Chapter 20 - Geotechnical Standards

CADD Production Criteria Handbook

20.1 GENERAL

Geotechnical Plans are included in the Roadway Plan Set as Soil Survey, Soil Boring, and Bridge Data Sheets. These sheets are produced by the Materials staff and given to the Roadway Designer for inclusion in the Roadway Plan Set. Soil surveys other than those for roadway plans are required for various plan components. Soil survey sheets generated for such components are generally located in the plans set with the other details and information for each component. If other disciplines need to emphasize or de-emphasize specific elements, this can be accomplished using plot drivers with adjusted level symbology or pen tables.

20.2 STANDARD FILE NAMES

Florida Department of Transportation (FDOT) utilizes standard naming conventions for all of its files. Some of the automation implemented in various tools provided by FDOT depends on naming conventions being met. More importantly, the naming convention confers information to the downstream customer of the data.

Standard file names should follow this format: ***AAAABB##.ext***
Where **AAAA** = *abbreviated file description*, **BB** = *Discipline Denotation* , ## =S*equence number.*

Note: Please see CADD Production Criteria Handbook (CPCH) Chapter 4 for more information.

Files that are associated with specific bridges will be prepended with a B# prefix corresponding to the appropriate bridge number.

Note: See CPCH Chapter 18 for bridge specific filenames & sheet numbering requirements.

The following table defines the Geotechnical File Name Standards in regards to FDOT Projects with the understanding the each file name will include sequence numbering.

File Type	File Name	Model Name	File Description	Rule File	Seed File	Critical File
Geotech	clvgeo.dgn	Default	Box Culvert Auger & SPT Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Geotech	ltgeo.dgn	Default	Lighting SPT Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Geotech	mtgeo.dgn	Default	Mitigation Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Geotech	pdgeo.dgn	Default	Pond Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Geotech	rdgeo.dgn	Default	Augers Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Geotech	rdssgeo.dgn	Default	Roadway Soil Survey Sheet	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Geotech	sggeo.dgn	Default	Signal SPT Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Geotech	sngeo.dgn	Default	Signs SPT Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Roadway	cptgeo.dgn	Default	CPT Soundings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Roadway	msewgeo.dgn	Default	MSE Wall SPT Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	

File Type	File Name	Model Name	File Description	Rule File	Seed File	Critical File
Roadway	nwgeo.dgn	Default	Noise Wall SPT Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Roadway	rtwgeo.dgn	Default	Retaining Wall SPT Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Roadway	spgeo.dgn	Default	Sheet Pile Wall SPT Borings	geotech.rul	$(MX_SEEDIR)fdotseed2d.dgn	
Structures	B#BORING.DGN	Default	Report of Core Borings	geotech.rul	$(MX_SEEDIR)StructuresSeed.dgn	
Structures	B#CPTGEO.DGN	Default	CPT Soundings	geotech.rul	$(MX_SEEDIR)StructuresSeed.dgn	
Structures	B#MSEWGEO.DGN	Default	MSE Wall SPT Borings	geotech.rul	$(MX_SEEDIR)StructuresSeed.dgn	
Structures	B#NWGEO.DGN	Default	Noise Wall SPT Borings	geotech.rul	$(MX_SEEDIR)StructuresSeed.dgn	
Structures	B#RTWGEO.DGN	Default	Retaining Wall SPT Borings	geotech.rul	$(MX_SEEDIR)StructuresSeed.dgn	
Structures	B#SPGEO.DGN	Default	Sheet Pile Wall SPT Borings	geotech.rul	$(MX_SEEDIR)StructuresSeed.dgn	

20.3 RESOURCE FILES

FDOT Engineering/CADD Systems Office (ECSO) will provide on CD-ROM, software resources for Computer Aided Design and Drafting (CADD) Plans using MicroStation and GEOPAK for the production of an electronic project data delivery.
If a custom line style or font is needed, it must either be embedded in the active design file or the corresponding resource file must be copied to the \SYMB sub-directory of the FDOT project directory structure and included as part of the electronic delivery of the project. The justification for the non-standard line style or font must be noted in the journal file.

20.4 ENGINEERING DATA

Engineering Data to be delivered with each project should be located in the …\eng_data directory and include:

- ASCII files containing Q/C reports
- PostScript files of each sheet in the plan set
- Soil boring data

The PostScript files are to be plotted from the MicroStation design files containing the sheets. If the project is electronically Signed & Sealed, the PostScript files located in the …\Eng_data directory are the files to be Signed & Sealed.

The following table is for the Geotechnical Utility in GEOPAK which indicates the criteria to draw the seasonal high water and design high water. The Geotechnical Utility has an import function supporting Borelog 32, Ancillary Imports (old v7 format Input Files, and imports from Comma Separated Values (*.csv) files. Imports for .csv files are for Borehole, Material and SPT (Standard Penetration Test) data.

After January 2006, Geotechnical information shall be delivered in CSV Format as shown in the examples below. FDOT has adopted the following standard file naming convention for CSV file imports for the Geotechnical Utility in Geopak:

Borehole – Boreholetpk.brh - Borehole location data and seasonal high water and design high water data.
Material – Material.mtl - Strata Data and Core data.

SPT boring information may be drawn using the FDOT2008 Report a Core Boring Tool.

Example: Boreholetpk.brh
borehole_name,chain_name,station,offset,water_elev_type,water_elev_0,water_elev_0_date,
water_elev_24,water_elev_24_date
Borehole-01,CLCON,78+00.00,15,DOC,3,8/9/2007,5,8/10/2007
Borehole-02,CLCON,80+00.00,3,DOC,2,8/20/2007,4,8/21/2007
Borehole-03,CLCON,83+00.00,3,DOC,3,8/23/2007,5,8/24/2007
Borehole-04,CLCON,85+00.00,4,DOC,2,8/24/2007,4,8/25/2007

Example: Material.mtl
borehole_name,material_name,doc_or_se,type_of_elev
Borehole-01,1,10,DOC
Borehole-02,1,5,DOC
Borehole-02,2,7,DOC
Borehole-02,3,9,DOC
Borehole-03,1,3,DOC
Borehole-03,2,6,DOC
Borehole-04,1,2,DOC
Borehole-04,2,5,DOC
Borehole-04,3,7,DOC
Borehole-04,4,10,DOC

20.5 PROFESSIONALS' ELECTRONIC DATA DELIVERY SYSTEM (PEDDS)

PEDDS shall be used to Secure and Authenticate project data. When projects are received, the FDOT authenticates the data on the delivered CD. Each time data is transmitted to or received by FDOT the data shall be secured and authenticated. PEDDS shall also be used to authenticate any project specific data received as part of a delivery from an outside source or discipline. For example, an electronic delivery to Roadway from Survey or EMO should be secured and authenticated. Roadway shall electronically secure all files for delivery.

20.6 SYMBOLOGY STANDARDS

Symbology Standards that apply to FDOT Projects are set up under a listing of Standard Level Names with specific ByLevel Color, Style and Weight attributes. These levels are grouped under specific Rule Files which are associated to each valid Standard Filename of each Discipline for the purpose of performing the Quality Control check for FDOT Standard compliancy of each FDOT project design file. Section 20.2 of this chapter provides for the complete Standard File Name listing with associated Rule File.

NOTE: Refer to Chapter 3 FDOT Resource and Support Files to review the Level names listing for each associated Rule File.

The following are the basic level naming convention rules to follow to always know what level an element should be placed on:

1) Level Names have 18 maximum characters.
2) The format of the name is: ***object_sv***

object (represents element type)_ ***s*** (represents state) ***v*** (represents view)

states	views
p (proposed)	**x** (cross section)
d (drafting element)	**r** (profile)
e (existing)	**p** (plan) (DTM is the same as plan)

NOTE: Level Names without including the **"_sv"** portion in the name are assumed proposed plan view elements.

Example: With this information one can determine the following about the Level names below:

Gas..... - Proposed Plan view elements for “gas” related items
gas_ep ..... - Existing Plan view elements
gas_px..... - Proposed cross section view elements

20.7 SOIL SURVEY

The plans will include the information about the soil classification on the soil survey sheet and by showing the boring data soil boxes on the cross section sheets.

20.8 SOIL BORING DATA

The soil boring data shall be provided to the Roadway designer in a format to facilitate the drawing of the data on the cross section sheets.

Note: For help and instructions on specific functions and use of Geopak’s Geotechnical Tool, please see the Geopak help file.

20.9 FILE SHARING AND MERGING

Every project utilizes the standard directory structure regardless of the project requirements. Data for each discipline is maintained in its sub-directory and stored on the TIMS server (In-House). If a discipline requires information from another discipline, the needed file(s) shall not be copied, but the data referenced from the original directory.