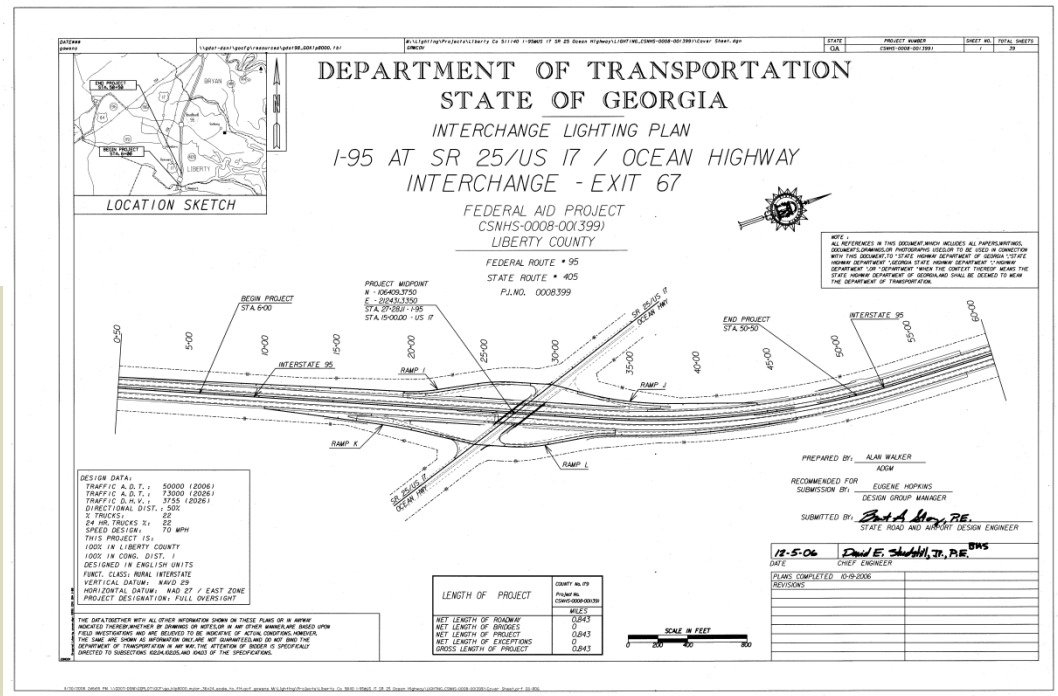
State of Georgia

Department of Transportation

Plan Presentation Guide



Plan Presentation Guide

1/13/2017

Revision 2.2.5

Atlanta, Georgia 30308

Georgia Department of Transportation

PURPOSE

This document shall establish and define guidelines for plans presentation for all projects under Department oversight to assure that all plans have a consistent appearance, include all pertinent information to construct the project, and reflect high quality workmanship.

DISCLAIMER

The guidelines contained in this document are for reference only. The material contained is provided without warranty or liability of any kind to the Department. Every effort has been made to make the documentation as complete and accurate as possible to address most common Plan Presentation situations and to be without errors. Engineers and technicians must follow these guidelines and use engineering discretion in unique circumstances or those not addressed by these guidelines. Additionally, all engineers and technicians are responsible for ensuring that these guidelines are implemented accurately and that the drawings show the information completely, clearly, and legibly.

This information is provided on an "as is" basis. Updates to these guidelines will be made as needed due to any errors found in the documentation, new programs, change in software, software enhancements, or as policy and management dictate. As with any documentation or guidelines, improvements can and should be made. This document is not meant to be a complete instructional document.

Any errors found should be brought to the attention of the Department so corrections can be made. Any additional information or detailed explanation needed to this documentation should be documented and mailed to:

Plan Presentation Committee
Georgia Department of Transportation
600 West Peachtree Street, 26th Floor
Atlanta, Georgia 30308

Or email to: SolutionsCenter@dot.ga.gov
(When submitting issues through the Solutions Center/Remedy, please specify a subject line of *"Plan Presentation Committee"* so the issue will be assigned correctly.)

Revision History

Revision Number	Revision Date	Revision Summary
01.00	3/5/07	Initial Release of revised document in current format (version 01.00)
	5/3/07	Section 12: Deleted Monument required information and references to it in the General paragraph Sections 26-28: Added required information bullet of "Location of guardrail for incorporation into design plans"
	6/8/07	Added Sections 60-64
01.01	6/15/07 (Interim Release)	Added ESA designation information to Sections 13,14,18,19,21,24,25,29, 30, 53-55 (version 01.01)
	6/29/07	Sections 26-28 and RW: Added ESA designation information Sections 13,14,18,19,21,24,26-30,53-55,60-64,RW: Removed specific descriptions of T&E and Archaeological ESA's Sections 13-14: Added "Legend" as a bullet for Required Information Sections 22,53,55: Removed "Project specific allowable activities notes" from Required Information Section 30: Added the following required information: Proposed utilities, Strain poles, Proposed roadway features Section 34: Changed from "Noise Barrier" to "Sound Barrier"
	1/2/08	Section 44: Moved from Section 60-64 and combined into one section
	9/12/08	Erosion control sections revised for new permit requirements Updated links to Reference Material Resources
	10/7/08	Synchronized RW Section with current RW Checklist and provided reference for detailed information to the RW Checklist
	12/19/08	19.001 – Added Staging linestyles and standards Ch. 1 - 1.2.2 - Updated TS&D Stand-Alone plans for Erosion Control Added most of the sample sheets and activated links Updated Chief Engineer Document Acceptance page Ch. 3 – 3.2.2 – Updated “RR MOG” to current TOPPS Policy

01.10	1/5/09 (Major Release)	Synchronization with current EDG and sample sheets added (version 01.10)
01.20	3/1/2010 (Interim Release)	Revised RW Plan Section (Chapter 3) to Section 60 of plans and compiled external RW Checklists into PPG (RW Office) Added "*Revision Requested By* block" as required item on ESPCP Cover Sheet (Section 50) Deleted Section 9 – Detail Estimate Sheet and revised Section 6 – Summary of Quantities Updated Sections 21 - Drainage Area Map and 53 – ESPCP Drainage Area Map
01.30	4/1/11	Updated ESA types in each affected section for Environmental Impacts Table inclusion (collapsed ESA statements) Changed wording for direction of vertical text in Section 60 Added PVI to be shown to only two decimal places Updated Sections 31 & 32 Titles Removed quantities from sample Sign & Marking Sheet Removed "Design Speed" for vertical curve data on side-road profiles Revised Section 50 to include the Chief Engineer's signature and other minor edits Updated "Limit-of-Access" wording in Section 60 Updated PPC contact information to be Solutions Center/Remedy Removed temporary sediment basins from being a required item on Construction plans
01.40	9/26/11	Note added to Section 5 – Typical Sections identifying the safety edge and Ga. Standard Minor updates to Sections 21, 53, and 55 Added text orientation note under General section
01.50	10/1/12	Minor updates to Sections 21, 53, 54 and 55
01.51	October 2014	Revised Section 50 as per the latest EDP guidelines Revised Sections 26, 27 and 28 to show General Notes placed in Section 04 GENERAL NOTES Revised Section 60 to update "Example C" graphic

01.52	January 2015	Revised Section 01 – Construction Cover signature requirements Revised Section 06 - Required Information for Culverts to add embedded culvert requirements Revised Section 22 - Required Information for embedded culverts Revised Section 50 – Cover signature requirements
2.0	1/16/15	Reformatted manual to new standard template
2.1	1/27/15	General – Removed reference to sample section. LEC – Updated to reflect changes. Removed Appendix A Sample Plan Sets from manual. No longer needed in manual.
2.2	5/1/15	General – Updated hyperlinks LEC – Updated to reflect changes Chapter 2 – Updated hyperlinks and updated Section 54 with new procedures
2.2.1	7/31/15	LEC - Updated to reflect changes Chapter 3 - Revised Section 60 to show additional Railroad requirments
2.2.2	10/15/15	Chapter 1 – Revised Section 31 Retaining Wall Envelopes and 32 Retaining Wall Plans General Revision to Sections 31 and 32.
2.2.3	1/15/16	Chapter 2 – Revised Section 4 to include info regarding driveway note cell; Revised Section 5 regarding driveway reconstruction detail
2.2.4	4/22/16	Chapter 2 – Updated Section 20 title and updated general description
2.2.5	1/13/17	Chapter 3 – Revised Section 60 to include State Plan Coordinates in RW data tables related to Railroads

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General

This document contains guidelines to be used in preparation of plans, as well as information specific to each section of a typical plan set. However, there are guidelines that are common to every section of the plans. In order to avoid repetition within each section, some of the general information that applies to all sections is contained below.

Individual Summary of Quantity Sheets: Individual Summary of Quantities sheets for plan sections requiring separate, stand-alone Summary of Quantities sheets will be submitted to the Project Manager with no drawing numbers or sheet numbers. The sheets will be placed with the Roadway Summary of Quantities (with no sheet number) as noted in the individual plan sections. The Project Manager will number the sheets before final submission of plans.

English Units: This document and the supporting CADD standard files were developed based on Projects with English Units only.

Drawing Scales:

The scales used in the production of roadway plans are as follows. The scale used is dependent on the level of detail required. The scale should remain constant throughout the plans.

Horizontal Scales:
1"=20'
1"=50'
1" = 100'

Vertical Scales:
1"=5'
1"=10'
1"=20'

Minimum Text Sizes: The minimum size for text on a set of R/W plans is to be 0.15 inches on the final D Size (24"X36") plot.

The minimum size for text on a set of Construction plans is to be 0.12 inches on the final D Size (24"X36") plot for information not included on R/W Plans.

Text information shown on the R/W plan sheets should be placed at a minimum size (0.15 X scale of plans). Plans are usually drawn at 1 inch equals 50 feet (1"=50') which should equal a text size of 7.5 feet (i.e.: 0.15 X 50 = 7.5) or 1 inch equals 20 feet (1"=20') which would equal a text size of 3.0 feet (0.15 X 20 = 3.0).

Current GDOT Engineering Software Versions: The current versions of major engineering software used and accepted by the Department are identified at the following link:

http://www.dot.ga.gov/PS/DesignManuals

Only deliverables produced by the versions of software at this link will be accepted by the Department.

GDOT Customization Tools: The GDOT Root Menu, which is accessible in MicroStation, was developed to minimize common repetitive tasks of the plan sheet development process. This menu aids with compliance to the current GDOT Electronic Data Guidelines and the Plan Presentation Guide by automating many of the steps needed for reference file, linetype, and level settings.

Items included on sheets

General

Title Block - Provide a complete title block on each sheet. Place blocks for plan preparer name, address and logo along the bottom or right side of the sheet. Also included in this title block will be a drawing number. Place a block containing the State (Georgia), project number, sheet number, and total sheets in the upper right corner of the sheet.

Show the names of Route Numbers, U.S. and State, including the names of highway and roads on the plan. Do not use generic names such as "County Road", "Cross Road", etc.

Plan View (Section Numbers: 1, 13, 14, etc.)

Construction Centerline - Center in the plan portion of the sheet with increasing stationing running from left to right. In horizontal curve sections, position the construction centerline on the sheet to avoid breaks or match lines other than at normal sheet breaks.

North Arrow - Place a north arrow on each Plan Sheet at the upper part of the sheet, regardless of orientation.

Graphic Scale - Provide a numeric graphic scale.

All dimensioning and station offset labeling shall be clearly referenced.

Standard Plan Sheet Sizes: Standard GDOT full size plan sheets shall be 24”X36” with the ability to plot a half size of 11”X17” and 12”X18”.

Text Orientation: Text should be read horizontal to the orientation of the plan sheet, reading from left to right. When text needs to be vertical, it should be placed on the plan sheet parallel to the right edge of the sheet, reading from the bottom of the sheet to the top of the sheet.

Reference Material sources:
Current version as approved by the Department; List includes but not limited to:

- "Plan Development Process" - GDOT policies and procedures for project development
- "Manual for Erosion and Sediment Control in Georgia" - GDOT
- Uniform Code System For Soil Erosion And Sediment Control Design Guidelines
- Department's Manual On Drainage Design For Highways
- Department's Specifications For Construction of Transportation Systems
- Department's Standards and Construction Details

- Georgia State Soil And Water Conservation Commission Manual For Erosion And Sediment Control in Georgia
- "Georgia Department of Transportation Uniform Code System For Soil Erosion And Sediment Control" chart for determining the appropriate codes to use on the Erosion Control

Plans. This chart is also located in the Department's Construction Details and is periodically updated.

- Department's Utility Accommodation Policy and Standards Manual (see web site)
- "Manual on Uniform Traffic Control Devices" - FHWA
- TS&D Manuals
- "Regulations for Driveway and Encroachment Control" – GDOT
- TOPPS (Transportation Online Policy and Procedure System) - GDOT policy and procedural directives.
- "Design Policy Manual" - GDOT
- "A Policy on Geometric Design of Highways and Streets" (current approved edition) - AASHTO [often referred to as the "Green Book"]
- "A Policy on Design Standards – Interstate System" - FHWA
- "Roadside Design Guide" – AASHTO
- "Standard Specifications for Road and Bridge Construction" - GDOT
- "Georgia D.O.T. Pavement Design Manual" - GDOT

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List of Effective Chapters

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General	2.2.2	10/15/15
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Acronyms and Definitions

Term/Acronym	Definition
Construction Limits	The full extents of the construction area from one toe-of-slope of the proposed roadway to the other toe-of-slope of the proposed roadway along the limits of the project corridor. (Cut/Fill Lines)
Contour	Lines of constant elevation
Drainage X-Sections	Roadway cross-section showing a drainage profile as defined in Section 22 of this document
Equality	Another term for "Station Equality" - See "Station Equation" below
GMD	Georgia Militia District (GMD)
GDOT	Georgia Department of Transportation
Metes and Bounds	A system of land description uses distance (metes) and directions (bounds) beginning and ending at the same point.
Project Limits	The full extents of the actual area where clearing, grading, excavation, or contractor activities are occurring or will occur along the length of the project, including utilities within the contract.
Roadway Items	Everything included in plan view such as, but not limited to station tick marks, road names, station labels, Centerline labels, bearings, guardrail, edge of curb & gutter, edge of median, etc.
R.O.A.D.S.	Repository for Online Access to Documentation and Standards – GDOT web page for centralized access to all documentation and standards required for design of roadway projects for the Georgia Department of Transportation.
Station Equation	A point along a horizontal alignment where the stationing is no longer sequential in number and the stationing from that point back is one value and the stationing from that point forward on the alignment starts at a different value. [e.g.: Station 100+50 (Back) = Station 204+50 (Forward)]
Station pluses	Station value on the right side of the "+" sign (e.g.: Station 12+50 would be +50) – used to save space on plans
SUE	Subsurface Utility Engineering – is defined as the engineering processes that involve managing certain risks associated with accurately and comprehensively identifying, characterizing, and mapping overhead and underground utility facilities. The major activities include utility records research, mapping, designating, utility impact analysis, locating, and data management.
Topo	Topography - The representation of a portion of the earth's surface showing existing natural and man-made features of a given area such as rivers, streams, ditches, lakes, and roads, as well as the variations in ground elevations for the existing terrain of the area.

Screened Back The elements are faded so they appear in the background. (Also known as "gray-scale")

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Chapter 1. Construction Plans Assembly

1.1 General

Constructions plans are comprised of sections of drawings that are to be assembled in the following sequence. This plan assembly is to be used as a guide and may or may not include all the sections below based on the project.

1.2 Section Sequence

1.2.1 Roadway Projects Section Sequence

SECTION	DESCRIPTION
01	Cover Sheet
02	Index Sheet
03	Revision Summary Sheet
04	General Notes
05	Typical Sections
06	Summary of Quantities
07	Quantities Required by Amendment Sheet
08	Quantities Required on Construction Sheet
10	Traffic Diagram Sheets
11	Construction Layout Sheet/Stakeout Sheet
12	Corridor Location Map or Aerial Photo Mosaics (New Location Projects only)
13	Mainline Roadway Plan Sheets (plan & profile may be on same sheets)
14	Crossroad, Side Street, Frontage Road and Ramp Plan Sheets (plan & profile may be on same sheet)
15	Mainline Roadway Profile Sheets
16	Crossroad, Side Street, Frontage Road, and Ramp Profile Sheets
17	Driveway Profile Sheets
18	Special Grading Sheets (Sediment/Detention Basins, Parking Lots, etc…)
19	Construction Staging Plan Sheets and Staging Cross-Section Sheets
20	Construction Staging Details (Detours, Haul Roads, Drainage, etc…)

SECTION	DESCRIPTION
21	Drainage Area Map
22	Drainage Profiles
23	Cross-Sections
24	Utility Plans
25	Lighting Plans and Details
26	Signing and Marking Plans and Details
27	Signal Plans
28	ATMS/ITS Plans
29	Landscaping Plans and Details
30	Mitigation Plans (wetland, stream, etc…)
31	Retaining Wall Envelopes
32	Retaining Wall Plans
33	Noise Barrier Envelopes
34	Noise Barrier Plans*
35	Bridge Plans*
36	Bridge Culvert Plans*
37	Miscellaneous Structural Plans (Buildings, tollbooths, ice canopies, etc…)*
38	Special Construction Details (Project Specific - ADA, Special Design Drainage Structures, etc…)
39	Special Design Box Culverts
40	Construction Details
41	Georgia Standards
44	UTILITY RELOCATION PLANS – Water/Sewer, Electric, Gas, Communications, Cable
50	Erosion Control Plans – Cover Sheet
51	Erosion Control Plans – Erosion, Sedimentation and Pollution Control General Notes Sheet
52	Erosion Control Plans – Erosion Control Legend and Uniform Code Sheet
53	Erosion Control Plans – Drainage Area Map

SECTION	DESCRIPTION
54	Erosion Control Plans – Best Management Practices (BMP) Location Details
55	Erosion Control Plans – Erosion Control Watershed Map and Site Monitoring Location
56	Erosion Control Plans – Construction Standards and Details (for Erosion Control Items only)
60	Right of Way Plans

*Structural Plans designed by the Office of Bridge and Structural Design or Structural Consultants.

Right-of-Way Plans may be included at the end of the Plan Assembly (discretion of the Project Manager)

1.2.2 Stand-Alone Projects Section Sequence

Some project plan sets are not associated with any specific roadway project. For those stand-alone project plan sets, the plans should typically include the sections marked below under each type of stand-alone project. Some sections may be optional depending on the scope of the work.

	DESCRIPTION	STAND-ALONE PROJECT PLAN SETS						
		Lighting	Mitigation	Bridge	Traffic Safety & Design	Land-scaping	Utilities	Noise Barrier
01	Cover Sheet	✓	✓	✓	✓	✓	✓	✓
02	Index Sheet	✓			✓	✓	✓	✓
03	Revision Summary Sheet	✓			✓	✓	✓	✓
04	General Notes	✓	✓**		✓	✓**	✓	✓
05	Typical Sections					✓	✓	✓
06	Summary of Quantities	✓			✓	✓	✓	✓
07	Quantities Required by Amendment Sheet	✓			✓	✓		✓
08	Quantities Required on Construction Sheet	✓			✓	✓		✓
10	Traffic Diagram Sheets							

	DESCRIPTION	STAND-ALONE PROJECT PLAN SETS						
		Lighting	Mitigation	Bridge	Traffic Safety & Design	Land-scaping	Utilities	Noise Barrier
11	Construction Layout Sheet/Stakeout Sheet					✓		✓
12	Corridor Location Map or Aerial Photo Mosaics (New Location Projects only)						✓	
13	Mainline Roadway Plan Sheets (plan & profile may be on same sheets)	✓						
14	Crossroad, Side Street, Frontage Road and Ramp Plan Sheets (plan & profile may be on same sheet)							
15	Mainline Roadway Profile Sheets							
16	Crossroad, Side Street, Frontage Road, and Ramp Profile Sheets							
17	Driveway Profile Sheets							
18	Special Grading Sheets (Sediment/Detention Basins, Parking Lots, etc…)					✓	✓	✓
19	Construction Staging Plan Sheets and Staging Cross-Section Sheets						✓	
20	Construction Staging Details (Detours, Haul Roads, Drainage, etc…)						✓	
21	Drainage Area Map	✓				✓		✓

	DESCRIPTION	STAND-ALONE PROJECT PLAN SETS						
		Lighting	Mitigation	Bridge	Traffic Safety & Design	Land-scaping	Utilities	Noise Barrier
22	Drainage Profiles	✓					✓	✓
23	Cross-Sections	✓					✓	✓
24	Utility Plans	✓			✓	✓	✓	✓
25	Lighting Plans and Details	✓					✓	✓
26	Signing and Marking Plans and Details				✓			✓
27	Signal Plans				✓		✓	
28	ATMS/ITS Plans				✓		✓	✓
29	Landscaping Plans and Details					✓	✓	✓
30	Mitigation Plans (wetland, stream, etc…)	✓				✓		✓
31	Retaining Wall Envelopes (Required for GDOT Standard Walls, MSE, Tie-Back, etc.)						✓	✓
32	Retaining Wall Plans (Required when full design is included in plan set, i.e. Cast-In-Place)					✓	✓	✓
33	Noise Barrier Envelopes						✓	✓
34	Noise Barrier Plans						✓	✓
35	Bridge Plans*						✓	
36	Bridge Culvert Plans*	✓				✓	✓	✓
37	Miscellaneous Structural Plans (Buildings, tollbooths, ice canopies, etc…)*					✓	✓	✓
38	Special Construction Details (Project					✓	✓	✓

	DESCRIPTION	STAND-ALONE PROJECT PLAN SETS						
		Lighting	Mitigation	Bridge	Traffic Safety & Design	Land-scaping	Utilities	Noise Barrier
	Specific - ADA, Special Design Drainage Structures, etc…)							
39	Special Design Box Culverts	✓					✓	✓
40	Construction Details	✓			✓		✓	✓
41	Georgia Standards	✓			✓		✓	✓
44	UTILITY RELOCATION PLANS – Water/Sewer, Electric, Gas, Communications, Cable							
50	Erosion Control Plans – Cover Sheet	✓					✓	✓
51	Erosion Control Plans – Erosion, Sedimentation and Pollution Control General Notes Sheet	✓					✓	✓
52	Erosion Control Plans – Erosion Control Legend and Uniform Code Sheet	✓			✓***		✓	✓
53	Erosion Control Plans – Drainage Area Map	✓					✓	✓
54	Erosion Control Plans – Best Management Practices (BMP) Location Details	✓			✓***		✓	✓
55	Erosion Control Plans – Erosion Control Watershed Map and Site Monitoring Location	✓					✓	✓

	DESCRIPTION	STAND-ALONE PROJECT PLAN SETS						
		Lighting	Mitigation	Bridge	Traffic Safety & Design	Land-scaping	Utilities	Noise Barrier
56	Erosion Control Plans – Construction Standards and Details (for Erosion Control Items only)	✓			✓***		✓	✓

* Structural Plans designed by the Office of Bridge and Structural Design or Structural Consultants.

** If the Landscape Plans or Mitigation Plans are a stand-alone plan package, place the Utility Owner list and the "Call Before you Dig" cell in the project's General Notes sheet

*** To be determined by the Statewide ESPCP Design Coordinator

For all Traffic, Safety, and Design projects, show existing conditions (topo) and existing signal equipment

Right-of-Way Plans may be included at the end of the Plan Assembly (discretion of the Project Manager)

1.3 Numbering

1.3.1 Drawing Numbering

The construction drawings shall be labeled (in the lower right corner) according to the respective section number described in the above Section Sequence. For example: Typical Section Drawings are listed as section No. 05 of the plan assembly sequence. If you have 4 Typical Section Drawings, then they will be labeled as drawings 05-0001, 05-0002, 05-0003, and 05-0004.

1.3.2 Sheet Numbering

Sheet Numbers and Total Number of Sheets of each drawing will be labeled on the upper right corner of the plan sheet. Each sheet shall be numbered consecutively beginning with the cover sheet as No. 1 and continuing through the plan set. The total number of sheets will be shown on every sheet and will never change after the final plans have been submitted to the Office of Contracts Administration. If a sheet is added after the final plans are approved, place the sheet in the appropriate location and assign the sheet number an alpha suffix (i.e.: 25A).

1.4 Sheet Revisions

- "Use on Construction" revisions (previous drawing is replaced with a revised drawing):
  - Label as *"Use on Construction"* along the right border of drawing
    - Text should be prominent and bold
  - Place revision date in revision box

- “Void on Construction” revisions (drawing is not used in the project plan set, but is maintained in historical record as a voided or deleted sheet):
    - Label as “Void on Construction” along the right border of drawing
        - Text should be prominent and bold
    - Place revision date in revision box

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Chapter 2. Construction Section Presentation

2.1 General

Unless noted within each individual section, information specified for plans refers to Preliminary and Final submission plans. Standard cells have been created in order to automate and standardize the production of plans. The latest version of all cells is to be used.

Section 1 Cover Sheet

01.001 General

A cover sheet is required for project identification and contract purposes. Additional cover sheets may be needed based on engineering discretion.

01.002 Required Information

- Project Owner (i.e.: GDOT or other entity)
- Project description
- Project number
- Project identification number (P.I. NO.)
- State and Federal route number
- County name and number
- Graphic representation of the project (including centerline and stationing)
- Congressional district(s) and percentages
- Standard note referring to GDOT Specifications
- Project location map oriented with north at the top of sheet
- Project limit stations (labeled on centerline)
- Functional classification of mainline
- Project Length Table
    - County
    - County Number
    - Net Length of Roadway
    - Net Length of Bridges
    - Net Length of Project
    - Net Length of Exceptions
    - Gross Length of Project
- Design Traffic Data of mainline and crossroads (as appropriate)
    - Base Year Traffic (two-way) – Traffic A.D.T.
    - Design Year Traffic (two-way) – Traffic A.D.T.
    - Directional Hourly Volume (Future year) – Traffic D.H.V.
    - Directional distribution (%)
    - Truck percentages
    - Truck percentages (24 hour)
    - Speed design (MPH)
- Revision Summary Table (date and sheet number)

- Road names and route numbers (including County Road # (CR#) or City Street # (CS#))
- Project (approximate) midpoint station (to nearest foot) and coordinates
- Project designation (e.g.: F.O.S., Exempt or S.F.)
- Horizontal and vertical datum used
- Designation for "Plans prepared by:" (Design Engineer, Name only or Consultant Name/Professional Engineer's stamp/signature for Final Plans)
- Designation for "Recommended for submission by:" (Design Engineer Group Manager, District Design Engineer (Design Engineer of Record) – Name only **OMIT FOR CONSULTANT DESIGN PLANS**
- Designation for "Recommended for approval by:" (State Roadway Design Engineer, District Engineer, State Program Delivery Engineer, State Innovative Deliver Engineer signature)
- GDOT Chief Engineer (Signature and Date)
- Location & Design approval date
- Plans completed date (date submitted to Contracts)

01.003 Project-Specific Information

- Topography**
- Equalities on mainline
- Begin and end bridge stations (labeled on centerline)
- Rivers and stream names
- State Lines, County Lines, City Limits, Land Lot Lines, GMD
- Existing property lines**
- Parcel numbers**
- Required right-of-way lines**
- Median locations and sidewalks**
- Stations of Crossroad and Mainline at intersection
- Railroad lines and owner name
- Major utility facilities (i.e.: transmission lines, substations, pipelines, etc.)

**Optional and to be reflected at the discretion of the Project Manager

01.004 Sheet Layout

Section 2 Index Sheet

02.001 General

The index sheet is required for each set of construction drawings to identify plan contents. The index shall be included as a separate sheet. The index should only list sheets required for the project. Drawings shall be grouped according to the Sequence of Plans.

02.002 Required Information

The index sheet includes the following columns:

- Sheet Numbers
- Drawing Numbers (Not required for Construction Standards and Details)
- Drawing description

The index sheet shall also contain the following required information:

- Total number of sheets
- Construction Standards and Details listed individually, including latest revision date

When plans are submitted to Contracts, the “Total Sheets” note must be shown in the index table. This number may change as plan sheets are added or deleted through revisions and may not be the same as the number shown in the upper right corner of each plan sheet.

02.003 Sheet Layout

Section 3 Revision Summary Sheet

03.001 General

Revisions to a set of construction plans should be detailed for the purpose of keeping a record of changes to the construction plans, including additions and deletions, after final plans have been submitted to Contracts Administration.

03.002 Required Information

- The revision summary sheet will consist of three columns (in addition to the normal project information in the title blocks).
    - The first column states the date on which the revision was made
    - The second column references the sheet number of the revision in the plan set
    - The third column contains a description of the revision, described in enough detail to quickly understand the nature of the revision.

03.003 Sheet Layout

Section 4 General Notes

04.001 General

Project plan information should be included in the construction plans utilizing a general note sheet. This sheet is to be divided into two sections:

Project Notes - Notes that are project specific and are not covered under the current Standard Specifications and Supplemental Specifications, Special Provisions, Georgia Standard Drawings, and/or Special Details.

Notes - Notes that are needed in the construction contract may be included in the General Notes sheet if special attention is necessary to eliminate a possible source of errors or conflict, or to expedite the work.

04.002 Required Information

Provide the following notes in the General Notes:

- Place the “B4UDIG” cell
- State if the project requires a Notice of Intent (NOI).
- Include the Pipe Culvert Materials Alternate Chart as provided in the Soils Report.
- Provide the respective Utility/Railroad Owner list and notes on all projects
- Method of Utility Location (SUE Investigation or not)
- Environmental Resources Impact Table (to be included whether there are any impacts on the project or not)
- Include the Driveway Note cell from the EDG Cell Library which lists detailed information required for the reconstruction of residential and commercial driveways. If a driveway reconstruction detail is included in the typical sections the information delineated should coincide with the information listed in the Driveway Note cell included in the General Notes.

04.003 Sheet Layout

04.004 Miscellaneous

Project specific notes required as needed. Example: If there is a bridge to be removed a note will be included to specify if any material from the bridge will be salvaged and if there is a suitable site within the projects limits to dispose of non-salvaged materials.

Section 5 Typical Sections

05.001 General

Typical sections should be developed during the conceptual and early preliminary design and shall be drawn in the form of cross sectional views depicting standard or typical work within certain station-to-station limits. Typical sections should show typical conditions only. Specific dimensions, cross-slopes, and other design information shall be depicted in the Construction Plans and Cross Sections.

Separate typical sections should be shown for tangent, superelevated, full-depth pavement, overlay pavement, mainline, ramps, cross streets, detour and temporary tie-in sections. Include partial sections or miscellaneous details (ex. guardrail, retaining walls, treatment of turn lanes, bike lanes special shoulder or grading sections, etc.) as needed. When partial sections are necessary to cover details, place these sections near the main typical section to which they apply.

See the Georgia D.O.T. Pavement Design Manual for additional typical section guidelines and details.

05.002 Required Information

The typical section sheets shall include the following:

- **Scale:** No specific scale is required. An appropriate scale shall be used to clearly illustrate the full sectional view. Further, the vertical scale of pavement courses shall be exaggerated to clearly indicate individual courses.
- **Pavement:** Paving and base courses shall be clearly defined and shall comply with the approved pavement design. The mix design, spread rate and bid item description for each asphaltic concrete course shall be labeled, and the thickness and bid item description for all other materials shall be labeled as depicted in the sample typical sections. Asphaltic concrete leveling shall be indicated where existing pavement is retained and overlaid. The intent and limits of grinding and milling shall be indicated on the typical sections when required by the design.
- **Cross Slopes and Shoulder Slopes:** The cross slopes of roadway pavement, shoulders, sidewalks, raised medians and bridge decks shall be labeled with percentages and directional arrows. For superelevated sections, label the cross-slope as SE in percent. Slopes beyond shoulder break points shall be labeled as ratios, horizontal to vertical (e.g., 10:1, 4:1, 2:1).
    - **Slope Control Table:** The "Slope Control Table" included in the EDG cell library may be included to specify the front and back slopes for corresponding cuts and heights of fill as a guide for the Field Engineer to follow should site specific conditions require variation from the proposed cross-sections.
    - **Allowable Range Table:** The "Allowable Range Table" included in the EDG Cell Library may be included on the typical sections when allowing variation from the design superelevation to better match existing pavement slopes as deemed appropriate by the Project Manager.
- **Lane and Shoulder Widths:** Lane and shoulder widths shall be labeled on the typical sections to the nearest inch. Minimum and maximum dimensions of variable-width features shall be labeled.
- **Guardrail:** Standard guardrail details for both urban and rural designs are provided in the EDG cell library.
- **Curbs:** The curb and gutter width and type shall be labeled. Gutter slope and direction shall be illustrated as required for the drainage design.
- **Sidewalks:** The sidewalk width, location, thickness and cross-slope shall be labeled on typical sections.
- **Typical Section Numbers:** Each typical section shall be labeled with a consecutive typical section number.
- **Station Ranges:** Show station ranges and road name below each typical section. Do not break-out the station range of the superelevated section.
- **Geometrics:** The construction centerline, profile grade line (PGL), and superelevation (S.E.) rotation point shall be labeled.
- **Medians:**
    - Raised median width, thickness, cross-slope, and type (doweled, grass, etc.) shall be labeled.
    - Depressed median slope, width and ditch locations/parameters shall be labeled.
- **Ditches:** The width of front-slopes and ditches shall be labeled.

- **Miscellaneous:** The station range of any site specific conditions that require special fill material or pavement structure alterations shall be noted on the applicable typical section.
- Note identifying the Safety Edge and Georgia Standard

05.003 Sheet Layout

Place typical sections in order as they will be used along the alignment. Typical Sections for side roads shall follow the mainline Typical Sections. If possible, the tangent sections and the related superelevated sections shall be located on the same sheet.

05.004 Miscellaneous Notes & Other Information

Include the following notes, when applicable, on the typical section sheets:

- See roadway plans for superelevation rates and transitions.
- See roadway plans for location of guardrail.
- See roadway plans for location of curb and gutter.
- Shoulder may be graded away from roadway to facilitate the slope tie to existing ground.

Include the following information, when applicable, on the typical section sheets:

- A detail showing underdrain pipe at curbed medians (grassed) - located at the lowest end of the median - should be shown, when required.
- The Pavement Reinforcing Fabric detail included in the EDG Cell Library shall be included for widening projects. Flagging the location of the reinforcement fabric on individual typical sections is not required.
- Rumble strip type and location shall be shown on the typical sections.
- All special details from the Soils Report not covered by GDOT Standards and Details shall be included in the typical sections.
- A driveway reconstruction detail listing the normal driveway widths and graphically representing the pavement design (pavement types and thicknesses) for the reconstruction of both residential and commercial driveways may be included in the typical sections. If a driveway reconstruction detail is included in the typical sections the information delineated should coincide with the information listed in the Driveway Note cell included in the General Notes.
- Temporary pavement

Section 6 Summary of Quantities

06.001 General

The Summary of Quantity sheets shall include itemized quantities of all construction items to be paid for by the project contract as indicated on the plan, profile and cross section sheets. All quantities listed and summarized shall include the Pay Item description and appropriate unit. Bridge items will be included in both this section and on the bridge plans. Quantity totals shall match the quantities submitted in the Department's cost estimating program (Trans-Port CES).

On contracts with multiple project numbers or with Federal-Aid and non-Federal-Aid quantities, tabulate and summarize quantities by project number.

06.002 Required Information

Roadway Items:

Lump Sum items:

- Include any appropriate notes of items that should be included within the price bid for these items.

Earthwork:

- Include any information of borrow or waste sites.
- Include notes about contaminated soil, rock, muck, etc. that are discussed in the soil report to inform the contractor of those conditions and/or explain what work must be done in those cases.

Pavement Items (excluding driveway items):

- Quantity by alignment (i.e.: mainline, crossroads, ramps, detours/staging, etc.; long alignments may be broken into smaller logical sections such as station to station followed by the alignment total)
- Include milling or other pavement related items

Concrete items (excluding driveway items):

- Location

Driveways:

- Location
- Length and Width
- Type of surface

Guardrail/Barrier/Fence/Railing items:

- Location
- Side of roadway (include offset if not typical)
- Type

Guardrail Begin/End treatments:

- Location
- Type

Ditch Protection:

- Location
- Material

Right of Way Markers

Drainage:

- Structure Number
- Location
- Structure Type
- Structure Depth

- Structure Size

Culverts:

- All items related to the culvert including concrete, steel, foundation backfill material, rip-rap, etc.
- For embedded culverts show the additional concrete and steel required for the concrete veins separate from the concrete and steel required for the barrel and wingwalls.

Erosion Control Items:

- Permanent Erosion Control
- Temporary Erosion Control

Signing, Marking, and Signal Items:

Signing:

- Location
- Installation number
- MUTCD Sign Code
- Signs
  - Size
  - Square Feet
- Sign Posts (square tubes)
  - Length
  - Quantity
  - Total length
- Signing general notes (if applicable)

Markings:

- Quantity by alignment (i.e.: mainline, crossroads, ramps, detours/staging, etc.; long alignments may be broken into smaller logical sections such as station to station followed by the alignment total)
- Location

Signals:

- Installation number
- Location
- Traffic Signal general notes

ATMS

- Installation number
- Location
- ATMS general notes

Structural Items (list not inclusive):

Walls:

- Number
- Location

Bridges:

- Number
- Location

Lighting/Landscape:

- Location
- Size (landscaping)

"Location" means items needing station (or station to station), side and offset. Items shall be described from the mainline alignment looking forward toward increased stationing. Reference to an alignment shall only be made if the location is not from the mainline alignment.

"As Directed by Engineer" amounts shall be included as a line item included in the total quantity where appropriate for quantities requested by District or Area construction personnel and/or for contingency amounts used to round up non-exact items. Examples of items to round up may include asphalt, mulch, grassing, rip-rap, etc.

Notes for payment of miscellaneous items to be paid for within a quantified item, if required, are to be placed under the corresponding quantity box. Each note shall consist of the special requirement, regulations, or directions to describe the work that is not covered by the specifications or for general information. References to Georgia Standards or Construction Details may be added to summary boxes as appropriate.

06.003 Sheet Layout

The designer shall place the summary boxes in order as noted above from left to right and top to bottom and grouped (i.e.: Roadway, Erosion Control, Signing Marking & Signals, Structural, etc.).

Place related items in the same summary box. Example: spillways adjacent to approach slabs should have the slope drain, pipe. Other items may include guardrail/guardrail anchors, fence/gates, etc. Box culverts and related items including outlet/inlet protection shall not be included in the Summary of Drainage Quantities but in a separate culvert summary box.

Section 7 Quantities Required By Amendment Sheet

07.001 General

This sheet is used for quantities that are added or changed by an amendment.

07.002 Required Information

- Project Number
- P.I. Number
- County
- Date
- Item Number
- Amendment Date
- Amendment Number
- Description
- Units
- Original quantity

- Revised quantity

07.003 Sheet Layout

Section 8 Quantities Required On Construction Sheet

08.001 General

This sheet is used for quantities that are added or changed by a revision during construction.

08.002 Required Information

- Project Number
- P.I. Number
- County
- Date
- Item Number
- Description
- Units
- Original quantity
- Previous quantity
- Revised quantity

08.003 Sheet Layout

Section 9 Detailed Estimate Sheet

Section Deleted

Section 10 Traffic Diagram Sheets

10.001 General

This sheet provides all traffic movements and volumes for the project.

10.002 Required Information

- Schematic
- Directional Hourly Volumes (DHV) – AM and PM Peak Design Year
- Average Annual Daily Traffic (AADT) – Base and Design Year
- Percent Trucks
    - 24 Hour Trucks
    - Single Unit
    - Combo
- Street Names
- North arrow

10.003 Sheet Layout

Section 11 Construction Layout Sheet/Stakeout Sheet

11.001 General

The Construction Layout/Stakeout Sheet provides construction alignment information concisely on one or multiple plan sheets. This sheet may not be required on small projects.

11.002 Required Information

- Construction alignments
- Stationing with tic marks
- Bearings
- Curve labels
- Curve data
  - CURVE Number
  - P.I. Station
  - P.I. Coordinates
  - △ or "DELTA" (Deflection angle)
  - D (Degree of Curve)
  - T (Tangent Length)
  - L (Length of Curve)
  - R (Radius)
  - E (External distance)
  - e (Superelevation in percent)
- Roadway names
- Equalities
- Begin and end project
- Alignment intersection stations and angles
- Begin and end construction stations
- Survey control points and benchmarks with description, northing and easting coordinates, and elevation.
- North Arrow
- Match line and text (if more than one sheet is required)

Construction plan sheet boundaries and drawing numbers may be shown to assist in clarifying plan sheet layout.

11.003 Sheet Layout

The construction layout/stakeout sheet is placed on a typical construction plan sheet border at an appropriate scale to maximize the plan sheet area.

Section 12 Corridor Location Map or Aerial Photo Mosaics (New Location Projects Only)

12.001 General

The Corridor Location Map provides a photographic view of a new location roadway by superimposing the roadway onto the most recent photography available. The map is also intended

to show at a large scale the proximity of community and other topographic features beyond the immediate roadway limits but near (within a 1.0+/- mile) the new roadway. Community features include but are not limited to churches, schools, libraries, parks, government buildings, lakes, streams, neighborhoods, businesses, cemeteries.

12.002 Required Information

- Photographs at 1”=500 feet scale (can vary per project)
- New roadway alignment, bridges and edge of pavement (not labeled)
- Major Roadway names
- Environmental features noted in the environmental document (labeled)

12.003 Sheet Layout

The Corridor Location Map drawing is placed on a typical construction plan drawing border.

Section 13 Mainline Roadway Plan Sheets

13.001 General

Roadway plan sheets depict all details of the project's features in a horizontal or plan view. They may also be presented in conjunction with the corresponding profile on the lower half of the sheet (split plan/profile sheet). The roadway plans shall show in detail what is to be constructed and where the project will be constructed.

The roadway plan sheets show what an area looks like before (existing) and after (proposed) construction of the project.

13.002 Required Information

The existing information shown should include:

- Large roadway signs
- Roadway items
- Driveways (with existing material)
- Buildings / Structures
- Drainage (including streams, ponds, lakes, ditches, special ditches, and storm drain pipes all with size, material type, and flow arrows)
- Above ground utility features including utility structure and appurtenance locations (i.e. poles, valves, manholes/vaults, telephone pedestals)
- NOTE: Existing utility lines, mains, and pipes are not shown on the Roadway Plan Sheets
- Retaining walls
- Other paved areas
- Gravel surfaces
- Fences
- Bridges
- Wooded areas (including tree lines or obscured areas)
- Trees (specific to parcel or design issues)
- Underground storage tank caps within the limits of the topographic survey
- Groundwater wells with indication to be plugged or remain in service
- Existing right-of-way and easement lines with labels
- Property lines with labels
- Land lot lines with labels
- Land District lines with labels
- Georgia Militia District (GMD) lines with labels
- Railroads
    - Right of way lines with labels
    - Tracks
    - Names
    - Mileposts
    - Warning devices
    - Crossing ID numbers

- Utility easement lines with labels
- City, county, and state boundaries with labels
- Existing L/A – Limit-of-Access lines with labels (Begin (B L/A) and End (E L/A) if applicable)
- Wetlands
- Historic boundaries
- Waters of the U.S
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on all plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"
- All other pertinent physical features (i.e.: property owner entrance signs, business/residential signs, etc.)

Proposed Design Features shall include:

- Begin/End Project Stations to the nearest foot (i.e. 1010+27) (mainline)
- Begin/End Construction Stations to the nearest 100th (i.e. 1010+26.25) (mainline)
- Limit of Construction Station to the nearest 100th (i.e. 1010+26.25) (crossroad)
- Alignments
    - Stations progressing from west to east and from south to north
    - PC/PT (SC/CS, TS/ST) Stations
    - Bearings
    - Road names
    - Stationing and primary tic marks every 500 feet and secondary tic marks every 100 feet (frequency can be increased) for 1"=50' to the even station (i.e. 12+30)
    - Stationing and primary tic marks every 100 feet and secondary tic marks every 50 feet for 1"=20' to the even station (i.e. 12+30)
    - Curve number
    - Equalities with back and ahead stations
    - Stations where centerline crosses county boundaries
- Curve Data Table (not required when Section 11 is included)
    - CURVE Number
    - P.I. Station
    - P.I. Coordinates
    - △ or "DELTA" (Deflection angle)
    - D (Degree of Curve)
    - T (Tangent Length)
    - L (Length of Curve)
    - R (Radius)
    - E (External distance)

    - e (Superelevation in percent)
- Angle and station of intersection
- Edges of pavement
- Curb and Gutter
- Sidewalk
- Paved Shoulder
- Ditches
    - Material must be labeled if other than grass
    - Begin/End labels for berm and special ditches
- Guardrail/Barriers
    - Label guardrail type
    - Label anchor type
    - Label barrier type
    - Begin and end stations for guardrail/barrier
- Walls
    - Begin and end stations for retaining walls
- Noise Barrier
    - Begin and end stations for noise barrier
- Drainage
    - Structures (structure number)
    - Storm Drains (size and direction)
    - Side Drains (driveway pipes)
    - Culverts (width (feet) X height (feet))
    - Permanent erosion features (i.e. type of rip-rap, concrete aprons, concrete flumes, spillways)
    - Inlet/Outlet Structures
- Bridges
    - Begin/End Stations
    - Intersecting stations and angles
- Approach slabs (stationing label not required)
- Construction limits (cut/fill line with cut/fill designations)
- Railroad facility adjustments
- NOTE: If this work is not to be included in the roadway contract, then clearly indicate on the plans that this work is to be done “By Others”.
- Strain poles
- Limits of pavement work (i.e. limits of resurfacing, pavement removal, widening, full-depth, overlay, milling, reconstruction, etc.)
- Survey control points (not required when Section 11 is included)
- Permanent detention ponds
- All permanent detention/retention basins
- Superelevation transition stationing
    - Both Percent SE and “NC” - Normal Crown (station plus)
    - Both Percent SE and “FLAT” - Zero Crown (station plus)
    - Both Percent SE and “RC” - Reverse Crown (station plus)

  - Both Percent SE and "BFS" - Begin Full Superelevation (station plus)
  - Both Percent SE and "EFS" - End Full Superelevation (station plus)
- Dimensions to reflect the proposed construction
  - Roadway dimensions
  - Radii dimensions
  - Taper stations and dimensions from alignment
  - Pavement widths
  - Median widths
  - End of curb and gutter station on side streets
- Driveways (including dimension)
- Matchlines (including station and drawing number)
- Legend
- Proposed Right-of-Way Features
  - Required right-of-way lines and labels
  - Easement lines and associated patterns
  - Property Owner name and parcel number of all affected parcels
  - If RW plans are not included, full station and offset of all required right-of-way, and easement (temporary, permanent and driveway) points or point numbers with station and offset information labeled elsewhere or preferably on the same sheet
  - Proposed right-of-way markers at locations where RW direction changes (including PC/PT locations)
  - Begin/End Limit-of-Access
    - All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
    - ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"

13.003 Sheet Layout

For a plan scale of 1" = 50', place match lines between sheets at even 100 feet intervals with a maximum coverage per sheet of 1500 feet. For a plan scale of 1" = 20', place match lines at even 50 feet intervals with a maximum coverage per sheet of 600 feet. The first and last plan sheets may be exceptions in each case.

13.004 Miscellaneous

Specific notes pertaining to project requirements as identified from various sources, including, but not limited to, soil survey, UST report, Environmental Green Sheet, Utility Agreement, RW Agreement, etc.

Intersection and Interchange Detail Sheets

Intersection detail sheets are required if additional details necessary for proper construction of items at road intersections cannot be clearly shown on the regular roadway plan sheets. In limited cases, it may be possible to show necessary intersection details as an inset on the regular roadway plan sheet in lieu of preparation of a separate sheet.

Intersection detail sheets if required shall be placed at the end of the mainline plan sheets.

In addition to the information shown on the plan sheet, the following information is to also be shown on the Detail Sheet.

- Grading Information

  Elevations along edges of pavement at specific locations (e.g. along a radius return) and also at an acceptable interval should be provided throughout the intersection. In some cases it may be desirable to provide an overall intersection grading plan (proposed contours) in order to properly detail cross slope transitions and drainage requirements.

- Completely dimension and station the intersection details, including pavement widths, curb and median radii, radius returns, horizontal location of raised medians, center of median and/or channelization openings, lane tapers, etc.

Section 14 Crossroad, Side Street, Frontage Road and Ramp Plan Sheets

14.001 General

Crossroad plan sheets depict all details of the project's features in a horizontal or plan view. They may also be presented in conjunction with the corresponding profile on the lower half of the sheet (split plan/profile sheet). The crossroad plans shall show in detail <u>what</u> is to be constructed and <u>where</u> the project will be constructed.

The crossroad plan sheets show what an area looks like before (existing) and after (proposed) construction of the project.

14.002 Required Information

- The existing information shown should include:
- Large Roadway Signs
- Roadway items
- Driveways (with existing material)
- Buildings / Structures
- Drainage (including streams, ponds, lakes, ditches, special ditches, and storm drain pipes all with size, material type, and flow arrows)
- Above ground utility features including utility <u>structure</u> and appurtenance locations (i.e. poles, valves, manholes/vaults, telephone pedestals)

  <u>NOTE</u>: Existing utility <u>lines, mains, and pipes</u> are not shown on the Roadway Plan Sheets

- Retaining walls

- Other paved areas
- Gravel surfaces
- Fences
- Bridges
- Wooded areas (including tree lines or obscured areas)
- Trees (specific to parcel or design issues)
- Underground storage tank caps within the limits of the topographic survey
- Groundwater wells with indication to be plugged or remain in service
- Existing right-of-way and easement lines with labels
- Property lines with labels
- Land lot lines with labels
- Land District lines with labels
- Georgia Militia District (GMD) lines with labels
- Railroads
    - Right of way lines with labels
    - Tracks
    - Names
    - Mileposts
    - Warning devices
    - Crossing ID numbers
- Utility easement lines with labels
- City, county, and state boundaries with labels
- Existing L/A – Limit-of-Access lines with labels (Begin (B L/A) and End (E L/A) if applicable)
- Wetlands
- Historic boundaries
- Waters of the U.S
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"
- All other pertinent physical features (i.e.: property owner entrance signs, business/residential signs, etc.)

Proposed Design Features shall include:

- End Construction Station to the nearest foot (i.e. 1010+27) (crossroad)
- Alignments
    - Stations progressing from west to east and from south to north
    - PC/PT (SC/CS, TS/ST) Stations
    - Bearings

  - Road names
  - Stationing and primary tic marks every 500 feet and secondary tic marks every 100 feet (frequency can be increased) for 1”=50’ to the even station (i.e. 12+30)
  - Stationing and primary tic marks every 100 feet and secondary tic marks every 50 feet for 1”=20’ to the even station (i.e. 12+30)
  - Curve number
  - Equalities with back and ahead stations
  - Stations where centerline crosses county boundaries
- Table (not required when Section 11 is included)
  - CURVE Number
  - P.I. Station
  - P.I. Coordinates
  - △ or “DELTA” (Deflection angle)
  - D (Degree of Curve)
  - T (Tangent Length)
  - L (Length of Curve)
  - R (Radius)
  - E (External distance)
  - e (Superelevation in percent)
- Angle and station of intersection
- Edges of pavement
- Curb and Gutter
- Sidewalk
- Paved Shoulder
- Ditches
  - Material must be labeled if other than grass
  - Begin/End labels for berm and special ditches
- Guardrail/Barriers
  - Label guardrail type
  - Label anchor type
  - Label barrier type
  - Begin and end stations for guardrail/barrier
- Walls
  - Begin and end stations for retaining walls
- Noise Barrier
  - Begin and end stations for noise barrier
- Drainage
  - Structures (structure number)
  - Storm Drains (size and direction)
  - Side Drains (driveway pipes)
  - Culverts (width (feet) X height (feet))
  - Permanent erosion features (i.e. type of rip-rap, concrete aprons, concrete flumes, spillways)
  - Inlet/Outlet Structures

- Bridges
    - Begin/End Stations
    - Intersecting stations and angles
- Approach slabs (stationing label not required)
- Construction limits (cut/fill line with cut/fill designations)
- Railroad facility adjustments
- NOTE: If this work is not to be included in the roadway contract, then clearly indicate on the plans that this work is to be done “By Others”.
- Strain poles
- Limits of pavement work (i.e. limits of resurfacing, pavement removal, widening, full-depth, overlay, milling, reconstruction, etc.)
- Survey control points (not required when Section 11 is included)
- Permanent detention ponds
- All permanent detention/retention basins
- Superelevation transition stationing
    - Both Percent SE and “NC” - Normal Crown (station plus)
    - Both Percent SE and “FLAT” - Zero Crown (station plus)
    - Both Percent SE and “RC” - Reverse Crown (station plus)
    - Both Percent SE and “BFS” - Begin Full Superelevation (station plus)
    - Both Percent SE and “EFS” - End Full Superelevation (station plus)
- Dimensions to reflect the proposed construction
    - Roadway dimensions
    - Radii dimensions
    - Taper stations and dimensions from alignment
    - Pavement widths
    - Median widths
    - End of curb and gutter station on side streets
- Driveways (including dimension)
- Matchlines (including station and drawing number)
- Legend
- Proposed Right-of-Way Features
    - Required right-of-way lines and labels
    - Easement lines and associated patterns
    - Property Owner name and parcel number of all affected parcels
    - If RW plans are not included, full station and offset of all required right-of-way, and easement (temporary, permanent and driveway) points or point numbers with station and offset information labeled elsewhere or preferably on the same sheet
    - Proposed right-of-way markers at locations where RW direction changes (including PC/PT stations)
    - Begin/End Limit-of-Access
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on all plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond

Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.

- ESA lines labeled as “ESA – See General Notes ‘Environmental Resources Impact Table’ for construction restrictions”

14.003 Sheet Layout

For a plan scale of 1” = 50’, place match lines between sheets at even 100 feet intervals with a maximum coverage per sheet of 1500 feet. For a plan scale of 1” = 20’, place match lines at even 50 feet intervals with a maximum coverage per sheet of 600 feet. The first and last plan sheets may be exceptions in each case.

14.004 Miscellaneous

Specific notes pertaining to project requirements as identified from various sources, including, but not limited to, soil survey, UST report, Environmental Green Sheet, Utility Agreement, RW Agreement, etc.

Intersection and Ramp Terminal Detail Sheets

Intersection or ramp detail sheets are required if additional details necessary for proper construction of items at road intersections cannot be clearly shown on the regular roadway plan sheets. In limited cases, it may be possible to show necessary intersection details as an inset on the regular roadway plan sheet in lieu of preparation of a separate sheet.

Intersection detail sheets if required shall be placed at the end of the crossroad plan sheets.

In addition to the information shown on the plan sheet, the following information is to also be shown on the Detail Sheet.

- Grading Information

  Elevations along edges of pavement at specific locations (e.g. along a radius return) and also at an acceptable interval should be provided throughout the intersection. In some cases it may be desirable to provide an overall intersection grading plan (proposed contours) in order to properly detail cross slope transitions and drainage requirements.

- Completely dimension and station the intersection details, including pavement widths, curb and median radii, radius returns, horizontal location of raised medians, center of median and/or channelization openings, lane tapers, etc.

Section 15 Mainline Roadway Profile Sheets

15.001 General

The Roadway Profile sheets depict the existing ground (or profile grade) and the proposed profile grade for the mainline. The most important data is the proposed profile or the "profile grade line" (PGL), which is typically along the centerline of the horizontal alignment or as shown on the typical section. All stations and elevations will be labeled to two decimal places unless otherwise noted.

Use the same horizontal scale for the profile as that used for the plan sheets. Typically, the vertical scale is a ratio of the horizontal at a factor of 5:1 for a 50 scale and 4:1 for a 20 Scale drawing.

15.002 Required Information

- "Begin Construction" label
- "End Construction" label
- Grades for all tangents along the PGL in percentage to four (4) decimal place accuracy
- Point of Vertical Intersection (PVI) with station and elevation – to two decimal places
- Point of Vertical Curvature (PVC) with station and elevation
- Point of Vertical Tangency (PVT) with station and elevation
- Low Point with station and elevation
- High Point with station and elevation
- Vertical Curve Data
    - Curve length
    - "K" factor
- Back and ahead station and elevation for equalities if applicable
- All intersecting streets
    - Street name
    - Station on the mainline
    - Station on the intersecting street
    - Elevation
- Major cross-drains greater than or equal to 48”
- All grade separations with clearances (i.e.: bridges over roadway, etc.)
- Proposed bridges with begin and end stations
- Intersecting railroad track elevations and stations
- Existing ground
- Proposed ground
- Even Stations every 50 feet
- Elevations of existing ground (along Construction centerline) and proposed ground (along Profile Grade Line(s)) at appropriate intervals

15.003 Sheet Layout

Stationing on profile sheets shall agree with stationing on plan sheets.

Single, double, or plan and profile sheets are acceptable. If the sheet is double, the lowest station range should be on the top of the sheet. Once a determination whether to go with single or double profiles has been made for a project, all the sheets shall be in the same format.

Section 16 Crossroad, Side Street, Frontage Road, and Ramp Profile Sheets

16.001 General

The Roadway Profile sheets depict the existing ground (or profile grade) and the proposed profile grade for the ramps, side roads or streets. The most important data is the proposed profile or the "profile grade line" (PGL), which is typically along the centerline of the horizontal alignment or as shown on the typical section. All stations and elevations will be labeled to two decimal places unless otherwise noted.

Use the same horizontal scale for the profile as that used for the plan sheets. Typically, the vertical scale is a ratio of the horizontal at a factor of 5:1 for a 50 scale and 4:1 for a 20 Scale drawing.

16.002 Required Information

- "Begin Construction" label
- "End Construction" label
- Grades for all tangents along the PGL in percentage to four (4) decimal place accuracy
- Point of Vertical Intersection (PVI) with station and elevation – to two decimal places
- Point of Vertical Curvature (PVC) with station and elevation
- Point of Vertical Tangency (PVT) with station and elevation
- Low Point with station and elevation
- High Point with station and elevation
- Vertical Curve Data
    - Curve length
    - "K" factor
- Back and ahead station and elevation for equalities if applicable
- All intersecting streets
    - Street name
    - Station on the mainline
    - Station on the intersecting street
    - Elevation
- Major cross-drains greater than or equal to 48” (All cross-drains if Section 22 omitted)
- All grade separations with clearances (i.e.: bridges over roadway, etc.)
- Proposed bridges with begin and end stations
- Intersecting railroad track elevations and stations
- Existing ground
- Even Stations every 50 feet
- Elevations of existing ground (along Construction centerline) and proposed ground (along Profile Grade Line(s)) at appropriate intervals

16.003 Sheet Layout

Stationing on profile sheets shall agree with stationing on plan sheets.

Single, double, or plan and profile sheets are acceptable. If the sheet is double, the lowest station range should be on the top of the sheet. Once a determination whether to go with single or double profiles has been made for a project, all the sheets shall be in the same format.

Section 17 Driveway Profile Sheets

17.001 General

Driveway Profile sheets reflect the grade and length of the tie-in of all driveways.

17.002 Required Information

- Roadway station where the driveway is located

- Direction (right or left) from the roadway under the profile
- Length of Vertical Curve
- Proposed Grades
- Existing ground
- Tie-in station

17.003 Sheet Layout

The scales are typically consistent with the cross-sections. Start the stationing for the driveway profile with 0+00 at the centerline of the roadway which the driveway intersects. Stations are placed along the bottom of the profile and the index elevations along both sides. Arrange as many profiles as practical on each sheet with the lowest station value in the lower left hand corner continuing up the sheet and, if there is space still available, "stack" the next adjacent column of profiles in the same manner.

Section 18 Special Grading Sheets

18.001 General

Special Grading Sheets are used as supplemental detail sheets for detailing special grading needs. These sheets are typically used to show grading of sediment/detention basins, parking lots, intersection grading, etc. These are used in addition to the construction plan sheets and provide room and flexibility for detailing, which would otherwise result in clutter on the construction plan sheet. These should be shown if it would affect the construction process or aid in the understanding of the desired design.

18.002 Required Information

- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as “ESA – See General Notes ‘Environmental Resources Impact Table’ for construction restrictions”

<u>Detention Basin</u> - Delineate the detention basin, if required, including the outlet structure and the end point of the drainage system for a particular project. Show the detention basin detail sheet in plan view with proposed contours, side slopes, fence locations, right-of-way, basin drainage structures with their locations and profiles, outlet structure details including weir/orifice arrangement and any other necessary data pertaining to the basin. Include typical basin sections on the same plan sheet.

18.003 Sheet Layout

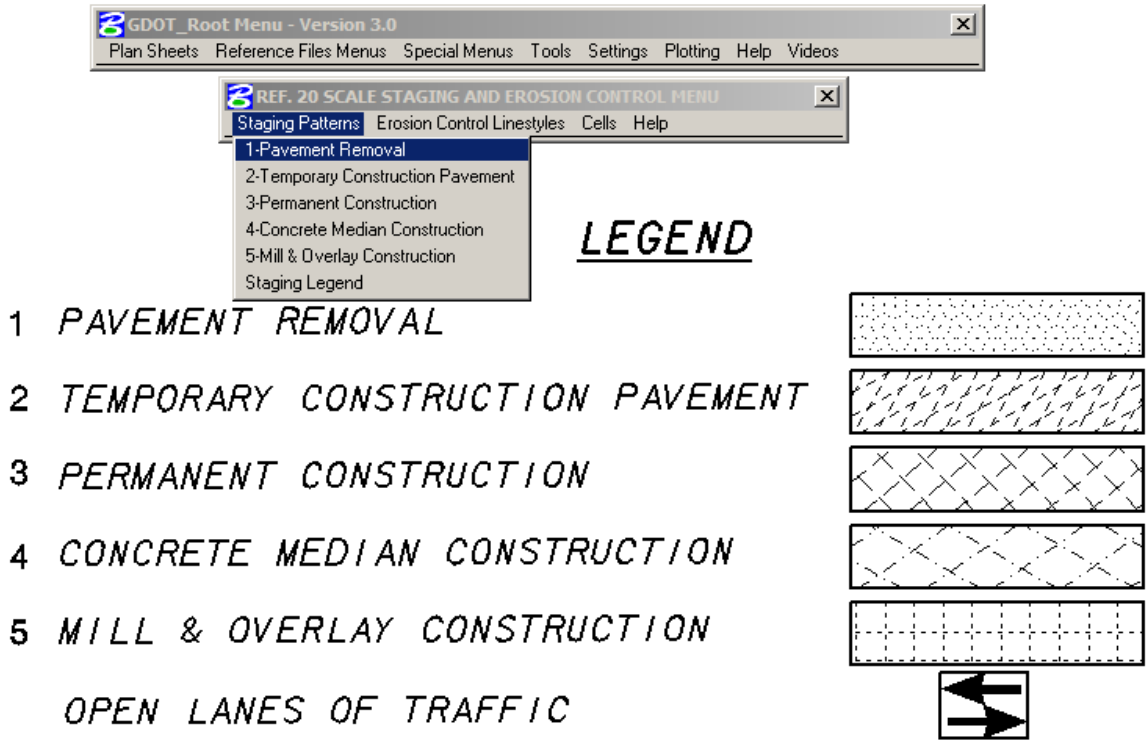
The scale of the sheet needs to be consistent with the level of detail required.

Section 19 Construction Staging Plan Sheets and Staging Cross-Section Sheets

19.001 General

The Construction Staging Plans are developed to show one method to construct the project, while accommodating the movement of traffic through the construction work zone. The staging plans are to show, as a minimum, where the flow of traffic is located, the area being constructed, and any temporary construction or pavement. The detail of the plans will depend on the complexity of the project. Signing and Marking for Traffic Control Plans are required for special conditions.

The following standard linestyles are provided and are to be used where applicable on all staging plans such that there is consistency and uniformity on all project staging plans produced by the Department. Any other designations for staging details are prohibited from being used, including shading. The linestyles are provided as a standard, but the extent of their use on projects will be at the discretion of the Project Manager.



19.002 Required Information

All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.

- ESA lines labeled as “ESA – See General Notes ‘Environmental Resources Impact Table’ for construction restrictions”

Notes/Narrative

- A narrative of the sequence of construction and means of accommodating traffic for each stage
- The narrative is to be delineated on the plans according to each stage
- Legend

For each construction stage, show the following:

Plan Sheets

- Construction centerline
- Existing and proposed pavement edges
- Proposed curb lines
- Access openings
- Intersections
- Existing and proposed storm drainage and culverts
- Major drainage structure to be constructed
- Traffic flow patterns
- Lane widths
- Areas of Temporary/Required Construction
- Locations of temporary barriers
- Temporary drainage structures
- Taper lengths and dimensions for temporary features

Profile Sheets

- Grades for all tangents along the PGL in percentage to four (4) decimal place accuracy
- Point of Vertical Intersection (PVI) with station and elevation – to two decimal places
- Point of Vertical Curvature (PVC) with station and elevation
- Point of Vertical Tangency (PVT) with station and elevation
- Low Point with station and elevation
- High Point with station and elevation
- Vertical Curve Data
    - Curve length
    - "K" factor
    - Design Speed
- Back and ahead station and elevation for equalities if applicable
- All intersecting streets
    - Street name
    - Station on the mainline
    - Station on the intersecting street
    - Elevation
- Major cross-drains greater than or equal to 48” (All cross-drains if Section 22 omitted)
- All grade separations with clearances (i.e.: bridges over roadway, etc.)
- Proposed bridges with begin and end stations
- Intersecting railroad track elevations and stations

- Existing ground
- Even Stations every 20 feet at 1”=20’ scale and every 50 feet at 1”=50’ scale
- Elevations

Typical Sections/Cross-sections

When required (see the GDOT Design Policy Manual for general guidance), prepare cross sections or typical sections of the stage indicating the area to be constructed along with the area to be used to maintain traffic. Staging cross sections shall be placed in order directly behind the corresponding staging plans or profile sheets. Cross sections shall show the following:

- Temporary pavement
- Temporary drainage
- Temporary barriers
- Traffic flow arrows
- Any other temporary slopes or structures necessary to complete the stage

Miscellaneous

- Temporary Drainage Cross Sections and applicable details
- All existing and proposed utility lines and structures
- Pay items and quantities required
- Indication of how all proposed utility relocations are to be coordinated with the proposed construction staging

19.003 Sheet Layout

Construction Staging Plans, Profiles and Cross Sections shall be prepared at the same scale as the Construction Plans, Profiles and Cross Sections. (At the discretion of the Project Manager)

Section 20 Construction Staging Details (Temporary Access for Bridge Construction, Detours, Haul Roads, Drainage, etc.)

20.001 General

If a road closing and an off-site detour is required, prepare a plan showing a layout of the local roads with the road closure points and the detour route indicated. Also, indicate any load-limited bridges or other traffic restrictions and include applicable special directional signs.

Include details for other items such as haul roads only when borrow or waste pits are included in plans or work roads when required or for temporary access for bridge construction.

Signing and marking for Traffic Control Plans are required for special conditions, such as off-site detours and projects of unusual complexity.

20.002 Required Information

- Background map (i.e.: county, city, aerial)
- Route with directional arrows
- Detour signing
- Road Names

- Length of route segments and overall detour length
- Basic alignment (i.e.: distance, bearing, PI) and widths for haul roads and work roads
- Project limits
- Bridges (load ratings)
- Speed limits of detour route

20.003 Sheet Layout

Prepare off-site Detour Plans on standard plan sheets with a scale such that the entire detour route is shown and all details are clear and legible. If it is not possible to show the entire detour legibly on one sheet, use multiple sheets and label match lines between sheets.

Section 21 Drainage Area Map

21.001 General

A drainage area map as described in this section shall be prepared for stormwater infrastructure sizing and shall be included in the project drainage report and the construction plans. For each drainage structure, tabulate a summary (or otherwise summarize) of the hydrologic and hydraulic data specified below on the map or on a following sheet as drawing space permits. All area calculations shall be in acres.

21.002 Required Information

- Show the total disturbed area of the project.
- Show the total project size (this is the entire area within the right of way and easements from begin construction to end construction).
- Show and label receiving waters and other significant drainage features, and show the direction of flow of each.
- Show the roadway overtopping elevation for each cross drain, the past high-water elevation in plan view, and date of occurrence, if available.
- Show applicable roadway names and centerlines.
- Show the beginning and ending project limits.
- Show the beginning and ending of bridges, bridge culverts, and culverts.
- Show the boundaries and the drainage patterns of individual basins and subbasins. Include contour lines, index contour labels, and flow arrows. Use insets to show areas that are of such small size that the boundaries cannot be clearly shown at the selected map scale.
- Show and note by structure number, all existing and proposed drainage structures, pipes, outlet structures, storm drain outlet protection, and any retention/detention pond locations. Label existing structures that are to be removed or plugged, if any. Use the Department's standard symbols for existing and proposed drainage structures.
- For existing drainage structures or existing drainage structures to be modified (cross drains, curb inlets, drop inlets, etc.) identify as applicable:
    - The station and offset of each
    - The structure designation and type
    - The skew angle and size of pipes and culverts

- The pre- and postconstruction runoff coefficients
- The pre- and postconstruction design and check storm peak flows at the inlet
- The pre- and postconstruction velocities corresponding to the design and check storm peak flows at storm drain outlets
- The pre- and postconstruction headwater elevations corresponding to the design and check storm peak flows at cross drains
- The total drainage basin area contributing to each
- The total disturbed area of each drainage basin

For proposed drainage structures (cross drains, curb inlets, drop inlets, etc.) show as applicable:

- The station and offset of each
- The structure designation and type
- The skew angle and size of pipes and culverts
- The postconstruction runoff coefficients
- The postconstruction design and check storm peak flows at the inlet
- The postconstruction velocities corresponding to the design and check storm peak flows at storm drain outlets
- The postconstruction headwater elevations corresponding to the design and check storm peak flows at cross drains
- The total drainage basin area contributing to each
- The total disturbed area of each drainage basin

Detailed Drainage Area Map — As needed, prepare a supplemental drainage area map to a larger scale to show the detail of small areas needed to calculate the peak flow for structure and pipe sizing. Make a cross reference note to indicate the plan sheet that shows the overall drainage area encompassing the smaller area.

21.003 Sheet Layout

Prepare the drainage area map on standard plan sheets such that the entire area is shown and all details are clear and legible. Choose the largest scale practicable, preferably 200-scale or larger, and use as many plan sheets as necessary.

Section 22 Drainage Profiles

22.001 General

Drainage profile sheets include profiles of all drainage structures and pipe systems, slopes of pipes; flowline elevations of all weirs, slots, pipes and structures; height of structure; index numbers of standard details used, and similar data. Drainage profiles also show the vertical relationships of the entire drainage system and possible conflicts with utilities, as well as the horizontal relationship to the Construction Centerline.

22.002 Required Information

- The following items are required to be shown for each drainage structure:
  - Structure number

- Station/Offset distance or direction
- Structure type (Georgia Standard or Detail information)
- Invert elevations
- Height of structure
- Length, size, flow direction, and slope of pipe
- Number of lines/structures
- Centerline station of roadway at all crossings (including skew)
- Existing and proposed groundlines along the drainage system
- Subgrade of roadway where applicable
- Show all pipe connections to each structure
- At outlet structures, show existing and proposed groundline to the RW or Easement line
- Underground utilities which are in close proximity to drainage structures in conjunction with the drainage profiles
- For all embedded culverts reference the use of Ga. Construction Detail D-48 and label the embedment depth.

In addition to the above information, the following specific information is to be shown for:

Cross-drains:

- The design year headwater elevations for all major cross drains (i.e.: greater than or equal to 48" or equivalent cross-sectional area)
- Subgrade material under culverts and pipes
- Culvert design height of fill (i.e.: 6X6-30, designed for 30' of fill)
- Design year outlet velocity

22.003 Sheet Layout

Multiple drainage systems can be placed on a sheet, along with a summary of systems reflected on each sheet in the title block. Show the horizontal and vertical scales in the bottom right of each sheet. Match lines shall be used as required.

Cross-drains:
Cross-drains are to be shown on cross-section sheets and at the same scale as the roadway cross-sections. Show all elevation datum on both the left and right sides of the sheet. Show offset from centerline along the bottom of sheet.

Longitudinal systems:
Longitudinal systems are to be shown on profile sheets and at the same scale as the roadway profiles. Show all elevation datum on both the left and right sides of the sheet.

Show all segments of the pipe system that do not exceed 45 degrees in delta as a continuous system on the Drainage Profile sheet. For any segments of the system that equal or exceed 45 degrees in delta, break the segment(s) to a new "line" on the Drainage profile sheet.

Show the Design HW at each inlet (Hydraulic Grade Line).

Section 23 Cross-Sections

23.001 General

Cross-sections depict the existing ground conditions as sections perpendicular to the construction centerline or baseline. The proposed cross-sectional outline of the new facility with all its functional elements is also shown on the cross-sections. Cross-sections are intended to illustrate all earthwork requirements.

Assemble the cross sections in the plans set in the following order:

1. Mainline
2. Ramps
3. Cross/Side Streets/Major Commercial or Retail Driveways

23.002 Required Information

- Cross-section at both the begin and end construction stations of all roadways
- Cross-sections at begin and end stations for exceptions and bridges (no sections are required between begin and end stations)
- Existing ground lines
- Proposed ground line (including correct subgrade depth)
- Station number of each section
- Station equations
- Proposed profile grade elevation for each cross-section
- If the profile grade is at the centerline of a divided roadway, label the inside edge of pavement elevation.
- All ditch elevations
- Ratio for the side slopes and back slopes
- Special ditches shall be labeled

<u>Miscellaneous</u>

- Limits of removal of unsuitable material when required by the soils survey
- Special features (walls, barrier, buildings, etc.) that affect the limits of construction
- Matchline between mainline and ramp sections
- RW Limits in critical areas such as walls
- If Quality Level “A” is used, horizontal and vertical location of existing underground utilities (water lines, sanitary and storm sewers, etc.) that lie within the limits of the level “A” survey for critical areas such as walls

23.003 Sheet Layout

The acceptable horizontal scales are 1” = 10’, 1” = 20’, and 1” = 50’. The acceptable vertical scales are 1” = 10’ and 1” = 20’. Horizontal and vertical scales do not have to be the same, but horizontal scale must be greater than or equal to the vertical scale. Any exceptions to these scales will be approved by the Project Manager.

- Show cross-sections at even 50' intervals with stations increasing from the bottom to the top when drawn along the wide axis of the sheet and right to left when drawn along the narrow axis of the sheet. Specific project conditions may require cross-sections at shorter or longer intervals.
- Cross-sections are plotted on the standard grid sheets provided in the EDG cell library.
- Cross-section centerline or baseline placed and labeled on a major gridline on each sheet
- Horizontal centerline offset distance at each major gridline
- Elevation label at each major gridline
- Cross-section sheets may be single or double column and oriented portrait or landscape
    - For double columns, show cross sections with stations increasing from the bottom to the top and left to right on the sheet.

Section 24 Utility Plans

24.001 General

The Utility Plans are used as the primary tool to identify and resolve utility related conflicts/issues prior to beginning the construction of a project. Utility Plan sheets shall be comprised of roadway plan sheets with the inclusion of all existing, proposed, and adjusted utility facility locations (overhead & underground) found within a project's limits. The work in this section shall be performed by the Utility owners or their contractor unless additional plans are provided in Section 44.

Where extensive or complex utility work is proposed to be performed as part of the roadway contract work performed by the GDOT Contractor, separate Utility Relocation Plan Sheets for that specific utility shall be included in the project plans. Refer to Section 44 for additional requirements.

It is imperative that information pertinent to utility facilities be clearly shown in the Utility Plan sheets without the interference of extraneous data such as horizontal curve data, superelevation data, roadway dimensions, miscellaneous text, etc. All background information such as pavement limits, existing structures, etc. should be screened back.

24.002 Required Information for Utility Plan Sheets

- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"

Utility Legend, Notes & Details

- Utilities Legend (as provided by Standard GDOT Cell).
- Miscellaneous General Notes.

- Miscellaneous General Notes required for coordination of utility facilities with roadway construction.
- Provide all Overhead/Subsurface Utility Engineering (SUE) investigation notes that were originally included in approved SUE deliverables for the respective project.

Details – Summary of Quantities / Pole Data Table

- Separate stand-alone (with no sheet number or drawing number) Summary of Quantity sheet (to be placed with the Roadway Summary of Quantities).
- Pole Data Table (on separate sheet - if applicable).
- Quality Level A Test Hole Data Table (on separate sheet - if applicable)

Utility Plan Sheets

The following items should be shown as screened back:

- Construction centerline with project stations and begin/end project limits
- Curb and gutter or edge of pavement (proposed and existing)
- Road and street names
- Existing and Required Right of Way limits
- Property lines
- Environmentally sensitive area limits (including archaeological sites)
- Property owners
- All proposed and existing easements (including existing and proposed utility easements)
- Proposed and existing drainage structures/features (excluding drainage text)
- Limits of existing and proposed sediment basins & detention/retention ponds
- Proposed construction limits (C/F lines)
- Topographical planimetrics (i.e. existing buildings / structures, existing tree/vegetation limits, lakes, rivers etc.)
- All proposed bridges (including bent, column & footing locations when utility crossings are present), culverts, wall and sign structure footings and other structures
- All proposed and existing strain poles (signal, ATMS, sign, lighting)
- Railroad mainline and spur tracks with their respective property/easement limits

The following items should not be shown screened back:

- For projects that have had an Overhead/Subsurface Utility Engineering (SUE) investigation employed; provide all applicable items included in the *GDOT SUE Deliverables Checklist* – available from the GDOT Utilities web page below. (http://www.dot.ga.gov/PartnerSmart/utilities)
- SUE investigation Limit of study (if applicable)
- For projects that have had an Overhead/Subsurface Utility Engineering (SUE) investigation employed; provide a Sanitary Sewer Data Table (on separate sheet - if applicable)
- Location and labeling of existing gas valves and shut-offs
- Location and labeling of existing water valves and shut-offs
- Existing overhead and underground utilities found within the project's limits (including size and material if known).
- Sanitary sewer manhole top, and invert elevations. Sanitary Sewer pipe flow directions

- All proposed, temporary, and relocated utility facilities with annotation describing nature of work.
- Disposition of all existing utilities (i.e.: "To be removed", "To be Adjusted", “To be Abandoned”, “To Remain”, “To be Relocated", etc.)
- Define utility work as to which is to be done by the Department’s contractor and which is to be done by others
- Utilities to be relocated (or removed, or installed) prior to construction shall be labeled on the plans as “To be relocated (or removed or installed) by others prior to roadway construction”

Utility Profiles / Cross-Sections

- Proposed utility facility profiles, cross-sections and staging cross-sections (as required)
- Proposed water and sanitary sewer plan/profiles.

Miscellaneous Proposed Utility Details

- Any miscellaneous proposed utility details
- Quality Level A Test hole data sheets (if applicable)

24.003 Sheet Layout

24.004 Miscellaneous

- Ensure that all proposed and existing utilities are coordinated with the respective project’s Construction Staging and Erosion Control Plans. For complex projects with multiple stages, it is necessary to prepare the Utility plans in the same format and sheet layout as the project Staging Plans.
- If bridge plans are included in the project plans, make sure the plans have made accommodations for utility crossings and attachments, if applicable.
- For further information regarding SUE, Utility Relocation and Accommodation Policy, see the Office of Utilities Website: (http://www.dot.ga.gov/PartnerSmart/utilities).

Section 25 Lighting Plans and Details

25.001 General

Lighting plans are required for projects that propose modifications to existing lighting or the construction of new lighting systems. Lighting plans shall provide a set of construction details, electrical circuit details, single line diagram and schematic diagram, lighting standards and high mast tower data summaries, conduit descriptions, service point locations, luminaire specifications, foundations and details, and other data required for the proposed lighting components.

25.002 Required Information

Lighting Plans shall include the following sheets:

- Separate stand-alone (with no sheet number or drawing number) Summary of Quantity sheet (to be placed with the Roadway Summary of Quantities)

- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on all plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"
- Electrical Legend, Notes & Details
- Lighting Standards and High Mast Tower Data Tables
- Lighting Layout
- Underpass Lighting Layout
- Bridge Lighting Layout
- Lighting Details
- Schematic Diagram
- Single Line Diagram
- Foundation Details
- Miscellaneous Lighting and Electrical Details

The following describes the contents for each sheet type:

Electrical Legend, Notes & Details

Electrical Legend, Notes & Detail Sheet include:

- Lighting Legend
  - High Mast Tower
  - Roadway Standard
  - Conduit
  - Pull Box
  - Electrical Junction Box
  - Service Point
  - Surge Suppressor
  - Non Tower or Standard mounted Luminaire
  - Existing Conduit/Cables to be reused
  - Existing Conduit to be removed/abandoned
  - Miscellaneous items
- General Notes
  - Luminaire specifications
  - Wiring specifications
  - Conduit specifications
  - Roadway Lighting Photometric Data and Design Calculation Criteria including:
    - Light Loss Factor
    - Road Classification
    - Pedestrian Conflict Area Classification
    - Average Maintained Illuminance (fc) with Pavement Classification
    - Minimum Illuminance (fc)

        - Uniformity Ratio (Avg/Min) Maximum Value
        - Veiling Luminance Ratio
    - Tunnel Lighting Photometric Data and Design Calculation Criteria including:
        - Light Loss Factor
        - Road Classification
        - Wall Reflectance
        - Identification of zones
        - Luminance levels in all zones (cd/m²)
        - Uniformity Ratio in all zones
    - Required Contractor Warranty information.
    - Overhead power line warnings, clearances etc.
    - Miscellaneous notes
- Grounding Details
    - High Mast Tower
    - Lighting Standards
    - Service Points
    - Miscellaneous Locations

Lighting Standard and High Mast Tower Data Tables

Lighting Standard and High Mast Tower Data Tables include:

- Design and Construction information for each lighting standard or high mast tower installation by the structure identification number tabulated sequentially.
- Construction Centerline station and offset
- Mounting Height
- Mast Arm Length
- Mounting Arrangement
- Luminaire Schedule
    - Lamp Type
    - Voltage
    - Wattage
    - Distribution Pattern
    - Cutoff Classification

Lighting Layout Sheets

Lighting Layout Sheets include:

- General Information
    - Lighting standards and high mast towers shall be labeled with a unique number.
    - Lighting standards and high mast towers shall be numbered sequentially (preferably increasing stations). Standards: S1, S2, etc… Towers: T1, T2, etc…
    - Each electrical service point shall be labeled with an alpha character.
    - Associated circuits shall be labeled with the service point letter and a corresponding number (e.g. Service Point "A" would have circuits A-1, A-2, A-3, etc.).
    - Conductor gauge and number of conductors shall be shown on the plan sheets or tabulated on a specific detail sheet.

  - Stationing and offset shall be shown for each standard or tower (may be omitted if clearly indicated on the Lighting Standard and High Mast Tower Data Sheet).
  - Utility owner name, address and contact person along with specific connection information, requirements, or coordination required for each service point location shall be provided on either the Lighting Layout Sheet or a specific detail sheet.
- Existing Information
  - Service Point(s)
  - Standards
  - High Mast Towers
  - Conduit/Cable runs
  - Roadway Names
  - Fencing
  - Guardrail
  - Median/Side Barriers
  - Noise Barriers
  - Edge of Pavements
  - Signs
  - Driveways
  - Buildings / Structures
  - Walls
  - Fences
  - Railroad tracks
  - Bridges
  - Wooded areas
  - All other pertinent physical features
  - Waters of the U.S
- Proposed Information
  - Service Point(s)
  - Standards
  - High Mast Towers
  - Conduit/Cable runs
  - Junction/Pull boxes
  - North Arrow
  - Scale Bar
  - Limits of required clearing (if different from Clearing Limits on Roadway Plans)
  - Roadway Names
  - Fencing
  - Guardrail
  - Edge of Pavements
  - Construction Centerlines
  - Edges of pavement
  - Curb and Gutter
  - Sidewalk
  - Ditches
  - Drainage Structures

- Utilities
- Guardrail
- Median/Side Barriers
- Noise Barriers
- Walls
- Bridges
- Approach slabs
- Construction limits (cut/fill line)
- Strain Poles
- Driveways
- Matchlines (including station and drawing number)
- Required R/W
- Easements

Underpass Lighting Layout Sheets

Underpass Lighting Layout Sheets include:

- General Information
  - Lighting standards and high mast towers shall be labeled with a unique number.
  - Lighting standards and underpass luminaires shall be numbered sequentially (preferably increasing stations). Standards: S1, S2, etc… Underpass Luminaires: U1, U2, etc…
  - Each electrical service point shall be labeled with an alpha character.
  - Associated circuits shall be labeled with the service point letter and a corresponding number (e.g. Service Point "A" would have circuits A-1, A-2, A-3, etc.).
  - Conductor gauge and number of conductors shall be shown on the plan sheets or tabulated on a specific detail sheet.
  - Stationing and offset shall be shown for each standard or tower (may be omitted if clearly indicated on the Lighting Standard and High Mast Tower Data Sheet).
  - Utility owner name, address and contact person along with specific connection information, requirements, or coordination required for each service point location shall be provided on either the Lighting Layout Sheet or a specific detail sheet.
- Existing Information
  - Service Point(s)
  - Standards
  - High Mast Towers
  - Conduit/Cable runs
  - Roadway Names
  - Fencing
  - Guardrail
  - Median/Side Barriers
  - Noise Barriers
  - Edge of Pavements
  - Signs
  - Driveways
  - Buildings / Structures

  - Walls
  - Fences
  - Railroad tracks
  - Bridges
  - Wooded areas
  - All other pertinent physical features
  - Waters of the U.S
- Proposed Information
  - Service Point(s)
  - Standards
  - Underpass Luminaires
  - Conduit/Cable runs
  - Junction/Pull boxes
  - North Arrow
  - Scale Bar
  - Roadway Names
  - Median/Side Barriers
  - Noise Barriers
  - Guardrail
  - Construction Centerlines
  - Edges of pavement
  - Curb and Gutter
  - Sidewalk
  - Ditches
  - Drainage Structures
  - Walls
  - Bridges
  - Approach slabs
  - Construction limits (cut/fill line)
  - Strain Poles
  - Driveways
  - Matchlines (including station and drawing number)
  - Required R/W
  - Easements

Lighting Detail Sheets

Lighting Detail Sheets include:

- Lowering Device details and specifications
- Pole base details
- Head frame and luminaire ring details
- Electrical junction box details
- Electrical pull box details
- Electrical conduit stubout details
- Luminaire mounting details

Schematic Diagram Sheets

Schematic Diagram Sheets include:

- Wiring Diagram
- Service Point data
- Circuit Breaker specifications
- Contactor specifications
- Circuit table
- Conductor size and type
- Number of conductors
- Miscellaneous electrical wiring specifications
- Service Panel specifications

Single Line Diagram Sheets

Single Line Diagram Sheets include:

- Single Line Diagram for each service point
- Legend of all symbols used in Single Line Diagram
- Circuit breaker specifications
- Circuit table
- Conductor size and type
- Number of conductors
- Miscellaneous electrical wiring specifications
- Surge Suppressor specifications

Lighting Foundation Detail Sheets

Lighting Foundation Detail Sheets include:

- Foundation Elevation View
- Foundation Plan View
- Foundation notes and details
- Reinforcement Schedule
    - Location (foundation number)
    - Number of locations
    - Length
    - Number of bars required
    - Type
- Foundation Quantities in tabular form with Structure Number showing separated unit quantities and total quantities.

Miscellaneous Lighting and Electrical Details

Miscellaneous Lighting and Electrical Details include:

- Details for mounting light standards on barrier walls
- Light Standards footing details
- Special mounting details for specific project requirements

25.003 Sheet Layout

Section 26 Signing and Marking Plans and Details

26.001 General

Signing and Marking plans depict signage and pavement marking on the roadway that is necessary for normal traffic flow and safety.

26.002 Required Information

All special notes will be placed first in the plan section; legend sheets will be placed second and followed by the plan sheets.

Prepare plan sheets to show all permanent roadway signs and pavement markings as they appear upon completion of the project along with the necessary details of unique project signs (destination, mileage, road name, guide, and overhead signs).

Include base information from the roadway design file to allow adequate depiction of required signing and marking. Coordinate signing and marking items with utilities, right-of-way, and drainage structures.

Include the following list of base data on each sheet:

- Separate stand-alone (with no sheet number or drawing number) Summary of Quantity sheet (to be placed with the Roadway Summary of Quantities)
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as “ESA – See General Notes ‘Environmental Resources Impact Table’ for construction restrictions”
- Edge of Pavement
- Driveways
- Project Center-line w/stationing text
- Existing and Proposed right-of-way
- Property boundaries
- City, county, state boundaries
- Names of intersecting roads
- Any sidewalks, guardrail, or barrier walls
- Location of guardrail for incorporation into design plans
- Drainage structures
- Existing and proposed overhead utility structures (i.e. poles)
- All railroad at-grade crossings and bridge structures

In addition to the base information above, the following items are to be reflected for the following specific disciplines.

Pavement Marking Requirements

- Lane lines
- Stop bars
- Crosswalks
- Painted islands
- Label the type of each line on each sheet
- Required hatching
- Required arrows

Signing Requirements

- Location and orientation of required signs
- Representation of the sign face
- Sign code

Special Signs - Projects may require special signs including guide signs and direction signs.

- Special Sign Detail that shows the complete message layout with:
    - Spacing
    - Margins
    - Border widths
    - Corner radii
    - All guide signs and special signs shall include a legend showing letter size, space plate size, etc.

Overhead signs

- Wire-span
    - Pole locations (station and offset) and types
    - Wire span
    - Show and specify sign and sign code
- Structural
    - Vertical clearance
    - Cross section
        - Number and dimensions of the sign
        - Distance from the edge of roadway to the support columns
        - Distance from column to column
        - Structure number and type
        - Station and Offset

26.003 Sheet Layout

26.004 Miscellaneous

General Notes - Show all general notes pertaining to signing and pavement markings shall be shown in Section 04 GENERAL NOTES.

Section 27 Signal Plans

27.001 General

Signal Plans show graphically the way in which the traffic signal is to be constructed and installed. This includes the intersection geometrics; the location of signal hardware and equipment; signal phasing; pavement markings; signal related signs; interconnect/communication layout, and other pertinent information. The various items that are usually included on Signal Design Plan sheets are discussed below.

27.002 Required Information

- All special notes will be placed first in the plan section; legend sheets will be placed second and followed by the plan sheets.
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on all plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as “ESA – See General Notes ‘Environmental Resources Impact Table’ for construction restrictions”
- Roadway Geometrics
    - Intersecting streets and driveways within limits of intersection (include street names, bike and pedestrian paths/trails)
    - Right of way or property lines (permanent easements, Limit-of-Access lines, historic boundaries, city, county, state boundaries, railroad right of way)
    - Physical features (concrete islands, medians (grass or raised) curb and gutter, sidewalks, shoulders, bridges)
    - ADA wheelchair ramps/landings
    - Existing utility lines and structures (Screened back)
    - Proposed Utility facilities (underground and overhead, electrical service points, point of attachment, vaults, lighting) including owners and joint-use
    - Provide the proposed attachment elevation (Point of Attachment - POA) of the traffic signal span wire when joint use.
    - Railroads, emergency centers, and schools in the vicinity
    - Any drainage or sewer facility within intersection (inlets, catch basins, ditches, streams, ponds, storm drains)

    - Existing topography within intersection (trees, fences, retaining walls, buildings, guardrail, fire hydrants)
    - Underground storage tanks within limits of intersection
- Traffic Control Features
    - Signal display and design configurations
        - Existing traffic signal equipment
        - Number and location of signals
        - Size and arrangements of signal indications in signal faces
        - Signal mounting configuration (pole or post mounted, span-wire, mast arm mounted)
        - Lateral placement and display of pedestrian signals
        - Location and display of blank-out signs
        - Battery backup equipment
    - Lane usage and configurations (pavement marking)
    - Parking restrictions (Bus stops, loading zones)
    - Location and message of traffic signal related signs
        - Street name signs
        - Pedestrian signs
        - Any supplementary or auxiliary sign
    - Posted speed limits (main and side streets)
    - Show placement and type of loop detector (presence or set back loop)
        - Show placements of detectors on all approaches
    - Location and type of conduit (rigid, TP 2, TP 3)
    - Lateral placement of controller cabinet including mounting alternative (pole or base mounted)
    - Lateral placement of signal supports (wood poles with down guys or, concrete, steel strain poles or mast arms)
        - Show station and offset of traffic signal poles.
    - Show list of materials for the traffic signal installation lump sum (647-1000)
    - Traffic Signal Controllers
        - Show location and type of controller (master, local)
        - Interconnection (hard wire cable, Fiber Optic cable, radio communication)
    - Show sequence of phases (phasing diagram) including vehicular and pedestrian movements, pre-emption and pre-emption clearance phases
    - Show cabinet input charts for each signal design.
        - Special features being used (evacuation switch, pre-empt, video detection)
    - Field wiring design
        - Location and type of pull boxes
- Project specific notes
    - Indicate on the plan that at least one spare conduit entrance be provided into all concrete pad, base-mounted cabinets
    - Identify the size and location of all risers being used
    - Identify the location of all interconnect cable and place interconnect in a separate conduit from other intersection wiring
- Construction stationing

- Location of guardrail for incorporation into design plans

27.003 Sheet Layout

General Note Sheet

This sheet contains instructional information concerning equipment and installation that applies to the total project. These notes should be short, to the point and should not contain unnecessary information repeated elsewhere. All general notes pertaining to signal plans shall be shown in Section 04 GENERAL NOTES.

Legend Sheet

This sheet is used to convey all the symbols used on an intersection plan to denote the various traffic control elements or hardware. The legend sheet will be placed second in the plan section after special notes and followed by the plan sheets.

Summary of Quantity Sheet

This sheet contains summary boxes or lined pay items of the estimated quantities needed for material or equipment used for Signal Design projects. It will be a separate stand-alone (with no sheet number or drawing number) Summary of Quantity sheet (to be placed with the Roadway Summary of Quantities).

Detail of Overhead Street Name Signs Sheet

This sheet shows the detail and summary of overhead street name signs and the type of legend, sign material and letter size. In addition, it shows a tabulation of the sign material and the estimated quantities needed. This sheet may be included in the Traffic Signal Plans.

Signal Design Plans

This sheet shows the physical layout of the intersection as defined from base plans and serves as the reference source to design and locate the various traffic control items. Draw the signal plan at a scale of 1: 30.

Standard and Construction Details

The detail sheets consist of previously developed standard plans or drawings for items of equipment or construction details common to most signal installations. Detail sheets are also used for special features not covered by standard drawings; these usually involve the specifics of a different type of installation or special equipment unique to an individual location.

Communication Routing Plans

This sheet shows the physical layout of a coordinated operations system of two or more intersections. The plans should show all signalized intersections and interconnect cables, wireless equipment, and all associated hardware. The various items that are usually included on Communication Routing Plan sheets are listed below.

- Communication cables, related equipment, or wireless devices
- If fiber optic cable is used and is buried, show all conduits and pull boxes.
- If fiber optic cable is used and is aerial, show all existing utility poles and point of attachments for each pole.

- If wireless interconnect is used, show all antennas and location of antennas.
- Location of controller cabinet at adjacent intersections.
- Show all pay items and quantities on each sheet.

Section 28 ATMS/ITS Plans

28.001 General

The ATMS plans shall show the design of fiber optic cable, changeable message signs, video detection systems, CCTV systems, hub buildings, hub/control center equipment, radar detection systems, ramp meters, specification development and fiber allocation sheets.

28.002 Required Information

- All special notes will be placed first in the plan section; legend sheets will be placed second and followed by the plan sheets
- Separate stand-alone (with no sheet number or drawing number) Summary of Quantity sheet (to be placed with the Roadway Summary of Quantities)
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as “ESA – See General Notes ‘Environmental Resources Impact Table’ for construction restrictions”
- Structure identification (ID) number label for all field device supports
- Existing ATMS Utility lines and structures
- Limits of all railroad right of way
- Details of all devices
- A legend that identifies all existing and proposed equipment shown on plans.
- General Notes – Show all general notes pertaining to ATMS system on a separate sheet in Section 04 GENERAL NOTES
- Existing and proposed right-of-way lines and monument
- Pavement markings
- Guardrail
- Location of guardrail for incorporation into design plans
- Bridge decks
- Structures impacting ATMS design (drainage, utilities, etc.)

<u>Fiber allocation sheet</u>

- Fiber ID Number
- Cable ID Number
- Trunk Cable ID
- Tray ID Number

28.003 Sheet Layout

Section 29 Landscaping Plans and Details

29.001 General

Landscaping plans depict all project landscaping items and details that are to be constructed excluding the permanent erosion control items. The plans shall provide type (plant and size) and location of landscaping items within the project limits. Plans also provide details and notes of how items are installed. Plans may also include irrigation and applicable details for installation. Landscape plans shall show the proper project information such as proposed roadway features and utilities so that no design/construction conflicts exist.

29.002 Required Information

- Separate stand-alone (with no sheet number or drawing number) Summary of Quantity sheet (to be placed with the Roadway Summary of Quantities)
- Design Speed
- Posted Speed
- Legend key
- An overall site plan and an area map depicting the roadway corridor in relation to the surrounding environment.
- The scale of the drawing should be generally 1”=50’. If a larger scale drawing is required for clarity, then create enlarged plans depicting the work to be done in the right-of-way.
- Display all property lines, right-of-way.
- Show the names of Route Numbers, U.S. and State, including the names of highway and roads on the plan.
- Contour lines in areas of landscaping
    - 2 foot contours
    - Existing contours will be dashed
    - Proposed contours will be solid
- Show all sign locations
- Existing and proposed topo including:
    - Edge of pavement (or curb line)
    - Sidewalks
    - Driveways
    - Medians
    - Channelizing islands
- Show all drainage features.
- Show proposed and existing utilities that are in proximity to the proposed landscaping.
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond

Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.

- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"

Plant Specification Sheet – Show the following:

- Abbreviation name (if used on landscape plans)
- Botanical name
- Common name
- Height
- Spread
- Caliper
- Branching requirements (minimum number, height first, cane, crown),
- Dug (B&B or container size)
- Minimum root ball diameter
- Origin
- Remarks

Landscaping Plan Sheet - Generally a 1"= 50' scale drawing showing:

- Species
- Location
- Size
- Quantity of the new plant material
- Proposed and existing utilities

Planting Detail Sheets - Information regarding:

- Planting instructions
- Staking of trees
- Tree protection

Irrigation/Drainage Plan - There are no irrigation specifications in the GDOT's Standard Specifications, therefore, if irrigation is approved for a project, an irrigation special provision shall be required. These sheets (if required) shall show:

- Power sources
- Water sources
- Valve locations
- Controllers
- Watering zones
- Head types
- All other appurtenances required for irrigation systems

29.003 Sheet Layout

Section 30 Mitigation Plans (Wetland, Stream, Stream Buffers, Historic, etc.)

30.001 General

Mitigation Plans are used for constructing wetland, stream, or stream buffer mitigation sites or landscaping plans for the purpose of mitigating visual impacts to an environmental resource (historic resources, etc.).

30.002 Required Information

- An overall site plan map and an area (small location) map depicting the project corridor in relation to the surrounding environment (i.e.: cover sheet).
- The scale of the drawing should be generally 1”=50’. If a larger scale drawing is required for clarity, then create enlarged plans depicting the work to be done in the right-of-way.
- All intersecting streets
    - Street names
    - Station on the mainline/intersection street
- Existing and Required Right-of-Way limits (Use Station/Offset or Point Numbers, but not both)
- Property lines
- Property owner information
- All proposed and existing easements (including existing utility easements) (Use Station/Offset or Point Numbers, but not both)
- Existing overhead and underground utilities found within the project limits including size and material if known
- Disposition of all existing utilities (i.e.: To Be Removed, To Be abandoned, etc.)
- Proposed construction limits (C/F lines)
- Topographical planimetrics (i.e. existing buildings/structures, existing tree/vegetation limits)
- Proposed contour lines
- Proposed utilities
- Strain Poles
- Proposed Roadway Features
- Mitigation specific construction sequencing
- Stream typical sections and details
- Staging areas for mitigation materials
- All drainage features
- All Railroads crossed or impacted by the project
- Planting Zones in plan view
- Quantity of the new plant material
- Vegetation selection specifications
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond

Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.

- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"

30.003 Sheet Layout

1. Stream Mitigation Plan Sheet:
   - Display all Stream curve data (for use in the design of the meanders in the stream)
     - Minimum data should include radius of curvature
2. Stream Buffer Mitigation Plan Sheet:
   - Display all Stream curve data (for use in the design of the meanders in the stream)
     - Minimum data should include radius of curvature

Section 31 Retaining Wall Envelopes

31.001 General

This section of the plans established the retaining wall envelopes (begin and end locations along with top and bottom elevations) to be used for the design and construction. During preliminary plans development, envelopes for all wall types will be shown in Section 31. For final plans, Section 31 will only contain GDOT's Standard walls; special design wall envelopes will be moved to Section 32.

31.002 Required Information

- When the wall alignment does not generally follow the roadway alignment, consider defining a separate horizontal alignment for the wall.
- Show wall types and wall numbering.
- Show existing and/or proposed drainage pipe including Station, size (diameter), and invert elevation (if applicable).
- Station, Offset, Elevations labelled at the following locations:
  - Begin and end wall
  - Wall type change
  - Bend in horizontal or vertical alignment of wall
  - Every 50-ft minimum if not covered by the conditions above
- Elevation lines to be drawn continuously and called out as noted above:
- Cut Wall (from top down):
  - Top of Wall Elevation
  - Back face finished grade line (could be toe of backslope, ditch section etc.)
  - Back face ground line elevation (existing ground line)
  - Top of Barrier elevation (if applicable)
  - Top of Coping (for MSE Wall)
  - Front face* ground line elevation (proposed finished grade line – could be gutter line, sidewalk, grass, etc.)
  - Bottom of Wall elevation – top of footing or maximum top of leveling pad elevation
- Fill Wall (from top down):
  - Top of Wall elevation

- Top of Barrier elevation (if applicable)
- Top of Parapet elevation (if applicable)
- Top of Coping (for MSE Wall)
- Back face ground line elevation (proposed finished grade line – could be gutter line, sidewalk, grass, etc.)
- Front face* ground line (existing ground line)
- Bottom of Wall elevation – top of footing or maximum top of leveling pad elevation
- Note changes in wall type (or standard vs. special design in preliminary phase)
- Show proposed fencing or handrail (if applicable)**
- Show proposed wall face finish (if applicable)**

* The front face of the wall is the face that is "exposed" (not buried) after construction is complete.

** These items should be shown on final retaining wall envelopes but are not required for preliminary wall envelopes.

31.003 Sheet Layout

Retaining wall envelopes will be shown on the standard profile sheet. A split plan/profile sheet can be used if the horizontal alignment of the wall is displayed for clarity.

Section 32 Retaining Wall Plans

32.001 General

32.002 Required Information

32.003 Sheet Layout

Section 33 Sound Barrier Envelopes

33.001 General

This section of the plans establishes the top and bottom of the sound barrier wall for the Contractor to build.

33.002 Required Information

- Elevations on top of the sound barrier wall at the beginning and ending of the wall.
- At profile break points label station, offset and elevation.
- Label station and offset of horizontal turns in sound barrier walls.
- Show the existing ground line.

- The proposed elevations of the bottom of the sound barrier wall.
- Label sound barrier wall number(s) on profile sheet
- Show and label top and bottom elevations of side barriers and/or gravity walls required for sound barrier wall.

33.003 Sheet Layout

Sound barrier envelopes will be shown on the standard profile sheet.

Section 34 Sound Barrier Plans

34.001 General

The sound barrier plans show the location of sound barrier walls for a road widening project or for a stand-alone sound barrier project. The required information below will need to be included on the sound wall plan sheet.

34.002 Required Information

The existing information shown should include:

- Sign structures
- Roadway items
- Driveways
- Buildings (type and number of stories) / Structures
- Drainage (including streams, ponds, lakes, ditches, and storm drain pipes all with flow arrows)
- Above ground utility features including utility structure and appurtenance locations (i.e. poles, valves, manholes/vaults, telephone pedestals)
- Retaining walls
- Other paved areas
- Gravel surfaces
- Fences
- Railroad tracks
- Railroad names
- Railroad mileposts
- Railroad crossing ID numbers
- Bridges (including Bridge ID)
- Wooded areas (including tree lines or obscured areas)
- Trees (specific to parcel or design issues)
- Underground storage tanks within the limits of the topographic survey
- Groundwater wells with indication to be plugged or remain in service
- All other pertinent physical features
- Existing right-of-way and easement lines with labels
- Property lines with labels
- Railroad right of way lines with labels
- Utility easement lines with labels

- City, county, and state boundaries with labels
- Existing L/A – Limit-of-Access lines with labels
- Wetlands
- Historic boundaries
- Waters of the U.S
- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on all plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"

Proposed Design Features shall include:

- Begin/End Project Stations to the nearest 100th (i.e. 1010+27.50) (mainline)
- Begin/End Construction Stations to the nearest 100th (i.e. 1010+27.50) (mainline)
- End Construction Station to the nearest 100th (i.e. 1010+27.50) (crossroad)
- Alignments
  - Stations progressing from west to east and from south to north
  - PC/PT (SC/CS, TS/ST) Stations
  - Bearings
  - Road names
  - Stationing and primary tic marks every 500 feet and secondary tic marks every 100 feet (frequency can be increased) for 1"=50' to the even station (i.e. 12+30)
  - Stationing and primary tic marks every 100 feet and secondary tic marks every 50 feet for 1"=20' to the even station (i.e. 12+30)
  - Curve number
  - Equalities with back and ahead stations
  - Stations where centerline crosses county boundaries
- Curve Data Table (not required when Section 11 is included)
  - CURVE Number
  - P.I. Station
  - P.I. Coordinates
  - △ or "DELTA" (Deflection angle)
  - D (Degree of Curve)
  - T (Tangent Length)
  - L (Length of Curve)
  - R (Radius)
  - E (External distance)
  - e (Superelevation in percent)
- Angle and station of intersection
- Edges of pavement
- Curb and Gutter
- Sidewalk

- Shoulder
- Ditches (Material must be labeled if other than grass)
    - Begin/End stations for berm and special ditches
- Guardrail/Barriers
    - Begin and end stations for guardrail and anchors
- Walls
    - Begin and end stations for retaining walls
- Noise Barrier
    - Begin and end stations for noise barrier
- Drainage
    - Structures (structure number)
    - Storm Drains (size and direction)
    - Side Drains (driveway pipes)
    - Culverts (width (feet) X height (feet))
    - Permanent erosion features (i.e. type of rip-rap, concrete aprons, concrete flumes, spillways)
    - Inlet/Outlet Structures
- Bridges
    - Approach slabs
    - Begin/End Stations
    - Intersecting stations and angles
- Construction limits (cut/fill line)
- Railroad facility adjustments

  NOTE: If this work is not to be included in the roadway contract, then clearly indicate on the plans that this work is to be done “By Others”.

- Strain poles
- Limits of pavement work (i.e. limits of resurfacing, pavement removal, widening, full-depth, overlay, milling, reconstruction, etc.)
- Survey control points (not required when Section 11 is included)
- Permanent detention ponds
- All permanent detention/retention basins
- Driveways
- Matchlines (including station and drawing number)
- Proposed Right-of-Way Features
    - Required right-of-way lines and labels
    - Easement lines and associated patterns
    - Property Owner name and parcel number of all affected parcels
    - Full station and offset of all required right-of-way, and easement (temporary, permanent and driveway) points or point numbers with station and offset information labeled elsewhere or preferably on the same sheet
    - Proposed right-of-way markers
    - Begin/End Limit-of-Access
- Label beginning and ending noise barrier stations and offsets. The station and offset shall also be given at every break point along the horizontal alignment of the wall. Provide adequate information to stake out wall location.
- Label side barrier wall with begin and end station and offsets and type barrier.

- Location and size of any utilities, drainage pipes, bridge foundations, light standards, overhead signs and miscellaneous structures (houses, etc.).
- Limits of the right-of-way and easements shall be indicated by station and offset.

34.003 Sheet Layout

For a plan scale of 1” = 50’, place match lines between sheets at even 100 feet intervals with a maximum coverage per sheet of 1500 feet. For a plan scale of 1” = 20’, place match lines at even 50 feet intervals with a maximum coverage per sheet of 600 feet. The first and last plan sheets may be exceptions in each case.

Section 35 Bridge Plans

35.001 General

35.002 Required Information

35.003 Sheet Layout

35.004 Miscellaneous

Section 36 Bridge Culvert Plans

36.001 General

36.002 Required Information

36.003 Sheet Layout

Section 37 Miscellaneous Structural Plans (Buildings, tollbooths, ice canopies, etc.)

37.001 General

37.002 Required Information

37.003 Sheet Layout

Section 38 Special Construction Details

38.001 General

Special Construction Details are used to clarify project specific construction elements within a set of plans. Special Construction Details should be developed for specific construction items that are not included in the Department's Standards or Construction Details.

38.002 Required Information

- The special construction details should be listed on the index by a descriptive title of the special construction detail and creation date or latest revision date.
- Include all dimensions, views, and clearances necessary to clearly depict the construction element.
- Sole Source components should not be a part of the detail. Do not specify a manufacturer's items; list only the general construction item.
- For each item, any general notes, and any specific construction method required. General notes should be referenced on the right side of the plan sheet.

38.003 Sheet Layout

Label the drawing "Special Construction Detail", including a descriptive title.

Section 39 Special Design Box Culverts

39.001 General

39.002 Required Information

39.003 Sheet Layout

Section 40 Construction Details

40.001 General

The current construction detail used in the development of the final construction plans should be listed on the index under a title of "Construction Details". The current construction details should be listed on the index by current construction detail number, title of the construction detail and latest revision date of the construction detail. The current standards can be obtained from the Georgia Department of Transportation R.O.A.D.S. web site. Tiff images can be downloaded so they can be included as part of the final construction plans. The web site contains the English and Metric construction details.

Section 41 Georgia Standards

41.001 General

Include all current Georgia Standards applicable to this project.

The Georgia Department of Transportation Standards are approved by the Federal Highway Administration to be used on the federal highway system. The current standards that are used in the development of the final construction plans should be listed on the index under a title of "Georgia Standards". The current standards should be listed in numeric order by standard number, title of the standard and include the latest revision date of the standard. The current standards can be obtained from the Georgia Department of Transportation R.O.A.D.S. web site. Tiff images can be downloaded so they can be included as part of the final construction plans. The web site contains the English and Metric standards.

Section 44 Utility Relocation Plans – Water/Sewer, Electric, Gas, Communications, Cable

44.001 General

Most utility relocation/adjustment work required to accommodate a GDOT project is performed by the utility owners or their contractor. In some cases however, it is advantageous to the GDOT and the utility owner to include the utility work as part of the roadway contract. The highway contractor is required to construct or relocate the specified utilities in accordance with the plans and special provisions developed by the GDOT and/or the utility owner and incorporate this work as part of the bid package. To this end, more than one utility plan set may be included. For example, the contract plans may include separate plans for a gas utility and a water utility.

It is also possible for the utilities to combine their individual facilities into one plan set and supply them to the GDOT for inclusion into the contract plans. This occurs when the utility relocations/adjustments are not extensive and can be clearly presented together (i.e. combined Water and Gas relocation plans) or on the Utility Plan Sheets referenced in Section 24 of this document. The Project Manager should consult with the District Utilities Engineer to determine the requirements in these cases. When separate utility relocation plans are required; such plans shall be prepared in the same basic format as the Utility Plan sheets referenced in Section 24. Further, the following additional provisions shall apply.

The following order shall be used for placement of separate utility relocation plans into the plan set.

- Water/Sewer Relocation Plans
- Electric Relocation Plans
- Gas Relocation Plans
- Communications Relocation Plans
- Cable Relocation Plans

Drawing numbers for the sheets shall start at 44-001 and continue sequentially to the end of all utility relocation plan sheets, regardless of the type of relocation plans. For example, the Water/Sewer Relocation Plans may be 44-001 through 44-010, the Gas Relocation Plans may be 44-011 through 44-023, and the Cable Relocation Plans may be 44-024 through 44-034.

44.002 Required Information for Utility Plan Sheets

The following requirements are applicable to all Utility Relocation Plan sections.

- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on <u>all</u> plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with a Diamond Line Code. Areas requiring no entry by any personnel shall be delineated with Orange Barrier Fence with a Solid Circle Line Code.
- ESA lines labeled as “ESA – See General Notes ‘Environmental Resources Impact Table’ for construction restrictions”

The Utility Relocation Plans should include the following sheets:

- Separate stand-alone (with no sheet number or drawing number) Summary of Quantity sheets (to be placed with the Roadway Summary of Quantities)
- Proposed Utility Legend & Notes
- Utility Relocation Plan Sheets
- Utility Profile/Cross Sections (as required)
- Utility Detail Sheets (as required)

The following describes the contents for each sheet type:

<u>Summary of Quantities Sheets</u>

- The Summary of Quantities sheets shall be prepared in standard GDOT format and should show any quantities tabulated for type, location (i.e. station/offset), size, quantity, etc. Standard notes referring to item numbers shall also be shown on this sheet or on plan sheets.
- These shall be developed as separate and stand-alone (with no sheet number or drawing number) Summary of Quantity sheets (to be placed with the Roadway Summary of Quantities).

<u>Utility Legend & Notes</u>

- Utilities Legend specific to the proposed utility construction presented on the respective Utility Relocation Plan set.
- Miscellaneous utility notes and specifications required for the construction and coordination of the proposed utility facility relocation with roadway and other utility construction.

- The disposition and final ownership of any utility infrastructure that is to be removed by the contractor and salvaged shall be identified in the plans. The address of the Utility/Agency Owner receiving the salvaged utility infrastructure shall be included in the notes.
- SUE Quality Level A Test Hole Data Table specific to the proposed utility construction presented on the respective Utility Relocation Plan set.

Utility Relocation Plan Sheets

Utility Relocation Plan Sheets shall show full construction details for all utilities to be relocated or constructed by the contractor. All underground utilities shall be shown in the plan view. When deemed necessary to provide enough detail for construction, all underground utilities shall also be shown in a profile view. The Project Manager/plan preparer should consult with the District Utilities Engineer to determine the requirements in these cases. All above ground utilities shall be shown in the plan view (inclusive of underground connections). When the construction clearances are restricted, such as when a power line is above and near a sanitary or water facility, either the facility (overhead lines) must be identified and shown in profile, or the minimum available vertical clearances, along with the type facility, shall be stated on the plans. Applicable project information shall be shown similar to that described in Section 24 of this document. When practical, the scale used should be the same as that used for the roadway plan-profile sheets.

The following items should be shown as screened back:

- Construction centerline with project stations and begin/end project limits
- Curb and gutter or edge of pavement (proposed and existing)
- Road and street names
- Existing and Required Right of Way limits
- Property lines
- Environmentally sensitive area limits (including archaeological sites)
- Property owners
- All proposed and existing easements (including existing and proposed utility easements)
- Proposed and existing drainage structures/features (excluding drainage text)
- Limits of existing and proposed sediment basins & detention/retention ponds.
- Proposed construction limits (C/F lines).
- Topographical planimetrics (i.e. existing buildings / structures, existing tree/vegetation limits, lakes, rivers etc.).
- All proposed bridges (including bent, column & footing locations when utility crossings are present).
- All culverts, walls, sign structure footings and other structures.
- All proposed and existing strain poles (signal, ATMS, sign, lighting)
- Railroad mainline and spur tracks with their respective property/easement limits
- Project Survey control point locations

The following should only be screened back when <u>not</u> associated with the subject Utility Relocation Plan set:

- Location and labeling of existing gas valves and shut-offs (when not associated with the subject Utility Plan section)
- Location and labeling of existing water valves and shut-offs

- Existing overhead and underground utilities found within the project's limits (including size and material if known).
- Sanitary sewer manhole top, and invert elevations. Sanitary Sewer pipe flow directions
- All proposed, temporary, and relocated utility facilities with annotation describing nature of work.
- Disposition of all existing utilities (i.e.: "To be removed", "To be Adjusted", "To be Abandoned", "To Remain", "To be Relocated", etc.)
- Define utility work as to which is to be done by the Department's contractor and which is to be done by others
- Utilities to be relocated (or removed, or installed) prior to construction shall be labeled on the plans as "To be relocated (or removed or installed) by others prior to roadway construction"

Utility Profiles / Cross-Sections

- Proposed utility facility profiles, cross-sections and staging cross-sections (as required).
- Proposed water and sanitary sewer plan/profiles (as required).

Miscellaneous Proposed Utility Details

- Any miscellaneous proposed utility details
- Quality Level A Test hole data sheets (if applicable)

44.003 Sheet Layout

44.004 Miscellaneous

- Ensure that all proposed and existing utilities are coordinated with the respective project's Construction Staging and Erosion Control Plans. For complex projects with multiple stages, it is necessary to prepare the Utility Relocation Plans in the same format and sheet layout as the project Staging Plans.
- If bridge plans are included in the project plans, make sure the plans have made accommodations for utility crossings and attachments, if applicable.
- For further information regarding SUE, Utility Relocation and Accommodation Policy, see the Office of Utilities Website: (http://www.dot.ga.gov/PS/Utilities).

Section 50-56 Erosion, Sedimentation and Pollution Control Plans

I. GENERAL

The Erosion Sedimentation and Pollution Control Plan (ESPCP) contain the recommended types and general locations for permanent and temporary erosion control items. An ESPCP is required for every project regardless of the size of the disturbed area. For all GDOT projects, plans must be presented in accordance with General NPDES Permit No. GAR 100002-Infrastructure as reflected in the following sections.

Projects that disturb 1 acre or more require a complete ESPCP, the contents of which are outlined in this chapter:

Projects that disturb less than 1 acre require only an abbreviated ESPCP. An abbreviated ESPCP contains:

- Erosion Control Legend Uniform Code Sheet
- BMP Location Details
- Applicable standards and construction details for BMP's specified in the Plan.

Section 50 Cover Sheet

50.001 General

The ESPCP cover sheet is required for projects that disturb 1 acre or more.

50.002 Required Information

The ESPCP cover sheet includes the following:

- Project name
- Project number
- Project identification number (P.I. No.)
- State and Federal route number(s)
- County name and number
- Project location map oriented with north at the top of sheet (The GAR 100002 Permit calls this the vicinity map.)
- The primary permittee, namely, GDOT, contact information: One Georgia Center, 600 West Peachtree Street, Atlanta, GA, 30308, 404-631-1990, ESPCP@dot.ga.gov
- The 24-hour contact, namely, the contractor, information: name, address, telephone number, and email address (Since this information is unknown before awarding the project contract, place a box containing labeled lines on which to hand write the foregoing information.)
- Beginning and ending project stations flagged and labeled on the centerline
- Beginning and ending bridge stations flagged and labeled on the centerline
- Latitude and longitude of project beginning and ending points in decimal degrees, +/- 0.00005
- Impaired stream segments that are within the limits of the cover sheet
- Equalities if applicable
- Stream names
- Road names
- Graphic scale
- North arrow
- State lines, county lines, city limits, land lot lines where applicable
- Revision block with five columns to provide the date, sheet number(s), signature, GSWCC level II certification number, and revision-requested-by information for each construction revision to the ESPCP
- Plans completed date (the date submitted to the Contracts Office)

- Designation for “Plans prepared by:” (Design Engineer, Name only or Consultant Name and Professional Engineer stamp/signature and GSWCC Level II certification number for Final Plans)
- Designation for “Recommended for submission by:” (Design Engineer Group Manager or District Design Engineer (Design Engineer of Record) – Name only) OMIT FOR CONSULTANT DESIGN PLANS
- Designation for “Recommended for approval by:” (State Roadway Design Engineer, District Engineer, State Program Delivery Engineer, State Innovative Delivery Engineer – Name only)
- GDOT Chief Engineer’s signature, Professional Engineer stamp, and GSWCC Level II certification number
- Design Professional’s signature, P.E. stamp (or R.L.S., P.G., R.L.A., R.A., R.F., C.P.E.S.C. stamp), and GSWCC Level II certification number in addition to the GDOT Chief Engineer’s signature, stamp, and GSWCC Level II number when the plans are prepared by a consultant
- All the certification statements required by the GAR 100002 Permit

Additional items may also be shown to delineate other important elements. These items may include, but are not limited to, limits of construction labels, existing property lines, parcel numbers, required right-of-way, median locations, and sidewalks.

50.003 Sheet Layout

Section 51 Erosion, Sedimentation and Pollution Control General Notes Sheet

51.001 General

Required for projects that disturb 1 acre or more.

51.002 Required Information:

Utilize the standard plan sheet cells with all standard General Notes as described on the Department’s ESPCP Notes Template Add additional project specific information as necessary and add other information as required by the applicable NPDES permit.

51.003 Sheet Layout

Multiple sheets may be necessary.

Section 52 Erosion Control Legend and Uniform Code Sheet

52.001 General

Required for all projects. These sheets contain the standard legend for erosion and sedimentation measures and practices. All Measures are compatible with and meet or exceed the requirements set forth in the Manual for Erosion and Sediment Control in Georgia. Use GDOT standard Erosion

Control Legend sheets. Add “codes” for any additional special design BMPs that are required to the erosion control legend sheets. **Do not put legends on individual BMP sheets.**

52.002 Required Information

All information needed to meet the requirements of legends for GAR 100002 shall be included.

52.003 Sheet Layout

Link to an example Erosion Control Legend and Uniform Code Sheet

(Under development, the sheets can be downloaded from Construction Details Website)

Section 53 ESPCP Drainage Area Map

53.001 General

This map is required for projects that disturb one acre or more. This map is similar to the drainage area map (Section 21) but is prepared specifically to meet the requirements of the GAR 100002 NPDES Permit. On this map, the drainage areas are delineated with respect to the project stormwater outfalls; while on the map of Section 21, the drainage areas are delineated with respect to the stormwater infrastructure inlets. For each outfall, tabulate a summary (or otherwise summarize) of the hydrologic and hydraulic data specified below on the map or on a following sheet as drawing space permits. All area calculations shall be in acres.

53.002 Required Information

- Show the total disturbed area of the project.
- Show the total project size (this is the sum of the disturbed and undisturbed areas within the project limits).
- Identify all stream state waters on or within 200 ft. of the project site.
- Identify any ponds or lakes within 500 ft. of the project site.
- Label applicable Bio F and Bio M impaired stream segments that are within the limits of the plan sheet.
- Show and label receiving waters and other significant drainage features, and show the direction of flow of each.
- Show the roadway overtopping elevation for each cross drain, the past high-water elevation in plan view, and the date of occurrence of such, if available.
- Show applicable roadway names and centerlines.
- Show the beginning and ending project limits.
- Show the beginning and ending of bridges, bridge culverts, and culverts.
- Show the boundaries and drainage patterns of individual drainage basins. Include contour lines, index contour labels, and flow arrows. Use insets to show areas that are of such magnitude that the boundaries cannot be plotted at the selected scale.
- Show and note by structure number, all existing and proposed drainage structures, pipes, outlet structures, storm drain outlet protection, and retention/detention pond locations. Label existing structures that are to be removed or plugged, if any. Use the Department's standard symbols for existing and proposed drainage structures.

- All environmentally sensitive areas (ESA), if practicable scale-wise, including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on all plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with an inverted saw-toothed line code. Areas within the project where entry by any construction personnel is prohibited shall be delineated with orange barrier fence in the field and with a solid circle line code in the plans.
- Place a note instructing the contractor to see the construction restrictions in the "Environmental Resources Impact Table" in the General Notes (Section 4) on all features delineated with ESA inverted saw-toothed lines.
- For outfalls show:
    - The station and offset of each
    - The outfall designation
    - The pre- and postconstruction runoff coefficients
    - The 50- and 100-year pre- and postconstruction peak flows
    - The 50- and 100-year pre- and postconstruction velocities corresponding to the peak flows
    - The total drainage acreage contributing to each
    - The total disturbed acreage of each drainage basin
    - The average outfall channel slopes

Detailed Drainage Area Map—As needed, prepare a supplemental drainage area map to a larger scale to show the detail of small areas needed to calculate the peak outfall flows. Make a cross reference note to indicate the plan sheet that shows the overall drainage area encompassing the smaller area.

53.003 Sheet Layout

Prepare the drainage area map on standard plan sheets such that the entire area is shown and all details are clear and legible. Choose the largest scale practicable, preferably 200-scale or larger, and use as many plan sheets as necessary.

Section 54 Best Management Practices (BMP) Location Details

54.001 General

These sheets show the locations of all BMPs installed during the construction of the project. A construction project may consist of one, two, three, or more stages..

54.002 Required Information

The ESPCP plans shall be designed and shown to accommodate all stages of construction. Staging will be designated numerically. All ESPCPs include an initial phase that shows the installation of perimeter BMPs (sediment basins, silt fence, etc.) prior to the clearing and grubbing and any major earthwork or major construction. BMPs should be shown in bold when initially installed; and for subsequent stages and phases, they should be shown faded if still in use or not shown if removed. Similarly, staged construction activities should be shown in bold (or with optional hatching) for the corresponding stage of construction and for subsequent stages shown faded (or

without hatching). The designer shall ensure that the BMPs and construction activities are shown a way that they are legible and that plan sheets are not cluttered. The ESPCP plans shall address the initial, intermediate, and final phases for each stage of construction. The sheets should be titled "STAGE 1 INITIAL PHASE BMP LOCATION DETAILS", "STAGE 1 INTERMEDIATE PHASE BMP LOCATION DETAILS" "STAGE 1 FINAL PHASE BMP LOCATION DETAILS", etc. Usually all of the perimeter BMPs for a multi-stage project can be installed prior to the clearing and grubbing for all project stages. In that case, the title block for the initial phase BMP sheets should read "INITIAL PHASE BMP LOCATION DETAILS".

Include the following minimum information on the BMP location detail sheets:

- Construction centerline with stationing
- All edges of pavement
- Construction limits
- Existing and required right of way and all easements
- Location of all drainage structures
- Streams, open water, wetlands, and names of such (if any)
- Stream Buffers
- Bio-impaired stream labels
- Surface water drainage patterns
- All topographical information and existing contours Stage 1, Phase 1 (However, for stages and phases subsequent to Stage 1, Phase 1, no contours are to be shown within the cut and fill areas.)
- All BMPs constructed for each stage of construction in bold format with the proper code designated by the Department's Erosion Control Legend and Uniform Code sheets. These items include, but are not limited to:
  - All ditch (channel) protection of any type, temporary or permanent, and ditch widths and depths of protection (The width and depth may be shown in tabular format.)
  - Silt fence type A, B, and C and baled straw will be shown as required.
  - Silt control gates Types 1, 2, and 3 will be shown by their code
  - All temporary sediment basins
  - Riprap slope protection by its code
  - Any other form of slope protection with its code
  - All down-drain structures temporary or permanent by their code
  - Silt retention barrier as recommended by the soil lab
  - Storm drain outlet protection with the riprap apron's upstream width, downstream width, length, depth, and riprap Type labeled (Showing the riprap apron to scale is not necessary. A standard riprap graphic symbol along with the symbol (S) is sufficient.)
  - Any other item that may be required for proper erosion control or that may be directed by another agency
- Limits of disturbance for each stage.
- Any utility relocations that the contractor is performing during the respective stage. (Ensure that BMPs included are adequate for the utility work that is proposed within the GDOT ROW or easements.)
- All waters of the state that are within 200 ft. of the project limits and that are within the area covered by the sheets

- All environmentally sensitive areas (ESA) including, but not limited to, stream buffers, wetlands, historical properties, threatened or endangered habitats, archaeological resources, cultural resources, hazardous materials sites, and environmental justice communities delineated with the inverted saw-toothed line code (Areas within the project where entry by construction personnel is prohibited shall be delineated with orange barrier fence in the field and with a solid-circle line code in the plans.
- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"

54.003 Sheet Layout

Set up sheets with the same scale and matchlines as the construction plans.

Section 55 Erosion Control Watershed Map and Site Monitoring Location

55.001 General

This map is required for projects that disturb 1 acre or more. This map shows the delineated surface water drainage area(s) of the receiving water(s) and monitoring site location; hence the map name. Normally, a USGS topographic map serves as the base map for the superposition of the project footprint; but other maps may be used provided that scale is equal to or greater than that of a 7.5 minute series USGS Topographic Map (1" = 2000'). The map shows the entire project area, the location of all perennial and intermittent streams and other waters of the state that receive stormwater from the site, and the receiving water or outfall sampling location for each representative sampling point. When the project length is longer than can be shown on one drawing, multiple drawings with match lines must be used. However, when the watershed is so large that all of it cannot be shown practicably, the use of a note stating the upstream watershed area not shown on the map is recommended.

55.002 Required Information

- North arrow
- Scale bar to a minimum scale of 1" = 2000'
- Highlighted project location
- Beginning and ending of the project
- Drainage areas in square miles
- Flow arrows and topographic contours
- Receiving waters
- All waters of the state within the map area
- Labeled Bio F and Bio M impaired streams within Category 4a, 4b, or 5
- Labeled watershed portions that are within 1 mile of Bio F and Bio M streams.
- Bodies of water or ponds downstream of the project
- Project outfall and/or receiving-water sampling locations
- Highlighted outfall drainage paths to the confluence point with the nearest blue line stream if applicable

- All environmentally sensitive areas (ESAs), if practicable scale-wise, including, but not limited to, stream buffers, wetland boundaries, historical boundaries, T&E habitats, archaeological resources, hazardous materials, and environmental justice areas shall be denoted on all plan sheets (roadway plan sheets, utility plan sheets, erosion control plan sheets, etc.) with an inverted saw-toothed line code. Areas within the project where entry by any construction personnel is prohibited shall be delineated with orange barrier fence in the field and with a solid circle line code in the plans.
- ESA lines labeled as "ESA – See General Notes 'Environmental Resources Impact Table' for construction restrictions"

55.003 Sheet Layout

Section 56 Construction Standards and Details (For Erosion Control Items Only)

56.001 General

Required for all projects. These sheets contain standard erosion control details required for the construction of the BMPs described within the plan.

56.002 Required Information

All information to fill the requirements of construction details for GAR 100002 shall be included. The Standards and Construction Details for all Uniform Code items that are available on the Department's website meet or exceed all requirements. Special Details, when necessary, must meet or exceed the criteria in The Manual for Erosion and Sediment Control in Georgia.

Several details may require the designer to fill in addition site specific information, such as the Sediment Basin Detail.

56.003 Sheet Layout

Link to an example Construction Detail sheet

(Under Development, the standard sheets can be downloaded from Construction Details Website)

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Chapter 3. Right-of-Way Section Presentation

Right of Way plans are necessary for the acquisition of the required right of way and easements for projects. Proper representation of the right of way and easements are required to ensure their proper legal interpretation for property acquisition and deed description as well as limits of construction activities and potential environmental and property concerns. Please refer to the Right of Way Plans and Engineering Office for further direction. All applicable items are required for a Right of Way Plan approval. LCI- Enhancement information is located below.

*** NOTE: Right of Way plans will also be reviewed by District personnel. The comments and mark-ups from the District should also be addressed as part of the review process.*

Section 60 Right Of Way Plans

60.001 Required Information – General Projects

Cover Sheet

A Right of Way (RW) cover sheet is required for each set of Right of Way plans. This is important for proper acquisition and project identification.

- Show Project Number and County at Bottom Left-Hand corner. Include any phase or section number.
- Project location map oriented at the top of sheet. (Flag project site and show North Arrow)
- Right of Way P.I. Number (Program Item Number)
- Limited Access Project Note. (If Applicable – Full, Partial, Permitted Access Control)
- **A signature line for approval by the Right of Way Administrator and date as shown in Example A.**
- Land Lot Numbers and Lines.
- Land District Numbers and Lines.
- G.M.D. Numbers and Lines. (If Applicable)
- North Arrow.
- Stations on primary centerline used throughout the project.
- Street Names – all existing locations including Mainline, State Route and U.S. Numbers.
- Limits of Right of Way Acquisition labeled on cross streets (where station/offset information is taken from cross street centerline).
- Back Property Lines. (Include Property map if necessary). Property Maps show the project at a scale between the size of the cover and the plan sheet. No acquisition specifics should be shown. This is used to merely show more detail than the cover but much less than the plan sheets. On Limited Access Projects, the access to parcel remainders should be shown.
- Existing and Required Right of Way. (Labeled and shown)
- Begin and End Right of Way Acquisition. Mile log designation – to the nearest tenth – if available. Project should show one Begin and one End acquisition; with beginning right of way acquisition extending from left to right without regard to the north arrow direction.

- Use Exceptions when applicable. **Stationing should be continuous on mainline without regard to exceptions (no breaks in stationing or restart of stationing should occur when exceptions are used).**
- Gross length of right of way project. (Project length from the Beginning of Right of Way Acquisition to the End of Right of Way Acquisition). Net length of Right of Way Project. (Project length less any exceptions)
- Parcel Numbers. **(No property owners name should be shown on cover.)**
- Completion date of plans. Do not change completion date of plans with each submission for review and approval. Use original completion date for all subsequent submittals.
- Designer name should be shown. (Signature no longer required)
- County Line, with counties clearly labeled. (If Applicable)
- Limit-of-Access labeled and shown required and existing with appropriate symbols.
- Dual Project Plans, Clearly Identify each project.
- Scale of the cover sheet. Scale is also Applicable/Appropriate for Metric Plans.
- Revision block. All revision dates must be included on number one (1) cover sheet. **Revisions listed on the cover should include the date and sheets revised not what was revised, this is listed on the revised sheet itself.** To accommodate numerous revisions a sheet numbered 1A can be added to the plans **but only after the revision blocks on the cover have been filled. Sheet 1A should not be included in a set of plans submitted for approval.**
- City Limits shown where applicable.
- Conventional Signs Legend **as shown in Example B. DO NOT DEVIATE FROM OR ADD TO THE LEGEND.**
- Cover sheet **must** include Location and Design approval date **to be considered for approval.**
- Inform the Right of Way Plans Office in transmittal letter when REVISED COVER SHEET requires stamping with R/W Administrator's signature and original approval date.
- **Text should be no smaller than 0.15 times the scale of sheet.**

Right of Way Plan Sheets – General

Proper presentation of the right of way and easements are required to ensure their proper legal interpretation for property acquisition and deed description as well as limits of construction activities and potential environmental and property concerns.

- Land Lot Numbers and Lines. (Shown and Labeled)
- Land District Numbers and Lines. (Shown and Labeled)
- G.M.D. Numbers and Lines. (Shown and Labeled)
- North Arrow.
- Full Stations and offsets (on Metric Plans include English and Metric offset distances); if more than one centerline is used, state which centerline the information is taken from or provide general note. If general note is provided; please make sure it agrees with centerline stations and offsets are taken from an alignment. Include existing and required right of way points at P.C. and P.T. Stations.

- Survey Centerline with Bearings. (Labeled)
- Construction Centerline with Bearing. (Labeled if Applicable)
- Street Names – all existing locations including Mainline, State Route and U.S. Numbers.
- Construction Limits. (Labeled or provide legend, include symbols for cut "C" or fill "F"). Symbols should read right side up on each side of centerline for all roads and side roads. (See Example C for Standard Right of Way Legend.)
- Sheets may overlap. (For clarity of parcels, however, duplicate information should be kept to a minimum). Label each Match Line with "See Sheet _____" for clarity purposes.
- Existing Right of Way and Existing Limit-of-Access labeled or provide legend. (See Example C for Standard Right of Way Legend.) Existing right of way must be shown on County Roads. If existing right of way cannot be determined, please show area maintained as existing right of way.
- All easements, except driveway easement and easement to construct and remove detour, should be shown as permanent unless a letter is provided to this office stating otherwise. Easements are no longer labeled as permanent and/or temporary.
- Required Right of Way and Required Limit-of-Access labeled or provide legend. (See Example C for standard Right of Way Legend.)
- Curve Data is to be shown for each curve shown on plan sheet even if the curve data has been shown on another sheet. Curve data is to be shown on each sheet on which the curve is shown: arc length, chord length, chord bearing, radius
- (BLA) and (ELA) at access break points. Provide station and offset.
- Dual project plans, clearly shows begin/end each project.
- Begin and End Right of Way Acquisition. A leader should be pointed to the corresponding station on the centerline. The beginning point should be the first point, easement or required right of way, which occurs on the mainline. The end should be the very last point, easement or required right of way, which occurs on the mainline.
- Title Block. (Lower right-hand corner. All sheets need to be numbered as "Sheet ___ of ___".)
- Standard Right of Way Legend for Limit-of-Access, Required Right of Way, Property Lines (with property symbol), Construction limits, Easements (Driveway, Construction and Maintenance of Slopes, and Construction of Slopes), Beginning of Limit-of-Access, and End of Limit-of-Access. Complete Standard Right of Way Legend Required on ALL Plans. Do not deviate from or add to Standard Right of Way Legend by Using Additional Symbols. Line style for Historical Boundary should be added above title block on the sheets on which the Historical Boundary appears. (See Example C for Standard Right of Way Legend.) DO NOT DEVIATE FROM OR ADD TO THE LEGEND.
- Angles and Stations where centerline crosses streets. **Angles should be given in the DD°MM'SS" format. This information needs to be shown for all side roads even if station/offsets are not taken from side roads.**
- Edge of pavement (existing and proposed) on mainline, cross roads and drives.
- Limits of Rights of Way Acquisition labeled on cross streets. (Where station/offset information is taken from cross street centerline).
- Equality Stations. (If any)
- Any Utility Relocation.

- Major drainage such as culverts, channel changes; particularly all outfalls that affect right of way and/or require easements.
- Driveways, Tie-ins and Cross Streets.
- Dual County Projects – Show county pertaining to individual sheet in the title block. Flag County line station on centerline.
- Sheets must have revision block.
- The scale of the Right of Way plans should be shown on each plan sheet.
- **Text should be read horizontal to the orientation of the plan sheet, reading from left to right. When text needs to be vertical, it should be placed on the plan sheet parallel to the right edge of the sheet, reading from the bottom of the sheet to the top of the sheet.**
- City Limits should be shown on all projects.
- Coordinates are required at two points on the centerline for each plan sheet. These points should be referenced points such as PC's, PT's, Side Street centerline intersections or railroad intersections. (If reference points are not available, even stations should be used.
- Right of Way, Temporary and/or Permanent Easement from railroads should be referenced from both the centerline and to the nearest railroad milepost. State Plane Coordinates are required for all points shown in the Data Table. The "Point of Beginning" must be identified and indicate a distance to the nearest railroad mile post and the direction of increasing railroad mile post are to be shown. See Policy & Procedures 6865-9 for further information and guidance.
- Locating the railroad milepost applies to all areas of right of way and easement which are not contiguous.
- Do not shade proposed or existing pavement; do not shade existing pavement to be obliterated. **No shading should be used. Also no concrete or brick pattern hatching should be used.**
- **Text should be no smaller than 0.15 times the scale of sheet.**
- **Construction information not pertaining to the acquisition of Right of Way or Easement (i.e. NC, RC, Standards, Rip Rap, etc…) should NOT be shown.**

<u>Individual Property (Parcels)</u>

- Full Station and Offsets at all points. **(Point numbers and data descriptions can be used instead.)** Existing and required right of way, including P.C. and P.T. Stations.
- On all lines within the required right of way, show bearings and distances, arcs, and radius on all curved lines. ON CURVED LINE, ALSO INCLUDE CHORD LENGTH AND CHORD BEARING. EXCEPTION: Bearings not required on existing right of way.
- Area for required Right of Way. (Square feet and acres) Acres and hectares should be computed to three decimal places; Square Feet and Square Meters to two decimal places.
- Remainder(s). Parcels with remainders on each side of the project or cross street on the project should show separate areas for each remainder. They should be listed as Remainder Left (RL) and Remainder Right (RR). Areas of less than an acre should be shown as 0._ _ +/-acre, 1 – 10 acres _._ and over 10 acres to the nearest acre plus or minus.

- Parcels with easement acquisition only (except driveway easement) should give a remainder or total lot size.
- Easement Area in square feet for each type easement. (Does not include driveway easements).
- Easement Labeled or provide legend. Full Station and Offset required; hatch construction easements. On railroad parcels, easements should not be closer than 15 feet from the centerline of the tract.
- Driveway easement should have full station and offsets on all points (points and description can be used instead). Metric Plans should give Both Metric and English Offsets. Specify in Data Table the total number of driveway easements per parcel.
- Parcel Number on all sheets applicable. Number parcels in a consecutive manner, there should be no break in the numbering of parcels. Survey Chain Numbers are NOT acceptable as Parcel Numbers. Separate parcel numbers for adjoining parcels under the same ownership.
- Property Owner's name on all sheets applicable.
- Buildings labeled. (If Data is available).
- Access Rights only, provide parcel number, owner, linear feet of access rights and parcel remainder (total area).
- Access Breaks. (Also show dimension of Access Breaks and Driveways). ELA and BLA provide station and offset. The distance for Limit-of-Access for each parcel needs to be provided in linear feet (LF). This needs to be shown as a point to point distance as well as a total distance for each parcel.
- Show paving improvements within required right of way.
- Show signs, gas pumps islands, pump tanks, permanent light fixtures, septic tanks, sewage field line locations. Signs within the required rights of way should be located and annotated.
- Reference parcel number to sheet(s) necessary to cover the entire parcel shown in plans.
- Parcels with tracts should have a total shown for the required right of way and/or easement area (for each type easement excluding driveways). When more than one tract of required right of way exists for a parcel, label each tract as Tract 1, Tract 2, etc., on the plan sheet(s) where the tract occurs.
- Parcel descriptions should proceed in a clockwise direction when data tables are used.
- Data table descriptions should specify State Route number or Road name that stations and offsets are located from instead of referencing mainline.
- Wetland mitigation parcels should be designated with a "W" included in parcel number.

60.002 Required Information – Checklist for LCI, CMAQ, and Enhancement Projects

A. Cover Sheet
B. Plan Sheets - General
C. Individual Property (Parcels)

NOTE:

1. **WHEN ENHANCEMENT AND LCI PROJECTS CONSIST OF DRIVEWAY EASEMENTS ONLY, OR IF MINIMAL EASEMENTS ARE BEING ACQUIRED (NO REQUIRED R/W),**

CONTACT YOUR PROJECT MANAGER FOR POSSIBLE WAIVER OF R/W PLANS. FOR WAIVER ON CMAQ PROJECTS, CONTACT YOUR DISTRICT LOCAL GOVERNMENT COORDINATOR. D.L.G.C. WILL CONTACT G.O. R/W PLAN REVIEW SECTION FOR APPROVAL OF WAIVER. IF SIGNIFICANT R/W IS BEING ACQUIRED ON CMAQ, LCI PROJECTS, PDP GUIDELINES ARE REQUIRED.

2. **PAPER COPIES WILL BE ACCEPTED ON ALL SUBMISSIONS OF PLANS FOR REVIEW.**

Cover Sheet

- Land Lot Numbers and Lines.
- Land District Numbers and Lines
- North Arrow.
- Street Names – all existing locations including Mainline, State Route and U.S. Numbers.
- Begin and End Right of Way Acquisition.
- Completion date of plans.
- Program Item Number.
- Scale of the cover sheet.
- Revision block. All revision dates must be included on number one (1) cover sheet; also include plan sheet no. revised
- **Signature line for the State Right of Way Administrator (See Example A).**
- **Conventional Signs Legend (See Example B).**
- **Scale of text should be no smaller than 0.15 times the scale of the sheet this applies to plan sheets as well.**

Plan Sheet – General

- Land Lot Numbers and Lines.
- Land District Numbers and Lines
- North Arrow.
- Full Stations and offsets
- Construction or Survey Centerline with Bearing.
- Street Names – all existing locations including Mainline, State Route and U.S. Numbers.
- Construction Limits. (Labeled or provide legend, include symbols for cut “C” or fill “F”).
- Existing Right of Way.
- Required Right of Way
- Begin and End Right of Way Acquisition.
- Sheets must have revision block.
- The scale of the R/W plans should be shown on each plan sheet.
- **Standard Right-of-Way Legend (See Example C).**
- **Label Curves and provide curve data for each curve. This information needs to be provided on every sheet that the curve is shown**

Individual Property (Parcels)

- Full Station and Offsets at all points.(Station and Offsets optional if point numbers are present in Data Description)

- Area for required Right of Way. (Square feet and acres)
- Remainder(s) on parcels with required R/W; total lot size on parcels with easements only.
- Easement Labeled /hatch construction easements.
- Easement should have full station and offsets on all points.
- Easement Area in square feet for each type easement.
- Parcel Number on all sheets applicable.
- Property Owner's name on all sheets applicable.

60.003 Miscellaneous Right of Way Plan Information

This information provides additional information for inclusion in the final Right of Way plans.

Improvements and Culture

Indicate all pertinent data that may affect the cost of the right of way on the plans. Some of these include:

- Structures
- Roads
- Streams
- Ponds
- City limits
- Orchards
- Fences
- Wells
- Septic tanks
- Sewage field lines
- Springs
- Commercial signs on or near the required right of way
- Various improvements - Show any improvements located outside the right of way that may have an influence on the appraised value to scale on the plan sheet.

Easements

- Label easements for a type of construction that does not require maintenance by the Department as: "Easement for the construction of _____ " with the actual purpose of the easement being specified on the plans. Examples of this type of construction are:
    - Channel changes
    - Driveways
    - Yard drains
    - Tree wells
    - Steps and sidewalks leading into residences or places of business
    - Provide a working area outside of the right of way where construction activities require it
    - Demolition
- Label easements for a type of construction that will require future maintenance by the Department or others as: "Easement for the construction installation, maintenance,

operation of utilities and maintenance of _____". An example of this type of construction is a retaining wall tie back system.

Subdivisions

- Show the remaining property to scale. (In cases where the back of the lots cannot be shown to scale, a break may be shown on the property lines with the distance to the back of the lot shown approximately in feet.)
- Include inserts (if necessary) on the right of way detail plan to adequately show information pertinent to the individual lots.
- The subdivision may be shown on the cover sheet as an outline of the entire subdivision with a notation as to the parcels included.
- Show all roads or streets, including names, on the detail plan or cover sheet.

Railroads

- Label intersections of centerline of railroads and roadway centerline with station and angle
- Width of the right of way
- Name of Railroad
- Each track by symbol and distance
- Direction along the Railroad Right of Way to the nearest mile post number
- Railroad I.D. number
- State Plane Coordinates are required to be shown in the Data Tables for all Right-of-Way, Temporary Easement & Permanent Easement

Intersecting Roads and Existing Streets

- Label intersection of all paved and maintained public roads by station and angle, equate to the station of the survey of the intersected road
- Show the name of the road, state and federal routes, if any, and the right of way width of the road.
- Provide details of private roads and access roads to parking lots and commercial centers on the right of way plans.
- Limit-of-Access
- Reflect partial Limit-of-Access
- Show the access control lines by the conventional Limit-of-Access symbols.
- In areas where the Limit-of-Access line and the right of way lines are in the same location indicate both.
- Indicate the exact beginning and ending of Limit-of-Access at interchanges or crossroads with an arrow and the symbols E L/A or B L/A and the station and offset as appropriate.
- Clearly indicate any intermediate breaks in the Limit-of-Access.
- Roadways with Partial Control of Access may have breaks in the normal limit-of-access. The break in limit-of-access is denoted on the plans with an End (E L/A) and Begin (B L/A) and the station and offset as appropriate.
- Roadways with Permitted Access Control may have an acquired limit-of-access along a specific location of a roadway; for example, within the operational area of an intersection.

The boundary of the acquired limit-of-access is denoted on the plans with a Begin (B L/A) and End (E L/A) and the station and offset as appropriate.

- Where the right of way and Limit-of-Access lines coincide, label as "Required Right of Way and Limit-of-Access."

Area Tables

If sufficient space is available, then place the required area tables on the right of way plan sheets. If space is not available on the right of way plan sheets then provide a separate sheet immediately following the plan sheet containing the area tables for the parcels on the preceding plan sheet. Provide references on the plan sheets that indicate the location of the sheet where the tables can be found and vice versa.

Provide the following for each point needed to compute the area of required right of way or easement (excluding driveway easement):

- Point number
- Offset
- Station
- Alignment taken from (State Route number or Road Name)
- Distance and bearing between each point
- A separate area computation will be provided for each tract of required right of way and easement (excluding driveway easement).

Provide the following for all curved lines between points. Exception: Bearings are not required on existing right of way lines.

- Arcs
- Radius
- Chord length
- Chord bearing

Indicate the area of required right of way and permanent easement in square feet and acres.

For parcels with access rights only (no required right of way or easements), provide parcel number, owner, linear feet of access rights (point to point distance and total distance) and parcel remainder (total area).

Keep all the separate tract area tables for an individual parcel grouped together.

Revision Notes

During the acquisition phase, if a determination is made by the Department that a parcel remainder is an uneconomic remnant, the plans shall be revised as follows:

- Required right of way remains the same.
- Label the property lines of the remnant "Limit of Property Acquisition".
- Identify the remnant area using the subject parcel number with an "R" suffix. If a parcel has more than one remnant then use the "R" suffix with a number. For example: Parcel 35 has two remnants. Therefore, indicate each remnant as 35-R1 and 35-R2.

- The area breakdown of such a parcel could be shown as follows:

	Area Required	Rem.
35	15.375 Ac. (right of way)	29 Ac. (RL)
35-R1	0.662 Ac.	
35-R2	0.300 Ac	
	16.337 Ac. (Total)	

When plan sheet is revised, revision block shall include date and brief description of the revision.

Other Requirements

The following are additional items which the plan preparer shall follow in the preparation of right of way plans:

- Make sure that linework and text on plans are dark enough to show on prints and on a reduced letter size print. Property lines and construction lines should clearly stand out.
- Full station shall be used on all right of way, easement, and property lines rather than the station plus only.
- Do not shade right of way plans.
- Do not begin or end (if possible) projects in the middle of a parcel if there is to be a future project.
- Describe tracts in a clockwise direction to facilitate deed writer's description.

Right of Way Plans Submittal

All in-house designers:

1st submission of preliminary R/W plans should include three (3) sets of full size paper prints.

2nd submission (and any subsequent submissions) of R/W Plans should include all requested corrections and consist of two (2) sets of paper prints and markups for follow-up review.

Upon acceptance/approval of the R/W Plans, the Right of Way Plans & Engineering office will email the appropriate Project Manager.

All districts designers should submit the following:

1st submission of preliminary R/W plans should include two sets of paper prints.

2nd submission (and any subsequent submissions) should include all requested corrections and consist of two (2) sets of paper prints and markups for follow-up review.

District Designers will also be contacted by email concerning the Approved R/W Plans.

Any deviations from this procedure should be approved by the Right of Way Plans and Engineering Office.

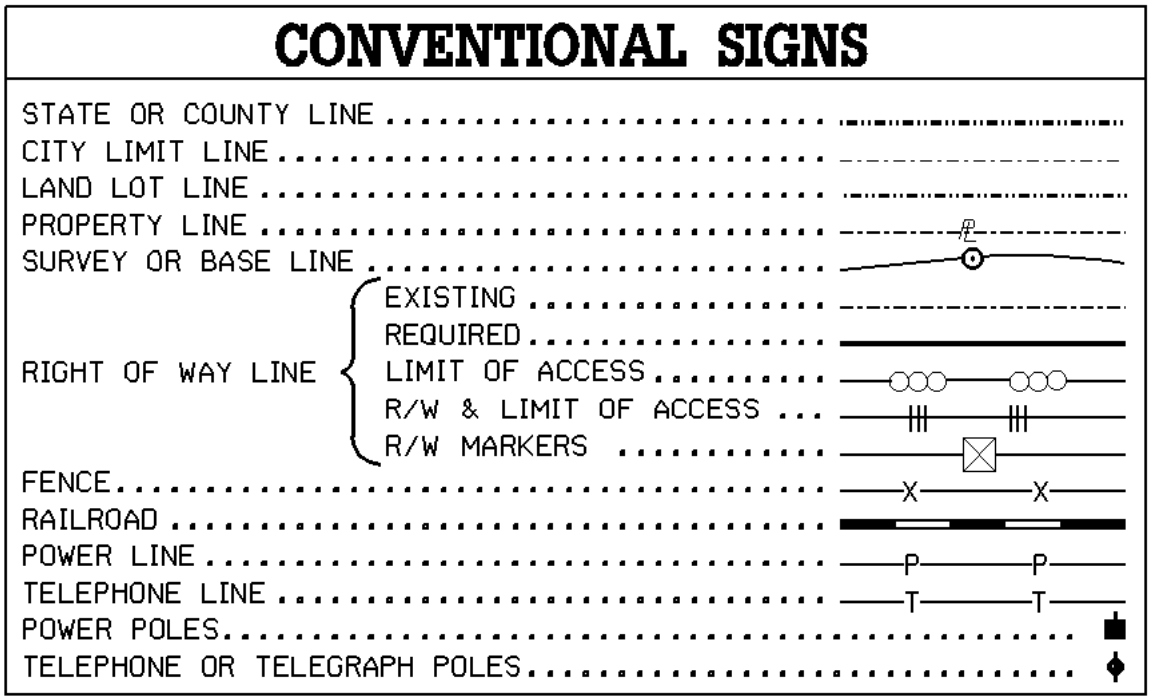
60.004 Standard Legends and Signature Line

Example A:

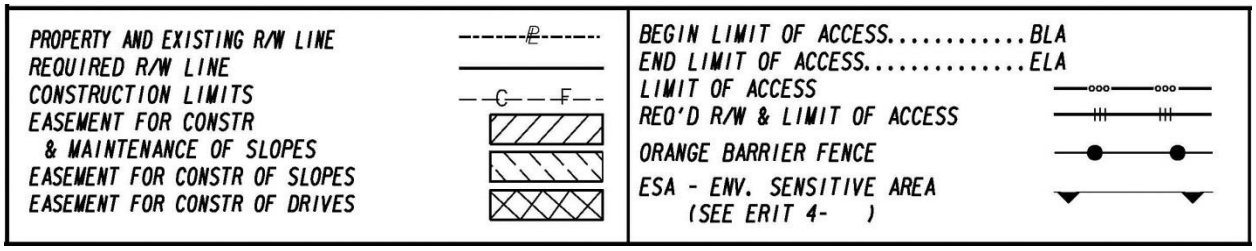
APPROVED: _____

HOWARD P. COPELAND, STATE RIGHT OF WAY ADMINISTRATOR DATE

Example B:



Example C:



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