 1/2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-12.5 (TRAFFIC D) (1 1/2") (PG 76-22)

TOLL FACILITY MAINTENANCE PULL-OFF AREA

TYPE B STABILIZATION (12")
OPTIONAL BASE GROUP 6 (8") WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2")

TRAFFIC DATA - RAMP B

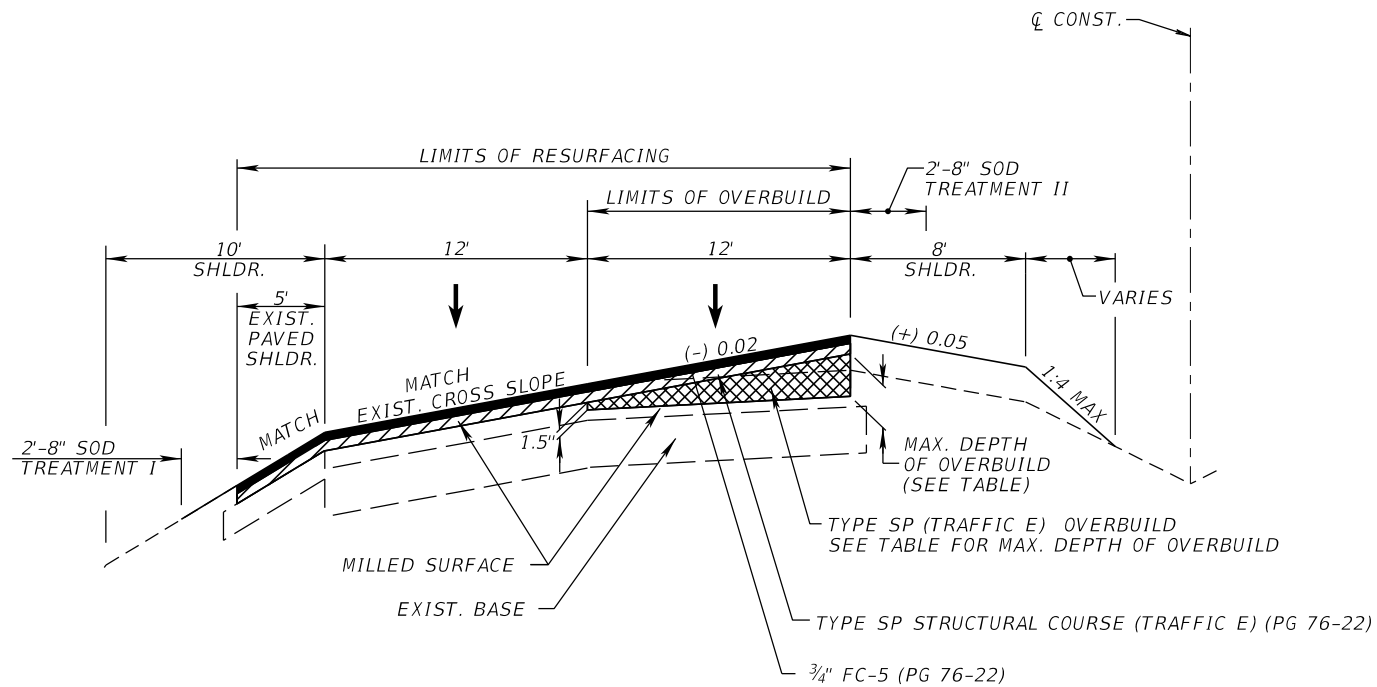
CURRENT YEAR = 2016 AADT = 37,100
ESTIMATED OPENING YEAR = 2025 AADT = 36,200
ESTIMATED DESIGN YEAR = 2045 AADT = 50,000
K = 10% D = 61% T = 15.7% (24 HOUR)
DESIGN HOUR T = 8%
DESIGN SPEED = 45 MPH

**Exhibit 913-12
Ramp Toll Gantry
Date: 1/1/2023**

9/14/2022 2:52:25 PM ps972bw C:\worksets\FDOT\12345615201\Roadway\TYPERSD01.dgn

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REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 91	ORANGE	123456-1-52-01	



**OVERBUILD
AND RESURFACING DETAIL**
NTS
STA. 145+00.00 TO STA. 166+00.00

SR 22 EASTBOUND LANES

OVERBUILD DETAILS						
LOCATION		EXIST. SLOPE (%)	PROPOSED SLOPE (%)	MAX. DEPTH OF OVERBUILD (IN.)	WIDTH OF OVERBUILD (FT.)	AREA OF OVERBUILD (SQ. FT.)
STATION	LANE					
145+00.00	EASTBOUND - INSIDE	(+) 1.6	EXIST.	0.0	12.0	0.0
146+00.00	EASTBOUND - INSIDE	(+) 1.0	(-) 2.0	5.1	12.0	2.8
147+00.00	EASTBOUND - INSIDE	(+) 1.6	(-) 2.0	5.8	12.0	3.1
148+00.00	EASTBOUND - INSIDE	(+) 0.9	(-) 2.0	4.7	12.0	2.5
149+00.00	EASTBOUND - INSIDE	(+) 0.4	(-) 2.0	3.9	12.0	2.2
150+00.00	EASTBOUND - INSIDE	(+) 0.9	(-) 2.0	4.5	12.0	2.5
151+00.00	EASTBOUND - INSIDE	(+) 0.4	(-) 2.0	3.5	12.0	1.9
152+00.00	EASTBOUND - INSIDE	(+) 0.3	(-) 2.0	3.8	12.0	2.1
153+00.00	EASTBOUND - INSIDE	(+) 0.0	(-) 2.0	3.4	12.0	1.9
154+00.00	EASTBOUND - INSIDE	(+) 0.6	(-) 2.0	4.2	12.0	2.3
155+00.00	EASTBOUND - INSIDE	(+) 1.2	(-) 2.0	5.2	12.0	2.8
156+00.00	EASTBOUND - INSIDE	(+) 1.4	(-) 2.0	5.6	12.0	3.0
157+00.00	EASTBOUND - INSIDE	(+) 0.8	(-) 2.0	4.7	12.0	2.9
158+00.00	EASTBOUND - INSIDE	(+) 1.1	(-) 2.0	5.6	12.0	3.0
159+00.00	EASTBOUND - INSIDE	(+) 1.0	(-) 2.0	4.9	12.0	2.6
160+00.00	EASTBOUND - INSIDE	(+) 1.2	(-) 2.0	5.4	12.0	2.9
161+00.00	EASTBOUND - INSIDE	(+) 2.2	(-) 2.0	7.5	12.0	4.1
162+00.00	EASTBOUND - INSIDE	(+) 2.2	(-) 2.0	7.1	12.0	3.8
163+00.00	EASTBOUND - INSIDE	(+) 1.2	(-) 2.0	5.4	12.0	2.9
164+00.00	EASTBOUND - INSIDE	(+) 0.8	(-) 2.0	4.7	12.0	2.5
165+00.00	EASTBOUND - INSIDE	(+) 0.6	(-) 2.0	4.6	12.0	2.4
166+00.00	EASTBOUND - INSIDE	(+) 1.5	EXIST.	0.0	12.0	0.0

Exhibit 913-13
Overbuild Details
Date: 1/1/2023

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
LUKE S. WALKER, P.E.
LICENSE NUMBER: 99991
ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 22	BAY	123456-1-52-01

TYPICAL SECTION

SHEET NO.

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

914 General Notes

914.1 General

Place general notes on a 11" x 17" plan sheet available in the FDOT CADD Software. Place the General Notes sheet before the first roadway plan-profile sheet in the plans set. See **Exhibit 914-1** for an example of a General Notes sheet.

Many Department offices may be involved in the determination of the suitability of general or pay item notes added to the plans, however, the final acceptance of the proposed language is the responsibility of the District Specifications Office.

914.2 General Notes

General notes provide information and direction to the contractor by clarifying design details or construction practices. General notes are project-specific and must not restate, broaden or curtail requirements in the [Standard Specifications](#) or [Standard Plans](#).

General notes are not a substitute for specifications. Product and material requirements must be included in the applicable specifications. Refer to the Specifications Handbook for guidance.

914.2.1 Writing General Notes

Notes are written to the contractor and should be written as a command.

Follow the Federal Guidelines for Plain Language when writing notes and use terminology and abbreviations commonly used in the [Standard Specifications](#) and [Standard Plans](#). Other rules to follow include:

- (1) Do not include "Contractor must", "by the Contractor", or similar phrases in notes.
- (2) Use "must" instead of "shall".
- (3) Use active voice and present tense to structure the sentence as a command. "Must" is often not needed when writing in active voice.
- (4) Use short sentences; i.e., be precise and concise.
- (5) Omit unnecessary words such as particularly, somewhat, absolutely, actually, completely, really, quite, totally, all, utmost, and very.

- (6) Avoid using “if-then” sentence structure; e.g., “If base is exposed during milling, immediately place tack coat over area.” A more correct sentence structure is: “Immediately place tack coat over any base that is exposed during milling.”

914.2.2 Required General Notes

Place the following notes on the General Notes sheet when applicable:

- (1) 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: #}
{Company Name}
{Company Address}
{Certificate of Authorization: #}

- (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 for this project include:

{List Company Name, Contact Name, and Phone Number. As a best practice, the contact email may also be included.}

Also include:

- Contact information for persons responsible for the maintenance of FDOT infrastructure such as traffic counters, lighting, signal components, and ITS.
- Transportation Data and Analytics Office when there is a traffic-monitoring site on the project or within one-half mile of the construction. The contact person is the Traffic Data Section Manager.

- (4) SR XX is an Emergency Shoulder Use (ESU) route between _____ and _____. Maintain a usable shoulder during all phases of construction that can be open to ESU traffic when directed by the Department.

914.2.3 Bridge Clearance

For projects affecting an existing bridge (e.g., bridge widenings or resurfacing) that propose a minimum design vertical clearance between 16'-0" and 16'-2" or if a Design Variation or Design Exception is required, place the following general note in the plans:

When construction is complete, submit a certified survey confirming the as-built minimum vertical clearance is equal to or greater than the minimum design vertical clearance called for in the Plans.

914.3 Pay Item Notes

Place pay item notes on the General Notes sheet.

Information on how quantities are determined are contained in the Estimated Quantities (EQ) Report and should not be repeated in the plans as a Pay Item Note.

Pay item notes are used to provide unique project information not covered by basis of payment information contained in the [Standard Specifications](#), such as:

- Clarify how incidental work is to be paid for.
- Clarify the purpose, uses, or requirements.

914.4 Notes to Reviewer

The use of Notes for Reviewer is optional. However, these notes are particularly useful in documenting a project's status when the plans are to be "shelved".

Notes for Reviewer provides relevant information to reviewers, such as:

- (1) Special directives and project details.
- (2) Status on utility, R/W, and permit activities that may have a bearing on the level of completion for plan sheets.
- (3) Clarification on Department commitments or agreements that reviewers should be apprised of.
- (4) List of Design Exceptions, Design Variations, Design Variation Memorandums being processed.

Place the Notes for Reviewer conspicuously on the General Notes sheet. Include these notes only with Phase I, Phase II and Phase III submittals.

GENERAL NOTES

PHASE II NOTES FOR REVIEWERS

- 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:
 ANNA KING, P.S.M.
 P.S.M. NO.: 9993
 MAPS R US, INC.
 678 COMPASS ROAD
 MIAMI, FL 33179
- 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.
- UTILITY/AGENCY OWNERS:

COMPANY	CONTACT	TELEPHONE NUMBERS
SHINRA POWER	CLOUD CROSS	(407) 555-1234
ENCOM	NOLEY MCGEE	(407) 555-2345
SILPH CO.	GIO KOALA	(407) 555-3456
MAKO COMMUNICATIONS	ROB CUE	(407) 555-4567
BAY COUNTY UTILITIES	CHESTER DIGGER	(407) 555-5678

- SR 22 IS AN EMERGENCY SHOULDER USE (ESU) ROUTE BETWEEN I-10 AND US 319. MAINTAIN A USABLE SHOULDER DURING ALL PHASES OF CONSTRUCTION THAT CAN BE OPEN TO ESU TRAFFIC WHEN DIRECTED BY THE DEPARTMENT.

- A RRR REPORT HAS BEEN PREPARED AND IS INCLUDED WITH THIS SUBMITTAL.
- THE TYPICAL SECTION PACKAGE IS COMPLETE AND PENDING SIGNATURE CONCURRENCE.
- DESIGN VARIATIONS ARE BEING PROCESSED FOR:
 - PAVEMENT CROSS SLOPE
 - SHOULDER CROSS SLOPE
 - SHOULDER WIDTH
 - LATERAL WIDTH TO GUARDRAIL
 - SUPERELEVATION
 - MAXIMUM CHANGE IN CROSS SLOPE BETWEEN ADJACENT LANES
 - 10-FT-WIDE MAINTENANCE AREA FOR RETAINING WALL
 - DEFLECTION IN ALIGNMENT
 - MAXIMUM DEFLECTION THROUGH AN INTERSECTION
 - CLEAR ZONE FOR DRAINAGE FEATURES
 THESE VARIATIONS WILL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO PHASE III SUBMITTAL.
- MAINTENANCE AGREEMENT FOR ARCHITECTURAL LIGHTING IS BEING PROCESSED.
- DDI DESIGN FOLLOWS CRITERIA SET BY FDM D217 DATED JANUARY 2022.

Exhibit 914-1
 General Notes
 Date: 1/1/2023

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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		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			GENERAL NOTES	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						SR 22	BAY	123456-1-52-01		11

915 Roadway Plan-Profile Sheet

915.1 General

The signed and sealed Building Information Model (BIM) files contain the complete horizontal and vertical geometry definitions for the project. The Roadway Plan-Profile sheet shows a 2D representation of the design contained within the model(s). Various roadway elements such as pavement width, medians, paved shoulders, curbs, drainage elements, tapers, turn provisions, and intersecting roadways, are annotated on this sheet.

Prepare the Roadway Plan-Profile sheet using a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected.

Roadway profiles are typically provided for new construction and reconstruction projects and are shown with the plan view on the same sheet. When roadway profiles are not needed, title the sheet as Roadway Plan Sheet.

When appropriate, the plan or plan-profile sheet may utilize multi-stacking (subdividing sheet horizontally); each panel containing a roadway plan view with (when appropriate) the corresponding roadway profile directly below.

Use the following horizontal scales:

	<u>Standard</u>	<u>Optional</u>
Curbed Roadways	1" = 40'	1" = 50'
Flush-shoulder Roadways	1" = 50'	1" = 100'

See **Exhibit 915-1** for an example of a Roadway Plan-Profile sheet.

915.2 Roadway Plan

Display a north arrow and scale within each plan view, typically in the upper right portion.

Display roadway plan view such that the centerline of construction or baseline of construction stationing increases from left to right. Display bearings for tangent sections (in the direction of stationing) below the centerline or baseline. Display station numbers close to station ticks.

Display existing topography, including roads, streets, drives, buildings, underground and overhead utilities, walls, curbs, pavements, fences, railroads, and bridges, drainage

structures and similar items, as well as streams, ponds, lakes, wooded areas, ditches, existing gasoline storage tanks within limits of topographical survey, and other physical features. Label existing features as needed to clarify design intent.

915.2.1 Required Labeling and Information

Include labeling and dimensions only to the extent necessary to convey the design intent of the improvements. Provide the following labeling and dimensions:

- Flag and station the begin and end project limits, and construction limits. Project limits should be at the beginning and the end of the full typical sections. Begin construction and end construction where construction limits are other than project limits. Transitions for maintenance of traffic and other construction work such as feathering, friction course, guardrail, drainage work, signing and marking work, and sidewalk may fall outside of the project limits but must be included within the construction limits. If plans include more than one project, identify the limits for each by Financial Project ID.
- Display station equations along centerline or baseline of construction.
- Flag and station the begin and end of project exceptions (e.g., excluded intersections, bridges).
- Indicate each type of construction classification where more than one type is involved (e.g., new construction, resurfacing, bridge work, widening, and milling). Use shading, patterning, or labeling to convey the information. Indicate the limits of pavement and grading at side street intersections. Provide a legend when shading or patterning is used.
- Display proposed curbs, traffic separators, sidewalks, curb ramps, retaining walls, and driveways. Label curbs and curb ramps indicating type. Label and dimension sidewalks, medians, and traffic separators at intervals no greater than 2,500 ft.
- Dimension traveled way along mainline at intervals no greater than 2,500 ft., or where pavement widths change. Dimension traveled way of side streets and driveways.
- Display proposed drainage system by depicting drainage pipes and French drain with a single line, and the outline of inlets, manholes, junction boxes, and outfall features (e.g., mitered end section (MES), end wall). Identify by structure number only. Do not label pipe size or length.
- Display box culverts and three-sided culverts. Identify by structure number only. Do not label culvert size or length.

- Display and label R/W lines at intervals no greater than 2,500 ft. Display and label construction easements or license agreements.
- Display and label the limits of wetlands based on permit or regulatory requirements.
- Display and label Verified Vertical Elevation and Horizontal Location (V_{vh}) for underground utilities.
- Display and label overhead utilities indicating the line voltage. For a multi-line electrical overhead crossing, accurately show the location of each line. Show utility line height where overhead lines to may impact proposed construction.
- Identify all traffic monitoring sites in or within one-half mile of the project limits with the following notation:

Traffic Monitoring Site Number (XXXX)

Roadway Section Number (XXXX)

Milepost (XX.XXX)

Site includes vehicle detectors in roadway and pedestal, pole or base mounted cabinet, buried cable, and solar power unit on R/W. Inquiries about monitoring sites should be addressed to the Traffic Data Section Manager of the Transportation Data and Analytics Office, Office of Planning.

- When it is determined that a sectional view is helpful to convey the design intent at critical locations, display and label the sectional view near the critical location.

Projects with minor utility work or impacts may include these features on the Roadway Plan-Profile sheet.

915.2.2 Horizontal Curves

PC and PT points of horizontal curves are designated by small circles with short radial lines from these points, and PI points by a small triangle with a short section of tangent on either side. Display the following horizontal curve data on the plan view:

PI	(Station)	R	(Radius Length)
Δ	(Delta Angle with Direction)	PC	(Station)
D	(Degree of Curve)	PT	(Station)
T	(Tangent Length)	e	(Superelevation Rate)
L	(Length of Curve)		

915.2.3 Bridges and Bridge Culverts

Bridge-sized culverts (a.k.a., bridge culverts) are defined in **FDM 265.1**. Flag and station the begin station and end station for the bridge culvert (outside wall to outside wall). Provide a bridge number and a drainage structure number for all bridge culverts.

Display proposed bridges and approach slabs by simple outline. Flag and station the begin station and end station for the bridge and for the approach slabs. Provide a bridge number for all bridges.

When appropriate, display a short section of lateral ditch/outfall centerline on the Roadway Plan-Profile sheet.

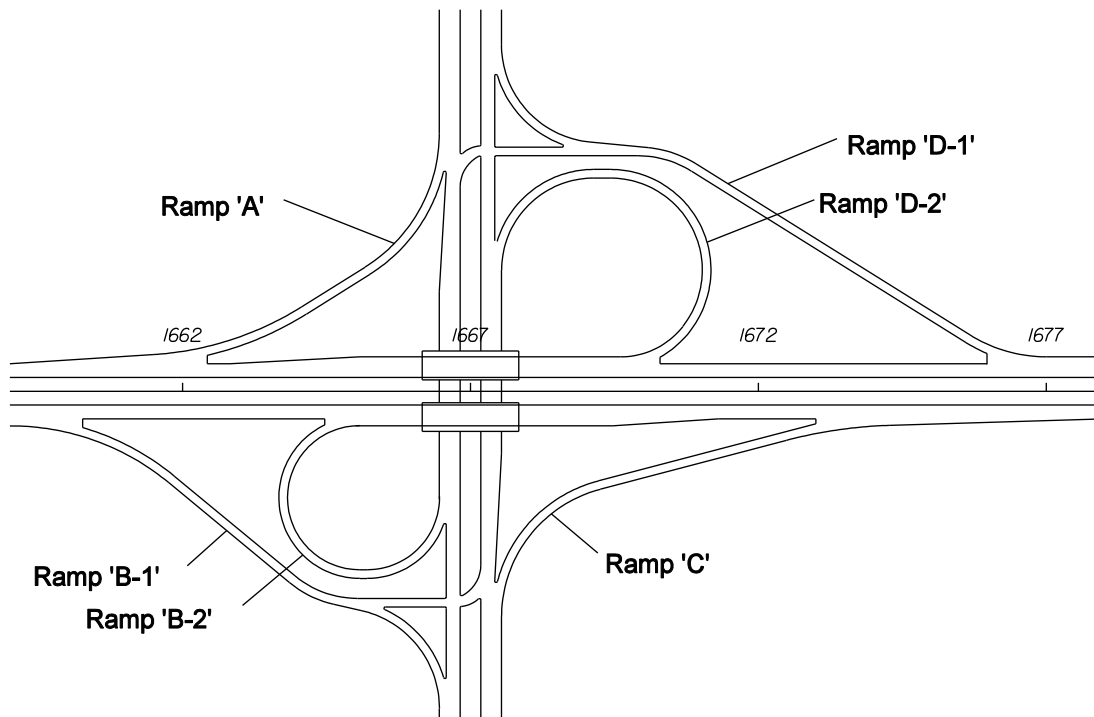
915.2.4 Interchanges

The entire interchange should be shown on one sheet using a 1" = 100' scale. With larger interchanges, consider using match lines and placing extended portions of alignment in available space on the sheet.

Display the ramp baseline of construction, typically located on the right edge of the pavement with respect to the direction of traffic. Ramp stationing should be increasing in the same direction as the project.

Identify ramps using letters or a combination of letters and numbers (e.g., Ramp A, Ramp B-1, Ramp B-2). Ramps in the first left quadrant along mainline stationing should be assigned first. Name assignments progress in a counterclockwise direction around the interchange (see **Figure 915.2.1**). For projects with two or more interchanges, continue name assignments with the next letter and in same counterclockwise direction noted above.

Figure 915.2.1 Interchange Layout



Frontage roads should be assigned a unique alpha or numeric designation to avoid confusion with ramp nomenclature.

915.2.4.1 Ramp Terminal Details

Consider providing ramp terminal details at a scale of 1" = 40'. Ramp terminal details should be shown on the same page as the interchange.

915.3 Roadway Profile

Display roadway profiles directly below the corresponding roadway plan view. As illustrated in **Exhibit 915-1**, each roadway profile must include a background grid at the appropriate scale. The horizontal scale and interval stationing for the roadway profile must be the same as that used for the roadway plan view. The vertical scale is typically 10% of the horizontal scale (e.g., 1" = 100' horizontal scale would typically use a 1" = 10' vertical scale)

Align the begin roadway profile stationing with the begin roadway plan view stationing. Display stationing along the bottom of the grid. Display the vertical elevation along both sides of the grid.

915.3.1 Required Labeling and Information

Include labeling and dimensions only to the extent necessary to convey the design intent of the improvements. Provide the following labeling and dimensions:

- Flag and station the begin and end project, and construction limits matching what is shown in the roadway plan view.
- Label percent grade for each tangent section. When two tangent grades intersect and no vertical curve is required, label the PI station and elevation.
- Flag and station the superelevated sections (see **FDM 915.3.3**).
- Show the cross-section template of the underlying road, railroad, or waterway for bridges and box culverts along the centerline or baseline of construction. Display minimum vertical clearances for bridges.
- Display and label only transverse underground utilities.

Do not display proposed drainage pipes or inlets in the profile view.

915.3.2 Vertical Curves

Indicate vertical curve PCs and PTs by small circles and PIs by a small triangle with short sections of tangent shown on each side. Extend vertical lines from the PC and PT points and place a dimension line indicating the length of the vertical curve. The PC and PT stations and elevations must be labeled on the vertical lines.

For vertical curves, show the profile grade elevations on even stations and at appropriate intervals. Place the elevations between the dimension line and the grade line. Also, place the curve length, dimension lines and the profile grade elevations above the grade line for sag vertical curves and below the grade line for crest vertical curves. Place the dimensions and elevations reasonably near the grade line. The PI station and elevation must be noted, lettered vertically above the PI symbol for crest curves and below for sag curves.

Show the profile grade elevation of the beginning and ending station of each sheet vertically just above the grade line, except when the beginning or ending station is on a vertical curve.

915.3.3 Superelevation

Standard superelevation details shown in [Standard Plans](#), *Indexes 000-510* and *000-511* may be used for projects with simple curves.

Show superelevation profiles for:

- Reverse curves
- Compound curves
- Other conditions requiring special superelevation not covered in the standards

Show complete profile grade line and edges of pavement (right and left) within the superelevation zone on the grid format. Label the begin and end superelevation stations and indicate the section in full superelevation.

915.3.4 Special Ditch Profile

Display and label special ditches and treatment swales (ditch blocks) in the profile. Show percent ditch grade and a beginning or ending ditch PI with elevation and station plus. Show ditch PI with elevation at the begin and end point of ditch blocks.

For multi-lane divided projects, three special ditch grades (right and left roadway ditches and median ditch) may occur at the same location. In such cases, it may be advantageous to:

- Show the median ditch at a convenient location on the sheet with a separate elevation datum, or
- Provide spot elevation labels in the plan view.

Depict uniform ditches of non-standard depth by a dimension line in the lower portion of the grid and label as a special ditch with location and depth or show them by flagging the DPIs at each end with station elevation and side. Standard depth ditches are not labeled.

915.3.5 Special Gutter Grades

Show special gutter grades in profile for cases where the gutter grades are not controlled by the typical section. Include prolongations of gutter profile grades across street intersections on plan-profile sheets if an inlet is not provided before the intersection.

915.3.5.1 Shoulder Rocking Gutter Profiles

Shoulder rocking is used to achieve positive drainage when a minimum 0.3% longitudinal gutter grade cannot be maintained using uniform shoulder cross slopes. Provide a gutter profile for each side of a concrete barrier wall, along with the profile of the wall top. The top of the wall profile must follow the roadway profile which will create a varied wall height between the high and low points along the gutter profile.

A special detail depicting the concrete barrier wall reveal is often provided to supplement the **Standard Plans** details. These profiles may be depicted in either table or graphical format on the Plan-Profile sheet.

See **FDM 210.4.1 or FDM 211.4.1** for more information on design requirements for shoulder rocking profiles.

915.3.6 Special Sidewalk Profiles

Display and label special sidewalk profiles when the profile grade of the proposed sidewalk is independent of the roadway profile. Sidewalk profiles are typically located at the back of the proposed sidewalk (closest to the R/W).

When special sidewalk profiles are included on the Roadway Plan-Profile sheet, indicate the location of the sidewalk profile grade line (PGL) on the typical section.

915.4 Ramp Profiles

Develop ramp profile grades along the baseline of each ramp. A profile of the edge of the pavement opposite the baseline is typically shown as well. Show ramp profiles anywhere within available space on the Roadway Plan-Profile sheet.

Use the same scales used for the Roadway Plan-Profile sheet displaying the interchange. Each ramp profile must include a background grid at the appropriate scale.

915.4.1 Spline Grade

Spline grades are used to show the interconnection and interrelation of the ramp edge of pavement with the mainline edge of pavement. Showing this profile in the plans is typically not necessary. However, if the mainline pavement is superelevated or within the superelevation transition zone, the profile can be beneficial to illustrate the design intent.

Display the spline grade elevations at intervals of 20 or 40 feet. Show elevations for the outer edge of mainline pavement and inner and outer edges of the ramp pavement at the nose areas.

Join the grades of each pavement edge by smooth splines or simple curves. Label the three grade profiles and all equality stations. Flag and label nose stations. Place the scale in proximity of the profile.

915.5 Special Profiles

Showing special profiles in the plans is typically not necessary. However, if it is determined that providing a special profile in the plans is helpful to convey the design intent, they should be shown anywhere within available space on the Roadway Plan-Profile sheet.

Standard scale used for special profiles should be 1" = 20' horizontally and 1" = 2' vertically. Each profile must include a background grid at the appropriate scale.

915.5.1 Intersections

Supplemental profiles at intersections may be necessary to define edge of pavement profiles. Include sections showing pavement surface elevations for nose points and other critical locations. Label the existing ground line and curb line per the [CADD Manual](#).

915.5.2 Curb Returns

Curb return profiles may be necessary to define the gutter flow line from the PC to the PT point of the return at an intersection.

Identify each return profile and its PC and PT stations shown. Elevations should be shown at appropriate intervals and low and high spots must be identified by location and elevation.

915.5.3 At-Grade Railroad Crossings

Supplemental profiles for at-grade railroad crossings may be necessary to define lane lines, edges of pavement, and gutter flow lines.

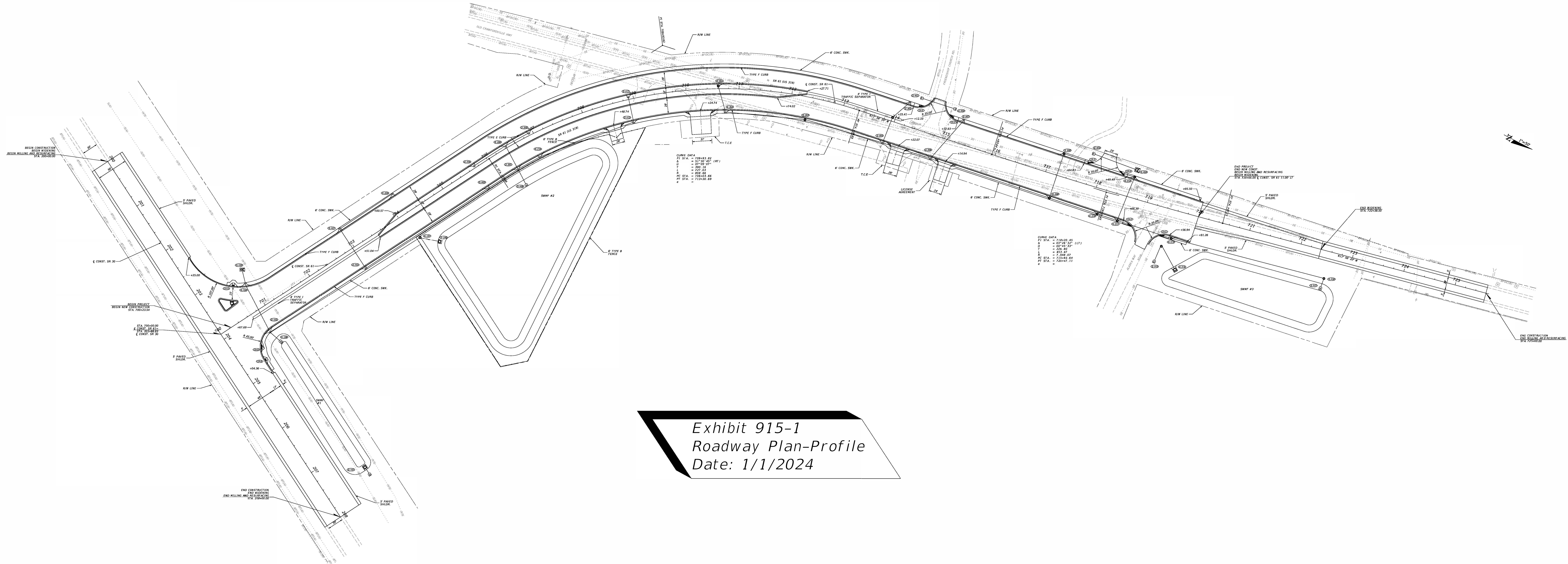
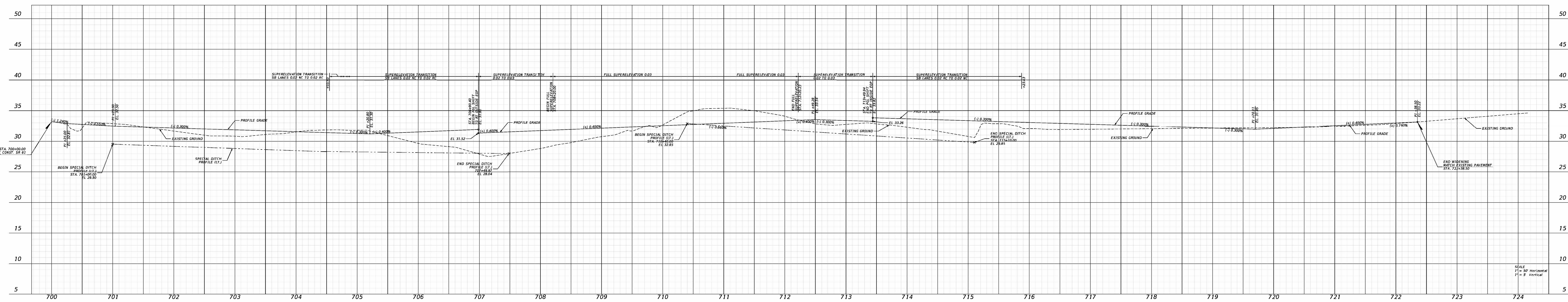


Exhibit 915-1
Roadway Plan-Profile
Date: 1/1/2024



916 Drainage Structures Sheet

916.1 General

The signed and sealed Building Information Model (BIM) files contain the complete drainage system information for the project. The Drainage Structures sheet provides supplemental data and information for proposed drainage structures, including:

- (1) Drainage Plan View
- (2) Drainage Profiles
- (3) Drainage Tabular Information
- (4) Drainage Special Details and Notes
- (5) Optional Materials Tabulation

The Drainage Structures sheet is produced as a contract document and placed within the Roadway Plans. This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48" or 36"x72"). Use landscape orientation regardless of sheet size selected. Sheet size selection should be based on size and extent of drainage network(s). The Drainage Structures sheet should display the complete extents of individual drainage network(s).

Use the following horizontal scales:

	<u>Standard</u>	<u>Optional</u>
Curbed Roadways	1" = 40'	1" = 50'
Flush-shoulder Roadways	1" = 50'	1" = 100'

Provide a legend for all abbreviations included in the drainage tabular information. See **Exhibit 916-1** for an illustration of the Drainage Structures sheet.

916.2 Drainage Plan View

The drainage plan view is typically shown in the upper half of the sheet. The purpose of this view is to highlight the storm drain network(s), cross drains, and side drains that will be shown in the profile views and included in the tabular data. The drainage plan view is not required when side drains are the only drainage structures included with the project,

however side drains must be shown and labeled on roadway plan sheet, and included in the drainage tabular information.

The display limits of the drainage plan view should contain the entire proposed drainage network. If multiple drainage networks are shown or overlap, clearly indicate which network the profile and tabular information is associated with.

916.2.1 Required Information

Provide the following information in the plan view:

- (1) Display the view such that the centerline of construction or baseline of survey stationing is increasing from left to right. Display station numbers close to station ticks. Include a north arrow and scale above and near the drainage plan view.
- (2) Display proposed limits of pavement, curbs, traffic separators, sidewalks, curb ramps, and driveways. Show proposed bridges and approach slabs by simple outline and indicate the bridge structure number. The intent is to show an outline of the proposed roadway to give context to the location of the drainage structures. The elements of the proposed roadway should be gray scaled.
- (3) Display and label existing and proposed underground utilities only where a conflict exists. Identify the underground utility as a conflict node.
- (4) Display the proposed drainage system by depicting drainpipes with a single pipeline style indicating direction of flow, and the outline of inlets, manholes, junction boxes, and outfall features (e.g., MES, endwall).
- (5) Display and label existing structures that are to be filled, plugged, and remain in place.

Do not display existing topography, except to the extent those elements are to be incorporated into, affected by, or accommodated by the proposed drainage system. Existing topography elements may include roads, streets, driveways, buildings, underground and overhead utilities, walls, curbs, pavements, fences, railroads, bridges, drainage structures and similar items, as well as streams, ponds, lakes, wooded areas, ditches, existing gasoline storage tanks within limits of topographical survey, and other physical features. When shown, display existing topography elements as gray scaled.

916.2.2 Structure and Pipe Numbers

Provide drainage structure numbers (w/ prefix “S”), and a pipe number (w/ prefix “P”) between structures. Include the bridge number for proposed bridge culverts. Establish the structure and pipe numbers using the convention shown in **Exhibit 916-1** and described as follows:

- (1) Storm drain networks: Assign structure numbers in ascending order along the centerline of construction or baseline of construction. Assign pipe numbers that correlate with the structure at the hydraulically upper end of pipe.
- (2) Cross drains and side drains: Assign structure number in ascending order along the direction of flow (hydraulic upper end to lower end). Assign the same structure to intermediate or end structures with suffix letter (i.e., A, B, C). Assign pipe numbers to correlate with the structure at the hydraulically upper end of pipe. When there are multiple pipes associated with the cross drain or side drain include a suffix letter.

916.3 Drainage Profile

Drainage profiles are typically shown in the lower left portion of the sheet as illustrated in **Exhibit 916-1**. Stack or space the profiles to avoid overlapping of structures or notes. Display drainage profiles from left to right, beginning with the structure at the hydraulically upper end of the system run to the outfall or structure at the hydraulically lower end. All storm drain networks and cross drains are to be shown in profile view.

Do not include profile views for side drains.

Each drainage profile must include a background grid at the appropriate scale. Use the same horizontal scale for the profile portion that is used for the plan portion. The vertical scale is typically 10% of the horizontal scale (e.g., 1” = 50’ horizontal scale would typically use a 1” = 5’ vertical scale).

916.3.1 Required Information

Drainage profiles depict vertical relationships of the drainage network or cross drain along the centerline of the pipes. Provide the following information for each drainage profile:

- (1) Display drainage structures (typically depicted as rectangles) and connecting pipes. Place the outside edge of the first structure at the first vertical grid line as shown in **Exhibit 916-1**. Assign the value of zero to the first vertical grid line; subsequent vertical grid lines reflect the true distance along the pipe system.

- (2) Display and label wall zone pipes.
- (3) Label drainage pipes and structure numbers.
- (4) Display and label existing and proposed surfaces along centerline of pipe. Displaying surfaces past the limits of the first and last pipes is not required.
- (5) Provide horizontal grid line elevations along the left side of the background grid.
- (6) Display and label existing and proposed underground utilities. When appropriate, identify underground utility as a conflict node.

916.4 Drainage Tabular Information

Drainage tabular information provides necessary data for the installation of structures and pipes associated with storm drain networks, cross drains, and side drains. The drainage tabular information is typically shown on the lower right portion of the sheet and consists of four tables:

- (1) Pipe Data
- (2) Structures Data
- (3) Endwall and MES Data
- (4) Optional Materials

If there is insufficient space on the Drainage Structures sheet, the Drainage Tabular Information may be placed on a separate sheet titled "Drainage Structures Data".

916.4.1 Pipe Data

The Pipe Data table contains the following information:

- Pipe number, length, and size
- Hydraulic upper end structure number with invert elevation
- Hydraulic lower end structure number with elevation
- Optional materials group number

916.4.2 Structures Data

The Structure Data table contains the following information for each structure:

- Structure number
- Baseline feature
- Structure location (baseline station and offset)
- Structure type and bottom dimensions
- FDOT Standard Plans (Index 400 series) Notes
- Reference point elevation
- Pipe label for each pipe entering or exiting the structure

916.4.3 Endwall and MES Data

The Endwall and MES Data table contains the following information:

- Structure number
- Baseline feature
- Structure location (baseline station and offset)
- Structure type
- Pipe invert elevation
- Structure notes

916.4.4 Optional Materials

Modification for Non-Conventional Projects:

Delete **FDM 916.4.4** and see **Chapter 6** of the [Drainage Manual](#) for Optional Material requirements.

Consider optional materials for all pipes; however, match pipe extensions and end section replacements to the existing pipe material. See the Department's [Drainage Design Guide](#) (Optional Pipe Material Chapter) for more information.

Conduct an Optional Pipe Materials Analysis and place an Optional Materials table with the Drainage Tabular Information. The Optional Materials table shows all materials allowed and indicates which material is plotted in the plans and used as the basis for pay item quantities. The Optional Materials table is to include:

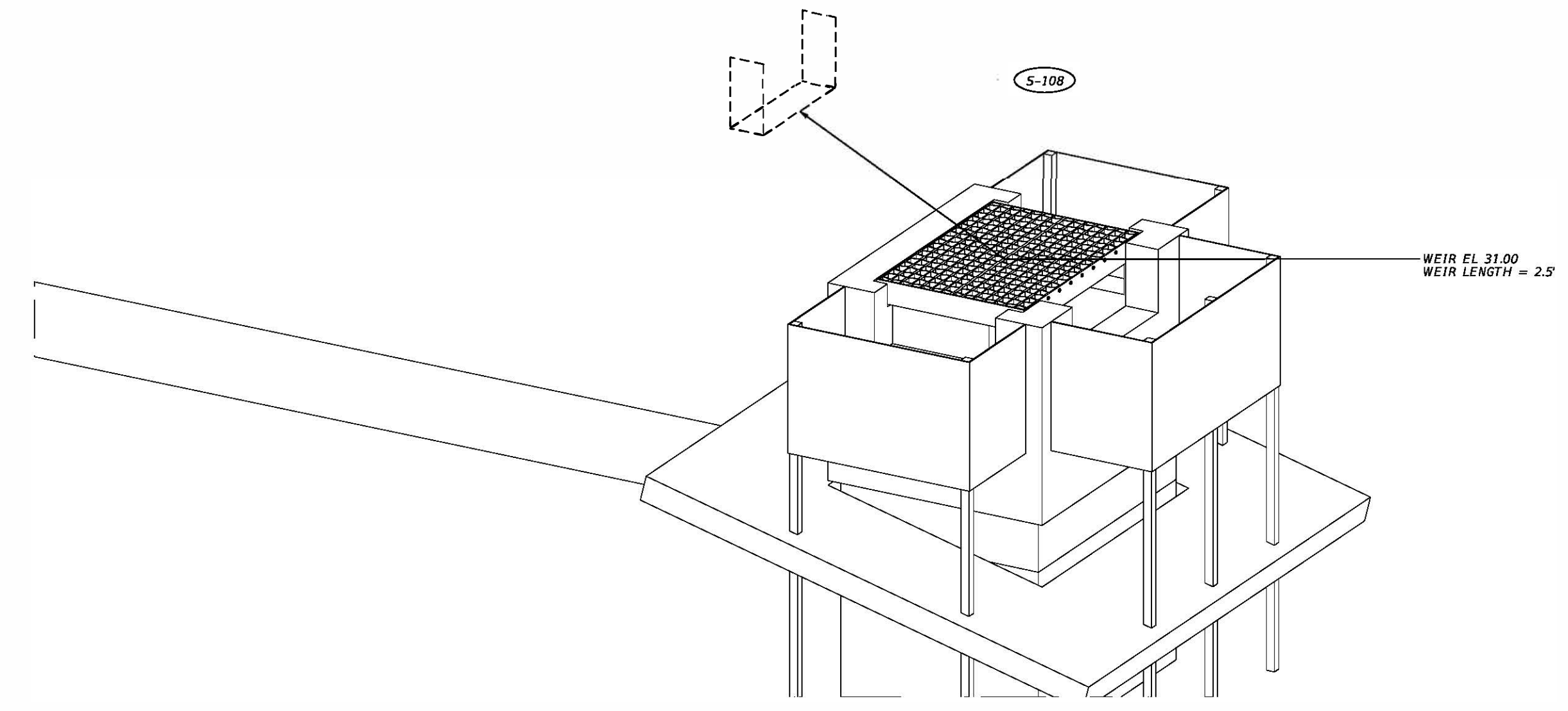
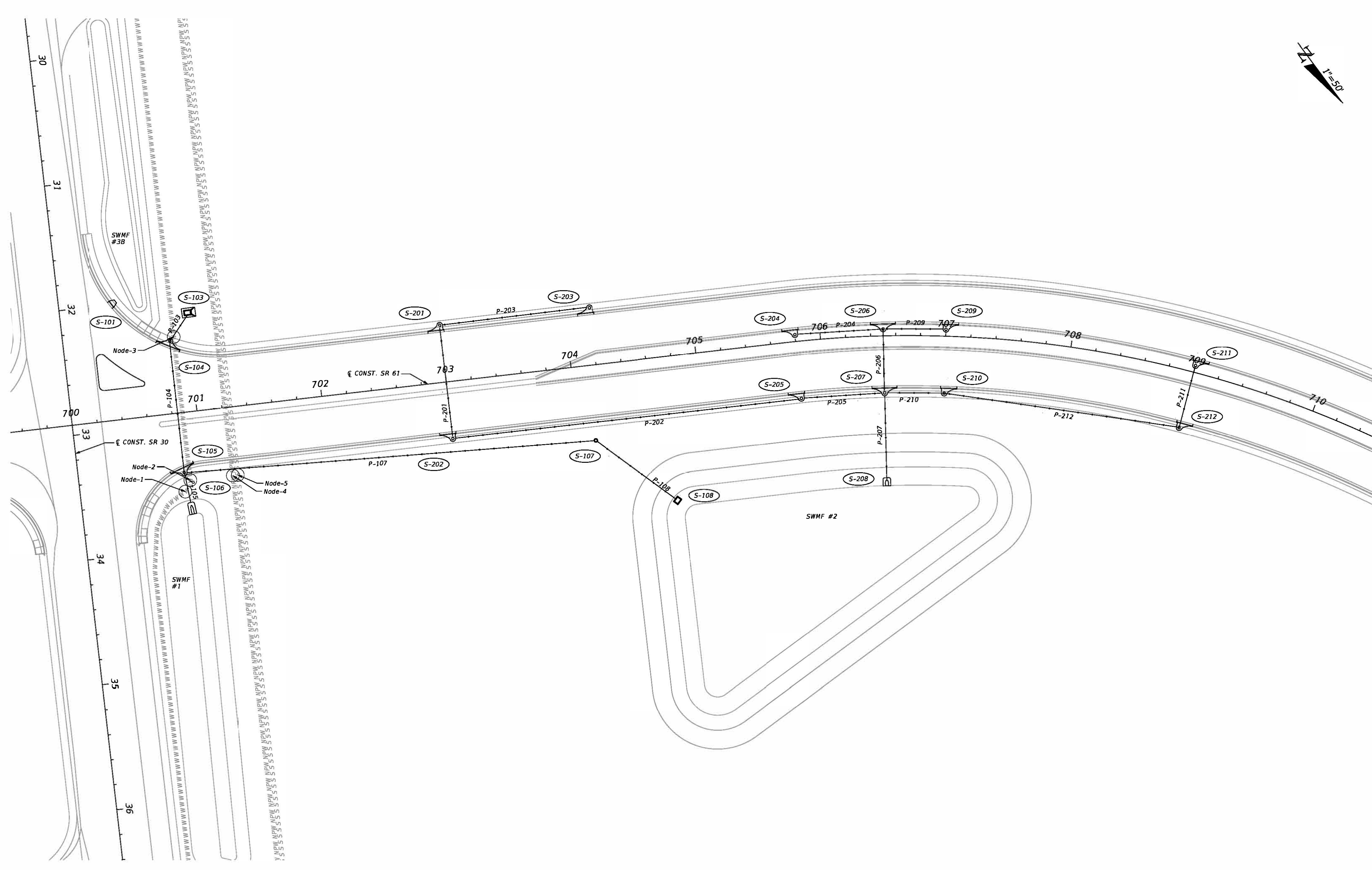
- Optional Pipe Group Number
- Size(s)
- Material, thickness or class, corrugation requirements, and protective coating
- Plotted and as-built notations, and construction remarks

916.5 Drainage Special Details

Showing special horizontal or vertical details in the plans is typically not necessary. However, if it is determined that providing a special drainage detail is beneficial to conveying the design intent, the detail is typically placed in the upper right portion of the sheet but may be shown anywhere within available space on the sheet. Any scale may be used.

The following are examples of information that may be depicted:

- Clash detection results and utility clearances
- Drainage structure details (non-standard structures, pond outfall structures multiple or off-centered pipe connections to a structure wall)
- Isometric and 3D views with identifying labels



DETAIL S-108
CONTROL STRUCTURE DETAILS

Utilities In Close Proximity To Drainage Features						
Label	Conflictee	Conflicter	Baseline Feature	Baseline Station (ft)	Baseline Offset (ft)	Notes
Node-1	8" WM	P-105	CL_SR61	700+83.58	57.63	2006796.65 402739.60
Node-2	8" WM	P-105	CL_SR61	700+88.60	56.49	2006717.29 402612.23
Node-3	8" WM	P-103	CL_SR61	700+88.60	-65.88	2006730.53 402635.15
Node-4	8" WPM	P-107	CL_SR61	701+21.55	49.05	2006788.05 402734.65
Node-5	12" SAN	P-107	CL_SR61	701+22.58	49.27	2006758.69 402751.86

Pipe Data							Optional Materials Tabulation							
Label	Barrels	Length (Construction) (ft)	Size	Start Node (Upper)	Start Invert (ft)	Stop Node (Lower)	Stop Invert (ft)	Optional Pipe	Group Number	Size(s)	Material	Plotted	As Built	Remarks
P-103	1	28	24 inch	S-103	29.50	S-104	29.00	Group 1	Group 1	18 - 24	RCP CLASS II	X		
P-104	1	103	24 inch	S-104	29.00	S-105	28.60	Group 1			SRAP, 16 GA.			
P-105	1	15	24 inch	S-105	28.60	S-106	28.50	Group 1			SRASP, 14 GA.			
P-107	1	334	14x23 inch	S-107	29.10	S-105	28.60	Group 4			SRASP, 14 GA.			
P-108	1	70	14x23 inch	S-108	29.20	S-107	29.10	Group 4			SRASP, 14 GA.			
P-201	1	87	18 inch	S-201	27.50	S-202	27.30	Group 1	Group 2	30	RCP CLASS II			
P-202	1	276	24 inch	S-202	26.80	S-205	26.20	Group 1			SRASP, 14 GA.			
P-203	1	116	18 inch	S-203	27.70	S-201	27.50	Group 1			SRASP, 14 GA.			
P-204	1	86	18 inch	S-204	26.70	S-206	26.60	Group 1	Group 3	18	RCP CLASS I	X		
P-205	1	62	24 inch	S-205	26.20	S-207	26.00	Group 1			HDPE CL II			
P-207	1	42	30 inch	S-207	25.50	S-208	25.00	Group 2			PVC ASTM F-949 PP			
P-209	1	46	18 inch	S-209	26.70	S-206	26.60	Group 1						
P-210	1	43	24 inch	S-210	26.20	S-207	26.00	Group 1						
P-211	1	47	18 inch	S-211	27.10	S-212	26.90	Group 3	Group 4	14x23	ERCP, CLASS II	X		
P-212	1	185	24 inch	S-212	26.40	S-210	26.20	Group 1						

Structure Data										
Label	Baseline Feature	Baseline Station (ft)	Baseline Offset (ft)	Structure Type	Bottom Dimensions	FDOT Standard Plans (400 index series) Notes	Remarks	Reference Point Elevation (ft)	Sump Elevation (Structure Invert) (ft)	-Pipe-Label
S-101	US98	32+02	-38.55	CLOSED FLUME				34.76	33.26	
S-103	CL_SR61	701+02	-83.90	DBI TYPE E		TRAVERSABLE INLET WITH SLOT EL 31.42		32.00	28.50	(Out) P-103
S-104	CL_SR61	700+80	-54.04	CURB INLET TYPE 2	4 DIA.			34.71	28.00	(In) P-103 (Out) P-104
S-105	CL_SR61	700+79	43.76	CURB INLET TYPE 2	4 DIA.		SEE DETAIL A	34.71	27.60	(In) P-104 (In) P-107 (Out) P-105
S-107	CL_SR61	704+19	51.15	MANHOLE TYPE B	3.5' DIA.			32.63	28.10	(In) P-108 (Out) P-107
S-108	CL_SR61	704+69	97.32	DBI TYPE D		NON-TRAVERSABLE INLET	SEE DETAIL B	32.00	28.20	(Out) P-108
S-201	CL_SR61	703+00	-40.00	CURB INLET TYPE 1	4 DIA.			32.40	26.50	(In) P-203 (Out) P-201
S-202	CL_SR61	703+00	40.00	CURB INLET TYPE 1	4 DIA.			32.40	25.80	(In) P-201 (Out) P-202
S-203	CL_SR61	704+20	-40.00	CURB INLET TYPE 1	4 DIA.			31.90	26.70	(Out) P-203
S-204	CL_SR61	705+80	-11.00	CURB INLET TYPE 1	4 DIA.			31.98	25.70	(Out) P-204
S-205	CL_SR61	705+80	40.00	CURB INLET TYPE 1	4 DIA.			31.00	25.20	(In) P-202 (Out) P-205
S-206	CL_SR61	706+50	-11.00	CURB INLET TYPE 2	4 DIA.			32.07	25.10	(In) P-204 (In) P-209 (Out) P-206
S-207	CL_SR61	706+50	40.00	CURB INLET TYPE 2	4 x 4			30.85	24.50	(In) P-205 (In) P-206 (In) P-210 (Out) P-207
S-209	CL_SR61	707+00	-11.00	CURB INLET TYPE 1	4 DIA.			32.15	25.70	(Out) P-209
S-210	CL_SR61	707+00	40.00	CURB INLET TYPE 1	4 DIA.			30.93	25.20	(In) P-212 (Out) P-210
S-211	CL_SR61	709+00	-11.00	CURB INLET TYPE 1	4 DIA.			33.94	26.10	(Out) P-211
S-212	CL_SR61	709+00	40.00	CURB INLET TYPE 1	4 DIA.			32.72	25.40	(In) P-211 (Out) P-212

Endwall and MES Data						
Label	Baseline Feature	Baseline Station (ft)	Baseline Offset (ft)	Structure Type	Elevation (Invert) (ft)	Remarks
S-106	CL_SR61	700+87	69.15	CD MES 1-4	28.50	
S-208	CL_SR61	706+50	102.50	CD MES 1-2	25.00	

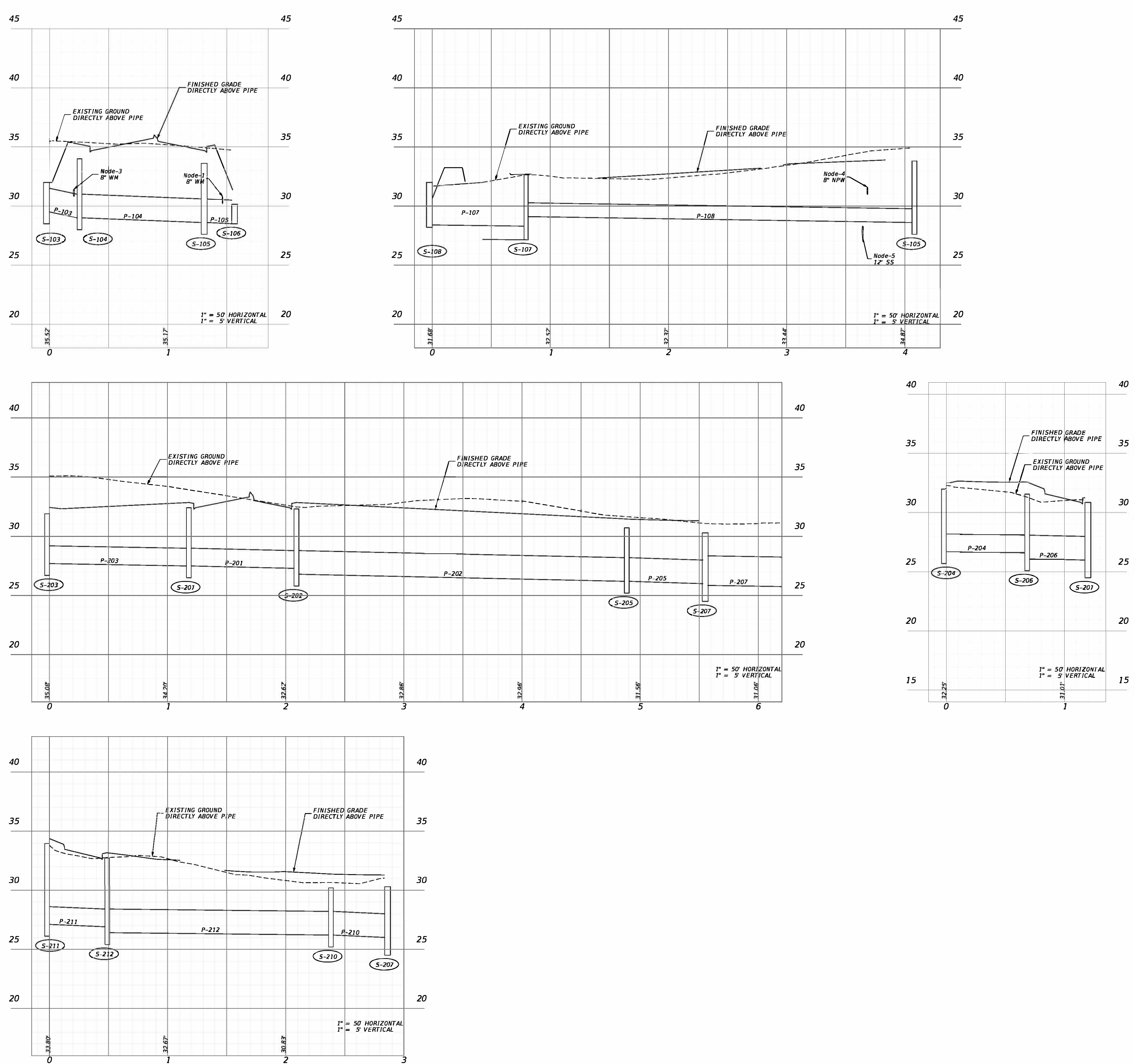


Exhibit 916-1
Drainage Structures
Date: 1/1/2024

917 Stormwater Facilities

917.1 General

A stormwater facility is often located at the downstream end of the drainage system for the purpose of treatment and attenuation of stormwater runoff. The Stormwater Facilities sheet provides data and information for proposed stormwater facilities, including:

- (1) Stormwater Facility Plan View
- (2) Stormwater Facility Sectional Views
- (3) Outlet Structure Details

This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected.

See **Exhibit 917-1** for an example of a Stormwater Facilities sheet.

917.2 Stormwater Facility Plan View

The stormwater facility plan view is typically located in the upper left area of the sheet. It is preferable to display a stormwater facility in its entirety on a single plan sheet. A common horizontal scale for the plan view is 1" = 50' and should not be larger than 1" = 20'.

917.2.1 Required Information

Display and label the following information in the plan view:

- (1) Baseline of construction stationing (typically increasing from left to right) with station and offset ties to the project centerline of construction. Include a north arrow and scale above and near the drainage plan view.
- (2) Elements of the proposed roadway, including drainage pipes and structures.
- (3) Location of stormwater facility sectional views (i.e., A-A, B-B).
- (4) Location of soil borings
- (5) Stormwater facility delineations:

- (a) Facility bottom and top (often referred to as Top of Bank). Provide Station/Offset callouts and radiuses along the Top of Bank delineation.
 - (b) Change of side slope (e.g., 1:2 to 1:4)
 - (c) Maintenance berm limits
- (6) Maintenance access road, fence and gates, and R/W lines
- (7) Stormwater facility drainage structures and pipes with location of outlet structure sectional views (i.e., C-C, D-D)

917.3 Stormwater Facility Sectional Views

The stormwater facility sectional views are typically located below or adjacent to the plan view. Include a minimum of two sectional views, taken in directions perpendicular to each other (as shown on **Exhibit 917-1**). The horizontal scale should be the same as used for the stormwater facility plan view. The vertical scale is typically 4 to 5 times larger than the horizontal scale; e.g., 1" = 20' horizontal and 1" = 4' vertical.

917.3.1 Required Information

Display and label the following information in the sectional views:

- Stormwater facility bottom and top (often referred to as Top of Bank) with elevations, side slopes, and maintenance berm.
- Existing groundline, limits of clearing and grubbing, limits of sod or vegetation, and location of R/W and fence
- Symbols and elevation for Normal Highwater and Peak Design Stage.
- Soil borings

Dimension the maintenance berm, and horizontal distance between stormwater facility delineations.

917.3.2 Cross Sections

Showing cross sections of the stormwater facility in the plans is typically not necessary. However, if it is determined that the sectional views do not adequately show the design

intent, cross sections may be included. Place cross sections anywhere within available space on the Stormwater Facilities sheet and include required information specified in **FDM 917.3.1**.

917.4 Outlet Structure Details

The stormwater facility outlet structure details are typically shown adjacent to the plan view. Outlet structure information, elevations, and dimensions may be placed in a data table (as shown on **Exhibit 917-1**) or shown and labeled directly on the outlet structure sectional views. Information, elevation, and dimensions should clearly indicate the fabrication requirement of the modified inlet and skimmers.

917.4.1 3D Isometric View

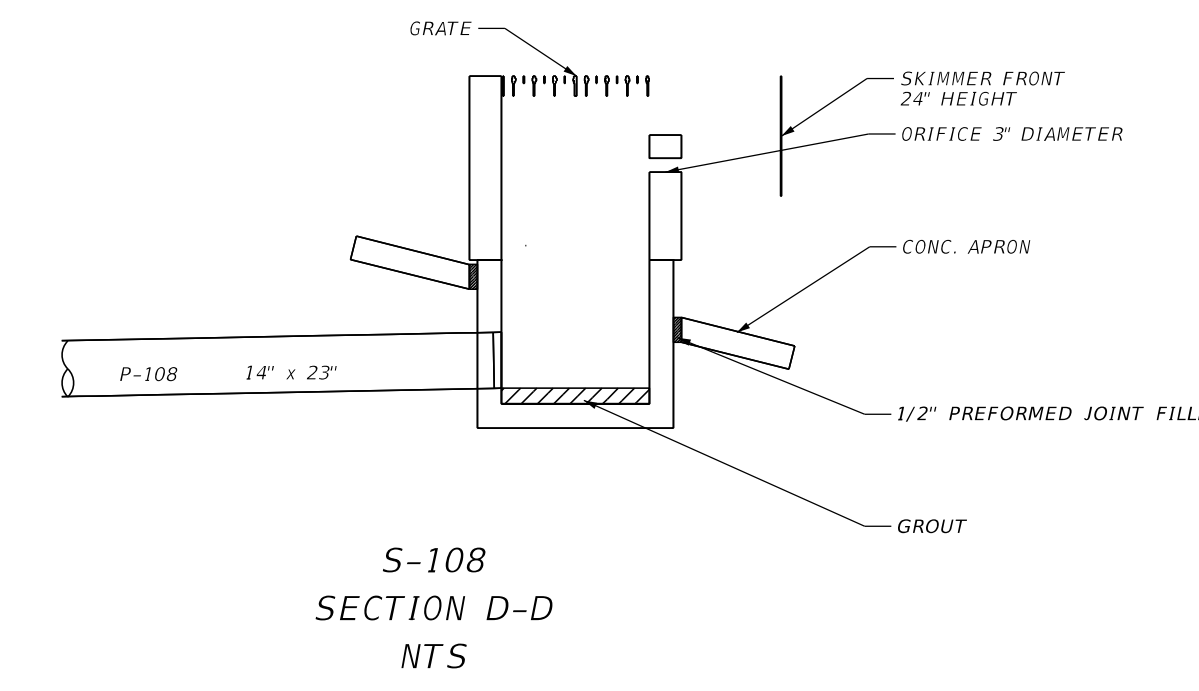
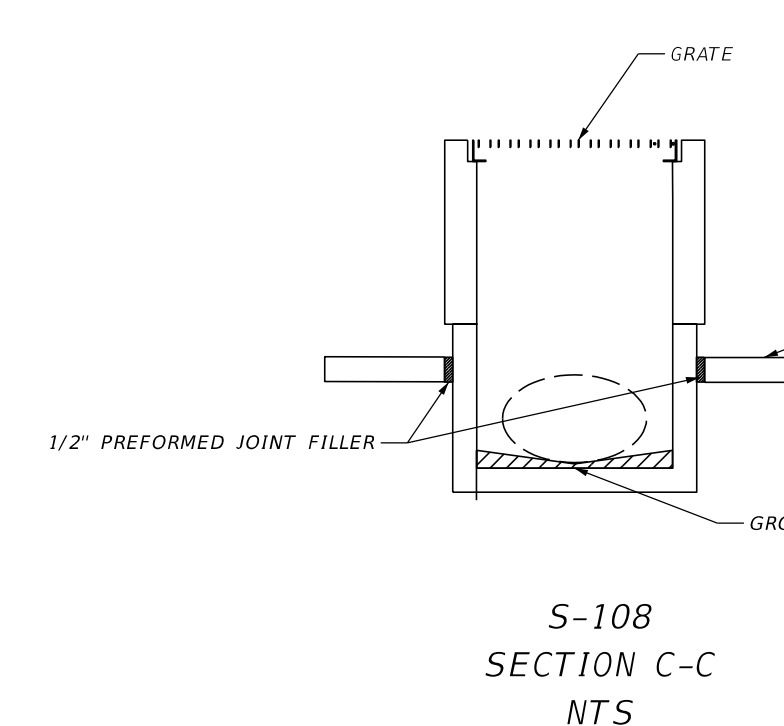
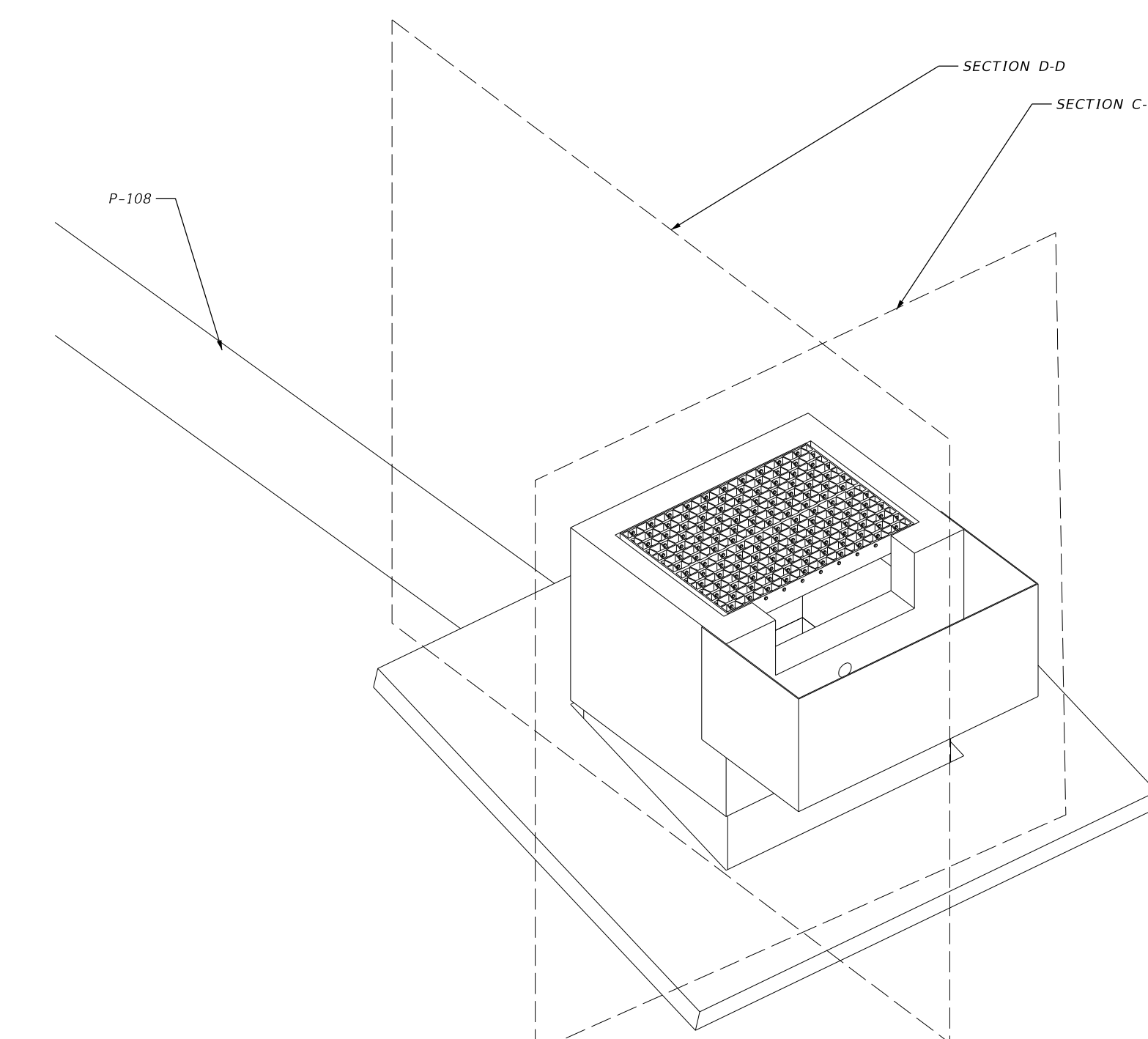
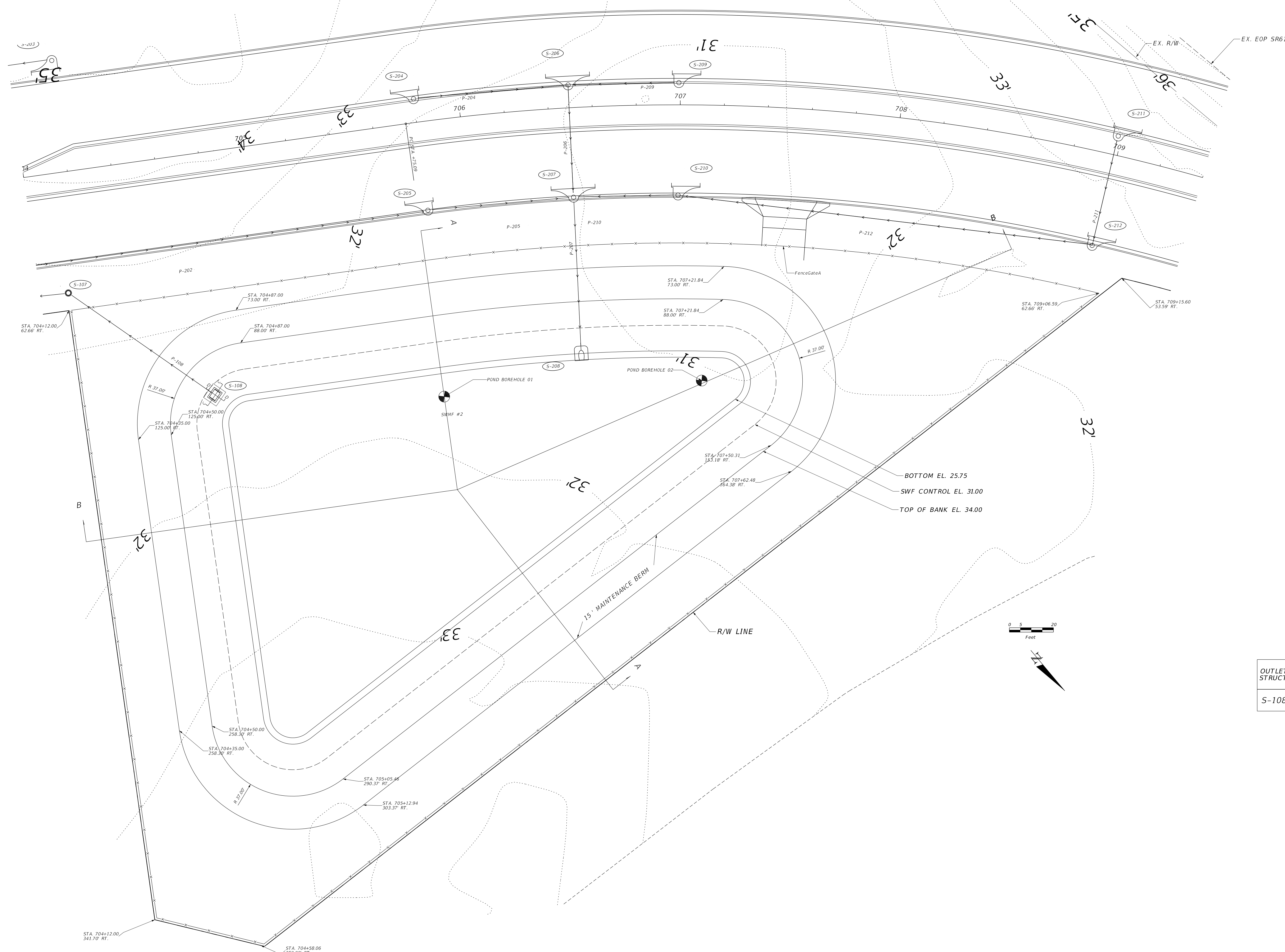
Provide a 3D isometric view of the stormwater facility outlet structure that illustrates:

- Inlet with weir and drawdown. Provide outlet structure drainage structure number.
- Outlet pipe(s), with pipe number
- Skimmer(s)
- Concrete apron

Placement of the 3D isometric view may use any scale and angle that best displays the various components of the outlet structure.

917.4.2 Sectional Views

Provide a sectional view across each outlet structure side that contains a weir or drawdown. Sectional views must provide all pertinent dimensions and elevations needed to fabricate the outlet structure and at a minimum illustrate the same elements required for the 3D isometric view. Any scale may be used that clearly conveys the requirements of the outlet structure. Elevation data may be provided in table format as shown in **Exhibit 917-1**.



OUTLET STRUCT.	SWF	STATION	OFFSET	REF.	INLET TYPE	INDEX NO.	GRATE EL. (FT NAVD)	WEIR EL. (FT NAVD)	OUTFALL PIPE EL. (FT NAVD)	ORIFICE EL. (FT NAVD)	CONC. DITCH PAVT. (FT NAVD)	TOP OF SKIMMER EL. (FT NAVD)
S-108	#2	704+72	109.75	SR61	D	425-052 425-070	33.00	32.00	29.20	31.00	10.91	33.00

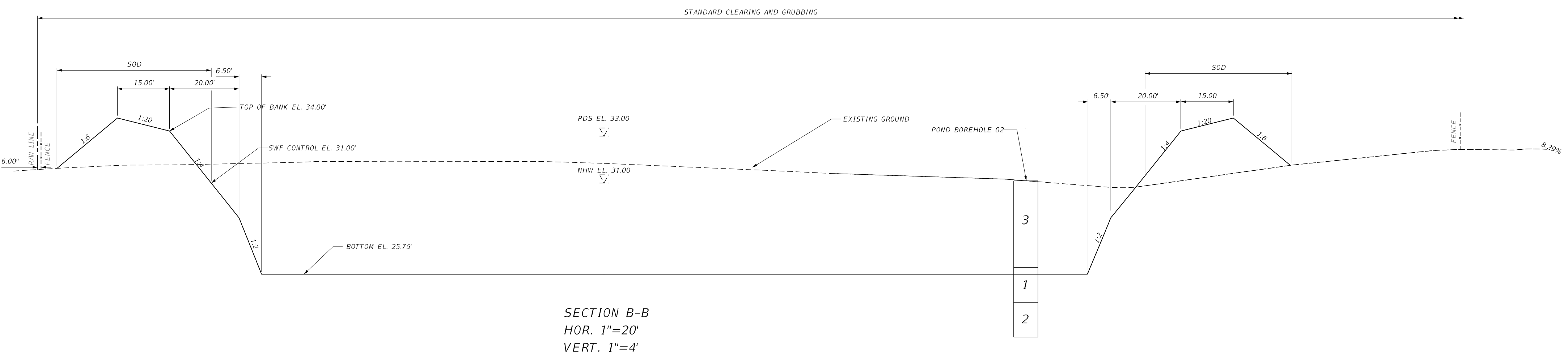
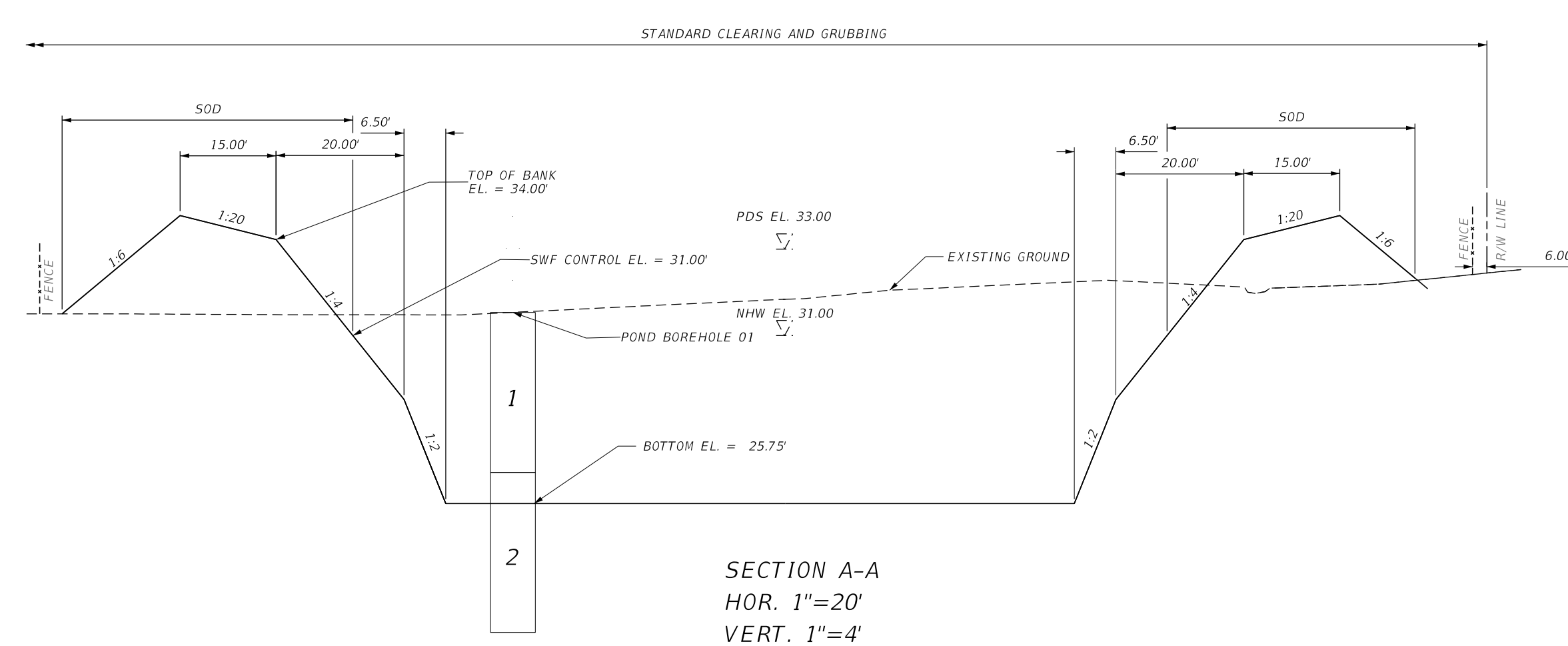


EXHIBIT 917-1
Date 1/1/21

918 Drainage Map

918.1 General

The Drainage Map sheet is required for new construction and reconstruction projects, and for other project types that propose significant changes to the existing hydrology and hydraulics.

The Drainage Map sheet provides an overview of the overland drainage patterns as well as the storm drain system layout and outfall locations. This sheet is used for establishing the appropriate drainage facilities during design, confirmation of overland flow patterns during construction, and for emergency response and maintenance purposes.

This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected.

Use the following horizontal scales:

	<u>Standard</u>	<u>Optional</u>
Closed Drainage System	1" = 200'	1" = 500'
Open Drainage System	1" = 1000'	1" = 2000'

See **Exhibit 918-1** for an example of a Drainage Map.

918.2 Required Information

The Drainage Map sheet must comply with the following:

- (1) Use a gray-scaled photographic (aerial) base map as shown in **Exhibit 918-1**.
- (2) Display a north arrow and scale, typically in the upper right portion.
- (3) Display the centerline or baseline of construction with station equations. Show stationing at an appropriate interval.
- (4) Flag and station the begin and end project limits.
- (5) Flag and station the begin and end of bridges and bridge culverts.
- (6) Label road names and state numbers, and side street names.
- (7) Display and label existing physical land features affecting drainage (e.g., lakes, streams, swamps) by name and direction of flow. Indicate if feature is an FDEP impaired water body when known. Show past highwater elevations with date of occurrence, if available, and present water elevations with date of reading.

- (8) Label known landfill areas, contamination sites, and wellfield protection sites.
- (9) Show drainage divides and other information (e.g., pop-off elevations, spot elevations) to indicate the overland flow of water. Show drainage areas in acres.
Use inserts to show areas that are of such magnitude that the boundaries cannot be plotted at the selected scale. Display basin or subbasin names.
- (10) Display the 100-year flood plain boundaries and elevations. Display delineated wetlands. Identify sink holes and depressions.
- (11) Display arrows to indicate direction of flow along proposed ditches. Show flow arrows from offsite areas at the point where stormwater would approach the FDOT R/W to be routed or controlled by FDOT. Show flow arrows from onsite areas where the flow leaves FDOT R/W.
- (12) Display and label existing drainage structures with type, size, flow line elevations, flow arrows and any other pertinent data. Refer to the ***FDOT CADD Manual*** for correct symbols for existing drainage facilities.
Data relating to existing drainage structures and pipes may be compiled in a table format and placed within available space on the sheet.
- (13) Display proposed drainage structures, cross drains, storm drain pipes, outfall structures and retention/detention pond locations.
 - (a) Label cross drains by pipe size and structure number
 - (b) Label structures by structure number
 - (c) Label ponds or treatment swales by pond number

918.2.1 Flood Data Summary Box

The Flood Data Summary box provides design discharge, base discharge, and overtopping or greatest flood discharge with corresponding stage values.

Provide the Flood Data Summary box when a new or modified cross drain or box culvert (regardless of size) is proposed, or an existing cross drain or box culvert is impacted by changes to the existing hydrology and hydraulics, and the location of the cross drain or box culvert is within the 100-year floodplain or has a history of flooding or other hydraulic problems.

If there is insufficient space on the Drainage Map sheet, or the Drainage Map is not produced, place the Flood Data Summary box on its own sheet titled "Flood Data Sheet".

The required preformatted summary box is available within in the FDOT CADD Software. An example of a Flood Data Summary box is shown in **Table 918.2.1**.

Table 918.2.1 Example of a Flood Data Summary Box

STRUCT. NO.	STATION	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD	
		2% PROB. DISCHARGE	50 YR. FREQ. STAGE	1% PROB. DISCHARGE	100 YR. FREQ. STAGE	DISCHARGE	STAGE	PROB. X	FREQ. YR.	0.2% PROB. DISCHARGE	500 YR. FREQ. STAGE
CD-1	1525+40.00	15.6	34.84	17.8	34.86	--	--	--	--	30.3	34.96
CD-2	1561+00.00	39.4	38.35	44.9	38.54	65.75	39.5	0.32	314	--	--
CD-3	1679+00.00	24.0	34.60	28.0	34.73	--	--	--	--	48.0	35.36
CD-4	2257+22.00	9.0	35.77	11.0	35.77	--	--	--	--	18.0	35.81
CD-5	2283+02.75	24.0	35.70	28.0	35.90	--	--	--	--	48.0	36.87
<p>NOTE: THE HYDRAULIC DATA IS SHOWN FOR INFORMATIONAL PURPOSES ONLY, TO INDICATE THE FLOOD DISCHARGES AND WATER SURFACE ELEVATIONS WHICH MAY BE ANTICIPATED IN ANY GIVEN YEAR. THIS DATA WAS GENERATED USING HIGHLY VARIABLE FACTORS DETERMINED BY A STUDY OF THE WATERSHED. MANY JUDGEMENTS AND ASSUMPTIONS ARE REQUIRED TO ESTABLISH THESE FACTORS. THE RESULTANT HYDRAULIC DATA IS SENSITIVE TO CHANGES, PARTICULARLY OF ANTECEDENT CONDITIONS, URBANIZATION, CHANNELIZATION, AND LAND USE. USERS OF THIS DATA ARE CAUTIONED AGAINST THE ASSUMPTION OF PRECISION WHICH CANNOT BE ATTAINED. DISCHARGES ARE IN CUBIC FEET PER SECOND AND STAGES ARE IN FEET, NGVD '88.</p>											
<p>DEFINITIONS:</p> <p>DESIGN FLOOD: THE FLOOD SELECTED BY FOOT TO BE UTILIZED TO ASSURE A STANDARD LEVEL OF HYDRAULIC PERFORMANCE.</p> <p>BASE FLOOD: THE FLOOD HAVING A 1% CHANCE OF BEING EXCEEDED IN ANY YEAR. (100 YR. FREQUENCY)</p> <p>OVERTOPPING FLOOD: THE FLOOD WHERE FLOW OCCURS (A) OVER THE HIGHWAY, (B) OVER A WATERSHED DIVIDE, OR (C) THROUGH EMERGENCY RELIEF STRUCTURES.</p> <p>GREATEST FLOOD: THE MOST SEVERE FLOOD WHICH CAN BE PREDICTED WHERE OVERTOPPING IS NOT PRACTICABLE, NORMALLY ONE WITH A 0.2% CHANCE OF BEING EXCEEDED IN ANY YEAR (500 YR. FREQUENCY)</p>											



- | | | | |
|--|---|--|---|
| ① STORM SEWER
18" RCP
SW FL 38.94
NE FL 37.97 | ④ SIDE DRAIN
18" CMP
SW FL 37.34
NE FL 36.90 | ⑧ SIDE DRAIN
18" CMP
SW FL 30.96
NE FL 31.08 | ⑫ SIDE DRAIN
18" CMP
SW FL 30.94
NE FL 31.08 |
| ①A 14"x23" ERCP
NW FL 37.61
SE FL NOT LOCATED | ⑤ SIDE DRAIN
18" CMP
SW FL 34.75
NE FL 34.29 | ⑨ CROSS DRAIN
24" RCP
SE FL 30.52
NW FL 30.08 | ⑬ SIDE DRAIN
18" CMP
N FL 32.23
S FL 32.25 |
| ② STORM SEWER
15" RCP
N FL 35.12
S FL 40.50 | ⑥ SIDE DRAIN
18" CMP
SE FL 35.14
NE FL 34.76 | ⑩ SIDE DRAIN
18" CMP
SW FL 30.54
NW FL 30.95 | ⑭ SIDE DRAIN
18" CMP
N FL 32.23
S FL 32.25 |
| ③ SIDE DRAIN
18" CMP
SW FL 37.34
NE FL 36.90 | ⑦ SIDE DRAIN
18" CMP
SW FL 32.85
NE FL 33.13 | ⑪ SIDE DRAIN
18" CMP
SW FL 31.58
NE FL 31.44 | |

Exhibit 918-1
Drainage Map
Date: 1/1/23

8/12/2020 2:52:07 PM RP960JH
C:\worksets\FDOT\drainage_doodle\roadway\FD900Drainage.dgn

REVISIONS		REVISIONS		LUKE S. WALKER, P.E. P.E. NO.: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. 5
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 61	WAKULLA	220495-5-52-01	

DRAINAGE MAP

919 Lateral Ditches

919.1 General

Lateral ditches are sometimes needed to convey stormwater runoff to retention areas, detention areas, or convey the discharge to an outfall point. This information may be placed on the Plan-Profile sheet or Stormwater Facilities sheet when space is available.

Lateral Ditch sheet or Outfall sheet consists of a plan view and a profile view but may also include a typical section or cross sections. These sheets may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected.

The standard horizontal scale for plan and profile views is 1" = 100' but may use 1" = 50' when appropriate. The vertical scale for profile view is typically 10% of the horizontal scale (e.g., 1" = 100' horizontal scale would use a 1" = 10' vertical scale).

919.2 Plan View

Display a north arrow and scale within each plan view, typically in the upper right portion.

Display the lateral ditch plan view such that the centerline or baseline of construction stationing is increasing from left to right. Display bearings for tangent sections (in the direction of stationing) below the centerline or baseline. Display station numbers close to station ticks. Display station equations along centerline or baseline.

Show R/W (or easement), alignment data, and topography. Tie the alignment of the lateral ditch to the centerline of construction.

919.2.1 Required Information

Include labeling and dimensions only to the extent necessary to convey the design intent. Provide the following labeling and dimensions as appropriate:

- Flag and station the begin and end lateral ditch or outfall construction limits.
- Display planned improvements.
- Label and dimension lateral ditch or outfall, and tie to the baseline alignment of construction.
- Display drainage pipes, inlets, manholes, box culverts, and outfall features.

- Display and label R/W lines, and construction easements or license agreements.
- Display and label the limits of wetlands based on permit or regulatory requirements.

919.3 Profile View

Display the lateral ditch profile directly below the corresponding ditch plan view. Each profile must include a background grid at the appropriate scale. Align the begin lateral ditch profile stationing with the begin lateral ditch plan view stationing. Display stationing along the bottom of the grid. Display the vertical elevation along both sides of the grid.

Display the following information:

- Existing ground line profiles
- High water elevations
- Transverse underground utilities
- Benchmark information
- Elevation datum

If storm drain construction is proposed along a lateral ditch or at an outfall, plot the proposed structures on the lateral ditch profile. Include the following information for the structures shown in the profile:

- Flow line elevations
- Structure numbers
- Pipe or culvert sizes
- Utilities (if applicable)
- Label the normal water elevation of the receiving system.

919.3.1 Required Labeling and Information

Required labeling and dimensions necessary to convey the design intent, include the following:

- Flag and station the begin and end lateral ditch.
- Label percent grade for each tangent section. When two tangent grades intersect and no vertical curve is required, label the PI station and elevation.
- Label transverse underground utilities.

919.4 Typical Section

Display a lateral ditch typical section on the Lateral Ditch sheet showing the following:

- Limits of clearing and grubbing
- R/W or easement limits
- Ditch bottom width
- Side slopes or berms

The typical section does not need to be to scale but must be dimensionally proportionate. If the width of proposed clearing and grubbing is variable, note the various widths and their respective station limits below the typical section.

919.5 Cross Sections

Showing lateral ditch cross sections in the plans is typically not necessary. However, if it is determined that providing cross sections in the plans is beneficial to show the design intent, they should be shown anywhere within available space on the Lateral Ditch sheet.

Cross sections often use a horizontal scale of 1" = 20' and a vertical scale of 1" = 10', and display the same elements listed for typical section.

When cross sections are included on the Lateral Ditch Sheet, omit the Lateral Ditch Typical Section.

920 Soil Survey Sheet and Boring Coring Data

920.1 General

This chapter provides the requirements for the development of Soil Survey sheets and Boring Cross Sections sheets.

Place a core bore symbol on the Roadway Plan-Profile sheet at the location (station/offset) that the bore was taken. Label the symbol with the assigned bore number.

Refer to the [FDOT Soils and Foundation Handbook](#) for additional information.

920.2 Soil Survey Sheet

The Soil Survey sheet describes the various types of soils encountered within the limits of the project, including the environmental classification, mechanical properties, and recommended usage of those soils. A preformatted CADD sheet can be found in the FDOT CADD Software. This sheet is typically prepared using a standard-format sheet (11"x17").

Assign a stratum number and provide a description of the material encountered. Include the results for the following tests (as applicable):

- Organic Content
- Moisture Content
- Sieve Analysis
- Atterberg Limits
- Corrosion Test

Assign (group) soils having the same characteristics. Include applicable notes regarding each stratum group on this sheet. Provide the date and weather conditions at the time of sampling.

Include a legend for any symbology used in the Boring Cross Section sheets.

Refer to **Exhibit 920-1** for an example of Soil Survey sheet and **Exhibit 920-2** for the Report of Core Borings.

920.3 Boring Cross Sections Sheets

Boring Cross Section sheets display the results of each core boring on a cross section at the station and offset at which the boring was taken. To create these sheets, Final Geotechnical Data must be deliverable in a xml file (3D model) generated from the FDOT

Geotechnical Data Manager (GDM) application. Cross sections are generated, inclusive of all core boring locations, in conformance with the requirements contained in **FDM 905**. Show the core bores on the corresponding cross section as a ¼-inch wide column below the ground line. Show stratum limits at appropriate depth and assigned stratum numbers inside the column.

920.3.1 Report of Core Borings Sheets

When the Geotechnical Data is not available in a xml file (3D model), or there are only a few core borings, core boring illustrations can be shown on Report of Core Borings sheets instead of Boring Cross Section sheets.

Show the core bores as a ¼-inch wide column below the ground line with a vertical scale adjacent to the core to indicate depth. Show stratum limits at appropriate depth and assigned stratum numbers inside the column.

When there are only a few isolated cores, the soil survey data is often included on the Report of Core Borings sheet.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
MATERIALS AND RESEARCH

DATE OF SURVEY: 2/15/2018-5/1/2018
SURVEY MADE BY: SOIL SURVEY, INC.
SUBMITTED BY: LEIA I. CROSSWELL, P.E.
DISTRICT: THREE

FINANCIAL PROJECT ID : 123456-1-52-01
PROJECT NAME: SR 22 (WEWA HWY)

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

SURVEY BEGINS STA. : 125+87 SURVEY ENDS STA. : 442+67 REFERENCE: BASELINE SURVEY

STRATUM NO.	ORGANIC CONTENT		MOISTURE CONTENT		SIEVE ANALYSIS RESULTS PERCENT PASS (%)					ATTERBERG LIMITS (%)			DESCRIPTION	CORROSION TEST RESULTS						
	NO. OF TESTS	% ORGANIC	NO. OF TESTS	MOISTURE CONTENT	NO. OF TESTS	10 MESH	40 MESH	60 MESH	100 MESH	200 MESH	NO. OF TESTS	LIQUID LIMIT		PLASTIC INDEX	AASHTO GROUP	NO. OF TESTS	RESISTIVITY ohm-cm	CHLORIDE ppm	SULFATES ppm	pH
1	1	1	1	6	14	100	82-88	39-41	12-16	5-10	--	--	--	A-3	GRAY TO BROWN SAND TO SAND WITH SILT	3	14,000-17,000	15	<4.8	7.1-7.9
2	--	--	--	--	9	100	68-78	36-37	15-21	11-34	--	--	--	A-2-4	LIGHT BROWN TO BROWN SILTY SAND	1	22,000	15	<4.8	--
3	--	--	11	7-18	11	100	77-80	41-46	27-30	20-34	11	25-34	11-18	A-2-4/A-2-6	LIGHT GRAY TO BROWN SILTY SAND TO CLAYEY SAND	--	--	--	--	--
4	54	5-56	54	17-575	54	--	--	--	--	4-64	--	--	--	A-8	DARK BROWN TO BLACK SAND TO SILTY SAND WITH ORGANIC MATERIAL	--	--	--	--	--
5	13	1-4	13	9-38	13	--	--	--	--	5-10	--	--	--	A-3/A-2-4	DARK BROWN SAND TO SAND WITH SILT WITH TRACE ORGANICS	--	--	--	--	--
6	--	--	18	11-35	18	--	--	--	--	36-76	18	22-49	10-26	A-6/A-7-6	GRAY CLAYEY SAND TO SANDY CLAY TO CLAY	--	--	--	--	--
7	--	--	7	19-31	8	100	86-89	58-73	47-68	45-66	7	51-66	32-42	A-7-5/A-7-6	GREEN TO BROWN CLAYEY SAND TO CLAY	--	--	--	--	--

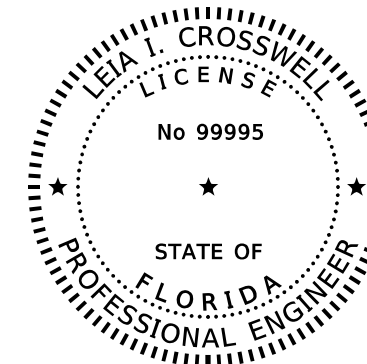
NOTES:

- THE MATERIAL FROM STRATUM 1 (A-3) APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001.
- THE MATERIAL FROM STRATUM 2 (A-2-4) APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001. HOWEVER, THIS MATERIAL IS LIKELY TO RETAIN EXCESS MOISTURE AND MAY BE DIFFICULT TO DRY AND COMPACT. IT SHOULD BE USED IN THE EMBANKMENT ABOVE THE WATER LEVEL EXISTING AT THE TIME OF CONSTRUCTION.
- THE MATERIAL FROM STRATA 3 AND 6 IS PLASTIC (A-2-4/A-2-6/A-6/A-7-6) MATERIAL AND SHALL BE REMOVED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-002 AND UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001.
- THE MATERIAL FROM STRATUM 7 IS HIGH PLASTIC (A-7-5/A-7-6) MATERIAL AND SHALL BE REMOVED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-002 AND UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001.
- THE MATERIAL FROM STRATUM 5 (A-2-4) APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001. HOWEVER, THIS MATERIAL MAY NOT BE USED IN THE SUBGRADE PORTION OF THE ROADBED DUE TO ITS ORGANIC CONTENT. THIS MATERIAL IS LIKELY TO RETAIN EXCESS MOISTURE AND MAY BE DIFFICULT TO DRY AND COMPACT. IT SHOULD BE USED IN THE EMBANKMENT ABOVE THE WATER LEVEL EXISTING AT THE TIME OF CONSTRUCTION.
- THE MATERIAL FROM STRATUM NUMBER 4 IS MUCK (A-8) MATERIAL AND SHALL BE REMOVED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-002. THE REMOVAL LIMITS ARE PRESENTED ON THE MUCK DELINEATION PLAN SHEETS AND THE ROADWAY CROSS-SECTIONS.

EMBANKMENT AND SUBGRADE MATERIAL

STRATA BOUNDARIES ARE APPROXIMATE. MAKE FINAL CHECK AFTER GRADING.

- ∇ - SEASONAL HIGH WATER TABLE
- ▼ - WATER TABLE ENCOUNTERED
- GNE - GROUNDWATER NOT ENCOUNTERED
- GNA - GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

Leia I. Crosswell
2018.10.11 8:31:01 - 4'00'

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOIL SURVEY, INC.
321 EAST 2ND STREET
TALLAHASSEE, FL 32301
LEIA I. CROSSWELL, P.E. NO. 99995

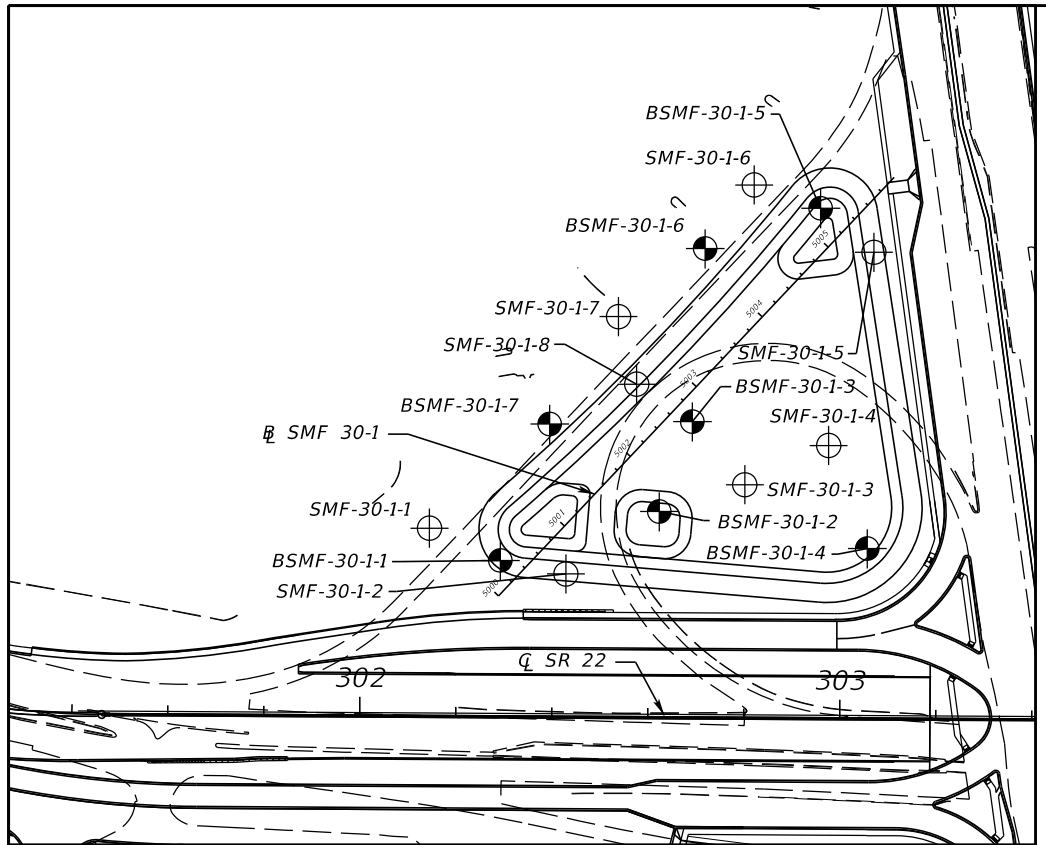
Exhibit 920-1
Soil Survey
Date: 1/1/2024

10/25/2023 7:54:16 AM RD960DL C:\Projects\standards\Roadway\FDM_900_Exhibit_Master.dgn

REVISIONS		PROFESSIONAL ENGINEER		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				SR 22	BAY	123456-1-52-01	GR-1

SOIL SURVEY

Exhibit 920-2
Report of Core Borings
Date: 1/1/2023



BORING LOCATION

LEGEND

1. GRAY TO BROWN SAND TO SAND WITH SILT (A-3)
 2. LIGHT BROWN TO BROWN SILTY SAND (A-2-4)
 3. LIGHT GRAY TO BROWN SILTY SAND TO CLAYEY SAND (A-2-4/A-2-6)
 4. DARK BROWN TO BLACK SAND TO SILTY SAND WITH ORGANIC MATERIAL (A-8)
 5. DARK BROWN SAND TO SILTY SAND WITH TRACE ORGANICS (A-3/A-2-4)
 6. GRAY CLAYEY SAND TO SANDY CLAY TO CLAY (A-6/A-7-6)
 7. GREEN TO BROWN CLAYEY SAND TO CLAY (A-7-5/A-7-6)
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
- NMC NATURAL MOISTURE CONTENT (%)
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- NGVD NATIONAL GEODETIC VERTICAL DATUM OF 1929
- ▼ GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS
- ▽ ESTIMATED SEASONAL HIGH GROUND WATER TABLE
- GNE GROUNDWATER NOT ENCOUNTERED
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- ⊙ APPROXIMATE SPT BORING LOCATION
- ⊕ APPROXIMATE AUGER BORING LOCATION

CL SR 22 CENTERLINE OF CONSTRUCTION OF SR 22
 BSMF 30-1 BASELINE OF CONSTRUCTION OF POND SMF-30-1

NOTE: THE LOCATIONS OF THE BORINGS WERE RECORDED IN THE FIELD BY SOIL SURVEY, INC. USING HAND-HELD GPS EQUIPMENT WITH A REPORTED ACCURACY OF ±10 FEET. THE LOCATIONS OBTAINED FROM THE GPS COORDINATES RECORDED BY SOIL SURVEY, INC. WERE UTILIZED IN CONJUNCTION WITH MICROSTATION DESIGN FILES TO OBTAIN STATION, OFFSET, AND ELEVATION.

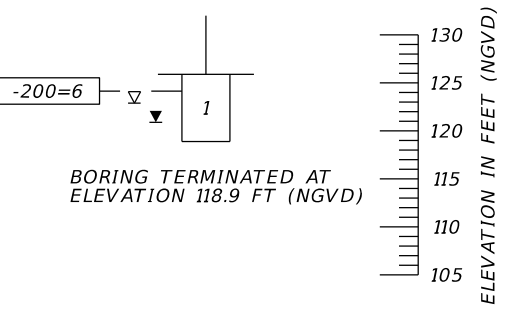
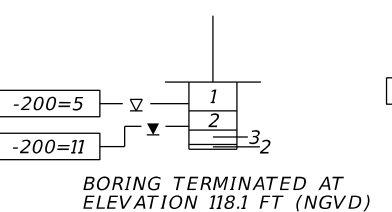
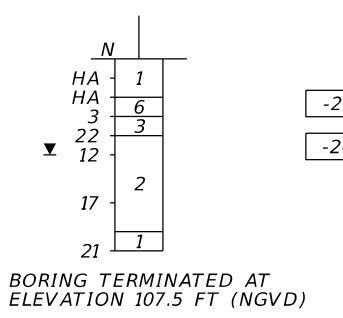
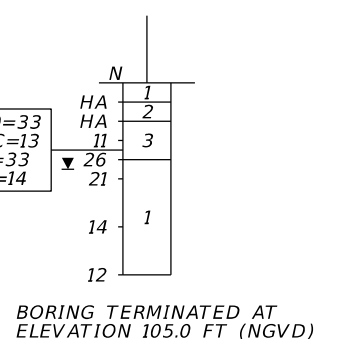
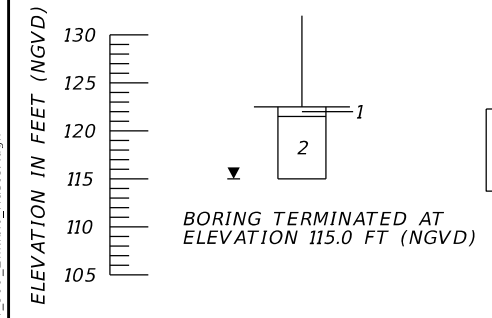
BOR # SMF-30-1-1
 STA. 5000+02
 REF. BSMF 30-1
 OFF. 101' LT.
 ELEV. 122.5
 DATE 3/20/2017

BOR # BSMF-30-1-1
 STA. 5000+28
 REF. BSMF 30-1
 OFF. 24' LT.
 ELEV. 125.0
 DATE 4/5/2017
 DRILLER A. JACKSON
 HAMMER AUTOMATIC
 RIG D-25

BOR # BSMF-30-1-7
 STA. 5001+67
 REF. BSMF 30-1
 OFF. 84' LT.
 ELEV. 127.5
 DATE 4/5/2017
 DRILLER A. JACKSON
 HAMMER AUTOMATIC
 RIG D-25

BOR # SMF-30-1-2
 STA. 5000+64
 REF. BSMF 30-1
 OFF. 35' RT.
 ELEV. 125.1
 DATE 3/20/2017

BOR # SMF-30-1-7
 STA. 5002+97
 REF. BSMF 30-1
 OFF. 109' LT.
 ELEV. 125.9
 DATE 3/20/2017



	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS- RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	15 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

SMF 30-1

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REVISIONS		PROFESSIONAL ENGINEER		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			REPORT OF CORE BORINGS POND #30	SHEET NO. GR-2
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 22	BAY	123456-1-52-01		

LEIA I. CROSSWELL, P.E.
 LICENSE NUMBER: 99995
 SOIL SURVEY, INC.
 321 EAST 2ND STREET
 TALLAHASSEE, FL 32301

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

921 Temporary Traffic Control Plan

921.1 General

A project-specific Temporary Traffic Control Plan (TTCP) is required for all projects. The TTCP is used to communicate the requirements for conveying pedestrian, bicycle, and motorized traffic through established work zones.

This chapter provides the requirements for the development of TTCP sheets. See **FDM 240** for requirements of TTCP designs.

The amount of information that must be communicated depends on the complexity of the TTCP, which is defined as Level I or Level II TTCP. Regardless of level, TTCPs should not exceed four major phases.

- (1) Level I TTCP - Simple construction projects, such as RRR, Minor Widening, New Alignment.
 - (a) General / Phasing Notes
 - (b) Phase Typical Sections
 - (c) Special Details

- (2) Level II TTCP – Complex construction projects, such as Major Widening or Reconstruction, Innovative Intersections (Roundabouts, Diverging Diamond Interchange) or projects requiring a diversion. This level typically includes the following sheets:
 - (a) General / Phasing Notes
 - (b) Phase Typical Sections
 - (c) Special Details / Critical Sectional Views
 - (d) TTCP Plan
 - (e) Detour Plan
 - (f) Temporary Signal Plan
 - (g) Temporary Highway Lighting Plan

921.2 General / Phasing Notes

Place general and phase notes on standard-format sheets (11"x17").

TTCP notes must communicate the following information (when they apply):

- Description of work to be accomplished during each phase of construction
- Project-specific requirements (e.g., school zones, hospitals, fire stations, railroads, waterborne vessels)
- Work zone speed
- Pedestrian and bicycle accommodation
- Lane closure restrictions, traffic pacing restrictions, and portable changeable message signs (PCMS) message for each phase
- Legend for traffic control devices

921.3 Phase Typical Sections

Place typical sections on standard-format sheets (11"x17").

Typical sections must communicate the following information (when they apply):

- Defined work area limits
- Available lane widths (motor vehicle and bicycle), and shoulder widths
- Location of temporary traffic control devices
- Offset requirements

921.4 Special Details Sheet

Include Special Details to provide project-specific requirements and construction details not covered by [Standard Plans](#) or [Standard Specifications](#). Details are often used to illustrate placement of construction signs and traffic control devices when TTCP Plan sheets are not required.

Place details on the General Notes sheet, or on separate standard-format sheets (11"x17").

921.5 Critical Sectional Views

Provide sectional views when clarification is necessary. Sectional views should provide pertinent dimensions and illustrate location of active or traffic lanes, work zone, walls or piers, and temporary barrier walls.

Place critical sectional views on TTCP Plan sheets near the location the view pertains to, or on separate standard-format sheets (11"x17").

921.6 TTCP Plan Sheets

These sheets are typically created referencing the survey and design CADD files.

TTCP plans may be produced on standard-format sheets (11"x17") or large-format sheets (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected. Use levels, fonts, and line weights in accordance with the [CADD Manual](#).

A common horizontal scale for the TTCP plan sheets is 1" = 50' for curbed roadways and 1" = 100' for flush shoulder roadways. Another scale may be used if clarity and legibility are maintained.

TTCP plan sheets are often produced for each major phase of construction. These sheets must communicate the following information (when they apply):

- Orientation of the roadway (i.e., north arrow, stationing, road names)
- Open travel lanes, work area, geometry for lane tapers or shifts
- Placement of temporary pavement
- Placement of temporary construction signs and traffic control devices
- Temporary or permanent drainage work
- Disposition of existing sign installations (e.g., guide signs, route signs, speed limit signs)
- Pedestrian and bicycle accommodations

921.6.1 Temporary Diversions (Special Detour)

When temporary ramps, or other roadways, are necessary, provide diversion horizontal and vertical geometry. Include pavement and shoulder widths, curvature, elevations,

cross slope, grades, and tapers. Also display and label required temporary drainage in the TTCP Plan sheet. Include critical sectional views as discussed in **FDM 921.5**.

921.7 Detour Plan Sheets

Detours often use an outline (stick diagram) of the roadway network as a background and use any appropriate horizontal scale that clearly communicates the alternate routes.

Detour plans may be produced on standard-format sheets (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected.

Detour Plan sheets must communicate the following information (when they apply):

- Orientation of the roadway (i.e., north arrow, road names, railroad, river crossing)
- Location of temporary construction and detour signs necessary to direct pedestrian, bicycle, and motorized traffic
- Location of portable changeable message signs (PCMS)
- Movement of traffic (i.e., arrows)
- Legend for traffic control devices

921.8 Temporary Signal Plan Sheets

Include Temporary Signal Plan sheets for temporary or portable signals, and for alterations to existing signals.

Temporary Signal Plan sheets may be produced on standard-format sheets (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected.

Provide signal timing for each phase, including temporary actuation, to maintain all existing actuated or traffic responsive mode signal operations for the duration of the Contract.

Refer to **FDM 941** for required plan content.

921.9 Temporary Highway Lighting Plan

Temporary Lighting Plan sheets may be produced on standard-format sheets (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected.

Refer to **FDM 943** for required plan content.

922 Miscellaneous Structures

922.1 General

Miscellaneous Structures sheets provide details and data when the information is not provided in the [Standard Plans](#) or [Standard Specifications](#). Produce these sheets using standard-format plan sheets (11"x17").

These sheets are typically placed in the associated component plans set. Miscellaneous structures include:

- Supports for high mast lighting, traffic mast arm, and overhead signs
- Signal strain poles
- Rest area structures or buildings
- Barrier walls (traffic or sound)
- Retaining or gravity walls
- Bridge approach slabs
- Toll facilities

For guidelines on structural detailing, refer to the [Structures Detailing Manual](#).

922.2 Retaining Walls

Non-proprietary retaining walls require design and construction details in the Structure Plans component.

Proprietary retaining walls require a set of control plan details to be included in the Structure Plans component for projects with bridges. Place the control plan details in the appropriate component plans when there are no bridge plans. Examples of control plan details are included in the [Structures Detailing Manual](#).

See **FDM 262** for retaining wall plans submittal procedures. See the [Structures Manual](#) for plan content requirements.

Vendor Drawings for proprietary wall systems listed on the [APL](#) are provided on the Program Management Office website.

922.3 Approach Slabs

Approach slab sheets provide details and information that are not addressed in [Standard Plans, Indexes 400-090](#) and [400-091](#).

Some roadway elements may need to be carried onto the approach slab. In these cases, clarify in the plans which elements are to be included as part of the roadway. Elements that are part of the roadway approaches to the bridge and interface with the approach slabs areas (e.g., stabilization, guardrail, earthwork, sidewalks, approach slab surfacing) are to be included and paid for in the roadway quantities.

922.4 Concrete Box Culverts

Place these sheets in a Structure Plans component, even when there are no bridge plans. In accordance with the [Basis of Estimates](#), load pay items and quantities in the structures category.

Concrete box culverts require complete design and construction details to be included in the contract plans. Include the following minimum design details:

- (1) Plan and Elevation Sheets:
 - (a) Plan view showing: Grid north arrow; scale bar; existing highway boundaries including existing R/W monuments; new R/W line(s) including proposed R/W monuments; culvert or bridge identification number; culvert and highway alignment; survey baseline; profile grade line; direction of stationing; stream channel alignment; stream flow direction; skew angle of the culvert relative to the centerline of roadway; stationing along the profile grade line including begin and end station of culvert (outside face of sidewalls); length of culvert; subsurface exploration locations (e.g., boring locations); culvert end treatment (e.g., headwall and wing wall orientation); scour protection; slope protection; limit of stream work; utilities; traffic railing and pedestrian/bicycle railing type.
 - (b) Elevation view showing: Elevation vertical scale; profile grade line and vertical data; existing stream bottom and ground line (along PGL); utilities.
- (2) A longitudinal section along the culvert centerline showing: Culvert or bridge identification number; invert elevations; existing stream bottom or original ground; culvert stationing at centerline; typical highway section (including rail treatment); design earth cover height (measured from the top of the top slab to the top of pavement); limits of scour protection (including any keyways or geotextile fabric lining); channel work; culvert end treatments; utility (either attached to the fascia,

or in the embankment, traffic railing or sidewalk); wing walls; headwalls; cutoff walls; reference to the appropriate [Standard Plans](#).

- (3) Data Sheets: Box Culvert Data Table and Reinforcing Bar List.
- (4) Miscellaneous details showing: Construction phasing information (affects lengths of precast segments and potential need for skewed segments) including appropriate excavation support and protection systems (e.g., critical temporary walls); traffic railing details including connection details; slope and/or stream bank protection; channel section detail; culvert-end safety grate, guardrail or fencing details when applicable; removal of existing culvert(s); cofferdams or water diversion.
- (5) Notes indicating: Live loading requirements (HL-93 or HS-25); hydraulic data (show 100-year design flow or the design flow used and the minimum hydraulic area perpendicular to flow below the Design High Water); environmental classification for durability; minimum concrete class and reinforcing steel grade; assumed soil weight, angle of internal friction and nominal bearing capacity; differential soil settlement height and effective length (when significant); precast culvert limitations; any special joint waterproofing requirements; restrictions for work in streams; estimated quantities.
- (6) A Load Rating Summary sheet is required for box culverts classified as bridge culverts (per **FDM 265.1**).

922.5 Three-Sided Concrete Culverts

These sheets are to be placed in a Structure Plans component, even when there are no bridge plans.

Complete footing, wingwall and channel lining designs and construction details are required for three-sided culverts. However only conceptual culvert barrel and headwall design details need to be provided. Include the following minimum design details in the plans:

- (1) Plan view showing the orientation of the ends of the structure. The two most typical options for culverts on a skew are ends parallel to the centerline of the roadway (skewed ends) or ends perpendicular to the centerline of the structure (square ends). The end treatment depends upon the skew, whether it is in a fill section or at grade, the location within the R/W, conflicts with utilities, phased construction details, the alignment of the feature crossed, and other site limitations.
- (2) Elevation view showing the configuration of the most appropriate type unit; e.g., frame or arch. Show any limitations on using a larger span (some manufacturers only fabricate units at fixed increments of span length, therefore showing the

limitations will allow the manufacturers to bid using special units or the next larger span length of their standard units). Show other acceptable structure types in separate partial elevation views. Show limiting spans and heights for all alternatives.

- (3) No precast manufacturer should be eliminated from consideration for a given project. However, specific project requirements that may exclude some manufacturers must be identified (such as fabrication on a skew or a desired arched appearance).
- (4) Complete details for a cast-in-place footing design, including design loads and assumptions for the spread footings.
- (5) Complete details for cast-in-place wingwalls, including geometry and reinforcement details.
- (6) Include the applicable details in **FDM 922.4**.
- (7) Place the following notes adjacent to the plan or elevation views, as applicable:
 - (a) The assumed foundation vertical reaction is ____ kips/ft. The assumed foundation horizontal reaction is ____ kips/ft. The Contractor must submit a revised foundation design to the Engineer if the actual loads of the supplied structure exceed these assumed values. Any revised foundation design must be included in the shop drawings and submitted for approval at the same time as the design calculations for the three-sided structure.
 - (b) In cases where squaring of the unit ends would create a geometric conflict with right of way, utilities, phase construction or site geometry, include the following note:
 - (c) Due to site restrictions, only skewed end units are acceptable.
 - (d) If site constraints do not eliminate the squaring of the ends, include the following note:
 - (e) Squared end units may be substituted for skewed end units with no change in the payment limits and no additional cost to the Department.
 - (f) When traffic railings are attached to skewed headwalls and site constraints do not eliminate the squaring of the ends, include the following note:

If the Contractor proposes to substitute square ends, details of the traffic railing attachment must be provided in the shop drawings and approved by the Engineer.

923 Utility Adjustments

923.1 General

Utility Adjustments sheets provide a plan view that highlights the location of existing, proposed, and relocated utilities. These sheets are used when the project corridor contains numerous utilities with significant potential for conflict or harm. Projects with minor utility work or impacts may include this information on roadway (or other component) plan sheets.

Prepare Utility Adjustment sheets on standard-format sheets (11"x17") or a large-format sheets (24"x36", 36"x48" or 36"x72") using a horizontal scale of 1" = 40', or 1" = 50'. Use landscape orientation regardless of sheet size selected.

923.1.1 Utility Notes

See **FDM 914** for required utility notes to be include on the General Notes sheet.

923.2 Required Information

Display a north arrow and scale within each plan view, typically in the upper right portion.

Display roadway plan view (gray scaled as background) such that the centerline of construction, or baseline of construction stationing, increases from left to right. Other proposed design elements should also be shown, such as overhead sign or mast arms. Do not display information and graphic data that is not relevant.

Display and label the following information:

- (1) Display existing and proposed utilities within the project limits using lines and standard utility symbols (see the [CADD Manual](#)). Though not utilities, display and label Department-owned subsurface communication (ITS) lines.
- (2) Indicate the disposition of existing utilities not to remain in service (e.g., "To Be Removed", "To Be Adjusted", "To Be Relocated", "To Be Placed Out Of Service").
- (3) Indicate the utility type, Agency Owner (UAO), and size and material of existing utilities to remain in service.
- (4) Display and label overhead utilities indicating the line voltage. For a multi-line electrical overhead crossing, accurately show the location of each line.

- (5) Indicate field verified vertical elevation and horizontal location (V_{vh}) of existing utilities (SUE data). Leader line must point to location on plan view where field data was taken. Include the V_{vh} number shown in the Utility Verification table.
- (6) Display a Utility Verification table in each view panel of the sheet that contains V_{vh} information for utilities shown in that panel. Required table information includes:
 - (a) V_{vh} number
 - (b) Utility type and owner
 - (c) Size and Material
 - (d) Location (Sta/Offset/Lt or Rt)
 - (e) Existing ground and top of utility elevations

If number of V_{vh} data points or required view panels are extensive, the table may be shown on separate standard-format sheets (11"x17") titled "Utility Verification Sheets".

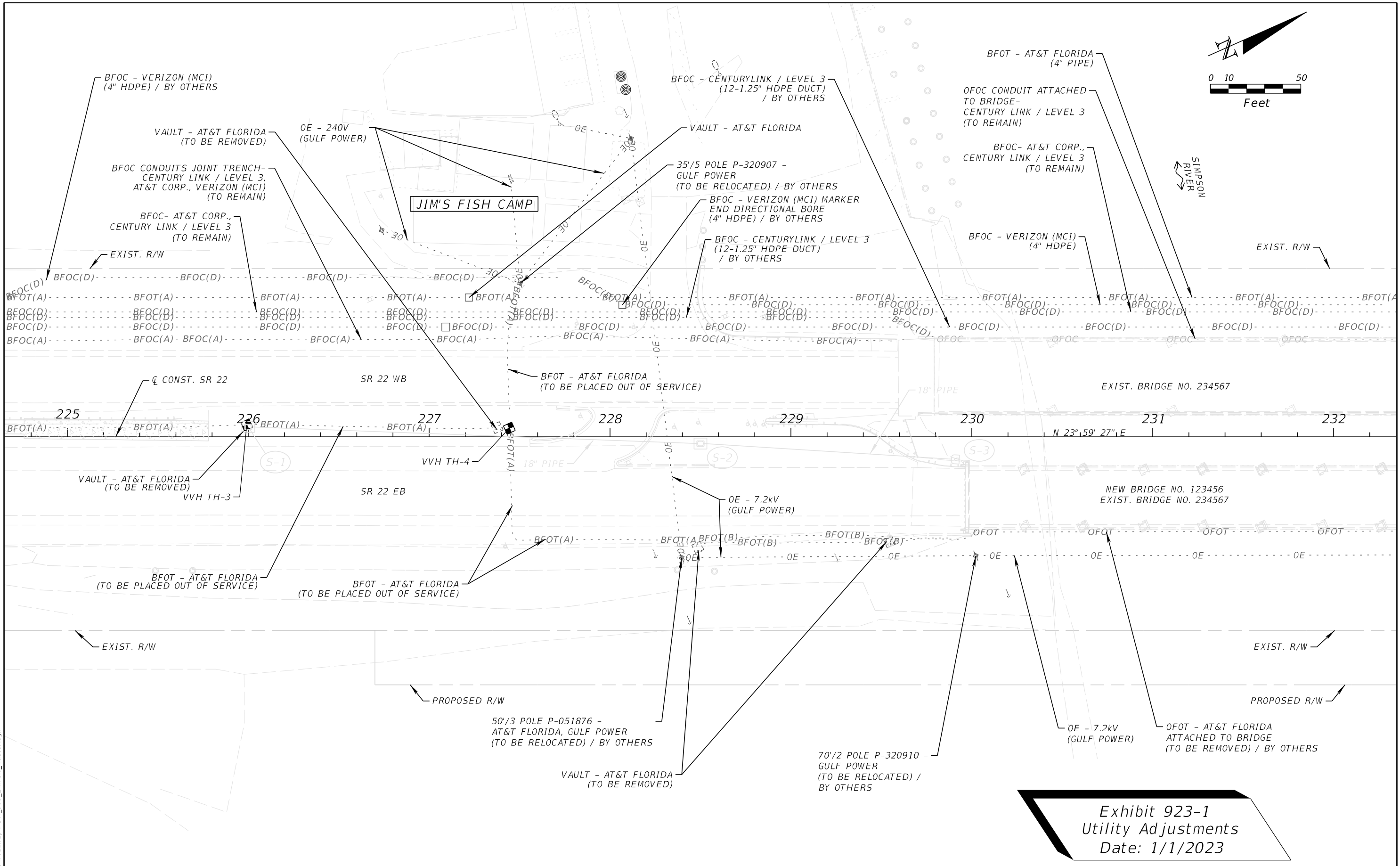
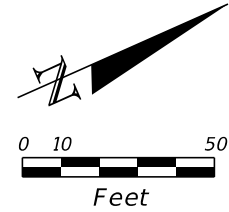


Exhibit 923-1
Utility Adjustments
Date: 1/1/2023

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			UTILITY ADJUSTMENTS	SHEET NO. 102
DATE	DESCRIPTION	DATE	DESCRIPTION	LUKE S. WALKER, P.E. LICENSE NUMBER: 99991 ROADWAY ENGINEERS, INC. 123 MAIN STREET TALLAHASSEE, FL 32301		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
								SR 22		

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924 Selective Clearing and Grubbing Plans

924.1 General

This chapter provides the requirements for the development of Selective Clearing and Grubbing (C&G) Plan sheets. See **FDM 274** for purpose, criteria, and requirements of Selective C&G designs.

Selective C&G Plan sheets provide the data and information for existing vegetation, trees, and palms. Select C&G Plan sheets are placed in the Roadway Plans only when:

- (1) Contract Plans do not include a Landscape Plans component, and
- (2) The district landscape architect or manager has determined that one or more of the Select C&G activities is to be included in the Roadway Plans Set.

Selective C&G activities are as follows:

- (1) Removal of undesirable trees and vegetation
- (2) Preservation and protection of desirable trees and vegetation
- (3) Branch and root pruning
- (4) Tree relocation

When tree relocations are the only Selective C&G activity, show relocation requirements on the Select C&G Plan sheets, or include Tree Relocation Plan sheets in the Roadway Plan Set (see **FDM 944**).

See **Exhibit 924-1** for an example of a Selective C&G Plan sheet. Refer to the [CADD Manual](#) for CADD standards associated with Selective C&G.

924.2 Selective C&G Plan Sheet

The Selective C&G Plan sheet provides a plan view of project indicating the location of selective clearing and grubbing activities are to be performed, and areas to be protected or preserved.

This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72"). Use landscape orientation regardless of sheet size selected. The standard horizontal scale is 1" = 100', however an alternate scale may be approved by the Project Manager.

Display aerial photography or available topography, including R/W, roadways and driveways, buildings, underground and overhead utilities, walls, sidewalks and curbs, pavements, fencing, railroads, bridges, drainage structures and similar items that are relevant to the proposed Selective C&G activities. Display proposed roadway improvements when landscape project follows or is part of a roadway project.

Display a north arrow and scale within each plan view, typically in the upper right portion. Display existing or proposed roadway and centerline of construction or baseline of construction such that the stationing is increasing from left to right.

Display and label the following:

- (1) Existing tree canopy for individual tree or tree group
- (2) Trees to be relocated or removed
- (3) Tree protection fencing
- (4) Preservation areas
- (5) Removal of undesirable vegetation
- (6) Branch and root pruning

Include a legend on each sheet depicting the type of selecting clearing and grubbing activities to be performed. Provide a designation (ID) number for each tree and palm, and for each area where removal of undesirable vegetation will occur. Each tree does not need a designation number when a group of trees are to be branch pruned, but the quantity of trees to be pruned must be provided.

When a tree protection area is adjacent to a barrier (e.g., fencing, wall, guardrail, sediment barrier) the tree protection fencing that is parallel to the barrier may be omitted.

924.3 Selective C&G Detail Sheet

The notes required for selective C&G vary depending on the project. It may be desirable to provide a separate Selective C&G Detail sheet to display the notes, symbols, and details that are applicable to the project. Place Vegetation Removal Table, Root and Branch Pruning Table, and Tree Disposition Table on Selective C&G Detail sheets.

See **Exhibit 924-2** for an example of a Selective C&G Detail Sheet.

924.3.1 Vegetation Removal Table

Provide a Vegetation Removal Table when the project includes removal of undesirable vegetation. The table includes:

- (1) Area ID number for removal area. Numbers can be based on roadway stationing numbers, quadrants, or sheet numbers.
- (2) Clear and precise description of the work to be performed.
- (3) Estimated percent of target species to be removed or eradicated from the area.
- (4) List of primary species targeted for removal or eradication. Use species symbol.
- (5) List of primary species to remain or preserve. Use species symbol.
- (6) Additional information or notes concerning removal area, such as:
 - (a) Florida Exotic Pest Plant Council Category I species to be removed
 - (b) Estimated percent of Category I vegetative cover for each area
 - (c) Additional species to target for removal or preservation

Include a species legend indicating plant species Botanical Name (common name) and symbol. Plant species symbols are typically abbreviated by the first letter of the genus and the first letter of the botanical name; e.g., Live Oak, *Quercus virginiana* is QV. Include project specific notes on the Selective C&G Detail sheet.

924.3.2 Root and Branch Pruning Table

Provide a Root and Branch Pruning Table when the project includes root or branch pruning of existing trees. The table should include the following:

- (1) Tree ID number and location (e.g., station/offset, coordinates). Payment for pruning activity is per tree which requires that each tree be listed in the table.
- (2) Botanical and common name of tree
- (3) Clear and precise description of the work to be performed, including:
 - (a) Root Pruning objects (e.g., preparation for relocation, required for construction of project)
 - (b) Branch Pruning objectives (e.g., structural, aesthetics, safety, clearance)

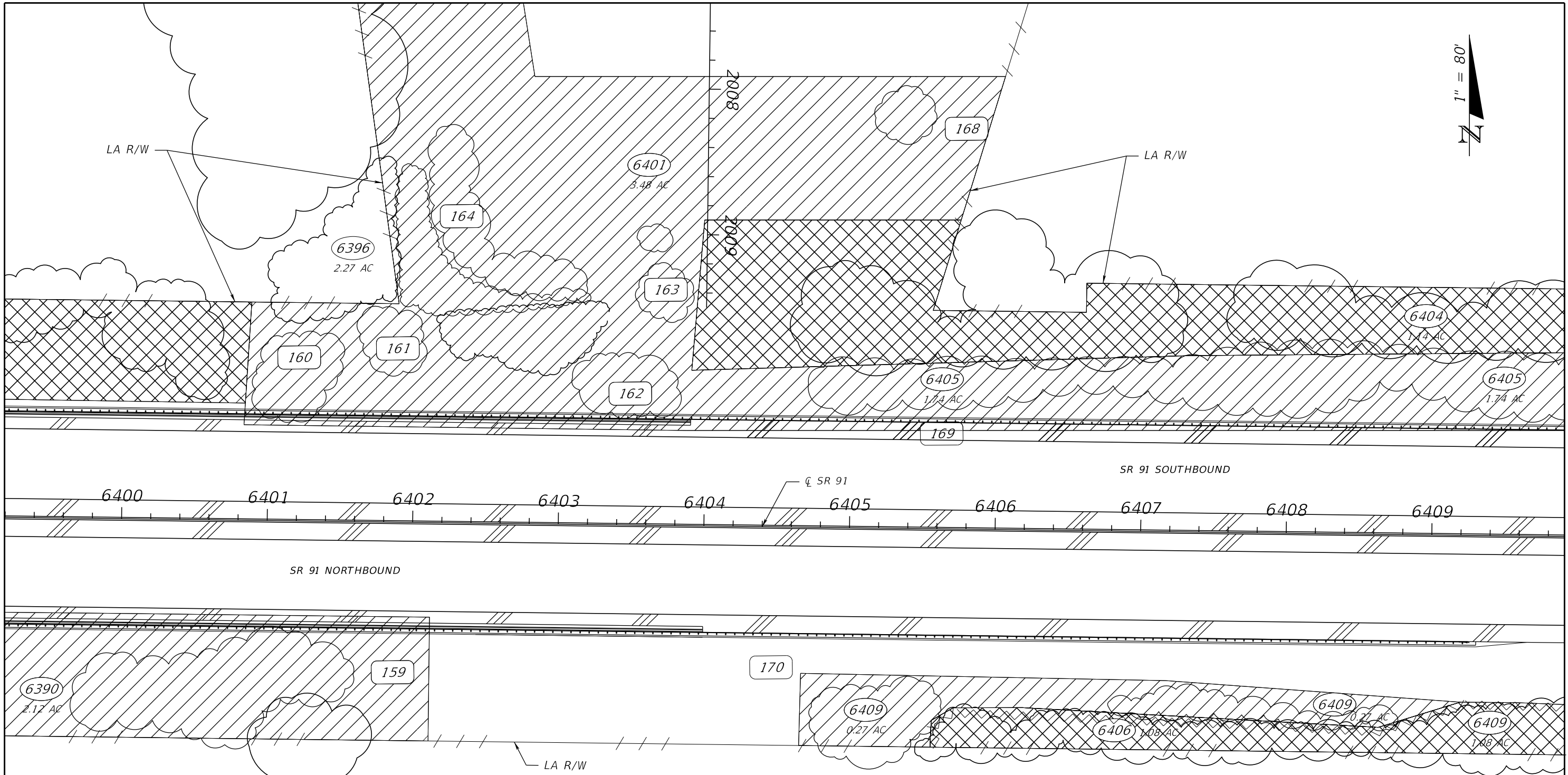
924.3.3 Tree Disposition Table

Provide a Tree Disposition Table when existing trees and palms to be protected, relocated, or removed. Include the following in the table:

- (1) Tree ID number
- (2) Existing and proposed location of tree (e.g., station/offset, coordinates, site numbers).
- (3) Botanical and common name of tree
- (4) Diameter of tree trunk at breast height (DBH), and estimated tree height and canopy spread.
- (5) Disposition of tree (e.g., “To Remain”, “To Be Protected”, “To Be Removed”, “To Be Relocated.”)
- (6) Condition of the tree utilizing the International Society of Arboriculture (ISA) tree rating system (Excellent, Good, Fair, Poor, Dead). Also note issues with structure or damage.

Site-specific requirements may be included under the “Notes” column. Site-specific requirements may include:

- (1) Watering schedule
- (2) Fertilizer mix
- (3) Fertilizer schedule
- (4) Backfill or soil amendments.
- (5) Root or Branch pruning and intent (structural, aesthetic, safety, etc.)



LEGEND:

	TREE PROTECTION BARRIER		EXISTING TREE TO REMAIN		PLANT PRESERVATION AREAS
	ROOT PRUNING LINE		EXISTING TREE TO BE REMOVED		
	CANOPY OF EXISTING TREE (LINE DENOTES DRIPLINE OF TREE)		SELECTIVE CLEARING AND GRUBBING		

Exhibit 924-1
Selective Clearing and Grubbing Plan
 Date: 1/1/2024

REVISIONS		LANDSCAPE ARCHITECT		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				SR 91	ORANGE	123456-1-52-01	1371

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VEGETATION REMOVAL TABLE

AREA ID	WORK DESCRIPTION	EST. % OF PRIMARY SPECIES TO TARGET	PRIMARY SPECIES TO TARGET	SPECIES TO PRESERVE	NOTES
424	DESIGNATES AREAS WHERE CATEGORY #1 INVASIVE, EXOTIC VEGETATION AND NATIVE UNDERSTORY WILL BE SELECTIVELY REMOVED. LARGE DESIREABLE TREES TO REMAIN. ALL TREES UNDER 4" DBH TO BE REMOVED.	75%	AA, ST	PE, SP	REMOVE LARGE TREE DEBRIS OR GRIND ON SITE AND SPREAD AS DIRECTED BY DISTRICT LANDSCAPE ARCHITECT
426	DESIGNATES AREAS WHERE ALL NATIVE VEGETATION WILL BE MOWED FLUSH WITH THE GROUND AND ALL CATEGORY #1 INVASIVE, EXOTIC VEGETATION WILL BE TREATED WITH HERBICIDES.	100%	AA, ST, TS	NONE	INCLUDES REMOVAL OF WILLOWS AND WAX MYRTLE

WORK TABLE NOTES

- "PRIMARY" SPECIES TO TARGET (REMOVE) OR PRESERVE ARE THOSE THAT WERE DETERMINED TO BE MOST PREVALENT IN THAT AREA, AND ARE NOT INTENDED TO BE THE ONLY SPECIES THAT OCCUR. THE FOLLOWING ADDITIONAL UNDESIREABLE NATIVE SPECIES WILL BE TARGETED FOR REMOVAL IN ALL AREAS LISTED IN THE WORK TABLE:
BOTANICAL NAME (COMMON NAME)
 MYRICA CERIFERA (SOUTHERN WAX MYRTLE)
 TYPHA SPP. (CATTAILS)
- THE FOLLOWING CATEGORY #1 INVASIVE SPECIES WILL NOT BE TARGETED FOR REMOVAL:
BOTANICAL NAME (COMMON NAME)
 SOLANUM TAMPICENSE (WETLAND NIGHTSHADE)
 PANICUM REPENS (TORPEDO GRASS)

SPECIES LEGEND

(SYM)	BOTANICAL NAME (COMMON NAME)
(AA)	ACACIA AURICULIFORMIS (EARLEAF ACACIA)
(ST)	SCHINUS TEREBINTHIFOLIUS (BRAZILIAN PEPPER)
(TS)	TYPHA SPP. (CATTAILS)
(PE)	PINUS ELLIOTTII (SLASH PINE)
(SP)	SABAL PALMETTO (SABAL PALM)

ROOT AND BRANCH PRUNING TABLE

TREE ID	LOCATION (Station/Offset or Coordinates)	BOTANICAL NAME	COMMON NAME	WORK DESCRIPTION	NOTES
1125	428+40 150' LT	QUERCUS VIRGINIANA	LIVE OAK	TRIM CO-DOMINANT LEADER	INCLUDES REMOVAL OF DEBRIS
1126	430+50 120' LT	QUERCUS VIRGINIANA	LIVE OAK	PRUNE TO IMPROVE STRUCTURAL INTEGRITY OF TREE	INCLUDES REMOVAL OF DEBRIS

TREE DISPOSITION TABLE

SHEET NUMBER	TREE NO.	SYMBOL	BOTANICAL NAME	COMMON NAME	DBH (IN.) FOR TREES/ CTH (FT.) FOR PALMS	HEIGHT (FT.) (APPROX.)	CANOPY SPREAD (FT.) (APPROX.)	LOCATION		CONDITION	DISPOSITION	NOTES
								STATION	OFFSET/SIDE			
TD-1	1121	QV	QUERCUS VIRGINIANA	LIVE OAK	4	16	7	424+20	130' LT	AVERAGE	RELOCATE TO STA. 429+30, 145' LT	NURSEY MATERIAL PLANTED IN 2017 AS PART OF A LANDSCAPE PROJECT
TD-1	1122	RR	ROYSTONIA REGIA	ROYAL PALM	19	19 GW		423+60	210' RT	AVERAGE	RELOCATE TO STA. 430+90, 130' LT	
TD-1	1123	PC	PINUS CLAUSA	SAND PINE				430+70 - 434+95	RT	AVERAGE	REMAIN	GROUP OF PINES
TD-1	1124	QV	QUERCUS VIRGINIANA	LIVE OAK	6	20	25	437+95	300' RT	POOR	REMOVE	SEE SELECTIVE CLEARING AND GRUBBING PLAN

Exhibit 924-2
 Selective Clearing
 and Grubbing Detail
 Date: 1/1/2024

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REVISIONS				LANDSCAPE ARCHITECT	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				ARTURITO T. GOMEZ, L.A. LICENSE NUMBER: 99999 LAND DESIGN, LLC. 345 IVY LANE ORLANDO, FL 32801	SR 91	ORANGE	123456-1-52-01	1396

SELECTIVE CLEARING AND GRUBBING DETAIL

940 Signing and Pavement Marking Plans

940.1 General

This chapter provides the requirements for the development of Signing and Pavement Marking (S&PM) Plans. See **FDM 230** for requirements of signing and pavement marking designs.

S&PM Plans are usually a component set of plans. Projects with minimal signing and pavement marking improvements may include S&PM sheets in the Roadway Plan set.

940.1.1 Signs Mounted on Signal Installations

Place details for signs mounted on signal span wires or mast arms in the Signalization Plans set.

940.2 Key Sheet and Signature Sheet

The Key Sheet is the first sheet of S&PM Plans set. The Signature Sheet, when required, is placed behind the Key Sheet. These sheets are produced on a standard-format sheet (11"x17") created using the FDOT CADD Software.

Follow the requirements contained in **FDM 910** for the development of a Key Sheet and Signature Sheet, except for the following:

Index of Signing and Pavement Marking Plans

- (1) Key Sheet
- (2) Signature Sheet
- (3) General Notes
- (4) S&PM Plan
- (5) Guide Sign Worksheet
- (6) Overhead Sign Cross Section
- (7) Sign Structures Data Table
- (8) Foundation Details
- (9) Bridge Mounted Sign Details

(10) Report of Core Borings

S&PM Plans may require insertion of sheets that were prepared early, or prior to the design process (aka early works). See **FDM 910.2.6.1** for instructions on including early works sheets.

For standalone signing or pavement marking projects, include the list of Contract Plans Set even if “Signing and Pavement Marking Plans Set” is the only component.

See **FDM 910** for an example of a Key Sheet and Signature Sheet.

940.3 General Notes Sheet

General Notes sheets convey site-specific requirements not covered by [Standard Plans](#) or [Standard Specifications](#). Place general notes on standard-format sheets (11”x17”).

940.3.1 Pay Item Notes

Place pay item notes on the General Notes sheet.

Information on how quantities are determined are contained in the Estimated Quantities (EQ) Report and should not be repeated in the plans as a Pay Item Note.

Pay item notes are used to provide unique project information not covered by basis of payment information contained in the [Standard Specifications](#), such as:

- Clarify how incidental work is to be paid for.
- Clarify the purpose, uses, or requirements.

940.4 S&PM Plan Sheets

S&PM Plan sheets convey a graphic depiction, and necessary information for the installation of signs and pavement marking elements.

Produce the S&PM Plan sheet using a standard-format sheet (11”x17”) or a large-format sheet (24”x36”, 36”x48” or 36”x72”) that are contained in the FDOT CADD Software. Use landscape orientation regardless of sheet size selected.

When appropriate, the sheet may utilize multi-stacking (subdividing sheet horizontally); each panel containing a plan view.

Use the following horizontal scales:

	<u>Standard</u>	<u>Optional</u>
Curbed Roadways	1" = 40'	1" = 50'
Flush-shoulder Roadways	1" = 50'	1" = 100'

940.4.1 Required Information

Provide the same basic information required on the Roadway Plan sheet, including roadway geometrics, project limits, street names, curb and gutter, drainage inlets, sidewalks, and R/W lines.

Show underground and overhead utilities, lighting structures, signal structures and ITS structures that may conflict with the installations of sign components. Identify potential conflicts with utilities, drainage, landscape features, sidewalks, and driveways in the plans.

Provide the following on the S&PM Plan sheet:

- (1) Display a north arrow and scale within each plan view, typically in the upper right portion. Display centerline of construction or baseline of construction such that the stationing is increasing from left to right. Flag and station the begin and end of the signing and pavement marking limits.
- (2) Place proposed signs at the proper locations. Display the sign face near its respective sign with a leader line connecting the sign location and sign face. Orient each sign face on the plan sheet to be read as viewed from the direction of travel along the roadway. Indicate next to each sign face the station (or mile post), pay item number, sign size, standard designation, or assigned number (if nonstandard). In addition, provide sign placement (offset) when installation may conflict with utilities, drainage, lighting, sidewalks, driveways, or landscape feature.
- (3) Display existing signs in the same manner as proposed signs. Indicate next to each sign face the station (or mile post), disposition (remain, relocate, or remove), and pay item number.
- (4) Display and label permanent pavement markings specifying width, color and spacing. Indicate begin and end pavement marking stations including offsets. Provide radii information and dimension lane widths at appropriate intervals or changes.

- (5) Label Ground-in Rumble Strips with the permanent pavement marking callout labels. It is not necessary to call out the array type (skip or continuous) for Arterials and Collectors.
- (6) Display and label raised pavement markers and delineators specifying type, color, and spacing. Indicate begin and end of application by stations.
- (7) Display and label tubular markers specifying color and spacing. Indicate begin and end of application by stations.
- (8) Label field verified vertical elevation and horizontal location (V_{vh}) of existing utilities (SUE data) for overhead sign installations on the plan view. Include with label (or in summary table) the following:
 - (a) V_{vh} number
 - (b) Utility type and owner
 - (c) Size and Material
 - (d) Location (Sta/Offset/Lt or Rt)
 - (e) Existing ground and top of utility elevations

940.4.2 Typical Pavement Marking Sheet

For simple projects, or sections of a project, S&PM Plan details may be conveyed using a Typical Section indicating placement of traffic markings in lieu of full plan sheets. Provide typical marking plan details for median crossovers, turn lanes, or other similar features.

Proposed and existing signs may be tabulated to convey location, disposition, and other required information.

940.5 Guide Sign Worksheet

The Guide Sign Worksheet provides information necessary for sign panel fabrication. Each proposed sign panel must be shown with a complete message layout (sign face) and supporting information, including:

- panel color, dimensions, and corner radii
- border width and color
- lettering (copy) color, height, and spacing

For multi-post signs, include number of posts needed, and the column size and length.

The Guide Sign Worksheet is produced on a standard-format sheet (11"x17"). The number of signs shown on a single sheet depends on the sign size and complexity.

Output from the *Transoft GuidSign Program*, or a similar format may be used.

940.6 Overhead Sign Cross Section Sheets

Overhead Sign Cross Section sheet provides a sectional view of overhead signs (e.g., cantilever or span structures, bridge mounted) as viewed by approaching traffic. This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36"). Use landscape orientation regardless of sheet size selected.

The cross section must be at the station of the overhead sign, and include ditches, guardrails, barrier walls, right of way lines, potentially conflicting utilities, and lane lines. Create the section using a horizontal and vertical scale of 1" = 10' or 1"-5'.

Any arrow included on the sign panel that designates a lane assignment must be located within the center 1/3 of the associated traffic lane.

Display the foundation, sign structure and panel, and cross section on a background grid. Indicate the sign number, station, direction of travel, and scale used. Dimension and label the following:

- Highest elevation of the roadway surface
- Elevation of the foundation top
- Vertical distance from highest elevation of roadway surface to bottom of sign panel
- Horizontal distance from edge of panel to center of foundation
- Horizontal distance from edge of travel lane to closest edge of foundation
- Width and height of sign panel

940.6.1 Multi-Post Sign Cross Section Sheets

Muti-post sign cross sections, though not placed in plans, are often created to:

- Support the reported column size and length data on the Guide Sign Worksheet.
- Support the planning of future overlay of the rates on Toll Schedule Signs.

When created, place final cross sections in PSEE Project Documentation module.

940.7 Sign Structures Data Table Sheet

Provide design information for the support truss, columns, and foundations on either the “Cantilever Sign Structures Data Table” or the “Span Sign Structures Data Table”. These tables should be completed by the Structures Engineer of Record (EOR).

The information shown on these sheets, along with details contained in [Standard Plans, Indexes 700-040](#) and [700-041](#) provides all information necessary for sign structure fabrication and installation.

Computer programs for the design of overhead cantilever sign structures and for the design of overhead span sign structures are available. The programs were developed by the Structures Design Office and may be downloaded from the Structures Design web site.

Produce this sheet using a standard-format sheet (11”x17”).

940.8 Foundation Details Sheet

Required construction details for standard foundations are provided in [Standard Plans, Index 700-040](#) and [Index 700-041](#).

Provide a Foundation Details sheet when any of the following apply:

- (1) Proposing a non-standard foundation.
- (2) Project soil conditions are weaker than soil conditions which the standard foundation designs are based on.
- (3) Unavoidable site restrictions (e.g., limited R/W, utility conflicts)

Produce this sheet using a standard-format sheet (11”x17”).

940.9 Bridge Mounted Sign Details Sheet

The design of the attachment system for signs mounted on bridge structures is the responsibility of the Structures EOR. Include the design of the attachment system in the structures plans if bridge work is included in the project. If bridge work is not in the project, place the Bridge Mounted Sign Details sheet in the S&PM Plans.

Produce this sheet using a standard-format sheet (11”x17”).

940.10 Report of Core Borings Sheet

The Report of Core Borings sheets provide soil information for each proposed overhead sign structure. Produce this sheet using a standard-format sheet (11"x17"). See **FDM 920** for additional information.

The following information is required:

- (1) Depiction of the boring identifying type and depth of soil strata encountered, and water level encountered. Provide boring number and location.
- (2) Soil boring location map illustrating where boring was taken. Provide boring number.
- (3) Soil properties and environmental classification.

941 Signalization Plans

941.1 General

This chapter provides the requirements for the development of Signalization Plans. See **FDM 232** for requirements of signalization designs.

Signalization Plans are usually a component set of plans. Projects with minimal signalization improvements may include signalization sheets in the Roadway Plan set.

941.1.1 Signs Mounted on Signal Installations

Place details for signs mounted on signal span wires or mast arms in the Signalization Plans.

941.1.2 Rectangular Rapid Flashing Beacons (RRFBs)

Place details for RRFBs mounted overhead or as a standalone assembly in the Signalization Plans.

941.2 Key Sheet and Signature Sheet

The Key Sheet is the first sheet in the Signalization Plans set. The Signature Sheet, when required, is placed behind the Key Sheet. These sheets are produced on a standard-format sheet (11"x17") created using the FDOT CADD Software.

Follow the requirements contained in **FDM 910** for the development of a Key Sheet and Signature Sheet, except for the following:

Index of Signalization Plans

- (1) Key Sheet
- (2) Signature Sheet
- (3) General Notes
- (4) Signalization Plan
- (5) Interconnect/Communication Plan
- (6) Mast Arm Details

- (7) Foundation Details
- (8) Service Point Details
- (9) Internally Illuminated Street Name Signs Details
- (10) Mast Arm Assemblies Data Table
- (11) Report of Core Borings

Signalization Plans may require insertion of sheets that were prepared early, or prior to the design process (aka early works). See **FDM 910.2.6.1** for instructions on including early works sheets.

For standalone signalization projects, include the list of Contract Plans Set even if “Signalization Plans Set” is the only component.

See **FDM 910** for an example of a Key Sheet and Signature Sheet.

941.3 General Notes Sheet

General Notes sheets convey site-specific requirements not covered by [Standard Plans](#) or [Standard Specifications](#). Place general notes on standard-format sheet (11”x17”). See **FDM 914** for additional information concerning general notes.

General notes often include signal design information for the following:

- controller operations
- signal heads
- computer interface
- loop installations
- interconnect cable

941.3.1 Pay Item Notes

Place pay item notes on the General Notes sheet.

Information on how quantities are determined are contained in the Estimated Quantities (EQ) Report and should not be repeated in the plans as a pay item note.

Pay item notes are used to provide unique project information not covered by basis of payment information contained in the [Standard Specifications](#), such as:

- Clarify how incidental work is to be paid for.
- Clarify the purpose, uses, or requirements.

941.3.2 Signals Legend

Place a Signals Legend (i.e., symbol and description), and other abbreviations used in Signalization Plans on the General Notes sheet, or on a separate “Signals Legend” sheet. Use symbols in accordance with the requirements of the FDOT CADD Software.

941.4 Signalization Plan Sheet

Signalization Plan sheets convey a graphic depiction, and necessary information for the installation of signals, including:

- Construction details
- Electrical circuits
- Signal phasing
- Pay item number and quantity for each element of the signal design.

Produce the Signalization Plan sheet using a standard-format sheet (11”x17”) or a large-format sheet (24”x36”, 36”x48” or 36”x72”) that are contained in the FDOT CADD Software. Using a horizontal scale of 1" = 20' or 1" = 40', select a sheet size to display complete intersections on one plan sheet. Use landscape orientation regardless of sheet size selected.

941.4.1 Required Information

Provide the same basic information required on the Roadway Plan sheet, including roadway geometrics, project limits, street names, curb and gutter, drainage inlets, sidewalks, and R/W lines.

Show underground and overhead utilities, signing structures, lighting structures, and ITS structures that may conflict with the installation of signal components. Identify potential conflicts with utilities, drainage, landscape features, sidewalks, and driveways in the plans.

Provide the following on the Signalization Plan sheet:

- (1) Display a north arrow and scale within each plan view, typically in the upper right portion. Display centerline of construction or baseline of construction such that the stationing is increasing from left to right. Flag and station the begin and end of the lighting limits. Provide the bearing on each roadway approach.

- (2) Signal head locations with orientation arrows and movements (movements 2 and 6 are the major streets).
- (3) Details of signal heads in tabular form.
- (4) Phasing diagram or signal operating plan (SOP). If the SOP conforms to the [Standard Plans](#), **Index 671-001**, then a only a reference to the index is required.
- (5) Signal controller timing chart.
- (6) Display loop detectors, "stop bars", and pedestrian crosswalks. Indicate location and orientation of pedestrian push buttons.
- (7) Identify electrical service location and routing to power source.
- (8) Display signal wire signs.
- (9) Identify conduits and pull boxes.
- (10) Location of signal poles and span wires. Label ground and roadway crown elevations.
- (11) Location of pedestrian signals. See **Standard Plans Instructions** for **Index 665-001 (SPI-665-001)** for additional information on pedestrian detector assemble installation.
- (12) Lane lines with vehicle orientation arrows and median nose locations with turning radii.
- (13) Coordination unit-timing chart.
- (14) Label field verified vertical elevation and horizontal location (V_{vh}) of existing utilities (SUE data) for signal pole, or mat arm installations on the plan view. Include with label (or in summary table) the following:
 - (a) V_{vh} number
 - (b) Utility type and owner
 - (c) Size and Material
 - (d) Location (Sta/Offset/Lt or Rt)
 - (e) Existing ground and top of utility elevations
- (15) Label signalization equipment, including applicable pay item numbers.

941.5 Interconnect/Communication Plan Sheet

Provide an Interconnect/Communication (I/C) Plan sheet when signal equipment is being coordinated with other signal installations.

Prepare the I/C Plan sheet using a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72") that are contained in the FDOT CADD Software. Use landscape orientation regardless of sheet size selected.

Use a horizontal scale of 1" = 100' for underground cable, and 1" = 200' for aerial cable.

941.5.1 Required Information

Provide the same basic information required on the Roadway Plan sheet, including graphic display of roadway, cross streets, driveways, sidewalks, and R/W lines.

Provide the following on the I/C Plan sheet:

- (1) Display a north arrow and scale within each plan view, typically in the upper right portion. Display centerline of construction or baseline of construction such that the stationing is increasing from left to right.
- (2) Display and label the signal controller, I/C cable, and pull boxes or aerial junction boxes. Label must include pay item number and quantity for each I/C element.
- (3) Identify signal poles, service poles, and joint-use poles to which I/C cable will be attached.

941.6 Signalization Details

Construction details for mast arm assemblies and foundations are provided in [Standard Plans Index 649-030](#) (Standard Mast Arm Assemblies) and [Index 649-031](#) (Mast Arm Assemblies).

Use signalization detail sheets to provide project-specific requirements and construction details not covered by [Standard Plans](#) or [Standard Specifications](#).

Place details on standard-format sheet (11"x17").

FDM 941.6.1 through 942.6.4 are common details provided in plans. Other details, such as video detection, controller cabinet or service pole may be required.

941.6.1 Mast Arm Details

Provide a Mast Arm Details sheet when proposing a non-standard mast arm assembly.

941.6.2 Foundation Details

Provide a Foundation Details sheet when any of the following apply:

- (1) Proposing a non-standard mast arm assembly.
- (2) Project soil conditions are weaker than soil conditions which the standard foundation designs are based on.
- (3) Unavoidable site restrictions (e.g., limited R/W, utility conflicts)

941.6.3 Service Point Details

Provide a one-line diagram and panel schedule for each service point. Panel schedules must include the following:

- (1) Panel ratings: voltage, phases, capacity (main lugs or main circuit breaker) and short circuit current rating.
- (2) Enclosure type.
- (3) Neutral bus and ground bus requirements.
- (4) Capacity of the circuit breakers.
- (5) Circuit loads.
- (6) Total and demand loads.

941.6.4 Internally Illuminated Street Signs Details

Provide an Internally Illuminated Street Signs Details sheet when proposing illuminated street signs placed on mast arm assemblies.

941.7 Mast Arm Assemblies Data Table

The Mast Arm Assembly Data Table provides necessary arm, pole, and foundation information for each mast arm assembly.

The table and required notes are available through the CADD tools.

941.8 Report of Core Borings Sheet

The Report of Core Borings sheets provide soil information for each proposed mast arm assembly. Produce this sheet using a standard-format sheet (11"x17"). See **FDM 920** for additional information.

The following information is required:

- (1) Depiction of the boring identifying type and depth of soil strata encountered, and water level encountered. Provide boring number and location.
- (2) Soil boring location map illustrating where boring was taken. Provide boring number.
- (3) Soil properties and environmental classification.

942 Intelligent Transportation Systems Plans

942.1 General

This chapter provides the requirements for the development of Intelligent Transportation Systems (ITS) Plans. See **FDM 233** for requirements of ITS designs.

ITS plans provide construction details, electrical circuits, and other relevant data for various types of ITS systems, including:

- Freeway Management System
- Incident Management System
- Arterial Management System
- Emergency Management Systems
- Transit Management Systems
- Electronic Toll Collection or Fare Payment
- Highway Rail Intersections (under electronic surveillance)
- Regional Multimodal Traveler Information

ITS Plans are usually a component set of plans. Projects with minimal ITS improvements may include ITS sheets in either the Roadway Plans or Signalization Plans set.

942.1.1 FDOT Fiber Optic Cable

When FDOT fiber optic cable exists within the project limits, coordinate proposed improvements with the ITS and TSM&O staff within the District Traffic Operations Office.

When the fiber optic cable is buried, include the pay item for “Fiber Optic Cable Locator” in the Estimated Quantities Report.

942.2 Key Sheet and Signature Sheet

The Key Sheet is the first sheet in the ITS Plans set. The Signature Sheet, when required, is placed behind the Key Sheet. These sheets are produced on a standard-format sheet (11”x17”) created using the FDOT CADD Software.

Follow the requirements contained in **FDM 910** for the development of a Key Sheet and Signature Sheet, except for the following:

Index of Intelligent Transportation Systems Plans

- (1) Key Sheet
- (2) Signature Sheet
- (3) General Notes
- (4) Legend
- (5) Pole Data Table
- (6) ITS Plan
- (7) Dynamic Message Sign Details
- (8) Highway Advisory Radio Details
- (9) Video Display System Details
- (10) Network Devices Details
- (11) Vehicle Detection Details
- (12) Service Point Details
- (13) Foundation Details
- (14) ITS Cross Sections
- (15) Report of Core Borings

ITS Plans may require insertion of sheets that were prepared early, or prior to the design process (aka early works). See **FDM 910.2.6.1** for instructions on including early works sheets.

See **FDM 910** for an example of a Key Sheet and Signature Sheet.

942.3 General Notes Sheet

General Notes sheets convey site-specific requirements not covered by [Standard Plans](#) or [Standard Specifications](#). Place general notes on standard-format sheet (11"x17").

General notes may include:

- (1) Department's contact information for the fiber optic cable route marker label.

- (2) Submittal of equipment specifications or design and shop drawings proposed for the project.
- (3) Required coordination.

942.3.1 Pay Item Notes

Place pay item notes on the General Notes sheet.

Information on how quantities are determined are contained in the Estimated Quantities (EQ) Report and should not be repeated in the plans as a pay item note.

Pay item notes are used to provide unique project information not covered by basis of payment information contained in the [Standard Specifications](#), such as:

- Clarify how incidental work is to be paid for.
- Clarify the purpose, uses, or requirements.

942.3.2 ITS Legend

Place an ITS Legend (i.e., symbol and description), and other abbreviations used in ITS Plans on the General Notes sheet, or on a separate “ITS Legend” sheet. Use symbols in accordance with the requirements of the FDOT CADD Software.

942.4 ITS Plan Sheets

ITS Plan sheets convey a graphic depiction, and necessary information for the installation of ITS system, including:

- ITS cabinets, equipment, and devices
- Power source and electrical circuits
- Conduits and pull boxes
- Pay item number, quantity, and description for each element of the ITS installation.

Assign a unique ID name to each proposed ITS device, hub, and service point. Refer to the Standard Naming Conventions per the FDOT Intelligent Transportation System Facilities Management (ITSFM) Standards. Example of IDs include CCTV-SR91-126.2-NB-A; EPB-SR528-4.8-SB-B; FSV-SR417-52.2-WB-A.

Produce the ITS Plan sheet using a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48", or 36"x72") that are contained in the FDOT CADD Software. Use landscape orientation regardless of sheet size selected.

The standard horizontal scale is 1" = 100', however an alternate scale may be approved by the Project Manager.

942.4.1 Required Information

Provide the same basic information required on the Roadway Plan sheet, including, roadway geometrics, project limits, street names, construction stationing or milepost, curb and gutter, drainage inlets, sidewalks and right of way lines. Where details normally shown on roadway plans would obscure ITS features, the details may be screened so long as the details remain plainly legible.

Aerial photography may be used as a background in lieu of topographic survey and roadway design file.

Show underground and overhead utilities, signing structures, and lighting structures that may conflict with the installation of ITS components. Identify potential conflicts with utilities, drainage, landscape features, sidewalks, and driveways in the plans.

Provide the following on the ITS Plan sheet:

- (1) Display existing ITS elements and label to remain, or removed
- (2) Display and label the following proposed ITS equipment with their associated ID name and pay item numbers:
 - (a) Fiber optic cable, conduit, conductors, and access points.
 - (b) System communication devices.
 - (c) Electrical power service equipment, interconnects, and service voltage.
 - (d) Grounding and transient voltage protection.
 - (e) Structure-mounted or ground-mounted field cabinets for system electronics, maintenance service points, and interconnect.
 - (f) Circuit numbers with load center identification.

- (3) Display location and placement of ITS installations, such as
 - (a) Dynamic Message Sign
 - (b) Highway Advisory Radio
 - (c) Vehicle Detection Systems
 - (d) Video Display Systems
- (4) Illustrate the cone of vision or detection zone when applicable.
- (5) Label field verified vertical elevation and horizontal location (V_{vh}) of existing utilities (SUE data) for ITS installations on the plan view. Include with label (or in summary table) the following:
 - (a) V_{vh} number
 - (b) Utility type and owner
 - (c) Size and Material
 - (d) Location (Sta/Offset/Lt or Rt)
 - (e) Existing ground and top of utility elevations

942.4.2 Modified ITS Plan Sheets Format

Modified plans format (aka “letter type” plans) provides location of ITS devices in table format in lieu of plans sheets. The table includes device ID, description, milepost (to 3 decimal places), offset from the edge of the traveled way to the aboveground ITS device installations, and a comment field. Global positioning system (GPS) coordinates can be utilized as supplemental information in the table.

The modified plans should also include the following:

- (1) A cross section for devices such as DMS that require overhead structures.
- (2) Number and sizes for conduit.
- (3) Number of fibers for fiber optic cable.
- (4) Size and numbers of pairs for twisted pair copper cables.

Aerial photographs should be furnished with the table above to provide supplementary information. The aerial plan sheets do not require R/W lines, baseline, or roadway edges to be shown. The aerial plan sheets are used as a base for the as-built plans.

942.5 ITS Details Sheet

Use a ITS Details sheets to provide project-specific requirements and construction details not covered by [Standard Plans](#) or [Standard Specifications](#).

Place details on standard-format sheet (11"x17").

Common ITS details include:

- Fiber optic cable splices, terminations, and designating system.
- Splice Diagrams and Logical Network Diagrams
- Electrical Information (e.g., transformers and disconnect switches, panel board schedules)
- Electrical Line Diagrams and Service Details
- Cabinet Details and Wiring Diagrams
- ITS Device Mounting Details

942.5.1 Dynamic Message Sign (DMS)

Provide the following details for DMS installations:

- (1) DMS Housing, including details and notes that identify type of display (monochrome, full-color, or tricolor), size of display matrix (height, width, number of lines, and number of characters per line), and type of mechanical construction (walk-in, front access, or embedded).
- (2) DMS controller, cabinet, and associated electronic equipment. Include telemetry equipment details for remote sensing and control.
- (3) DMS Uninterruptible Power Supply (UPS) system.
- (4) DMS support structures, including external walkways, safety railings, and ladders.

- (5) DMS mounting brackets and hardware.

942.5.2 Highway Advisory Radio (HAR)

Provide the following details for HAR installations:

- (1) HAR operator workstation and central recording facility.
- (2) HAR antennas, transmitter, and electronics.
- (3) HAR support structures, signage, and beacons.
- (4) HAR mounting brackets and hardware.

942.5.3 Video Display System

Provide the following details for video display system installations:

- (1) Detailed structural mounting information for each color video monitor, flat panel display, and rear projection video unit in the video display system, including support structures, wall attachment methods, and the weight of each display unit
- (2) Cable routing plan and diagrams, including maintenance and service points.
- (3) Video display controller and operator workstations.
- (4) Encoders, decoders, multiplexers, and routing equipment.
- (5) Cross-sections and elevations for all modifications to existing wall systems in the TMC facility.

For the rear projection video unit mounting and installation plans, include details that illustrate stacking configuration and support design, along with a ventilation and climate control plan. Provide cable routing plans that include detailed connection diagrams for individual and stacked configurations.

942.5.4 Network Devices

Provide the following details for network devices:

- (1) System diagrams illustrating network and device interconnect.

- (2) General network topology.
- (3) Notes regarding special configurations or options for specific devices that are required to achieve a specific system function.

942.5.5 Vehicle Detection and Traffic Data Collection

Provide the following details for vehicle detection and traffic data collection systems:

- (1) Diagrams illustrating detection system interconnect.
- (2) General network topology.
- (3) Notes regarding any special configurations or options for specific devices that are required to achieve a specific system function.
- (4) Illustrate detection zones on respective lanes. Identify lanes numerically from the inside to the outside lane.

942.5.6 Service Point Details

Provide a one-line diagram and panel schedule for each service point. Panel schedules must include the following:

- (1) Panel ratings: voltage, phases, capacity (main lugs or main circuit breaker) and short circuit current rating.
- (2) Enclosure type.
- (3) Neutral bus and ground bus requirements.
- (4) Capacity of the circuit breakers.
- (5) Circuit loads.
- (6) Total and demand loads.

The panel schedules must comply with the load analysis submitted as part of the ITS Power Design Analysis Report (PDAR).

Provide a Technical Special Provision (TSP) for automatic transfer switches (ATS), fuel tanks and engine generators, when a permanent ITS generator is required.

942.5.7 Foundation Details Sheet

Required construction details for mast arm foundations are provided in [Standard Plans](#), [Index 649-030](#) or [Index 649-031](#).

Provide necessary construction details on a Foundation Detail sheet when either of the following apply:

- (1) Proposing a non-standard mast arm assembly.
- (2) Project soil conditions are weaker than soil conditions which the standard foundation designs are based on.
- (3) Unavoidable site restrictions (e.g., limited R/W, utility conflicts).

942.6 ITS Cross Sections Sheet

The ITS Cross Sections sheet provides a sectional view of the installation of camera poles and other similar ITS devices as they relate to the roadway elements. The sectional view also illustrates the cone of view or detection, location of R/W, and relevant utility or drainage features.

This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48" or 36"x72"). Use landscape orientation regardless of sheet size selected. Follow the requirements contained in [FDM 905](#) for the development of a Cross Section sheet.

The section view must be shown at the proposed station of the ITS installation. Display, label, and dimension relevant information, such as setback, height of pole and IT device, depth of foundation and top elevation, and offset to R/W and centerline of construction.

942.7 Pole Data Table

Pole Data Table sheet provides the following information for ITS poles:

- (1) ITS Device to be mounted on the pole, and the mounting height
- (2) The location of the pole (station/offset), and slope of ground at pole location
- (3) Type of pole (e.g., concrete, P-III)
- (4) Pole length, embedment depth, and height of pole above ground

Produce this sheet using a standard-format sheet (11"x17").

942.8 Report of Core Borings Sheet

The Report of Core Borings sheets provide soil information for each proposed ITS pole. Produce this sheet using a standard-format sheet (11"x17"). See **FDM 920** for additional information.

The following information is required:

- (1) Depiction of the boring identifying type and depth of soil strata encountered, and water level encountered. Provide boring number and location.
- (2) Soil boring location map illustrating where boring was taken. Provide boring number.
- (3) Soil properties and environmental classification.

943 Lighting Plans

943.1 General

This chapter provides the requirements for the development of Lighting Plans. See **FDM 231** for requirements of lighting designs.

Lighting plans are usually a component set of plans. Projects with minimal lighting improvements may include lighting sheets in the Roadway Plans set.

943.2 Key Sheet and Signature Sheet

The Key Sheet is the first sheet in the Lighting Plans set. The Signature Sheet, when required, is placed behind the Key Sheet. These sheets are produced on a standard-format sheet (11"x17") created using the FDOT CADD Software.

Follow the requirements contained in **FDM 910** for the development of a Key Sheet and Signature Sheet, except for the following:

Index of Lighting Plans

- (1) Key Sheet
- (2) Signature Sheet
- (3) General Notes
- (4) Legend
- (5) Lighting Data Table
- (6) Lighting Plan
- (7) Pole Details
- (8) Foundation Details
- (9) Underdeck Lighting Details
- (10) Box Girder Maintenance Lighting Details
- (11) Service Point Details
- (12) Report of Core Borings

Lighting plans may require insertion of sheets that were prepared early, or prior to the design process (aka early works). See **FDM 910.2.6.1** for instructions on including early works sheets.

See **FDM 910** for an example of a Key Sheet and Signature Sheet.

943.3 General Notes

General Notes sheets convey site-specific requirements not covered by [Standard Plans](#) or [Standard Specifications](#). Place general notes on standard-format sheet (11"x17"). See **FDM 914** for additional information concerning general notes.

General notes often include lighting design information, including:

- maintaining agency
- proximity to airport over overhead utilities
- load center location
- lighting design criteria (average illumination level, uniformity ratio, veiling luminance ratio)

943.3.1 Pay Item Notes

Place pay item notes on the General Notes sheet.

Information on how quantities are determined are contained in the Estimated Quantities (EQ) Report and should not be repeated in the plans as a pay item note.

Pay item notes are used to provide unique project information not covered by basis of payment information contained in the [Standard Specifications](#), such as:

- Clarify how incidental work is to be paid for.
- Clarify the purpose, uses, or requirements.

943.3.2 Lighting Legend

A Lighting Legend provides symbols and descriptions, and other abbreviations, used in Lighting Plans. Place a Lighting Legend on the General Notes sheet, or on a separate (11"x17") "Lighting Legend" sheet. Use symbols in accordance with the requirements of the FDOT CADD Software.

Provide a unique light pole symbol and description for each different type of installation or work (e.g., "New Light Pole Installation", "Retrofit Existing Light Pole", "Existing Light Pole to Remain").

943.4 Lighting Data Table

Place the Lighting Data Table on a standard (11"x17") sheets. The table provides a listing of each light assembly, and includes the following information (as applicable):

- Pole Number
- Station and Offset
- Coordinates
- Roadway Setback
- Pole Owner
- Maintaining Agency
- Pole Type (Standard or other)
- Arm Length
- Quantity of Luminaires
- Luminaire Type
- Luminaire Make/Model
- Lumen Output
- IES Distribution Pattern
- Correlated Color Temperature (CCT)
- Mounting Height
- Tilt Angle
- Input Wattage
- Input Voltage
- Load Center Number
- Circuit Number
- Foundation Type
- Pay Item Number

Table must list all luminaire installations, including underdeck lighting, sign mounted luminaires, and luminaires mounted on existing utility poles.

943.5 Lighting Plan Sheets

Lighting Plan sheets convey a graphic depiction, and necessary information for the installation of lighting, including:

- Construction details
- Light poles and luminaire installations
- Electrical circuits, conduits, and wire, pull boxes
- Load Center information

Produce the Lighting Plan sheet using a standard-format sheet (11"x17") or a large-format sheet (24"x36", 36"x48" or 36"x72") that are contained in the FDOT CADD Software. Use landscape orientation regardless of sheet size selected.

Use the following horizontal scales:

	<u>Standard</u>	<u>Optional</u>
Curbed Roadways	1" = 40'	1" = 50'
Flush-shoulder Roadways	1" = 50'	1" = 100'

943.5.1 Required Information

Provide the same basic information required on the Roadway Plan sheet, including roadway geometrics, project limits, street names, curb and gutter, drainage inlets, sidewalks, and R/W lines.

Show underground and overhead utilities, signing structures, lighting structures, and ITS structures that may conflict with the installation of lighting components. Identify potential conflicts with utilities, drainage, landscape features, sidewalks, and driveways in the plans.

Provide the following on the Lighting Plan sheet:

- (1) Display a north arrow and scale within each plan view, typically in the upper right portion. Display centerline of construction or baseline of construction such that the stationing is increasing from left to right. Flag and station the begin and end of the lighting limits

- (2) Display and label existing and proposed lighting features at correct location (station/offset) using symbols which represent poles, conduits, pull boxes, and underdeck luminaires.
 - (a) Include pay item number, number of conduits, length of conduits, and conductor sizes when labeling conduit runs.
 - (b) Include pole number, description of installation and arm length, baseline or centerline station and offset, and circuit number when label poles.
 - (c) Include the estimated foundation depth as “for information only” when labeling existing high mast light poles that are to be removed.
- (3) Display and label service point locations and electrical devices. Display the routing of the service feeder from the power company service pole to the load center. **Standard Plans**, **Index 639-001** provides details for the service point. Provide the following service point information:
 - (a) Power company providing service.
 - (b) Baseline or centerline station and offset.
 - (c) Voltages and phases (e.g., 240/480 Volt, 3 phase).
 - (d) Main or overhead breaker size.
 - (e) Number of branch circuits and breaker size of each.
- (4) Label field verified vertical elevation and horizontal location (V_{vh}) of existing utilities (SUE data) on the plan view. Include with label (or in summary table) the following:
 - (a) V_{vh} number
 - (b) Utility type and owner
 - (c) Size and Material
 - (d) Location (Sta/Offset/Lt or Rt)
 - (e) Existing ground and top of utility elevations

943.6 Lighting Details Sheets

Required construction details for light poles and foundations are provided in **Standard Plans**:-

- **Index 715-001** (Conventional Lighting)
- **Index 715-002** (Standard Aluminum Lighting)
- **Index 715-003** (Utility Conflict Pole)

- **Index 715-010** (High Mast Lighting)
- **Index 715-240** (Maintenance Lighting for Box Girders)

Use Lighting Details sheets to provide project-specific requirements and construction details not covered by [Standard Plans](#) or [Standard Specifications](#).

Place details on standard-format sheet (11"x17").

943.6.1 Pole Details Sheet

Provide a Pole Details sheet when proposing a non-standard light assembly.

Pole details may also include:

- Tilt angle details when luminaire is tilted
- Installation and wiring requirements
- Identification ID tag

943.6.2 Foundation Details Sheet

Provide a Foundation Details sheet when any of the following apply:

- (1) Proposing a non-standard light assembly.
- (2) Project soil conditions are weaker than soil conditions which the standard foundation designs are based on.
- (3) Unavoidable site restrictions (e.g., limited R/W, utility conflicts).

943.6.3 Underdeck Lighting Details Sheet

Underdeck Lighting Details sheet provides the following information:

- (1) The location of the embedded junction boxes, conduits and associated electrical work with standard notation to indicate the items that are incidental to the bridge.
- (2) Mounting details and associated hardware needed for the installation of the underdeck luminaires.
- (3) Electrical work associated with bridge mounted signs, when applicable.

943.6.4 Box Girder Maintenance Lighting Details Sheet

Box Girder Maintenance Lighting Details sheet provides the following information:

- (1) The location of internal lighting, receptacles, switches, load centers, life safety devices, and wiring needed for maintenance.
- (2) Quantity of each electrical item within each box girder.
- (3) A panelboard schedule for the distribution panelboard and for each mini power center.

943.6.5 Service Point Details

Provide a one-line diagram and panel schedule for each service point. Panel schedules must include the following:

- (1) Panel ratings: voltage, phases, capacity (main lugs or main circuit breaker) and short circuit current rating.
- (2) Enclosure type.
- (3) Neutral bus and ground bus requirements.
- (4) Capacity of the circuit breakers.
- (5) Circuit loads.
- (6) Total and demand loads.

943.7 Report of Core Borings Sheet

Report of Core Borings sheets provide soil information for each proposed high-mast pole and non-standard foundations. Produce this sheet using a standard-format sheet (11"x17"). See **FDM 920** for additional information.

The following information is required:

- (1) Depiction of the boring identifying type and depth of soil strata encountered, and water level encountered. Provide boring number and location.
- (2) Soil boring location map illustrating where boring was taken. Provide boring number.
- (3) Soil properties and environmental classification.

943.8 Temporary Highway Lighting Sheets

Temporary Highway Lighting is not required. See **FDM 240** for additional guidance for temporary highway lighting.

If included with Contract Plans, provide Temporary Highway Lighting sheets that provide the following, at a minimum:

- (1) Temporary Lighting Data Table, that includes the following listed by TTC phase and stationing range:
 - (a) Light pole type (e.g., standard, temporary)
 - (b) Light pole spacing
 - (c) Light pole offset
 - (d) Foundation type (e.g., standard, barrier-mounted)
- (2) Temporary Lighting Plan sheets for complex projects (i.e., typically not necessary for simple layouts)
- (3) Temporary Lighting Details sheets, including barrier bracket mount details and Type K Temporary Barrier anchorage details.

Select plan sheet sizes in accordance with **FDM** subsections in this chapter.

944 Landscape Plans

944.1 General

The chapter provides the requirements for the development of Landscape Plans. See **FDM 270 through 276** for requirements of landscape designs.

Landscape Plans are most often developed as a standalone maintenance project, or occasionally as a component set of plans. Projects with minor landscaping may include landscape sheets in the Roadway Plans set.

944.1.1 Estimated Quantity Report

Prepare an Estimated Quantity (EQ) Report in accordance **FDM 902**. Landscape quantities are determined by location identified by a site number, location description, or both. The location description can be identified as:

- “project-wide” for small projects,
- individual Landscape Plan sheets, or
- designated areas within a sheet.

Pay items categorized as small are plants less than 7-gallon container size.

Pay items categorized as large are plants 7 gallon or greater container size.

944.1.2 Landscape Construction Cost Estimate

Include a Landscape Construction Cost Estimate (typically an Excel spread sheet) at each phase submittal beginning with Phase III. The estimate provides the cost for all landscape improvements, including irrigation systems and hardscape.

Do not include the cost estimate in the construction contract documents. It is intended solely for use by the Department.

944.2 Key Sheet and Signature Sheet

The Key Sheet is the first sheet of each contract plans set. The Signature Sheet, when required, is placed behind the Key Sheet. These sheets are produced on a standard-format sheet (11”x17”) created using the FDOT CADD Software.

Follow the requirements contained in **FDM 910** for the development of a Key Sheet and Signature Sheet, except for the following:

Index of Landscape Plans

Assemble the Landscape Plans in the following order:

- (1) Key Sheet
- (2) Signature Sheet
- (3) General Notes
- (4) Legend
- (5) Planting Plans and Details
- (6) Irrigation Plans and Details
- (7) Hardscape Plans and Details
- (8) Temporary Traffic Control Plan

Landscape Plans may require insertion of sheets that were prepared early, or prior to the design process (aka early works). See **FDM 910.2.6.1** for instructions on including early works sheets.

For standalone maintenance contracts, include the list of Contract Plans Set even if “Landscape Plans Set” is the only component.

944.3 General Notes Sheet

The General Notes sheet provides site-specific requirements not covered by [Standard Plans](#) or [Standard Specifications](#). Place general notes on standard-format sheets (11”x17”).

General notes may include:

- Benchmark datum
- Maintaining authority contact information
- Utility information and owners contact information
- Mowing requirements, including requirements for wildflower areas
- Planting area preparation (e.g., soil scarification and amendment requirements)

Notes are written to the contractor and should be written as a command. Do not include “Contractor must”, “by the Contractor”, or similar phrases in notes. Also, use “must” instead of “shall”.

944.3.1 Pay Item Notes

Place pay item notes on the General Notes sheet.

Information on how quantities are determined are contained in the Estimated Quantities (EQ) Report and should not be repeated in the plans as a pay item note.

Pay item notes are used to provide unique project information not covered by basis of payment information contained in the [Standard Specifications](#), such as:

- Clarify how incidental work is to be paid for.
- Clarify the purpose, uses, or requirements.

944.3.2 Plant Legend

Place a Plant Legend (e.g., plant symbol, abbreviated plant name (code), and common name), and other abbreviations used in Landscape Plans on the General Notes sheet, or on a separate “Plant Legend” sheet.

944.4 Landscape Plan Sheets

Landscape Plan sheets convey a graphic depiction, and necessary information for the installation of plant materials, irrigation systems, and hardscape elements.

Plan sheets may be produced on a standard-format sheets (11”x17”) or a large-format sheet (24”x36”, 36”x48” or 36”x72”) that are contained in the FDOT CADD Software. Use landscape orientation regardless of sheet size selected. The standard horizontal scale is 1” = 50’, however an alternate scale may be approved by the Project Manager.

Produce Details sheets using a standard-format sheet (11”x17”).

For simple landscape projects, all elements of landscape design may be shown together on a single “Landscape Plan” sheet. For most landscape projects, each element of the landscape design is shown on individual sheets, as follows:

- Planting Plan
- Irrigation Plan
- Hardscape Plan

944.4.1 Planting Plan

Planting designs may be displayed on aerial photography or on available topographic surveys. Information from a prior construction project may also be used.

Display and label existing topography, including R/W, roadways and driveways, buildings, underground and overhead utilities, walls, sidewalks and curbs, fencing, guardrail, railroads, bridges, drainage structures, and other similar items that are relevant to the planting design. Existing topography elements are often displayed as “gray screened”.

Display proposed roadway improvements when landscape project follows or is part of a roadway project (e.g., edge of pavement and shoulder, sidewalks, utilities, lighting, or signal installations).

Display a north arrow and scale within each plan view, typically in the upper right portion. Display centerline of construction or baseline of construction such that the stationing is increasing from left to right. Indicate beginning and end project limits.

Display and label the following planting design information:

- (1) Location of new planting areas, indicating:
 - (a) Planting Area ID number for location identification in the EQ Report. This is required only when multiple areas (locations) are designated within a sheet.
 - (b) Plant Symbol, abbreviated plant name (code), and number of plants, trees, or palms.
 - (c) Clear trunk height for trees and palms.
 - (d) Delineated mulch area with estimated cubic yard of material needed.
- (2) Location and depth to improve soil structure (a.k.a., soil scarification), amend existing soil, or replace existing soil with Landscape Soil.
- (3) Demonstrate the following requirements are met:
 - (a) Clear Zone or Lateral Offset
 - (b) Limits of clear sight (see **FDM 212.11**)

- (c) View Zone for outdoor advertising signs
- (d) Setbacks from structural elements or drainage system
- (4) Mowing Limits
- (5) Installation of tree protection fencing
- (6) Selective Clearing and Grubbing activities (remove or relocate trees, eradicate undesirable vegetation, and branch and root pruning) are often shown on the Planting Plan sheet, but can be shown on separate “Selective C&G” sheets when the work is significant. See **FDM 924** for Selective C&G sheet requirement.

944.4.1.1 Planting Details

Planting Details sheets provide details and information that are applicable to the project and not addressed in the [Standard Plans](#) or [Standard Specifications](#).

Construction details for tree bracing during root establishment are provided in [Standard Plans Index 580-001](#). Provide tree bracing details in the plans when **Index 580-001** does not apply.

944.4.2 Irrigation Plan

When separate Irrigation Plan sheets are necessary, use the planting plan sheets, “gray screened” in the background, and devoid of unnecessary text and labeling.

Display and label the location of spray heads and rotors, valves, mainlines, lateral lines, sleeves (noting the diameter sizes), controllers, water sources and points of connection, backflow preventers, and isolation valves.

944.4.2.1 Irrigation Details

Irrigation Details sheets provide details and information that are applicable to the project and not addressed in the [Standard Plans](#) or [Standard Specifications](#).

Include a legend depicting the symbology used in the irrigation plan sheets and an associative description for each entry. Additional information such as the nozzle and component schedule, irrigation zone, or pipe schedule can be included on these sheets.

944.4.3 Hardscape Plan

When separate Hardscape Plan sheets are necessary, use the planting plan sheets, “gray screened” in the background, and devoid of unnecessary text and labeling.

Display and label hardscape and site amenities; e.g., street furniture, specialty paving, tree grates, walls, planters, fountains, fences, and lighting (excluding public utility street and area lighting).

944.4.3.1 Hardscape Details

Hardscape Details sheets provide details and information that are applicable to the project and not addressed in the [Standard Plans](#) or [Standard Specifications](#).

944.5 Landscape Maintenance Guide Sheet

The Landscape Maintenance Guide sheet provides the long-term design intent, limits of landscape maintenance, and the necessary activities for maintaining the planting and irrigation designs.

See **FDM 273** for more information on the Landscape Maintenance Guide.

948 Utility Work by Highway Contractor (UWHC) Plans

948.1 General

Most utility adjustment work is performed by the utility owner.

On occasion the Department and utility owner enter into an agreement called “Utility Work by Highway Contractor Agreement”. The agreement stipulates that the highway contractor is to construct or relocate the specified utilities in accordance with the UWHC Plans and special provisions developed by the utility owner. The agreement also establishes what costs the utility owner will reimburse the Department for the highway contractor utility work.

UWHC Plans are prepared in the same basic format as Department contract plans set components.

UWHC Plans are typically included as a strung project with a separate Estimated Quantities (EQ) Report. The EQ Report must identify which pay item quantities are reimbursable, and which are not.

When utility work is minimal, Utility Work by Highway Contractor Plans may be included as component plans within the Contract Plans set, and utility quantities included in the highway project EQ Report.

948.2 Key Sheet and Signature Sheet

The Key Sheet is the first sheet in the UWHC Plans set. The Signature Sheet, when required, is placed behind the Key Sheet. These sheets are produced on a standard-format sheet (11”x17”) created using the FDOT CADD Software.

Follow the requirements contained in **FDM 910** for the development of a Key Sheet and Signature Sheet, except for the following:

Index of Utility Work by Highway Contractor Plans

- (1) Key Sheet
- (2) Signature Sheet
- (3) General Notes
- (4) Legend
- (5) UWHC Plan-Profile

- (6) UWHC Details
- (7) Cross Sections
- (8) Temporary Traffic Control Plan

When utility work extends outside the highway project limits of construction note this in the work program data box on the Key Sheet.

Refer to the [Work Program Instructions](#) for guidance on the Financial Project ID phase number identification.

948.3 General Notes Sheet

General Notes sheets convey site-specific requirements not covered by [Standard Plans](#) or [Standard Specifications](#). Place general notes on standard-format sheet (11"x17").

General notes may include:

- (1) The disposition and final ownership of any utility infrastructure that is to be removed as specified in the UWHC Agreement.
- (2) Submittal requirements for equipment specifications, or shop drawings .
- (3) Required coordination.

The Department follows the FHWA Guidelines for Plain Language. Notes are written to the contractor and should be written as a command. Do not include "Contractor will", "by the Contractor", or similar phrases in notes. Also, use "must" instead of "shall".

948.3.1 Pay Item Notes

Place pay item notes on the General Notes sheet.

Information on how quantities are determined are contained in the Estimated Quantities (EQ) Report and should not be repeated in the plans as a pay item note.

Pay item notes are used to provide unique project information not covered by basis of payment information contained in the [Standard Specifications](#), such as:

- Clarify how incidental work is to be paid for.
- Clarify the purpose, uses, or requirements.

948.3.2 UWHC Legend

Place an UWHC Legend (i.e., symbol and description), and other abbreviations used in UWHC Plans on the General Notes sheet, or on a separate “UWHC Legend” sheet. Use symbols in accordance with the requirements of the FDOT CADD Software.

948.4 UWHC Plan-Profile Sheets

UWHC Plan-Profile sheets convey a graphic depiction, and necessary information for the relocated or constructed of utilities by the highway contractor.

Produce the UWHC Plan-Profile sheet using a standard-format sheet (11”x17”) or a large-format sheet (24”x36”). Use landscape orientation regardless of sheet size selected.

A plan-profile sheet format must be utilized when any underground utility is 4" or greater. When utility profiles are not needed, title the sheet as UWHC Plan.

Use a scale of:

- 1" = 40' horizontal and 1" = 4' vertical, or
- 1" = 50' horizontal and 1" = 5' vertical.

948.4.1 Required Information

Provide the following information in the plan view:

- (1) Display a north arrow and scale within each plan view, typically in the upper right portion.
- (2) Display and label centerline of construction or baseline of construction in the plan view such that the stationing is increasing from left to right. Flag and station the begin and end of the utility work limits. Display and label R/W.
- (3) Display and label existing and proposed roadway profile in the profile view.
- (4) Display proposed roadway improvements to give context to the location of the utility work. Show proposed bridges and approach slabs by simple outline. The elements of the proposed roadway should be gray scaled. Provide road and street names.

- (5) Display and label existing and proposed utilities. Convey disposition of existing utilities (e.g., "To Be Removed", "To Be Relocated", "To Be Abandon"). Identify new utility installations (e.g., type utility and size, sleeves, valves, fire hydrants) with approximate length and station information.
- (6) Display and label overhead utilities indicating the line voltage. For a multi-line electrical overhead crossing, accurately show the location of each line.
- (7) Display the proposed drainage system by depicting drainpipes with a single pipeline style, and the outline of inlets, manholes, junction boxes, and outfall features (e.g., MES, endwall). Display signing structures, lighting structures, and ITS structures that may conflict with the installation of signal components
- (8) Display and label existing utilities that are to be filled, plugged, and remain in place.

948.5 UWHC Cross Sections Sheet

UWHC Cross Sections sheet provides sectional views of critical utility installations. This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36"). Use landscape orientation regardless of sheet size selected. Follow the requirements contained in **FDM 905** for the development of a Cross Section sheet.

Display and label existing and proposed utilities. Convey disposition of existing utilities and identify new utility installations.

948.6 UWHC TTC Plan Sheets

Typically, the roadway plans provide the plan details and quantities for conveying pedestrian, bicycle, and motorized traffic to allow for the utility work to be performed.

UWHC TTC (Temporary Traffic Control) Plan sheets are required when the roadway TTC Plan does not cover the utility work. This sheet may be produced on a standard-format sheet (11"x17") or a large-format sheet (24"x36"). Use landscape orientation regardless of sheet size selected.

Include the quantities associated with the UWHC TCC Plan in the UWHG Estimated Quantities Report.