



Plan Production Drainage Sections and Profiles in Civil 3D

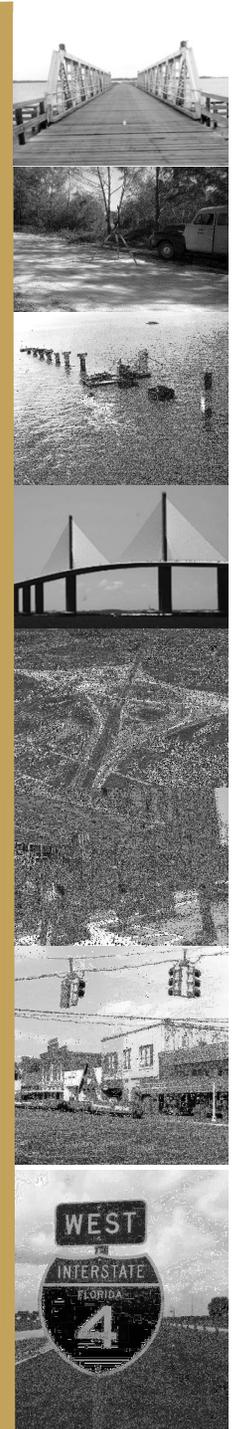
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This session will cover what is necessary creating FDOT Civil 3D sections and plan profile sheet with a drainage network and corridor. The workflow is different for each. We will demonstrate what objects are required in your drawing data before you can use the plan production tools. Examples will include, Data references, View Frames, Sample lines, Profiles, Section views and Pipe Networks.

Software prerequisites:

- The most current/latest version of the FDOT Civil 3D State kit should be installed. This will ensure you are using the latest standards developed specific for FDOT roadway modeling.

User prerequisites:

- Should have a good understanding of AutoCAD and a basic understanding of Autodesk Civil 3D.



FDOT Subassemblies Essentials

Session Objectives:

Cross Sections

➤ **Requirements to Create Cross Sections and Plan Profile .dwgs.**

Review what objects are required on your drawing before you can use the plan production tools. ...Data references, Alignments, Sample Lines...

➤ **Sample Lines**

Examine ways to create and manipulate different Section Lines for a Sample Line Group.

➤ **Cross Section View/Views**

Demonstrate how to create a single Section View and Multiple Section Views.

➤ **Add a Drainage Pipe Network to Cross Sections.**

Add Proposed Drainage Network from Data Shortcuts to Section file.

➤ **Labeling Cross Section Views**

Show Multiple Ways to Label Cross Section elements.

➤ **Create Section Sheets**

Go through the process of creating Section Sheets



FDOT Subassemblies Essentials

Session Objectives:

Plan Profile Sheets

➤ **Requirements to Create Plan/Profile .dwgs.**

Review what objects are required on your drawing before you can use the plan production tools. ...Data references, Alignments, Sample Lines...

➤ **Create View Frames in Source Drawing (Clip Borders)**

Create source drawing to house View Frames for Plan or Plan/Profile dwg's.

➤ **Create Plan/Profile drawings**

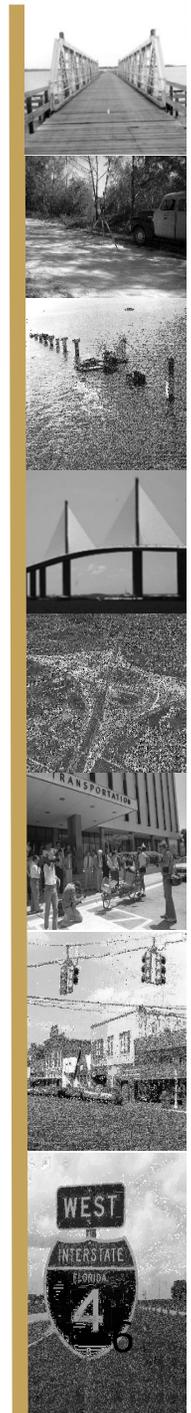
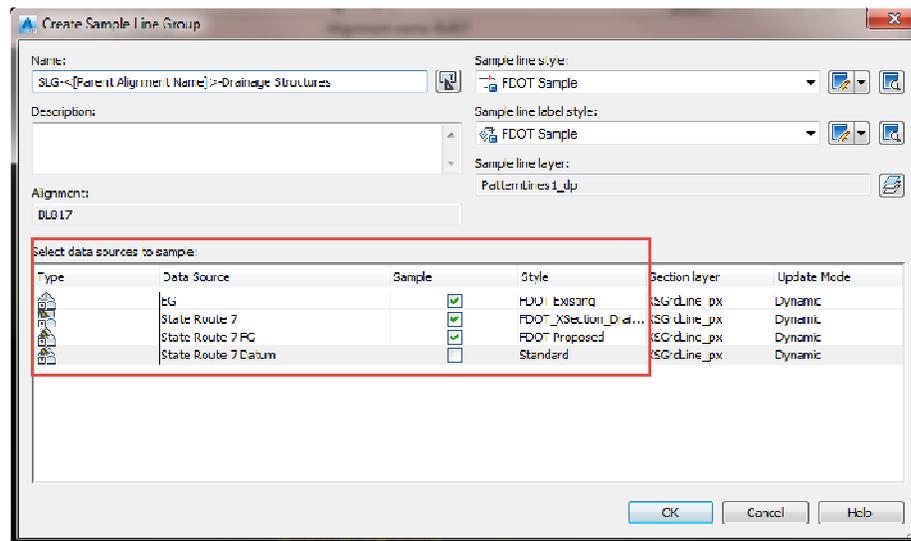
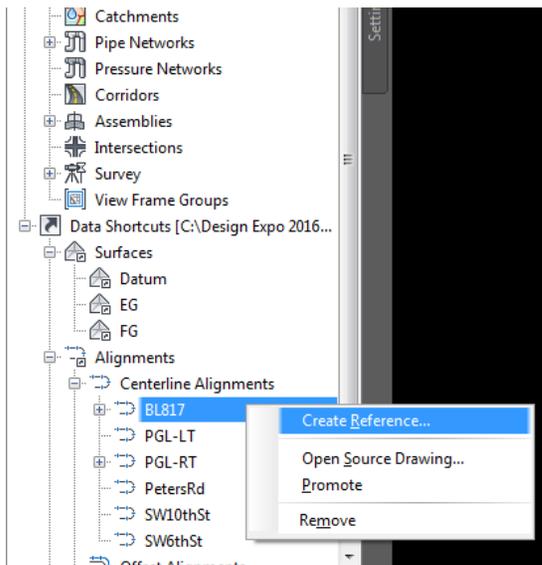
Import all necessary Xref's Dref's that are desired in Plan Profile Sheets



FDOT Subassemblies Essentials

Requirements to Create Cross Sections dwgs.

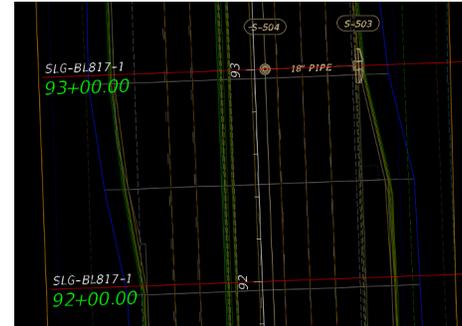
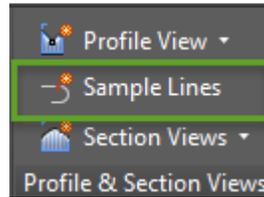
- Attach Data References (D-ref's) required for Cross Sections Ex Alignments, EG surfaces, FG surfaces, Pipe Networks.
- The Sample Lines command will not work if there is no Alignment in the file.
- Some surfaces will not need to be D-ref'd in due to Sample Line groups ability to Sample Data sources from an Xref.



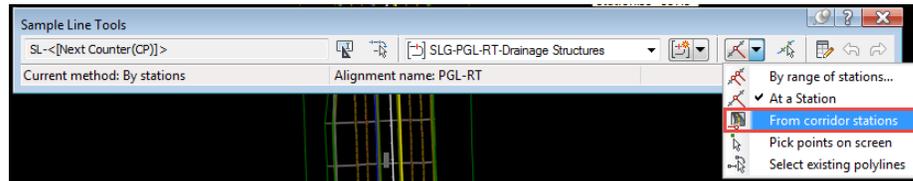
FDOT Subassemblies Essentials

Sample Lines

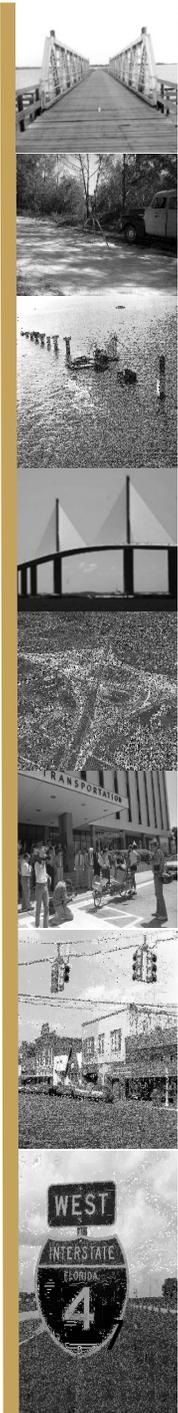
Create sample lines and cut sections at user specified stations along an alignment



- You can create Sample automatically using the same frequency specified in the corridor properties. This feature is only available is you use the same Parent Alignment that was used to define the corridor.

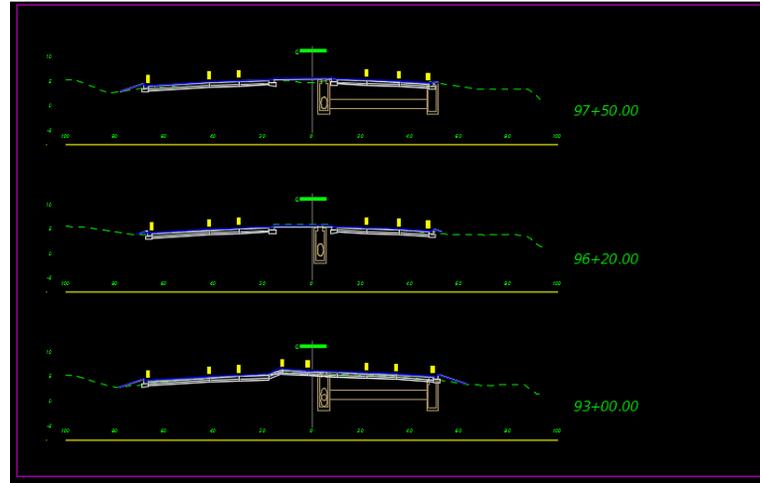
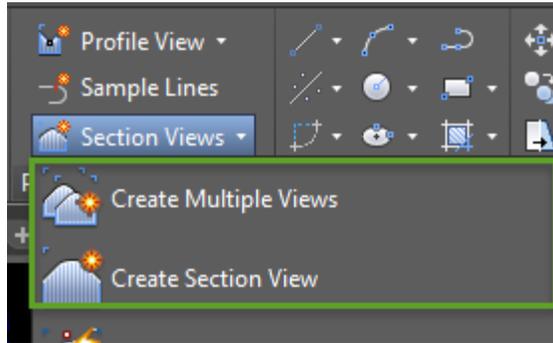


- Section are cut along each of the sample lines for a specified set of surfaces.
- Corridor sections are created when you sample a corridor
- In Toolspace, in the Prospector tree, the sample lines are children of an alignment and appear in the hierarchy in the Sample Line Groups collection.
- Note: When you create sample lines for the first time for an alignment, you are prompted to create a sample line group in which to place the sample lines. This group also contains the list of surfaces, corridors, corridor surfaces, and pipe networks (if any), based on the alignment so that you can select the data source(s) to be sampled.

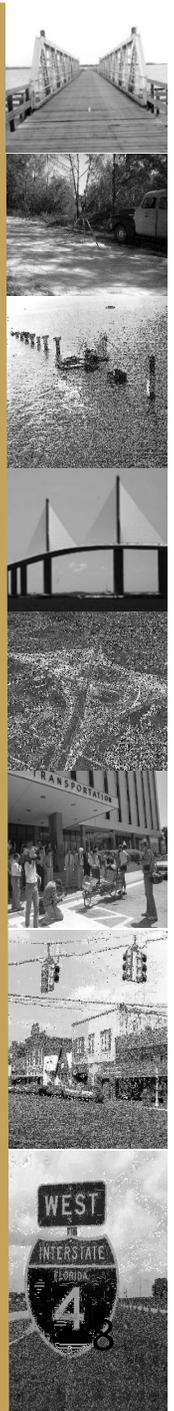


FDOT Subassemblies Essentials

Cross Section View/Views



- Create Section views or view to display an existing ground section, using sample lines cut across a horizontal alignment.
- Sample lines must be created prior to creating a section view.
- A section view consists of a grid on which one or more sections are displayed as graphed lines. Multiple section views can be plotted on a sheet that is a specified size and configuration.
- To plot Sections use the “Create Section Sheets” command on the Output ribbon.



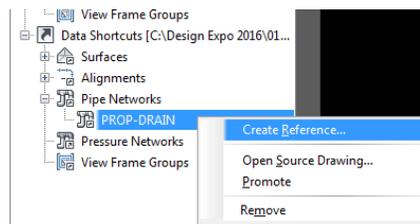
FDOT Subassemblies Essentials

Add a Drainage Pipe Network to Cross Sections

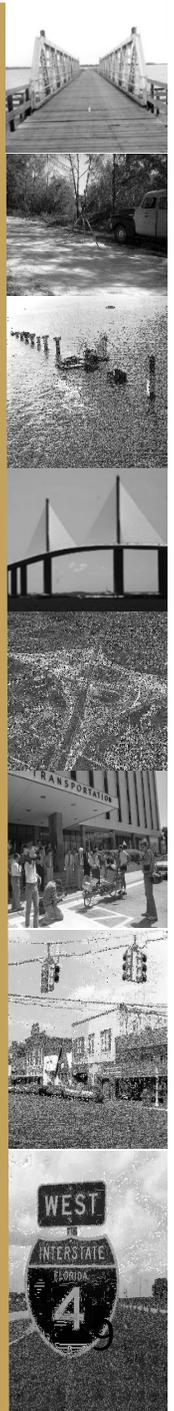
- Open DRPRRD## drawing that contains the Drainage Pipe Network
- Right-click on “Data Shortcuts” and select “Create Data Shortcuts...” to share the Pipe Network source to a consumer drawing.



- Open drawing that contains Cross Sections and create a reference to the Pipe Network. Fill out the Create Pipe Network Reference dialog box. Make sure to Select the Network part list that matches the referenced Pipe Network from the drop down menu.



- Select a Sample a line in model space, on the contextual ribbon select “Sample More Sources” option.
- In the “Section Sources” dialog box, select the Pipe Network name under Available sources and click “Add>>” to add is to Sampled Sources List.



FDOT Subassemblies Essentials

Displaying Pipe Networks in Section Views

- To display pipe networks parts in a section view, the following data must exist:
 - Drawing file using the FDOT Standards and template file.
 - Pipe network drawn or data referenced in plan view.
 - An Alignment to “tell” the sample lines what path to use when sampled.
 - Sample line or Sample Line Group used to cut Sections for a specified set of surfaces or Corridor. Only pipe network parts or Civil 3D objects that actually cross the sample line are displayed in the section view.



FDOT Subassemblies Essentials

Labeling Cross Section Views

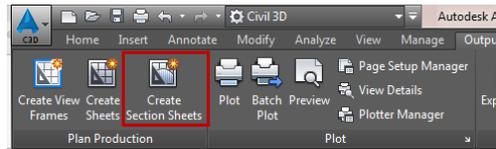
- Multiple way to label cross section views.
- Select Corridor Section and select Edit Code Labels from Ribbon, opens code set style that is applied to this section. Point, links and shapes, what you want to label? Example, change label style for Daylight.
- Select Network pipe in cross section, select ADD Network Part Label CMD from Ribbon. Choose Label Style.
- Label Actual Section. Select Grade Line Section, Choose Edit Section Labels from Ribbon.
- To add Offset elevation and grade labels, Select Section VIEW. ADD VEIWI Labels, choose Offset Elevation. Add Negative and Positive. Choose Grade label and pick two points on a slope.



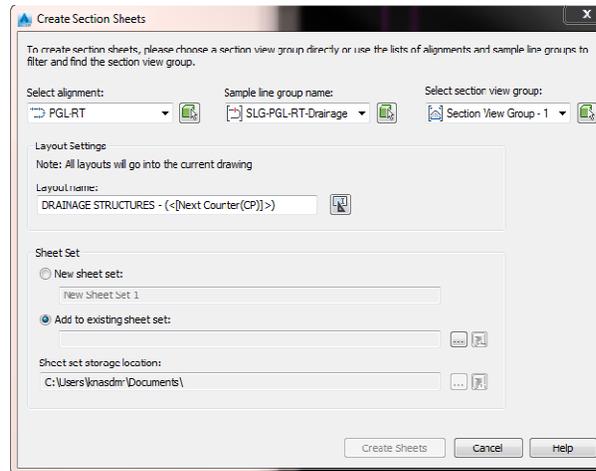
FDOT Subassemblies Essentials

Create Section Sheets

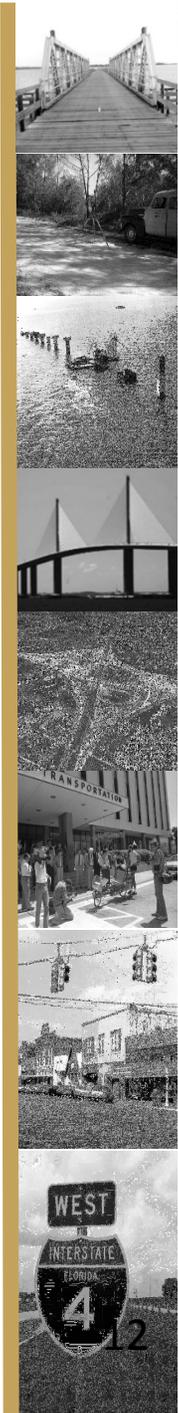
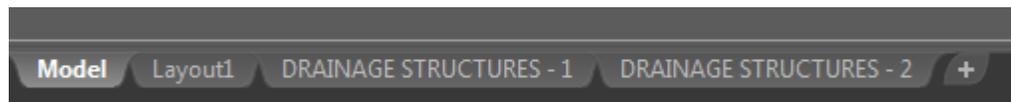
1. Set annotation scale.
2. On the Output ribbon, select Create Section Sheets on the Plan Production panel.



1. Fill out the Create Section Sheet dialog box. Add your new sheets to existing sheet set file for you FDOT Project info to propagate through to you Title blocks.



1. The Sheet are created in the current drawing that your Multiple cross sections views reside in.



FDOT Subassemblies Essentials Requirements to Create Plan Profile .dwg's.

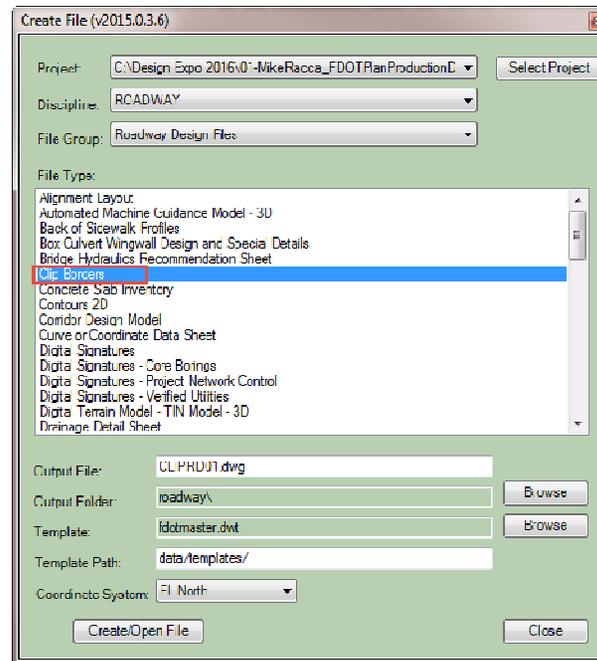
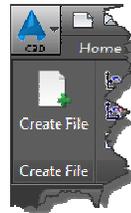
- FDOT Standard dwg name for Plan Profile Drawing.
- Plan/Profile specific View Frames
- Alignment
- Profile or Profiles associated to the Parent alignment
- If required, Pipe Network Drawn or Data Referenced into file.
- Surfaces EG, FG, Datum....
- Xref's files desired to display in plan view.



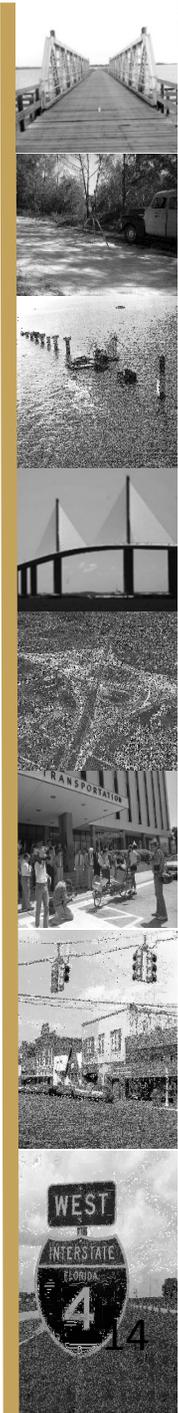
FDOT Subassemblies Essentials

Create View Frames in Source Drawing (Clip Borders)

- Use “Create File” tool to create FDOT compliant files for View Frames/ Clip Borders and assign Coordinate System. Associate drawing to project and Save.



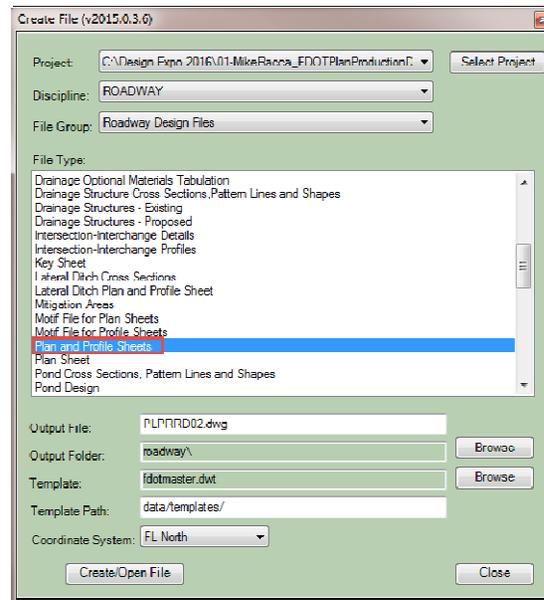
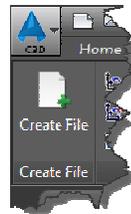
- Data reference Alignment to reference station and range for creating Plan Profile Sheets.
- Use the Create View Frames command to layout out your frames for Pplan and Profile sheets



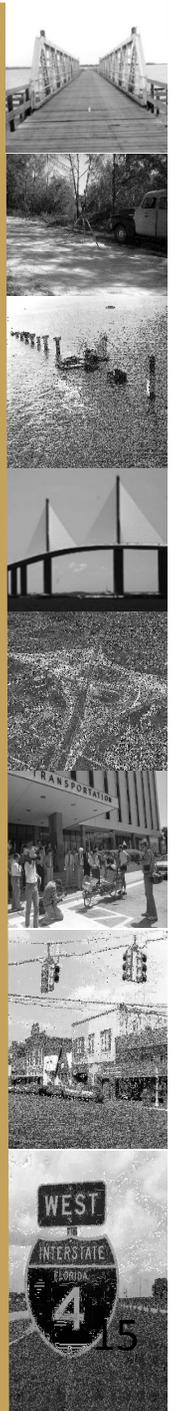
FDOT Subassemblies Essentials

Create Plan Profile Drawings

- Use “Create File” tool to create FDOT compliant files for Plan Profile and assign Coordinate System. Associate the drawing to the Current/Desired project. Save your file.



- XRef desired drawings that are to be displayed in Plan view such as Proposed, Topo RW, Survey... . Set Current layer to Xreference##_dp and Xref in required drawings. Make sure everything in the “Attach External Reference” dialog box is unchecked.
- Data reference Alignment used for View Frames.



FDOT Subassemblies Essentials

Displaying Pipe Networks in Section Views

- To display pipe networks parts in a section view, the following data must exist:
- Pipe network drawn or data referenced in plan view.
- An Alignment to “tell” the sample lines what path to use when sampled.
- Sample line and section view containing pipe or structure crossings.
- Pipes and structures that cross the sample line are displayed in the section view as a crossing version of the part. This is unlike profile views where pipe network parts can be displayed both as projected and crossing versions.
- Pipe objects that are displayed in a section view are displayed according to the style specified on the Sections tab. Structures are displayed in a section view as a representation of the body of the part, even if only a portion of the shape crosses the sample line.
- When you use the Create Sample Line Group dialog box to create a sample line, you can select any and all pipe networks in the drawing. However, only pipe network parts that actually cross the sample line are displayed in the section view.
- If you wish to display pipe network parts in a section view, a Pipe Network Section object gets created when you create a sample line with pipe network parts that cross it. The Pipe Network Sections collection is displayed under the Sample Line Groups collection in the Prospector tree.
- Note: Network parts displaying in a section view are exaggerated vertically to match the vertical scale factor of the view in which they are being represented.



Notes:

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____



Thank You!
Questions?
Any comments to improve your experience?

Email me:

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The Civil 3D FDOT State kit is available for download at:

<http://www.dot.state.fl.us/ecso/downloads/software/FDOT2016CADDSoftware.shtm>



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