

State of Florida
Department of Transportation



FDOT Plan Development Workflows

Course Guide

December 1, 2017

PRODUCTION SUPPORT OFFICE | CADD

TALLAHASSEE, FLORIDA

<http://www.fdot.gov/cadd/>

FDOT Plan Development Workflows

Description

This is a 3-day training course that will cover all aspects of creating a Florida Department of Transportation (FDOT) set of plans. Participants will be introduced to Bentley GEOPAK V8i SELECT Series4 (SS4) OpenRoads Technology tools, the FDOT Plan Development Task Menu, and FDOT SS4 Menu Bar; specifically for FDOT projects using the FDOTSS4 Workspace. Several new technologies will be introduced including:

- Annotation Scale
- Cross Section View Models
- Cross Section Annotation
- Earthwork Quantities and Reporting
- FDOT Task Menus
- FDOT SS4 Menu Bar
- Sheet Navigator
- Linked Data Manager

Objectives

- Create a Roadway Key Sheet for the Project.
- Develop a Typical Section Data Package and Roadway Typical Section Sheets.
- Create General Notes and Project Layout Sheets.
- Use GEOPAK to Create Existing and Proposed Profile for the Project.
- Layout Roadway Plan/Profile Sheets.
- Use Civil Tools to Layout Roadway Cross Sections.
- Use Civil Tools to Label Roadway Cross Sections.
- Use GEOPAK to Place Ancillary Features and Borehole Information on Roadway Cross Sections.
- Use Civil Tools to Calculate Earthwork and Run Reports.
- Develop a Stormwater Pollution Prevention Plan
- Develop a Temporary Traffic Control Plan.
- Layout Utility Adjustment Sheets.

Audience

- FDOT Roadway Designers and Engineers

Prerequisites

Participants have a basic understanding of Computer Aided Drafting and Design (CADD) using MicroStation, a basic understanding of GEOPAK concepts and a solid understanding of the engineering necessary to design a Roadway.

Duration: 24 Hours

Professional Credit Hours: 24 PDHs

Copyright © 2016 by Florida Department of Transportation

All rights reserved

For information about this and other CADD training courses, publications, videos, and Frequently Asked Questions, visit the Production Support | CADD Office of the Florida Department of Transportation on the world-wide web at

<http://www.fdot.gov/cadd/>

[THIS PAGE INTENTIONALLY LEFT BLANK.]

Copyright © 2016 by Florida Department of Transportation

All rights reserved

For information about this and other CADD training courses, publications, videos, and Frequently Asked Questions, visit the
Production Support | CADD Office of the Florida Department of Transportation on the world-wide web at

<http://www.fdot.gov/cadd/>

Table of Contents

1	INTRODUCTION	1-1
	COURSE OBJECTIVES	1-1
	PLANS DEVELOPMENT MATERIALS	1-1
	<i>FDOT DESIGN MANUAL</i>	1-1
	<i>FDOT Reference Links</i>	1-1
	FDOT TASK MENU AND MENU	1-2
	<i>FDOT Plans Development Task Menu</i>	1-2
	<i>FDOT Menu</i>	1-2
	FDOT WORKSPACE/CADD STANDARDS	1-2
	<i>CADD Standards Outline</i>	1-2
	<i>MicroStation Standards</i>	1-3
	<i>GEOPAK Standards</i>	1-4
	DOCUMENT STYLE	1-5
2	KEY SHEET	2-1
	OBJECTIVES	2-1
	KEY SHEET	2-1
	EXERCISE OVERVIEW	2-1
	Exercise 2.1 Creating the Key Sheet	2-2
	Exercise 2.2 Creating and Placing the Key Sheet Index	2-8
	Exercise 2.3 Placing and Editing the Components of Plan Set List	2-14
	Exercise 2.4 Placing the Range and Township Map Label	2-15
	Exercise 2.5 Placing the Project Location Labels	2-19
	Exercise 2.6 Placing the Contract Revision Note (Optional)	2-25
	Exercise 2.7 Printing the Key Sheet	2-27
3	SIGNATURE SHEETS	3-1
	OBJECTIVES	3-1
	EXERCISE OVERVIEW	3-1
	Exercise 3.1 Creating the Signature Sheet	3-1
	Exercise 3.2 Creating Custom Signature Cells	3-6
	Exercise 3.3 Placing the Signature Information	3-10
4	TYPICAL SECTION SHEETS	4-1
	OBJECTIVES	4-1
	EXERCISE OVERVIEW	4-1
	Exercise 4.1 Creating the Typical Section Data Package	4-1
	Exercise 4.2 Creating the Roadway Typical Section Sheet	4-11
5	PLAN-PROFILE SHEETS	5-1
	OBJECTIVES	5-1
	EXERCISE OVERVIEW	5-1
	Exercise 5.1 Export the Profile Information to the GPK	5-2
	Exercise 5.2 Creating the Profile DGN File and Laying out the Profile	5-5
	Exercise 5.3 Creating the Clip DGN File and Laying out the Clip Borders	5-14
	Exercise 5.4 Generating the Plan Profile Sheets	5-23
	Exercise 5.5 Clipping Plan Sheets Using Live Nesting	5-27

Table of Contents

6	GENERAL NOTES & PROJECT LAYOUT	6-1
	OBJECTIVES	6-1
	EXERCISE OVERVIEW	6-1
	GENERAL NOTES SHEET	6-1
	Exercise 6.1 Creating the General Notes Sheet	6-1
	PROJECT LAYOUT SHEETS	6-9
	Exercise 6.2 Creating the Project Layout Sheet	6-9
7	CROSS SECTIONS & SHEETS	7-1
	OBJECTIVES	7-1
	EXERCISE OVERVIEW	7-1
	Exercise 7.1 Create Existing Cross Sections	7-2
	Exercise 7.2 Place Ancillary Features	7-7
	Exercise 7.3 Borehole Navigator	7-16
	Exercise 7.4 Create Proposed Cross Sections	7-22
	Exercise 7.5 Annotate Cross Sections	7-26
	Exercise 7.6 Merge Existing and Proposed Cross Sections	7-35
	Exercise 7.7 Calculate Earthwork and Create a Final Cross Section Model	7-37
	Exercise 7.8 Create Cross Section Sheets	7-45
8	STORMWATER POLLUTION PREVENTION PLAN.....	8-1
	OBJECTIVES	8-1
	EXERCISE OVERVIEW	8-1
	Exercise 8.1 Creating the SWPPP Notes Sheets	8-2
	Exercise 8.2 Placing a Raster Map	8-10
	Exercise 8.3 Creating the SWPP Plan	8-13
9	TRAFFIC CONTROL PLAN.....	8-1
	OBJECTIVES	9-1
	EXERCISE OVERVIEW	9-1
	Exercise 9.1 Loading the Traffic Control Menu and Features	9-2
	Exercise 9.2 Creating the Traffic Control General Notes	9-3
	Exercise 9.3 Creating the Traffic Control Typical Section	9-11
	Exercise 9.4 Importing the Traffic Control Alignment	9-16
	Exercise 9.5 Creating the Temporary Roadway	9-24
	Exercise 9.6 Delineating the Temporary Pavement and Work Zones	9-30
	Exercise 9.7 Place Temporary Signage	9-39
	Exercise 9.8 Label the Traffic Control Plans	9-44
	Exercise 9.9 Layout Maintenance of Traffic Sheets	9-47
10	UTILITY ADJUSTMENT SHEETS	10-1
	OBJECTIVES	10-1
	EXERCISE OVERVIEW	10-1
	Exercise 10.1 Loading the Utility Features	10-2
	Exercise 10.2 Laying Out Existing/Proposed Utilities Using Civil Features	10-4
	Exercise 10.3 Laying Out Existing Utilities Using SUE Features	10-10
	Exercise 10.4 Laying Out Proposed Utilities Using SUE Features	10-14
	Exercise 10.5 Creating Clip Boundaries for Utility Sheets	10-23
	Exercise 10.6 Labeling Utility Adjustment Plans	10-32
	Exercise 10.7 Generating Utility Adjustment Sheets	10-37

Table of Contents

11	NUMBERING AND PRINTING THE PLAN SET.....	11-1
	OBJECTIVES	11-1
	EXERCISE OVERVIEW	11-1
	Exercise 11.1 Creating the Project Index.....	11-2
	Exercise 11.2 Number and Label Sheets Using Sheet Navigator	11-4
	Exercise 11.3 Recreate the Key Sheet Index.....	11-10
	Exercise 11.4 Create a PSET of the Project.....	11-12
	Exercise 11.5 Print the Complete Project.....	11-13

Table of Contents

1 INTRODUCTION

COURSE OBJECTIVES

- Learn about the various Plans Development Materials and where they are located
- Use and discover the FDOT Plans Development Task Menu and FDOT Menu Bar
- Use and discover the FDOT Workspace/CADD Standards
- Learn how to prepare a set of FDOT Plans

PLANS DEVELOPMENT MATERIALS

FDOT DESIGN MANUAL

The *FDOT Design Manual (FDM)* sets forth geometric and other design criteria, as well as, procedures for Florida Department of Transportation (FDOT) projects. The information contained in the FDM applies to the preparation of contract plans for roadways and structures. Contract Plan Sets, and the specifications that they contain, are the key documents for detailed project construction and are the record on which the contractor bids.

The *FDM* is a three-part manual.

- *Part 1* provides guidelines for the development and processes of those contract plan sets.
- *Part 2* provides the design and engineering criteria and provides the basis for uniform plans preparation for typical roadway design. Precise standards for specific situations must be based upon good sound engineering practices and judgments.
- *Part 3* provides the reference material necessary for the assembly and plans preparation of those contract plan sets. Those materials will include the specific requirements for a plan sheet or component in the order they appear in a standard plan set.

The design and preparation of these plans is purely a matter of the application of sound engineering practices including engineering criteria, standards and presentation techniques. The use of these plan set guidelines from the FDM does not exempt the engineer from their professional responsibility for the necessary accuracy and completeness of the plan set.

FDOT REFERENCE LINKS

The latest versions of the FDOT reference materials are available from various websites:

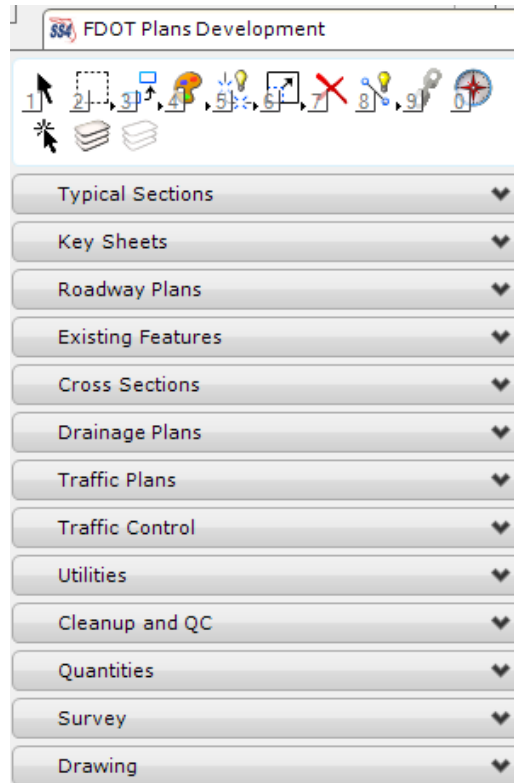
- The latest version of the *FDM* is located at:
<http://www.fdot.gov/roadway/FDM/>
- The latest version of the *FDOT CADD Manual* is located at:
<http://www.fdot.gov/cadd/downloads/publications/CADDManual/default.shtm>

FDOT TASK MENU AND MENU

During the course, several tools from the FDOT Task Menu and will be utilized to complete the exercises.

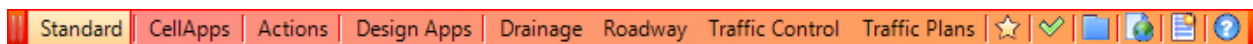
FDOT PLANS DEVELOPMENT TASK MENU

The FDOT Plans Development Task Menu is a set of tools that are grouped together to assist in producing FDOT Plans. Under the FDOT Plans Development Task Menu the following menus can be found:



FDOT MENU

The FDOT Menu is a customizable floating menu bar that includes a command dialog and internal browser.



It is used to activate commands inside the Computer Aided Drafting and Design (CADD) software and provide an efficient, simple, portable, pull-down menu interface to access FDOT tools and links. The FDOT Menu is used to launch specific key-in commands, load cells, run macros, run MDL and VBA applications, and provide useful links to any FDOT CADD resource.

FDOT WORKSPACE/CADD STANDARDS

CADD STANDARDS OUTLINE

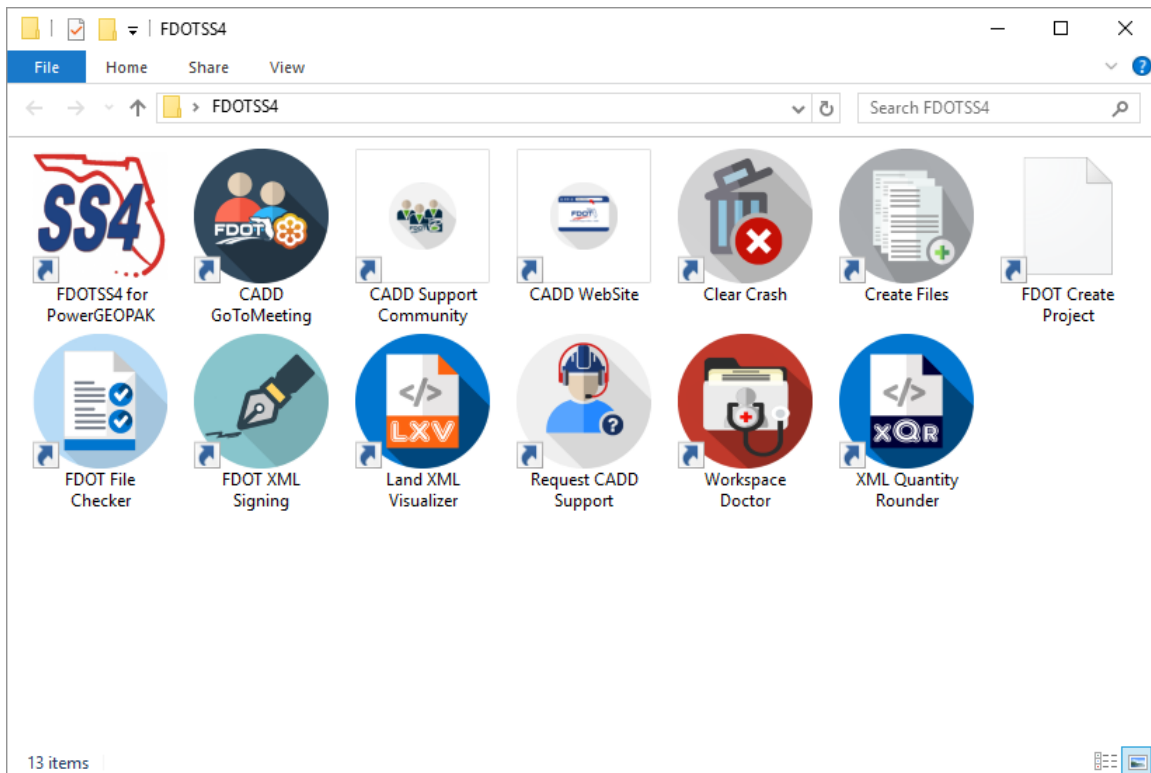
The CADD office maintains the FDOT CADD Standards used to produce plans for the FDOT. These CADD Standards aid in the production of a design project. The CADD Standards keep file naming, symbology and directory structure consistent from project to project. Consistency is essential for successful automation of processes and the final FDOT Delivery of projects. The CADD tools and programs provided by the CADD office save time as work progresses on projects, while maintaining standards.

MICROSTATION STANDARDS

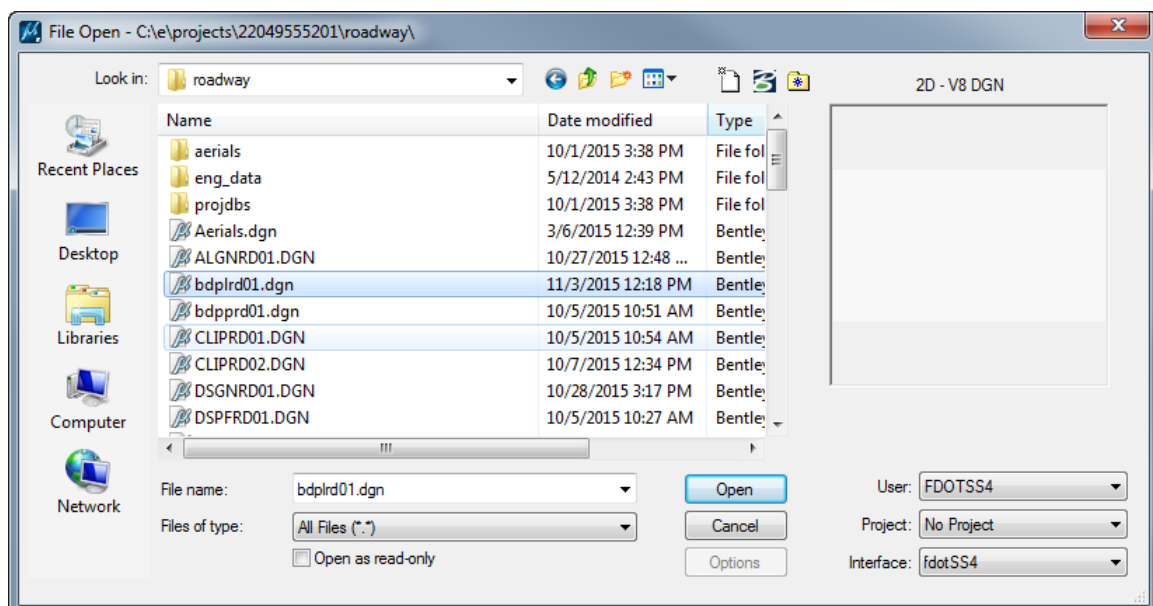
The FDOT tools are available in the FDOT Workspace. Users can acquire the workspace from the Production Support Office | CADD downloads webpage located at:

<http://www.fdot.gov/cadd/downloads/software/software.shtm>

After installing the FDOT Workspace, a FDOT folder will display on and accessed from the user desktop. Upon execution of the FDOT Folder the following window displays:



Double-click on the FDOTSS4 icon and the File Open Manager displays for MicroStation.



In the File Open Manager, three list boxes are available: *User*, *Project*, and *Interface*.

- The *User* list contains configuration files. When selecting the FDOTSS4 icon, the User is automatically set to FDOTSS4 workspace and the correct resource and configuration files will load.
- The *Project* list contains the project configuration file (PCF), which changes the current directory to the selected project directory. The information in this file supplies the title block information for Sheet Navigator.
- The *Interface* list contains FDOT provided preferences in the form of a resource file that contains the toolboxes associated with the FDOT Workspace. Modify these Workspace preferences by clicking Workspace and then Preferences within the design software.

The MicroStation custom standard support files delivered with the FDOT CADD software and their location in the FDOT CADD software directory structure are as followed:

- Cell Libraries: \FDOTSS4\RESOURCES\Cell
- Font Resource Files: \FDOTSS4\RESOURCES\Fonts
- Line Style Resource Files: \FDOTSS4\RESOURCES\LineStyle
- Color Table: \FDOTSS4\RESOURCES\Data
- Seed Files: \FDOTSS4\RESOURCES\seed
- Plot Drivers: \FDOTSS4\RESOURCES\plot

GEOPAK STANDARDS

In addition to the FDOT MicroStation custom standard support files, there are several FDOT GEOPAK custom standard support files created to enable working compliancy with FDOT standards. The CADD Office maintains these files and distributes them to the districts in the same manner as the MicroStation standards. The following are the standard folder locations for the different files:

- Corridor Templates: \FDOTSS4\GEOPAK\corridor\FDOTSS4.itl
- Drainage Criteria Files: \FDOTSS4\GEOPAK\criteria\Drainage
- 3pc Files: \FDOTSS4\GEOPAK\3pc
- Plan and Profile Sheet Clipping Library: \FDOTSS4\GEOPAK\dat_files
- Design & Computation (D&C) Manager Database: \FDOTSS4\GEOPAK\databases
- Super elevation Tables: \FDOTSS4\GEOPAK\e_tables
- K-Value Tables: \FDOTSS4\GEOPAK\bin
- Plan Labeler Style Files: \FDOTSS4\GEOPAK\bin
- Survey Manager Data Base: \FDOTSS4\GEOPAK\databases

GEOPAK creates and uses a number of important files during this training course. The following are common files used:

- **job###.gpk** (Example: job527.gpk) This binary file is created when a coordinate geometry (COGO) session starts for the first time or through Project Manager. This file stores all coordinate geometry elements with users appending data throughout the design process. Multiple users can access this file at the same time, but only one file should exist for each project. The “###” represents the job number (up to three alphanumeric characters) unique to a project and is defined upon creation.
- **fname###.ioc** (Example: main527.ijd) This is an ASCII input file for loading data during a COGO session. The ### represents the job number and oc is the operator code (usually the users initials). Filenames are limited to 15 characters (no spaces) plus the job number designation as indicated with the example. This file is a backup of stored alignments.

- ***fname###.ooc*** (Example: main527.ojd) This is an ASCII output file created by GEOPAK during a COGO session. Variables are the same as defined above. Filename characters are limited to 15 characters (no spaces) plus the job number designation as indicated with the example. QC reviewers print this file through COGO to compare the geometry from COGO with the plans.
- ***fname.inp*** (Example: earthxs.inp) Any ASCII input file for running GEOPAK processes. Name is user defined with an .INP extension.
- ***fname.dat*** A binary (preferred) or ASCII file, containing string and point information. The user utilizes this file to create the TIN file.
- ***fname.tin*** A binary file, containing triangular surfaces, also known as the digital terrain model (DTM). The user utilizes this file to cut existing cross sections and profiles.
- ***Project-name.prj*** A binary file created by GEOPAK Project Manager with a new project.
 - ✓ FDOT Directory Structure
 - ✓ File Naming Conventions

DOCUMENT STYLE

Style conventions used throughout the course guide are shown in the following table.

Item	Convention	Example
Menu names and commands	Bold, names separated with > symbol	<ul style="list-style-type: none"> • File > Open • File > Compress > Design
dialog box actions	Bold	<ul style="list-style-type: none"> • Click the Apply button. • Click the Graphic Select button to the right of the <i>Horizontal Alignment Include</i> box. • In the <i>Segment Type</i> list, click Lines.
dialog box field names	Italic	<ul style="list-style-type: none"> • Key in Hemfield Road in the <i>Alignment Name</i> field. • Click the Graphic Select button to the right of the <i>Horizontal Alignment Include</i> field. • In the <i>Segment Type</i> list, click Lines.
Key-ins	Bold	<ul style="list-style-type: none"> • Key in Hemfield Road in the <i>Alignment Name</i> field.
File names	Italic	<ul style="list-style-type: none"> • Open the file <i>Working Graphics.dgn</i> in the C:\Bentley Training\GEOPAK 101\Project Setup\Practice\ folder.
File paths	Non italic	<ul style="list-style-type: none"> • Open the file <i>Working Graphics.dgn</i> in the C:\Bentley Training\GEOPAK 101\Project Setup\Practice\ folder.
New terms or emphasis	Italic	<ul style="list-style-type: none"> • The Template Library contains <i>templates</i>, which represent typical sections of the proposed roadway.

[THIS PAGE INTENTIONALLY LEFT BLANK.]

2 KEY SHEET

OBJECTIVES

- Create a Key Sheet DGN File
- Setup Key Sheet with All Necessary Information

KEY SHEET

The Key Sheet is defined as the first sheet in the contract plans. The Key Sheet describes the project, the contents of the plans, and identifies those responsible for preparing the plans. All requirements for the Key Sheet, can be found in *Part 3, Chapter 302* of the *FDOT Design Manual (FDM)*.

EXERCISE OVERVIEW

- 2.1 Creating the Key Sheet
- 2.2 Creating and Placing the Key Sheet Index
- 2.3 Placing and Editing the Components of Plan Set List
- 2.4 Placing the Range and Township Map Label
- 2.5 Placing the Project Location Labels
- 2.6 Placing the Contract Revision Note (Optional)
- 2.7 Printing the Key Sheet

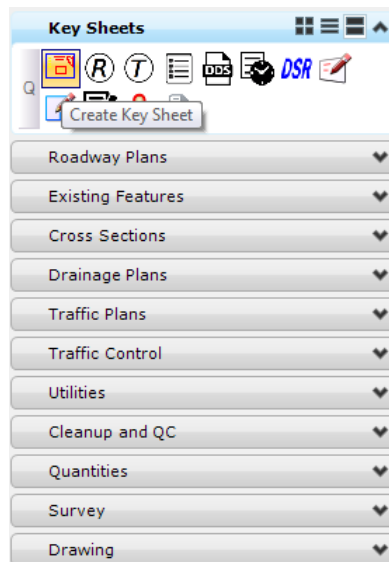
Exercise 2.1 Creating the Key Sheet

In this exercise the Key Sheet DGN file will be created, the sheet will be placed with a map, and all of the necessary information will be added to the sheet.

1. Extract the 22049555201(2).zip file in the *Data Set* folder to the *c:\e\projects* folder.
2. Using the FDOT SS4 icon, open the MicroStation design file:
C:\e\projects\22049555201\roadway\DSGNRD01.dgn.

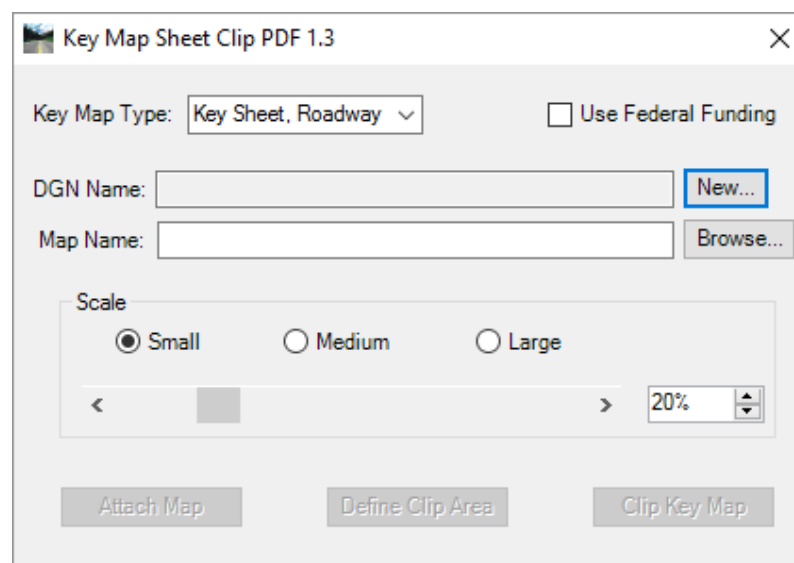


3. On the FDOT Plans Development Task Menu, select **Key Sheets > Create Key Sheet**.

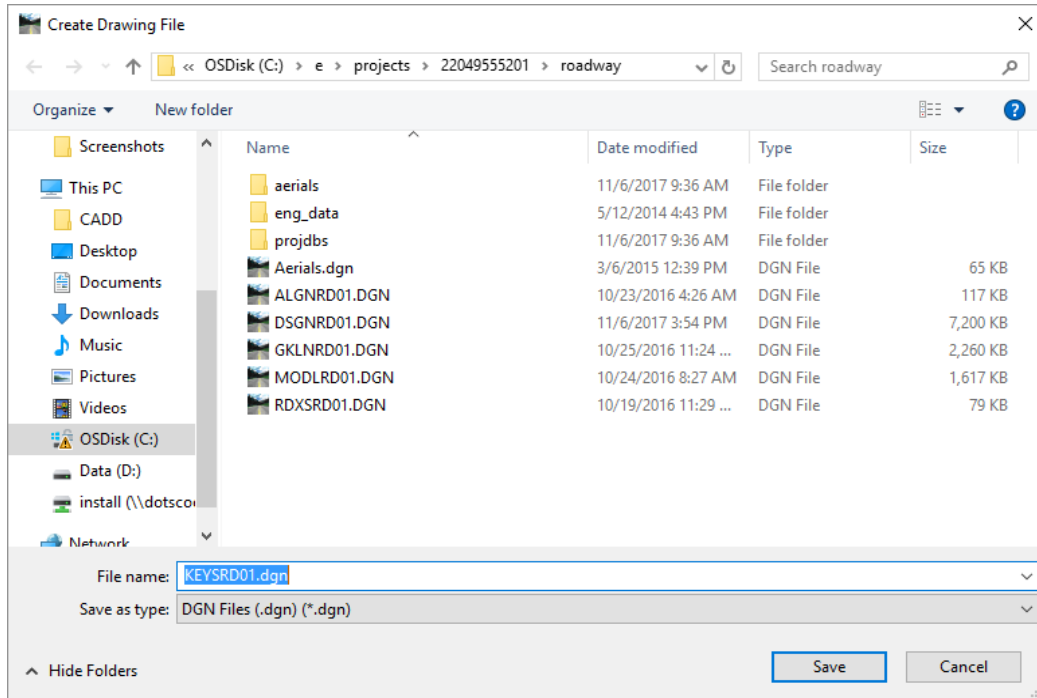


4. The Key Map Sheet Clip PDF dialog displays. On the Key Map Sheet Clip PDF dialog set the *Key Map Type* to **Key Sheet, Roadway** and be sure to toggle **Off Use Federal Funding**.

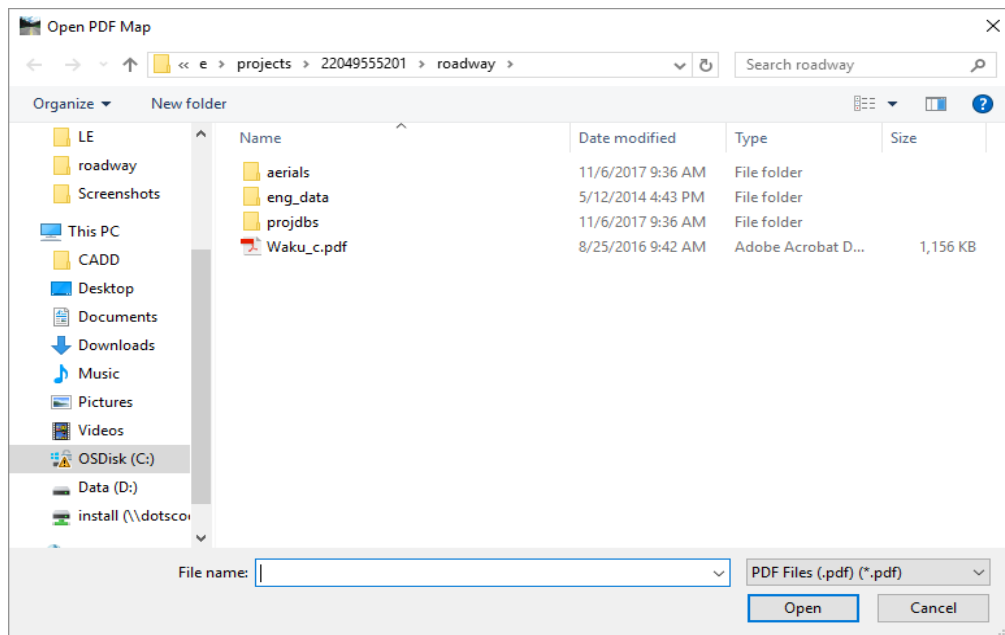
Note If the project is federally funded, make sure that option is toggled on.



- a. To create a new Key Sheet File, select the **New...** button, enter the *File name* **KEYSRD01.DGN** and click **Save**. The Key Sheet File, **KEYSRD01.DGN** gets created in the current directory and is then opened.



- b. For the *Map Name*, click on the **Browse...** button to and navigate to:
 C:\e\projects\22049555201\roadway\Waku_c.pdf.



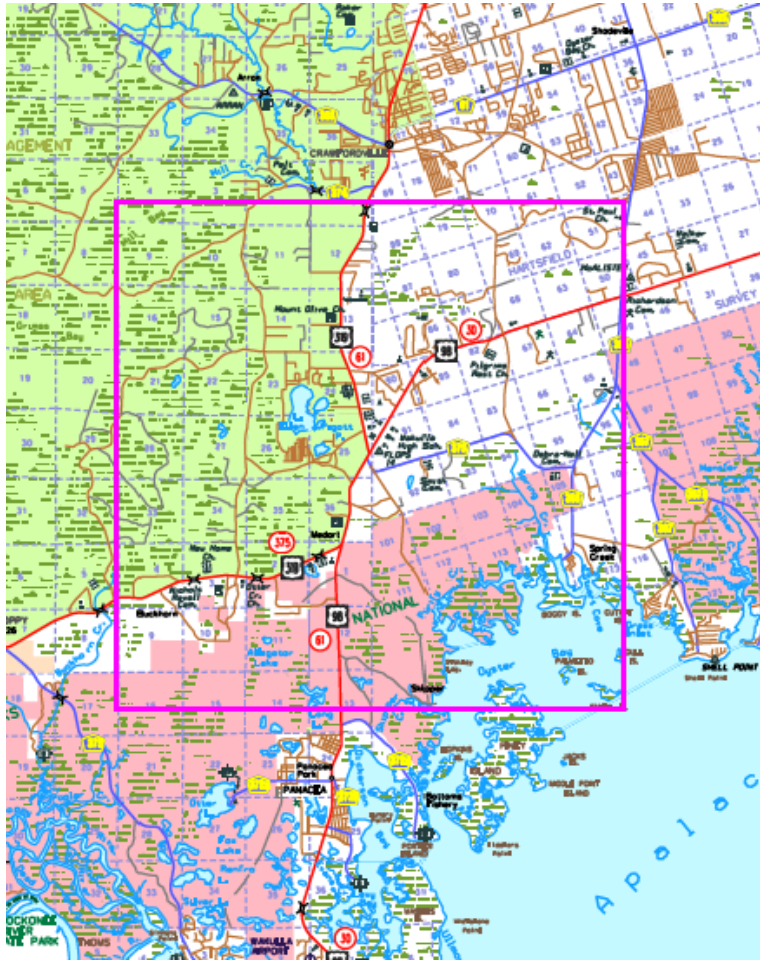
Note All Florida County Maps can be found in MicroStation DGN format and PDF format at: <http://www.fdot.gov/geospatial/countymap.shtm>

- c. In Key Map Sheet Clip PDF dialog, click the **Attach Map** button. The pdf file will be attached to the file as a raster.

- d. On the Key Map Sheet Clip PDF dialog, set the *Scale* to **Small**.

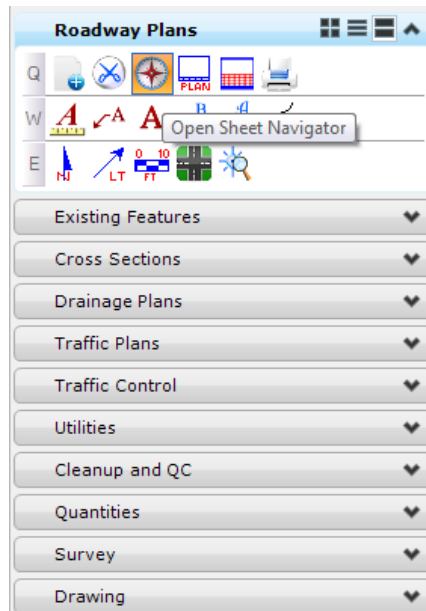
Note The percentage bar has preset percentage values. Small – 20%, Medium - 30%, and Large – 40%. The value can be set to greater than that if needed.

- e. Click the **Design Clip Area** button. A clip area is attached to the end of the cursor.




- f. Position the clip area over the *project area* on the map and **data point** to accept. The area of the project is the **intersection of SR 61 and US 98**.
- g. In the Key Map Sheet Clip PDF dialog, click the **Clip Key Map** button. The Key Sheet is created and displays with the standard *FDOT key sheet border* and a clipped *County Map* referenced to it.

- On the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.



- Populate the Sheet Navigator dialog, adding the *Sheet Number*, *Financial Project ID*, *County*, *Road Number*, *Print Style*, and *Digital Signature Note*, as shown below and click the **Save Sheet** button. All of the information entered will be saved to the key sheet.

- Close Sheet Navigator.

8. On the FDOT Plans Development Task Menu, select **Roadway Plans > Edit Text**  to enter the *FDOT Project Manager Name*, as shown below.

FDOT PROJECT MANAGER:
CHRISTOPHER THORP, P.E.

- a. Use the Edit Text tool to enter the *Fiscal Year*

**FISCAL
YEAR**
18

Value as **18**.

- b. Use the Edit Text tool to enter the *Construction Contract No.* as **T-8888**.

**CONSTRUCTION
CONTRACT NO.**
T-8888

- c. Use the Edit Text tool to enter the *Section Number* that is below the *Financial Project ID* number, as shown below.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 220495-5-52-01

WAKULLA COUNTY (59010)

STATE ROAD NO. 61

- d. Use the Edit Text tool to enter the information *Governing Standard Plans* as **2018-19**.

GOVERNING STANDARD PLANS:

Florida Department of Transportation, (FY2018-19) Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

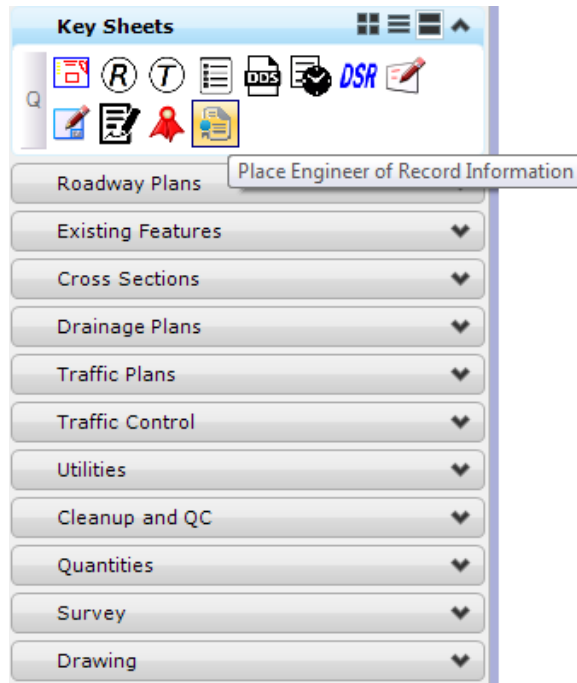
Standard Plans for Road Construction and associated IRs are available at the following website: <http://www.fdot.gov/design/standardplans>

- e. Use the Edit Text tool to enter the information *Governing Standard Specifications* as **July 2018**.

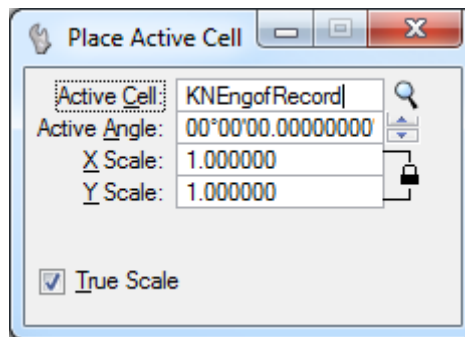
GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, **July 2018** Standard Specifications for Road and Bridge Construction at the following website:
<http://www.fdot.gov/programmanagement/Implemented/SpecBooks>


- On the FDOT Plans Development Task Menu, select **Key Sheets > Place Engineer of Record Information**.



- The MicroStation Place Active Cell command launches with **KNEngOfRecord** set as the *Active Cell*.



- Data Point** at the lower left corner of the *Key Sheet* border to place the cell.

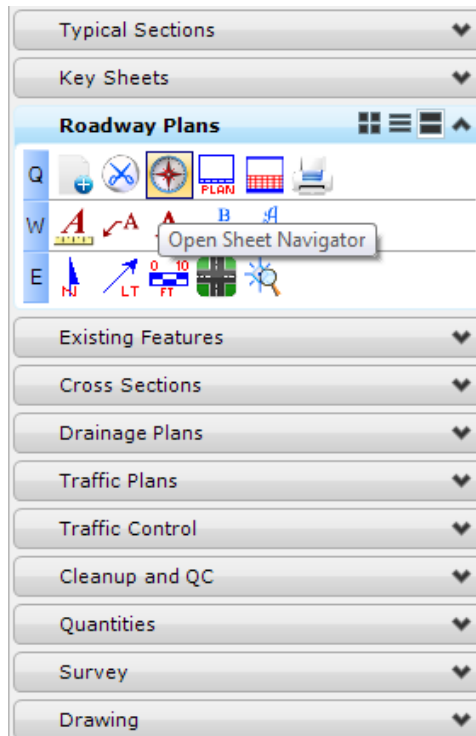
- Use the **Edit Text**  tool to enter the *P.E.* and *company information* as shown below.

CHRISTOPHER THORP, P.E.
P.E. NO.: 12345
PSO | CADD OFFICE
605 SUWANNEE ST
TALLAHASSEE, FL 32399
CONTRACT NO.: 11111
VENDOR NO.: 22-222222
CERTIFICATE OF AUTHORIZATION NO.: 33333

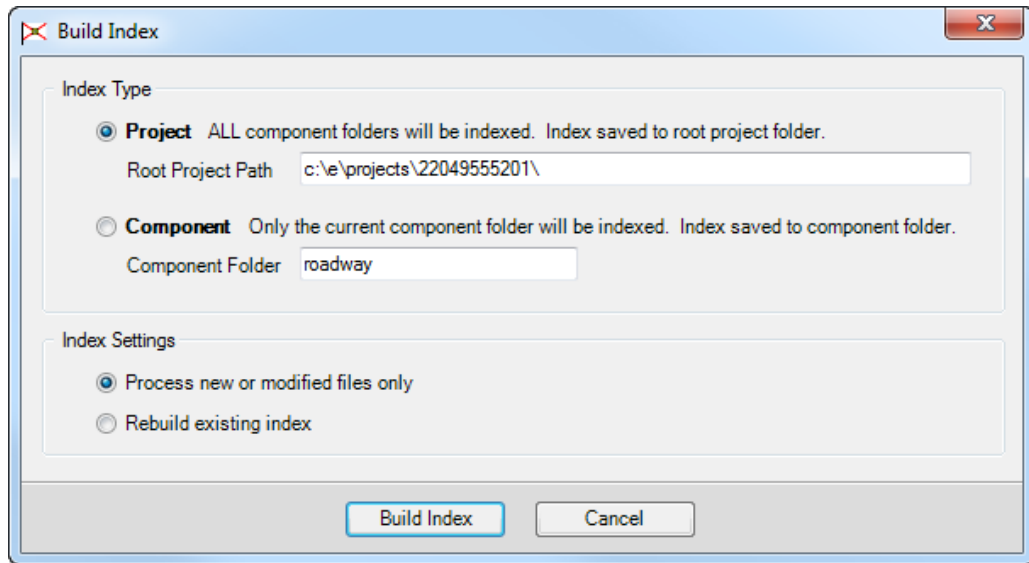
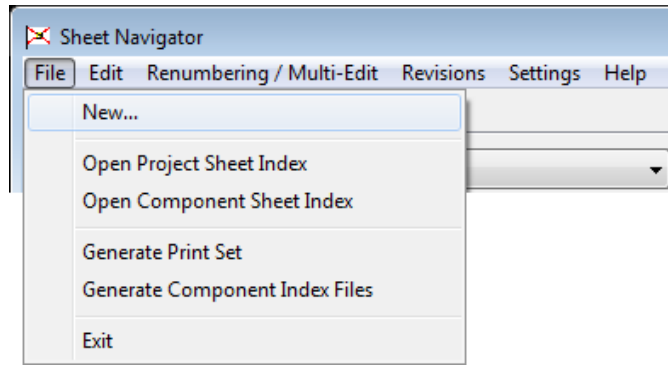
Exercise 2.2 Creating and Placing the Key Sheet Index

➤ Creating and Placing the Key Sheet Index (Part 1)

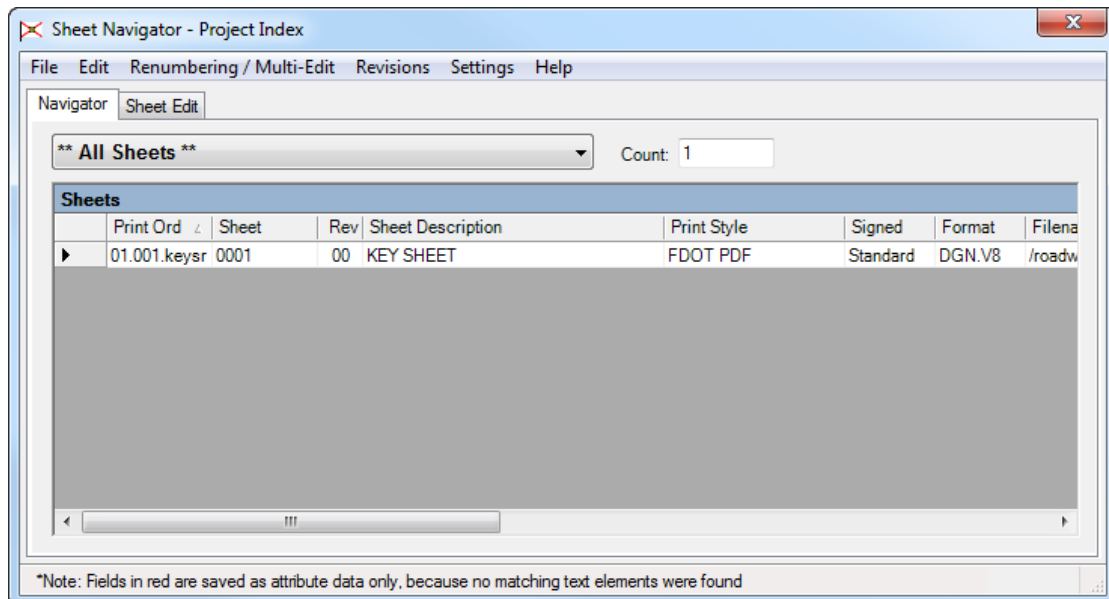
1. Continuing in *keysrd01.dgn*, on the FDOT Plans Development Task Menu, select **Roadway Plans** > **Open Sheet Navigator** to launch the Sheet Navigator dialog.



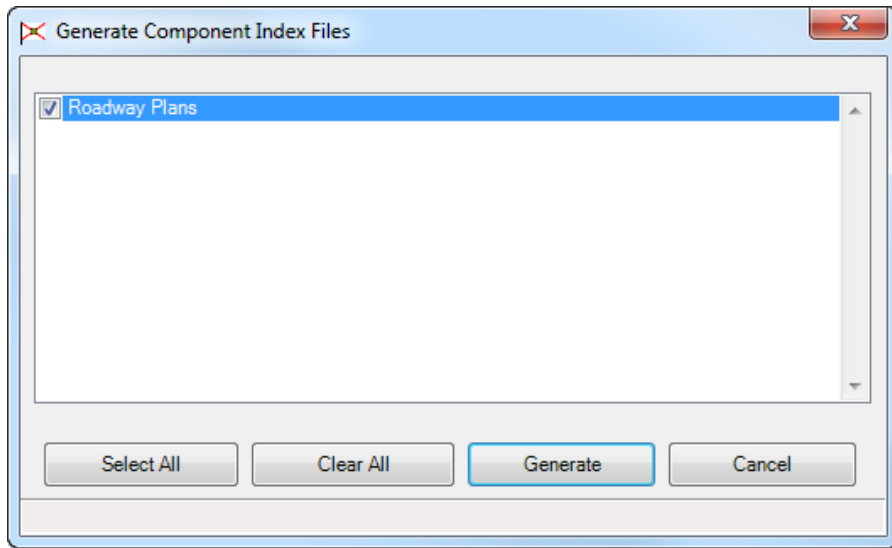
2. In Sheet Navigator, select the **Navigator** tab.
3. Select **File > New**. This opens the Build Index dialog.



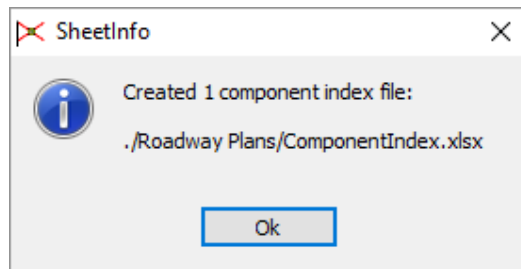
- a. Select the **Project** option.
 - b. Click the **Build Index** button. This creates sheetinfo.xml in the Project folder.
4. MicroStation will close and the **CADmanage (CM.Batch)** process will run. When complete, MicroStation will re-open and Sheet Navigator will display the *Index* on the *Navigator* Tab.



5. From Sheet Navigator select **File > Generate Component Index Files**. The Generate Component Index Files dialog displays.



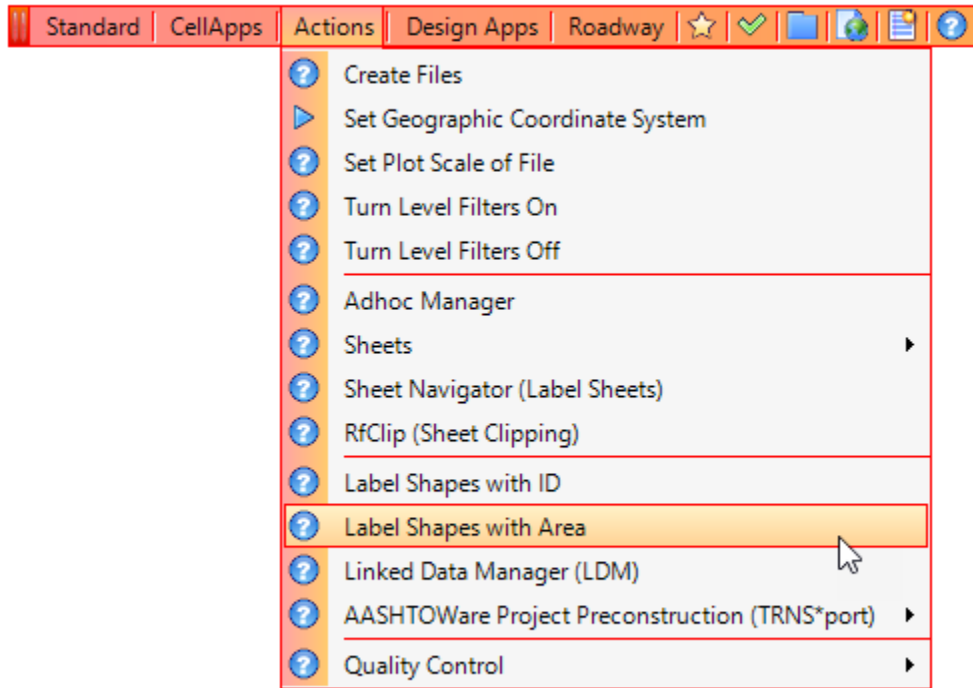
- a. Toggle **On** the check box for *Roadway Plans*.
- b. Click the **Generate** button. Sheet Navigator will Create 1 component index file.



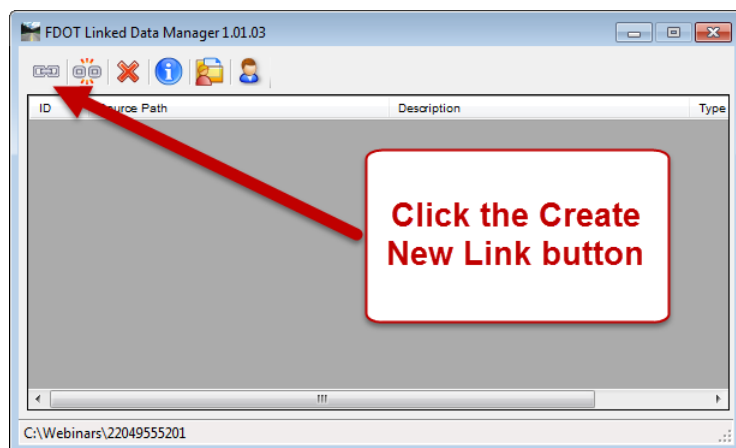
- c. Click the **Ok** button.
6. Close Sheet Navigator.

➤ **Creating and Placing the Key Sheet Index (Part 2)**

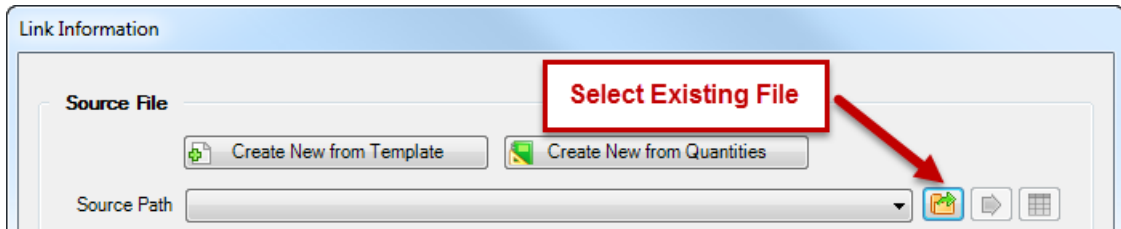
1. Continuing in *keysrd01.dgn*, zoom in around the text “INDEX OF ROADWAY PLANS”. This is on the left hand side of the sheet.
2. From the FDOT SS4 Menu, select **Actions > Linked Data Manager**.



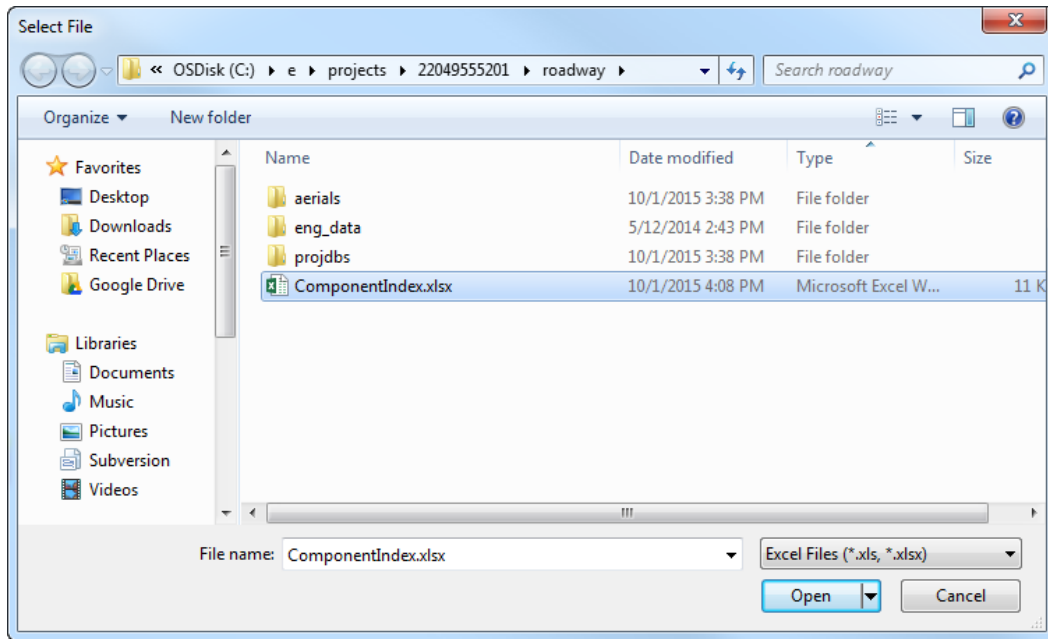
3. The FDOT Linked Data Manager displays. Click the **Create New Link** button.



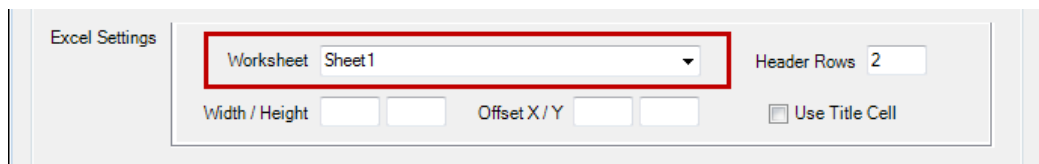
4. Click the **Select Existing File** button.



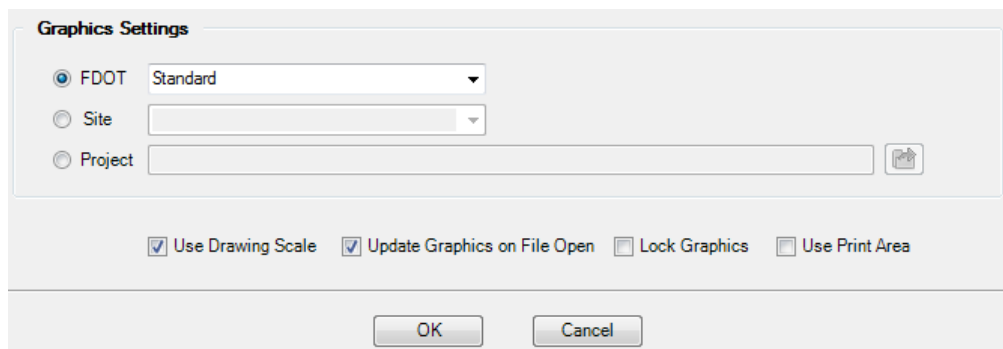
5. Select the *ComponentIndex.xlsx* and click the **Open** button.



6. For the *Excel Settings*, set the *Worksheet* to **Sheet 1** as shown below.



7. Set the *Graphic Settings* as shown below.



8. Click the **OK** button.

9. Snap to the origin of the text label **SHEET**. This will line up the text properly.

INDEX OF

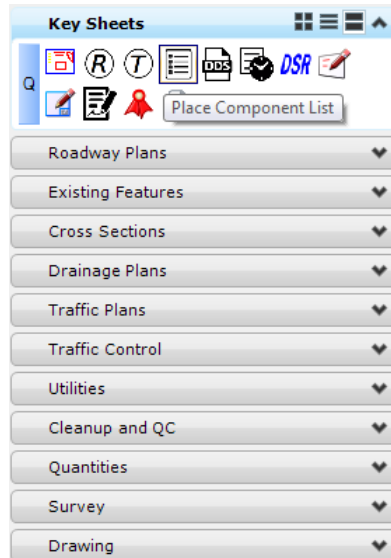
SHEET NO.

10. **Data Point** to place the text. Close Linked Data Manager.

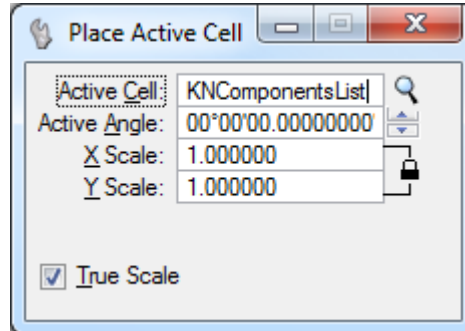
Exercise 2.3 *Placing and Editing the Components of Plan Set List*

The components of Contract Plan Set is a list of all the components included in the plan set. This exercise demonstrates how to add this list to the Key Sheet.


1. From the FDOT Plans Development Task Menu, select **Key Sheets > Place Component List**.



2. The MicroStation Place Active Cell command launches with **KNComponentList** set as the *Active Cell*.



3. **Data Point** at the lower left corner of the *Key Sheet border* to place the cell.
4. The text appears under the *CONTRACT PLANS COMPONENTS* on the *Key Sheet*.
5. To edit the list of components, go to the FDOT Plans Development Task Menu and select

Roadway Plans > Edit Text 

6. In MicroStation, select the **KNComponentList** cell that was just placed and edit the list in the MicroStation Text Editor dialog. This project should include plans for the following components:

ROADWAY PLANS
SIGNING AND PAVEMENT MARKING PLANS
SIGNALIZATION PLANS

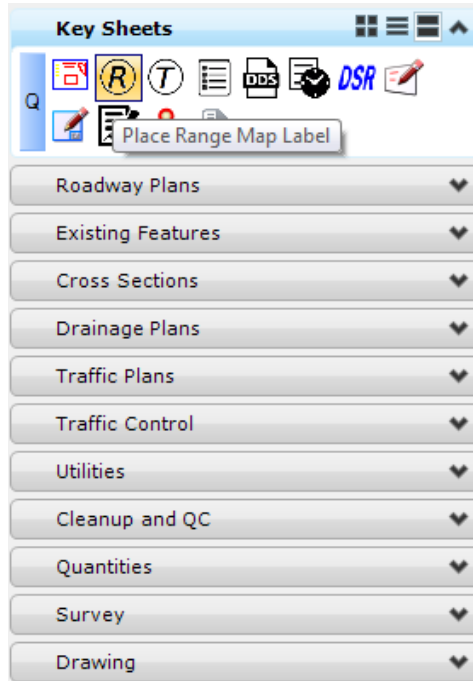
7. Data point in MicroStation when finished editing the text.

Exercise 2.4 *Placing the Range and Township Map Label*

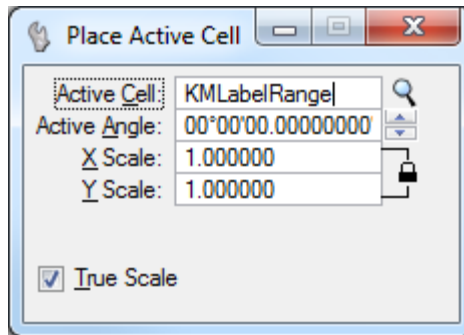
This exercise describes how to place township and range labels on a key sheet. This is a requirement for the Key Sheet.

Note The **Range** and **Township** labels should be known from the Scope of Work. This information can also be found within the county map pdf file.


1. From the FDOT Plans Development Task Menu, go to **Key Sheets > Place Range Map Label**.



2. The MicroStation Place Active Cell command launches with **KMLabelRange** set as the *Active Cell*.

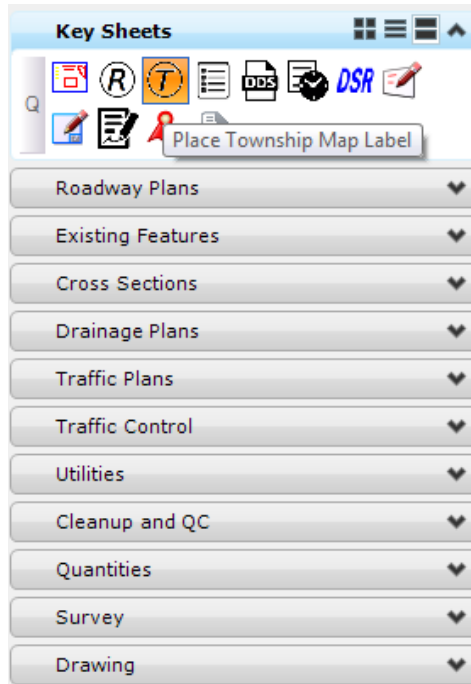


3. **Data point** to place the *Range Map Label* at the correct locations around the map. Place as many labels as needed. **Reset** when finished placing labels.

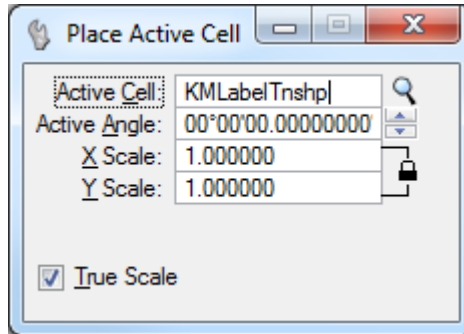
4. Select the Edit Text tool  to edit the labels. See the image below for the correct *Range Values* and *Locations*.




- From the FDOT Plans Development Task Menu, select **Key Sheets > Place Township Map Label**.



- The MicroStation Place Active Cell command launches with **KMLabelTnshp** set as the *Active Cell*.



- Data point** to place the *Township Map Label* at the correct locations around the map. **Reset** when finished placing labels.

8. Select the Edit Text tool  to edit the labels. See the image below for the correct *Township Values* and *Locations*.

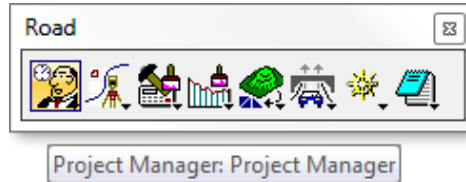


Exercise 2.5 *Placing the Project Location Labels*

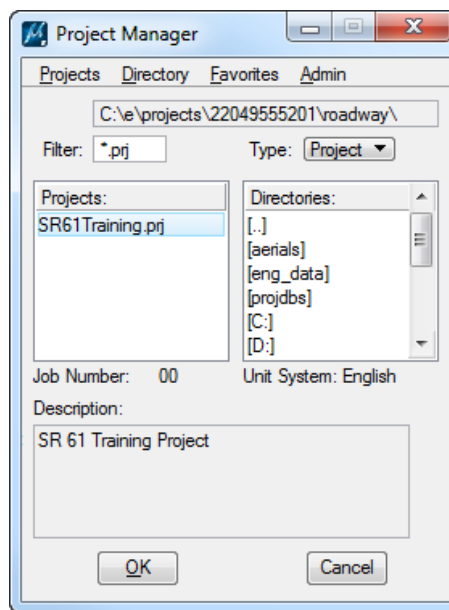
This exercise will demonstrate how to add the Begin and End Project Labels.

1. From the GEOPAK Road toolbox, select the **Project Manager** tool.

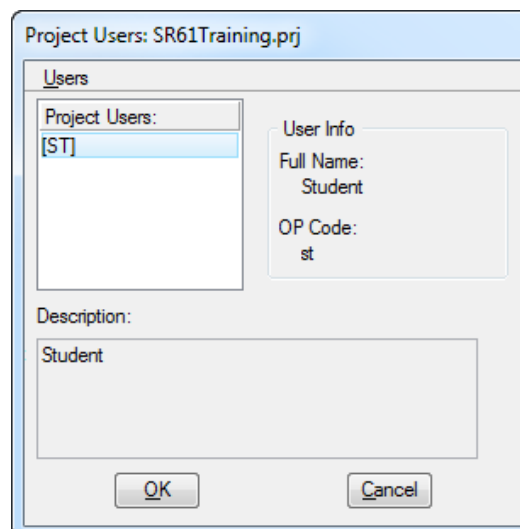
Note To open this toolbox go to GEOPAK > ROAD > Road Tools.



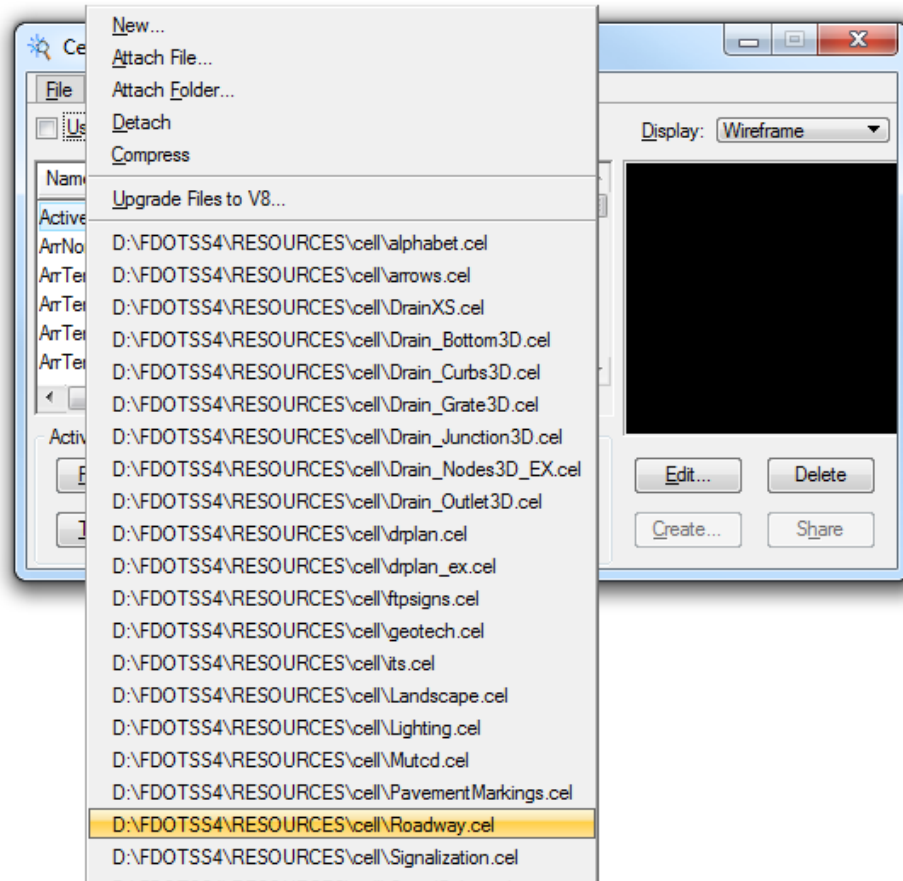
2. The Project Manager dialog displays. Select the **SR61Training.prj** file and click **OK**.



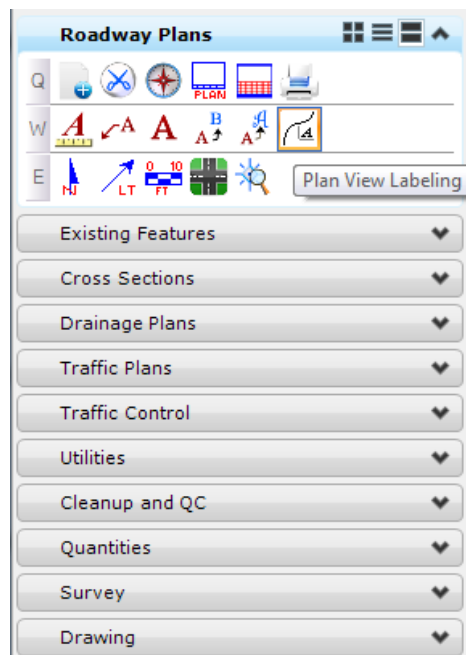
3. The Project Users dialog displays. Select the *User ST <OR> student user* and click **OK**. The Road Project dialog displays.



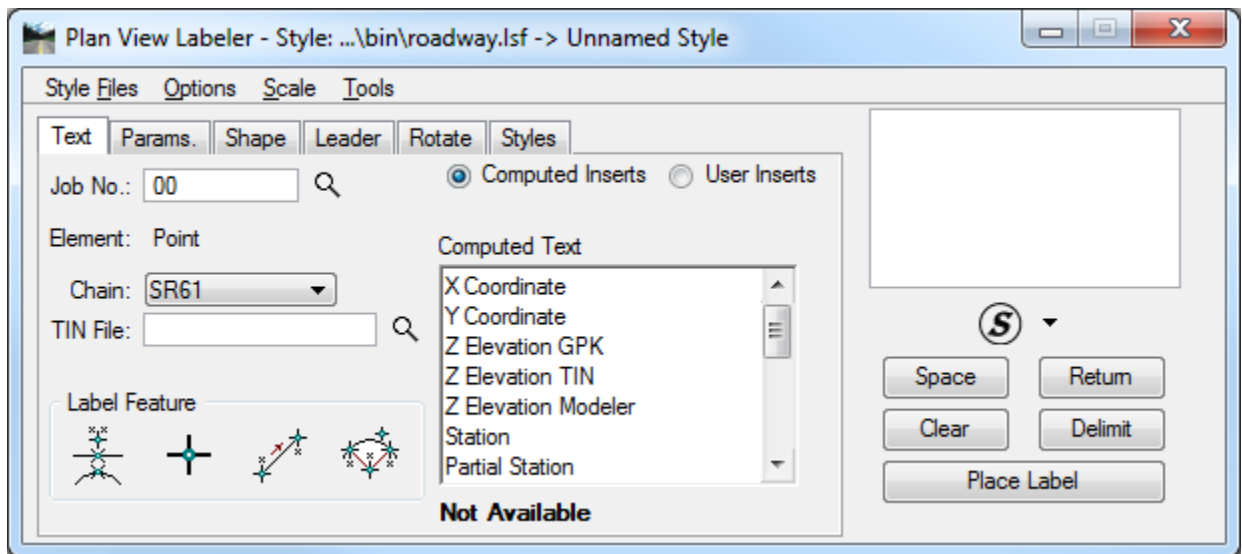
4. In MicroStation, go to **Element > Cells**. The Cell Library dialog opens.
5. On the Cell Library dialog, go to **File** and attach the **Roadway.cel** cell library.



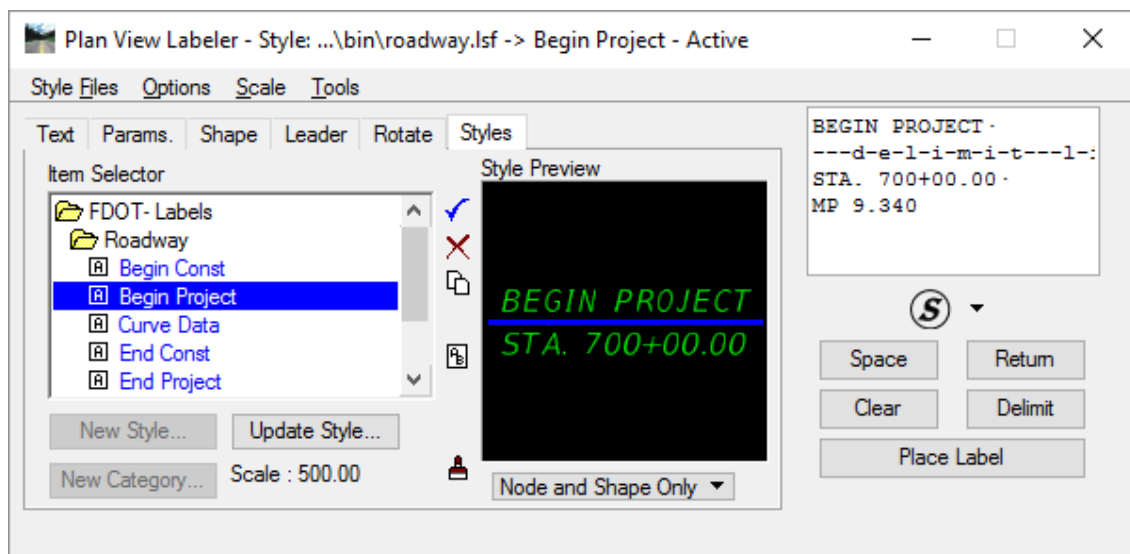
6. From the FDOT Plans Development Task Menu, select **Roadway > Plan View Labeling**.



- The Plan View Labeler dialog opens. On the *Text* tab, select the *Job Number 00* and the *Chain SR61*.



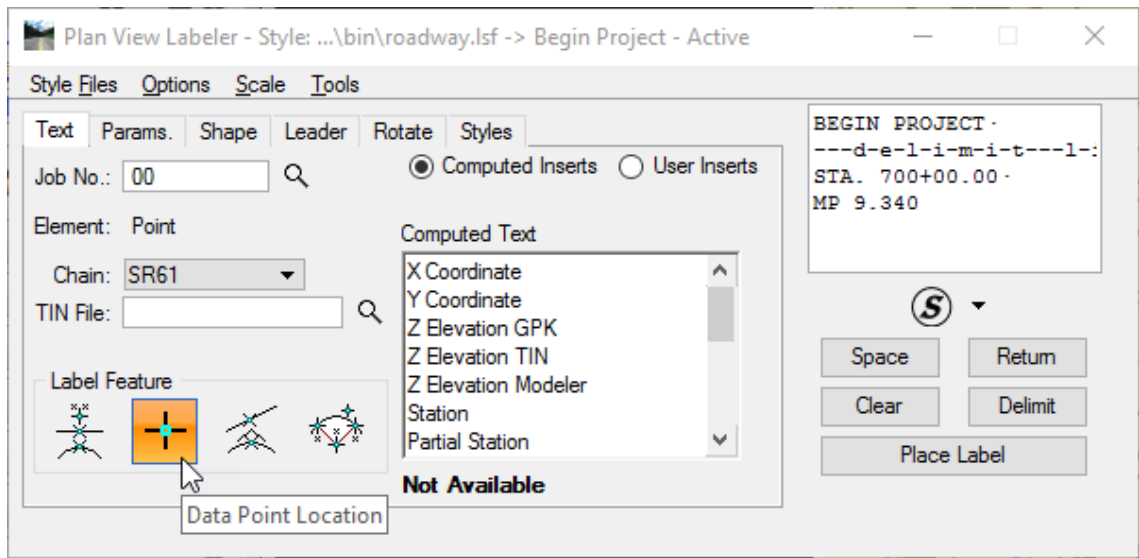
- Go to the *Styles* tab. Under the *Item Selector* box navigate to the **FDOT-Labels > Roadway > Begin Project** label style and double-click on the item.



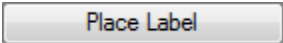
- The *label* will populate in the *Style Preview* box and the *Text Editor* box on the right side of the dialog. Edit the *label* in the *Text Editor* so that it reads as shown below:

```
BEGIN PROJECT
STA. 700+00.00
MP 9.340
```

10. Go back to the *Text* tab and click on the **Data Point Location** button.

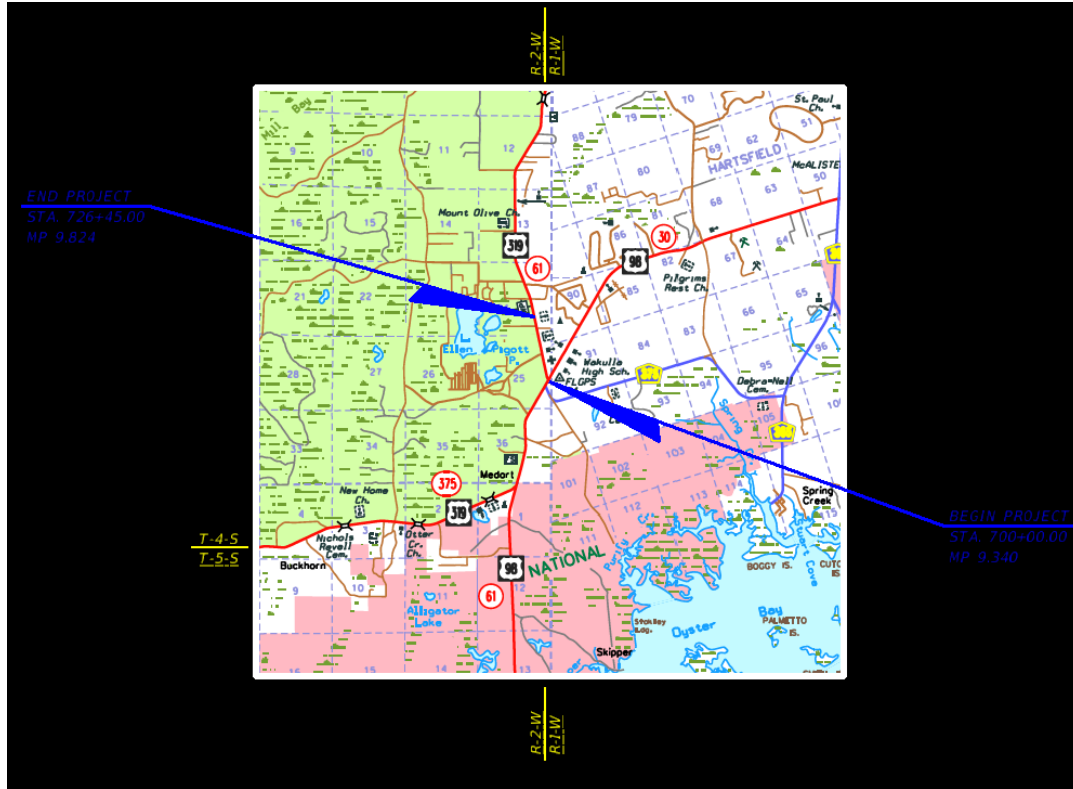


11. Locate the *Starting Location* of the project on the clipped map.

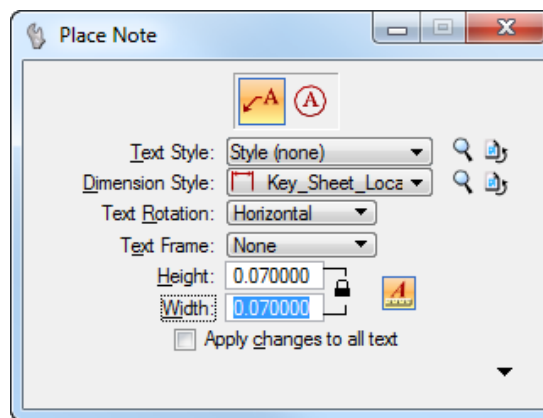
- a. **Data point** on that location.
- b. Click on the **Place Label** button .
- c. Position the *label* in the desired location.
- d. **Data point** once to place the *label*
- e. **Data point** again to place the *terminator*..

- Follow the same steps for the *End Project* label using the following information and changing the *Label Style* to **End Project**:

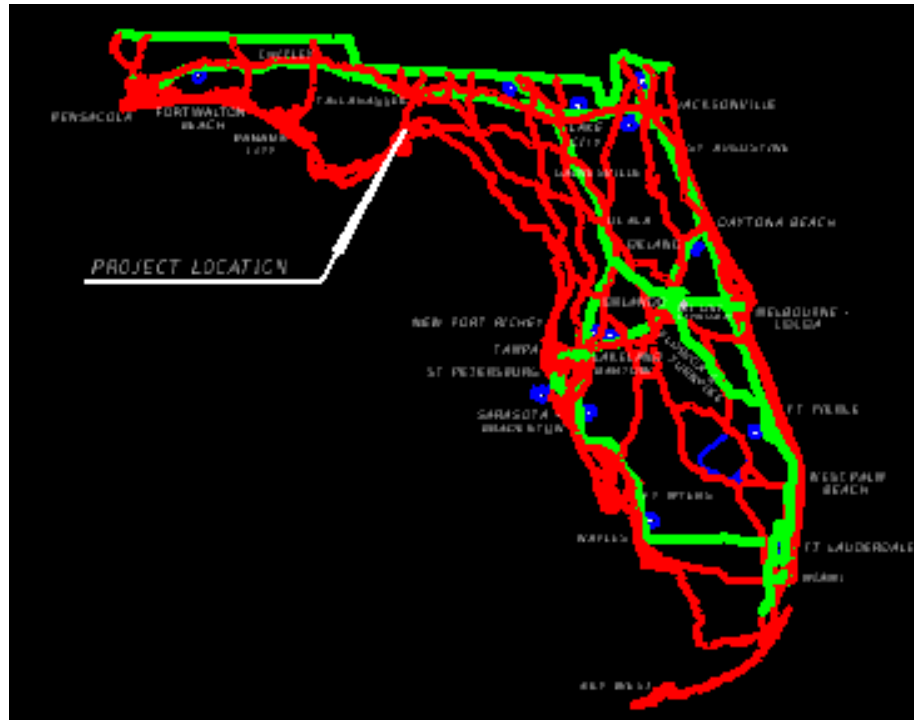
END PROJECT
 STA. 726+45.00
 MP 9.824



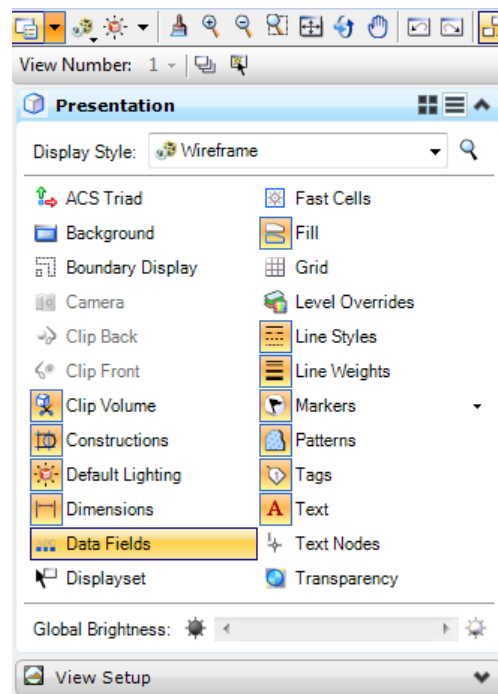
- There is another *Project Location* label that is required for the Key Sheet that points to the Florida map. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place a Text Label**.
- Set the Place Note Parameters as shown below:



- Type *PROJECT LOCATION* into the Text Editor, select the general *project location* on the Florida map, position the *label*, and **data point** again to place it. The *label* should display as shown below.



16. Go to the MicroStation *View* options and turn **Off** *Data Fields*.

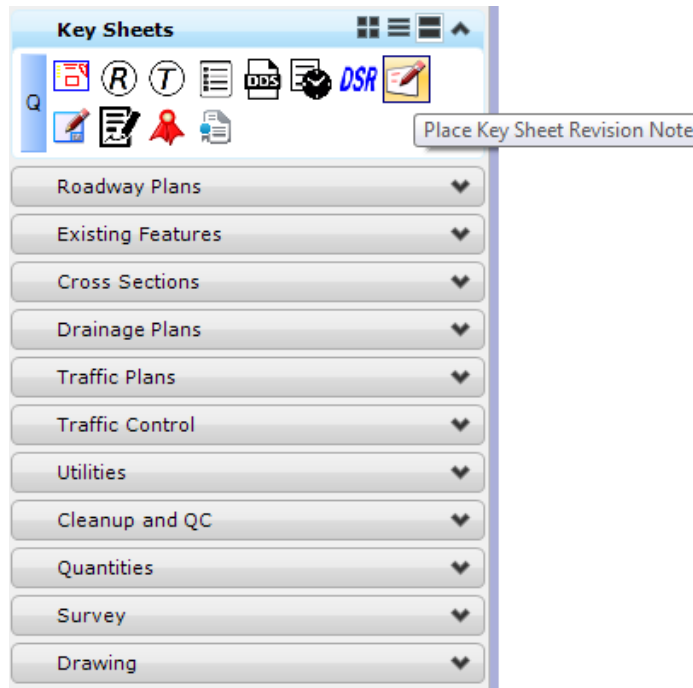


17. **Fit View** in MicroStation.
18. Select **File > Save Setting**.

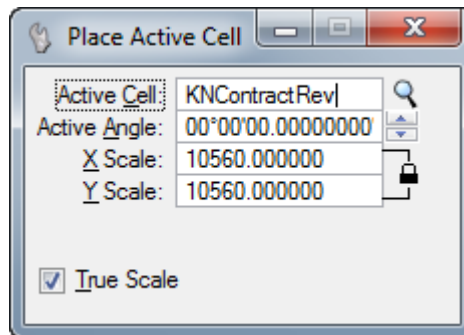
Exercise 2.6 *Placing the Contract Revision Note (Optional)*

The Contract Plans Revision Note is only placed into the file to document which Component and which Sheets have been revised throughout the project. If there are no revisions this is not required.

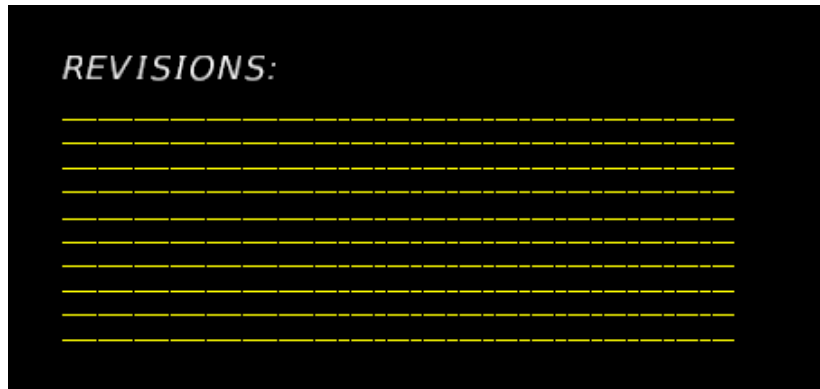
1. From the FDOT Plans Development Task Menu, select **Key Sheets > Place Key Sheet Revision Note**.




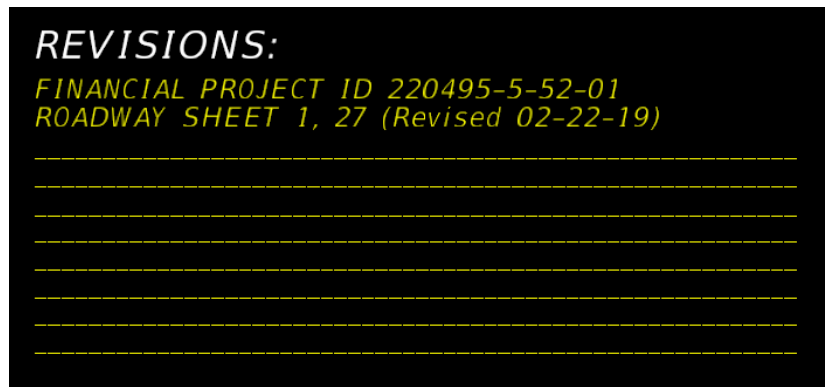
2. The MicroStation Place Active Cell command launches with **KNContractRev** set as the *Active Cell*.



3. **Data point** to the left corner of the *Key Sheet border*. The *Note* should display as shown.

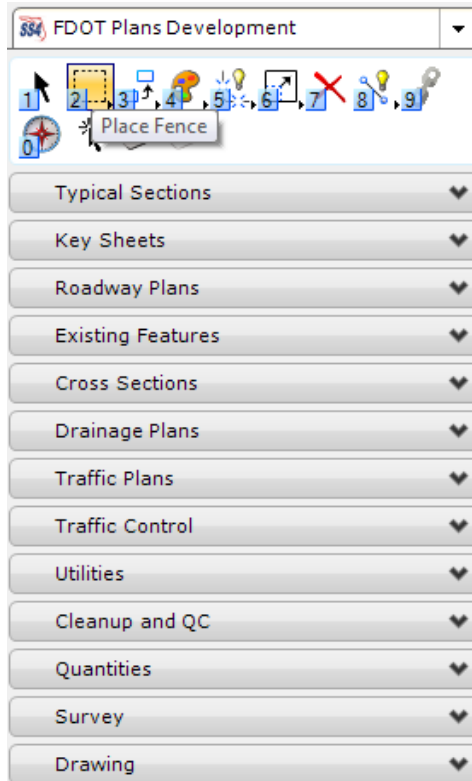


4. Select the Edit Text  tool to enter the *Financial Project ID*, **220495-5-52-01** as well as the *Revision Number*, the *Component Set*, the *Revised Page Numbers*, and *Date of Revision*. See below.

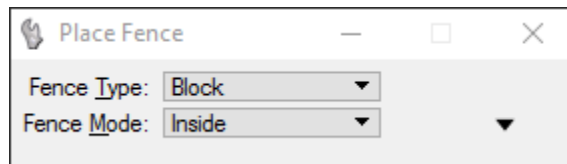


Exercise 2.7 Printing the Key Sheet

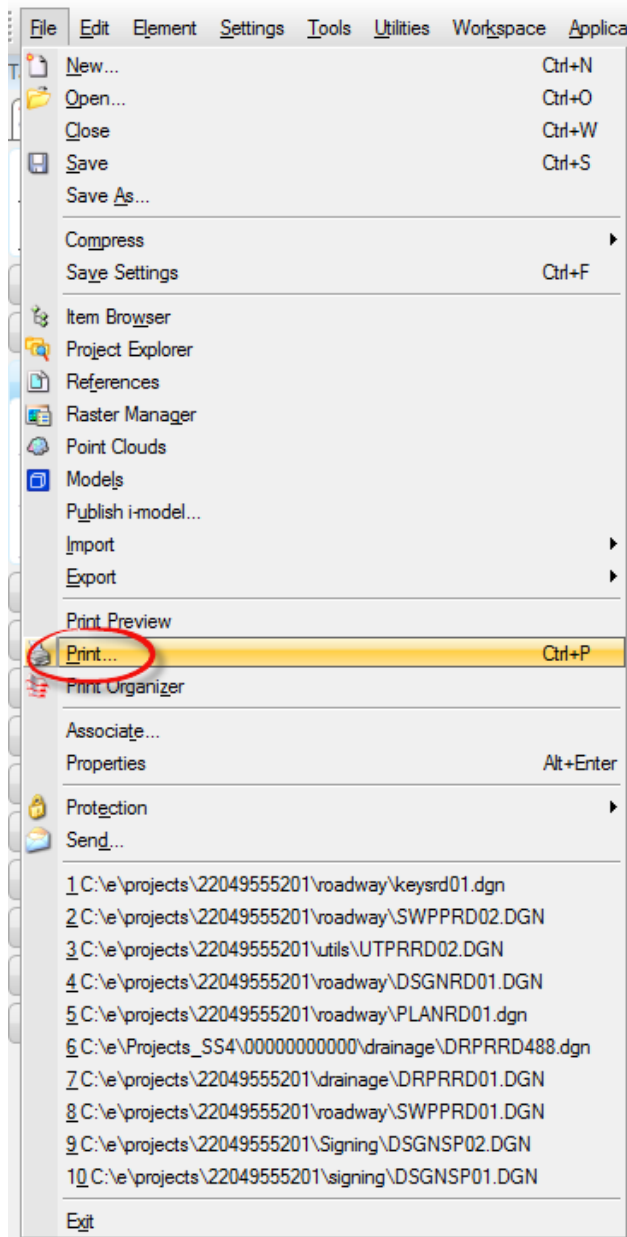
1. Continuing in the *KEYSRD01.dgn* file, go to the FDOT Plans Development Task Menu, select the **Place Fence** command.



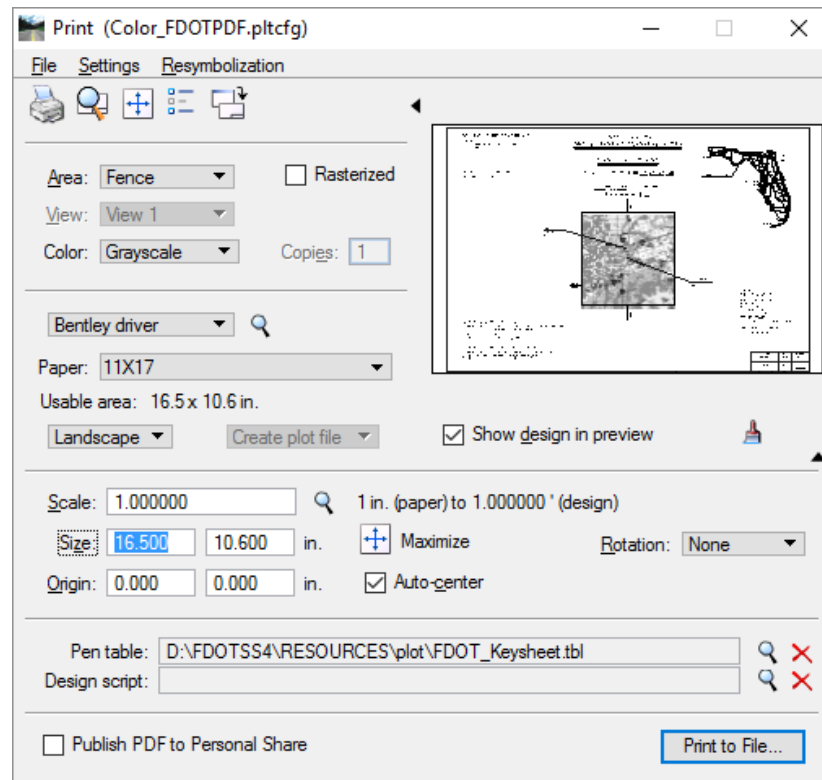
2. Place a fence around the *Key Sheet* border, using the Type and Mode shown below.



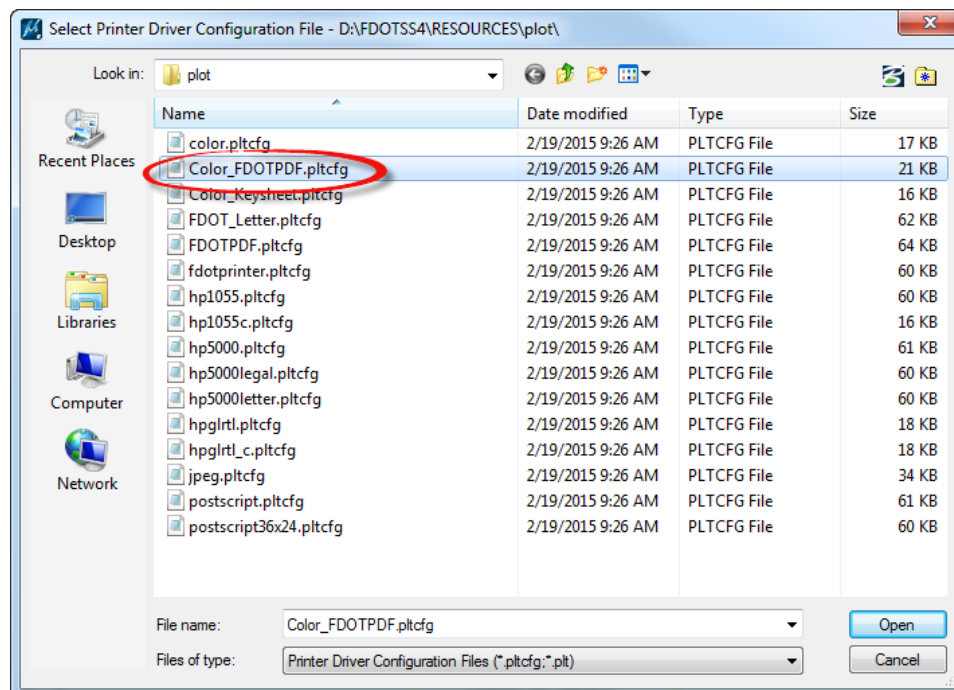
3. In MicroStation select **File > Print**.



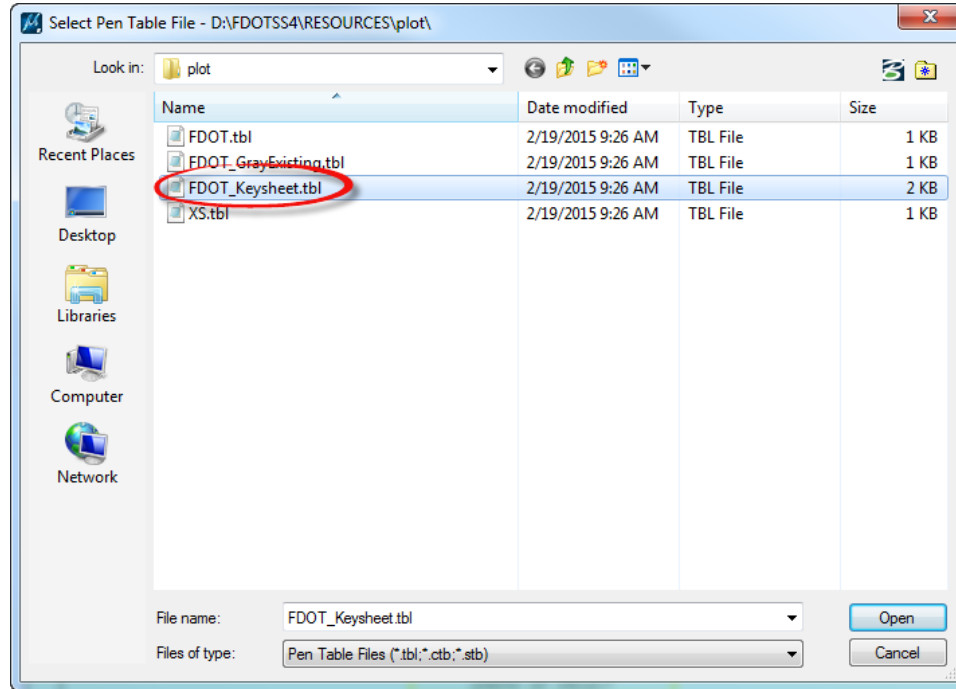
4. The MicroStation Print dialog opens. Complete as shown below:



5. Under the *Printer and Paper Size* section select **Bentley driver** and click on the **Magnifying Glass** icon. On the **Select Printer Driver** dialog select the *Color_FDOT.pltcfg* plot file and click **Open**.



6. Set the *Area* to **Fence** and the *Color* to **Grayscale**.
7. Set the *Scale* is **1.0** and the *Size* is **16.5 x 10.6**.
8. Under the *Print Resymbolization* section, select the **Magnifying Glass** icon for the *Pen table*. On the *Select Pen Table File* dialog select the *FDOT_Keysheet.tbl* file and click **Open**.



9. On the *Print* dialog, click on the **Print** icon and **Save** the *keysrd01.pdf* in:
C:\e\projects\22049555201\roadway\eng_data folder.
10. Once the *pdf* is created, open it to view the file.
11. Close *MicroStation*.

3 SIGNATURE SHEETS

All projects must be signed and sealed by the Engineer of Record. Therefore, each project requires a Signature Sheet. This chapter will show the tools used to correctly create a signature cell and sheet. For more information about signature sheets and their requirement see *Part 3, Chapter 303* of the *FDM*.

OBJECTIVES

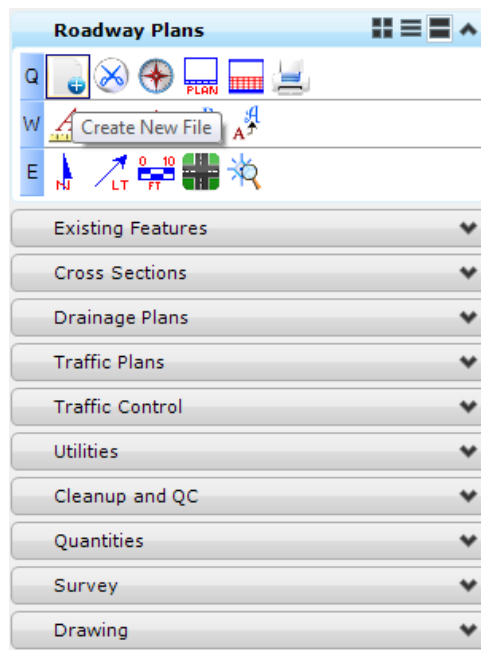
- Create the Signature Sheet
- Create and Place Custom Signature Cells

EXERCISE OVERVIEW

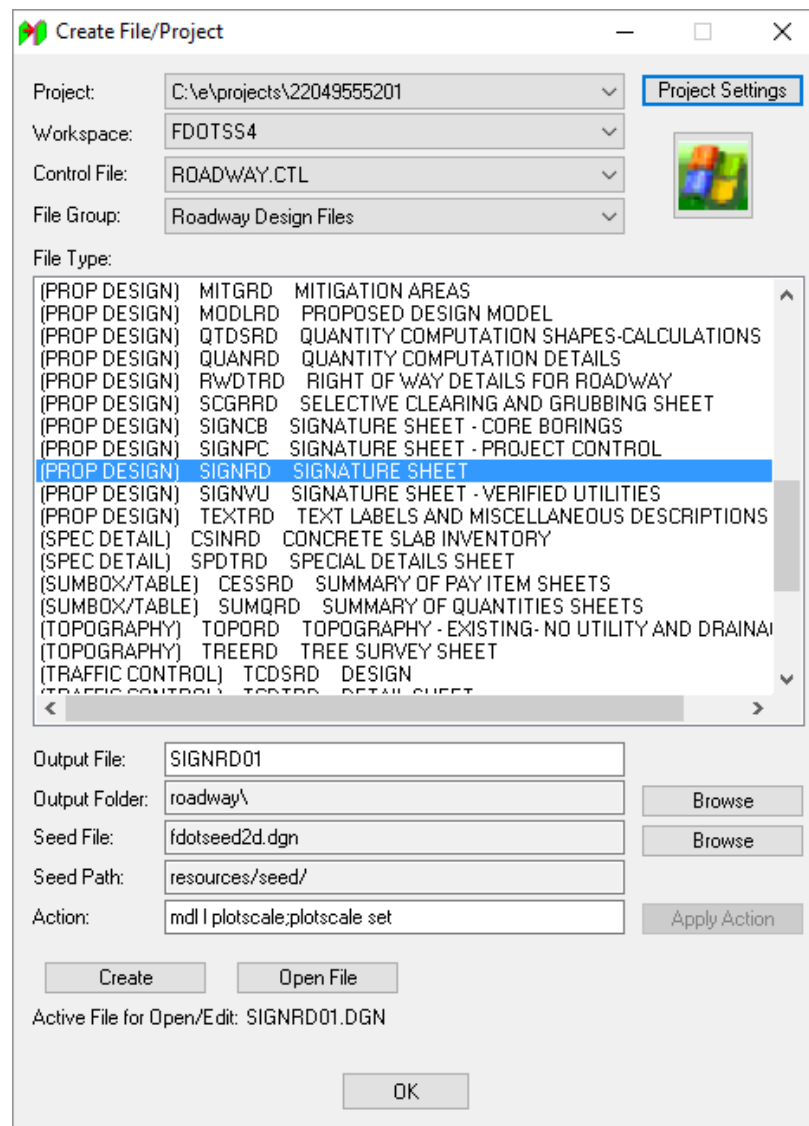
- 3.1 Creating the Signature Sheet
- 3.2 Creating Custom Signature Cells
- 3.3 Placing the Signature Information

Exercise 3.1 *Creating the Signature Sheet*

1. (Optional) Extract the *22049555201(3).zip* file in the *Data Set* folder to the *c:\e\projects* folder.
2. Using the **FDOTSS4** icon, open the MicroStation design file:
C:\e\Projects\22049555201\roadway\DSGNRD01.dgn.
3. From the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.

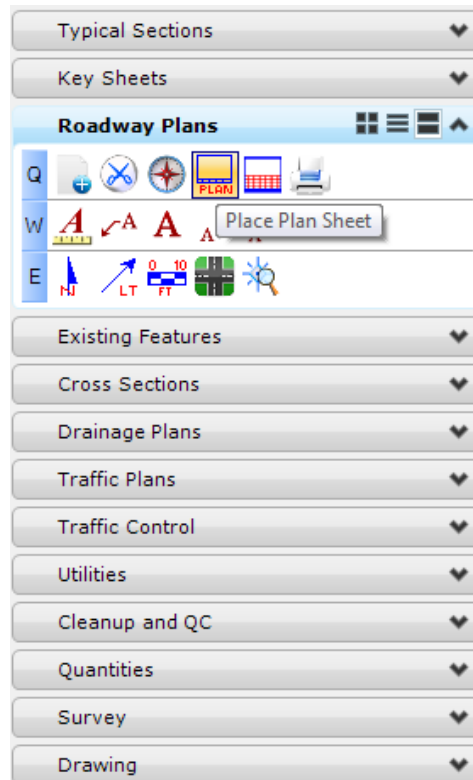


4. The Create File/Project dialog displays. Click on the **Project Settings** button.
 - a. The Project Settings dialog displays. Click on the **Select Active Project** button.
 - b. The Select Active Project dialog displays. Click the **Browse** button, navigate to *C:\E\Projects\22049555201*, click **Select** and then click **OK**.
 - c. From the Project Settings dialog, click **OK**.
5. The *Project* is populated with the selected *Project path* and the *Workspace* is set to **FDOTSS4**. Complete the rest of the dialog as shown below:

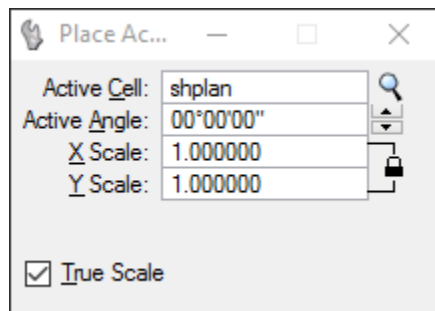


6. Click **Create** to create the file, *SIGNRD01.dgn*.
7. Click **Open File** to display *SIGNRD01.dgn*. The Set/Update Plot Scale displays. Use the *Default* settings and click **OK**.
8. From the Create File/Project dialog, click **OK** to close.

9. From the FDOT Plans Development Task Menu, go to **Roadway Plans > Place Plan Sheet**.

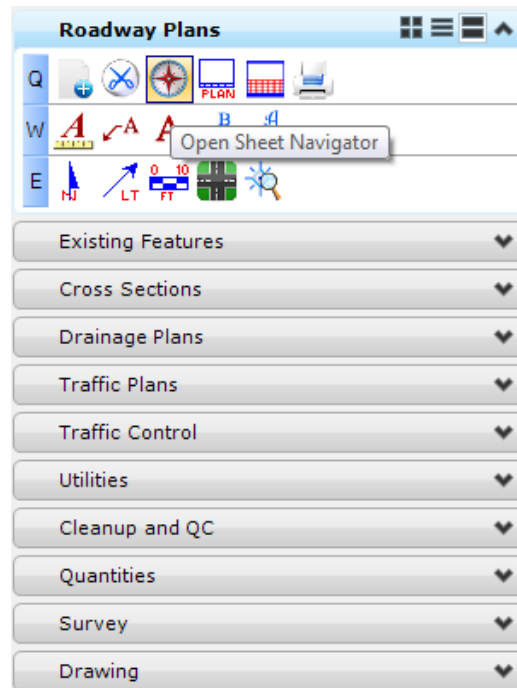


10. The MicroStation Place Active Cell command displays with **SHPlan** set as the *Active Cell*. Set *scale* of the cell to **1.0**.



11. **Data point** to place the *cell* in the file. **Reset** when finished to get out of the *Place Cell* command.

12. From the FDOT Plans Development Task Menu, go to **Roadway Plans > Open Sheet Navigator**.



13. Populate Sheet Navigator, adding the *Sheet Number*, *Financial Project ID*, *County*, *Road Number*, and *Print Style*, as shown below and click the **Save Sheet** button. All of the information entered will be saved to the sheet.

Sheet Navigator

File Edit Renumbering / Multi-Edit Revisions Settings Help

Navigator Sheet Edit

Sheets
0002

Sheet Number: 2
Financial Project ID 1: 220495-5-52-01
County 1: WAKULLA
Road Number: SR 61
Financial Project ID 2:
County 2:
Sheet Description: SIGNATURE SHEET
Project Description:
Sheet Type: 01-PLAN SHEET
Sheet Component: PRIMARY COMPONENT

Revision: 00
 Allow Plot Obsolete
 Component Override

Print Style: FDOT PDF

Digital Signature Note:
Add Engineering Record Cell
View Engineering Record Text
View Boundary Coordinates

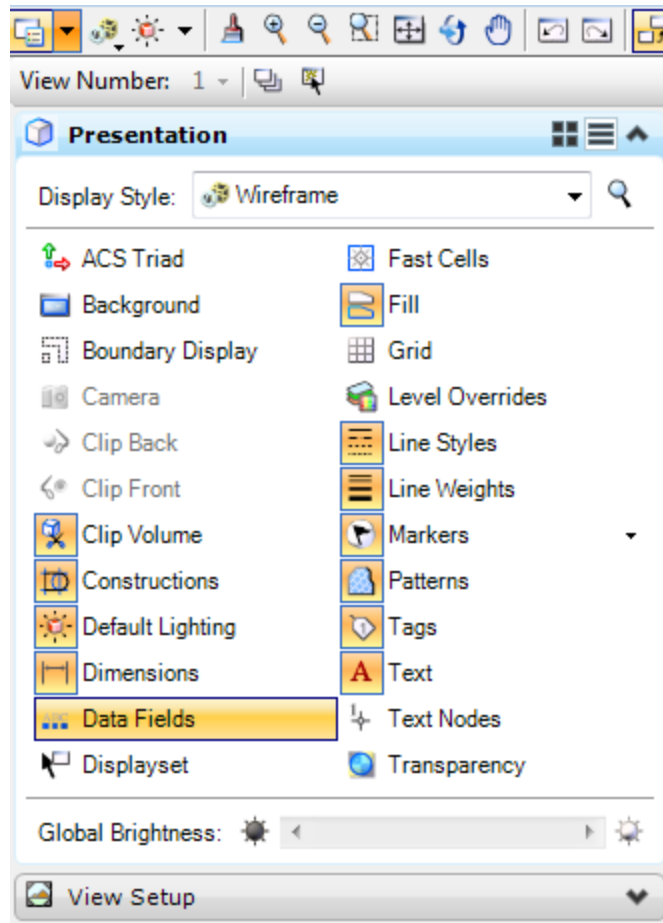
Save Sheet Save All
Refresh Sheet Reload All

*Note: Fields in red are saved as attribute data only, because no matching text elements were found

Note The signature sheets should not have the Digital Signature Note applied.

14. From MicroStation, select **Fit the View**.

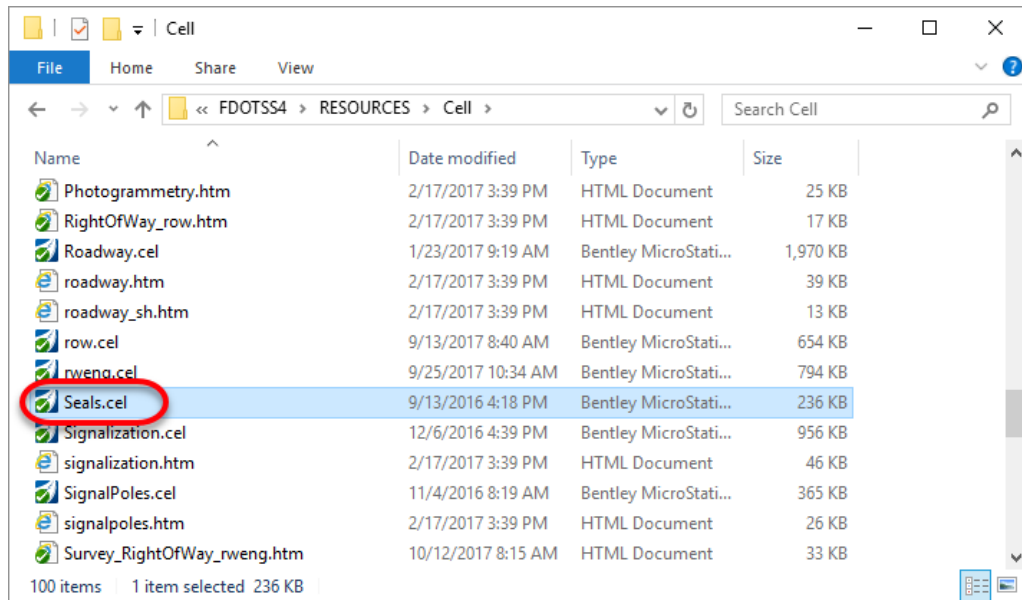
15. Go to the MicroStation *View* options and turn **Off** the *Data Fields* option.



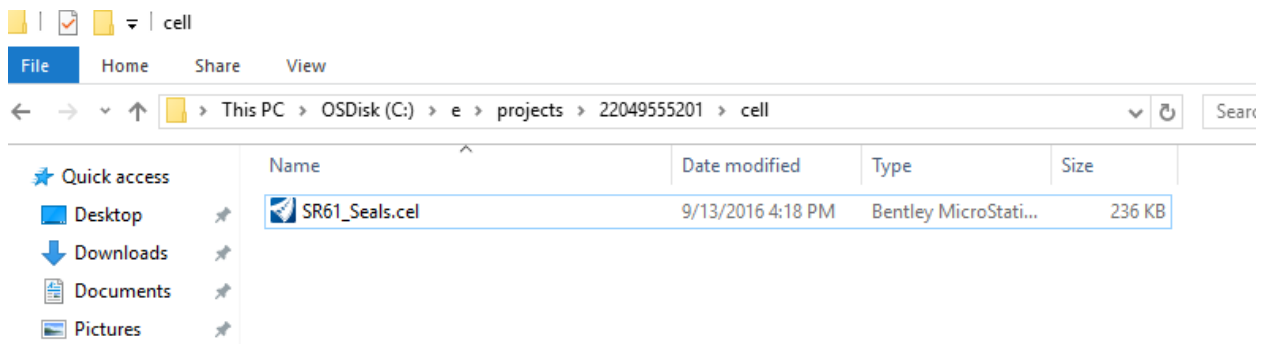
16. Select **File > Save Setting**.
17. **Close** MicroStation.

Exercise 3.2 Creating Custom Signature Cells

1. Open a Windows Explorer dialog and navigate to the `C:\FDOTSS4\RESOURCES\Cell` folder.



2. Copy the `Seals.cel` from this directory to the project directory `C:\e\projects\22049555201\cell\` and name it `SR61_Seals.cel`.



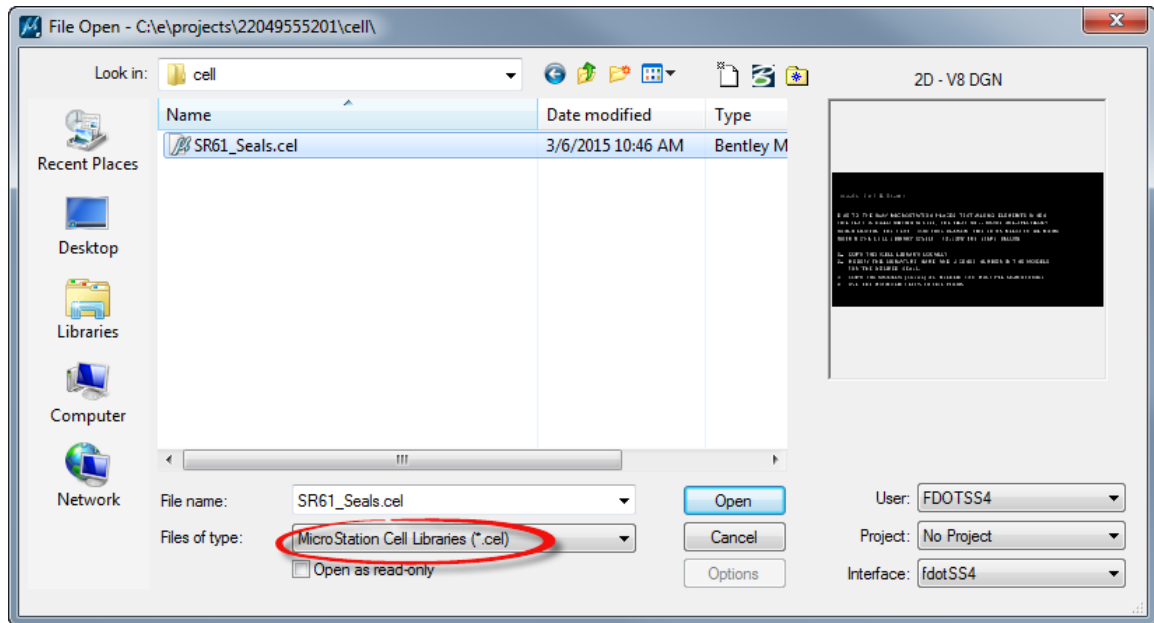
Note A District or Company can create a custom library and save it in a location for common access.

Note **CAUTION:** if the custom library is saved in the FDOT directory, it may be lost or overwritten when upgrading to newer versions of the workspace.

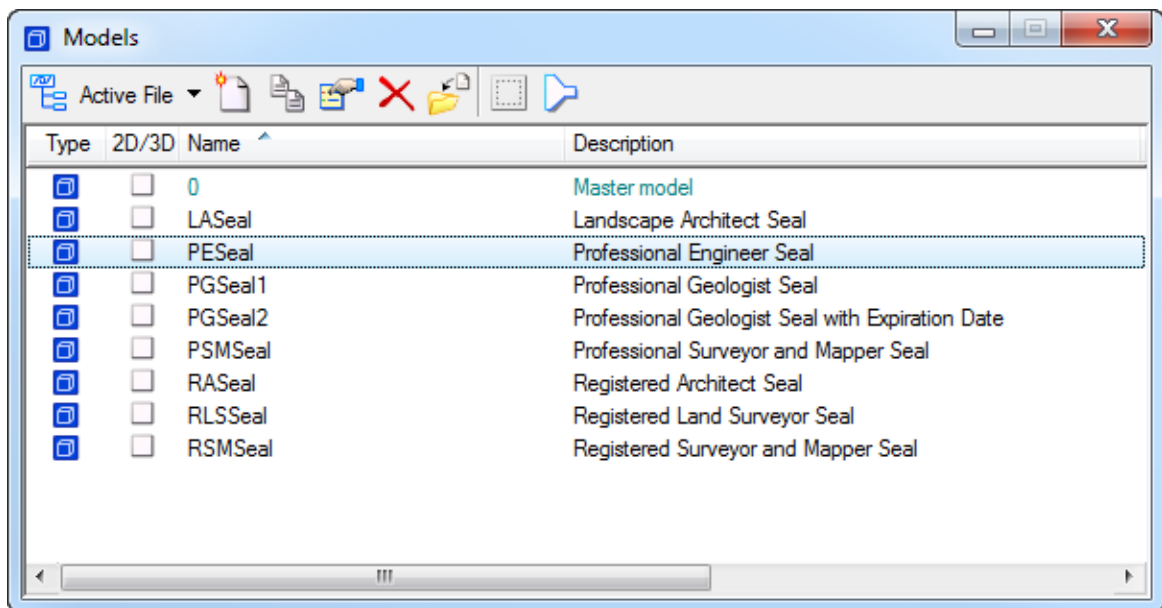
- Use the **FDOTSS4** icon to open MicroStation cell file:

C:\e\Projects\22049555201\cell\SR61_Seals.cel.

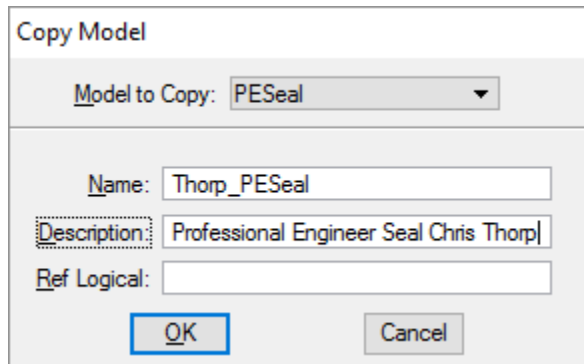
Note Change the File Type to .cel files.



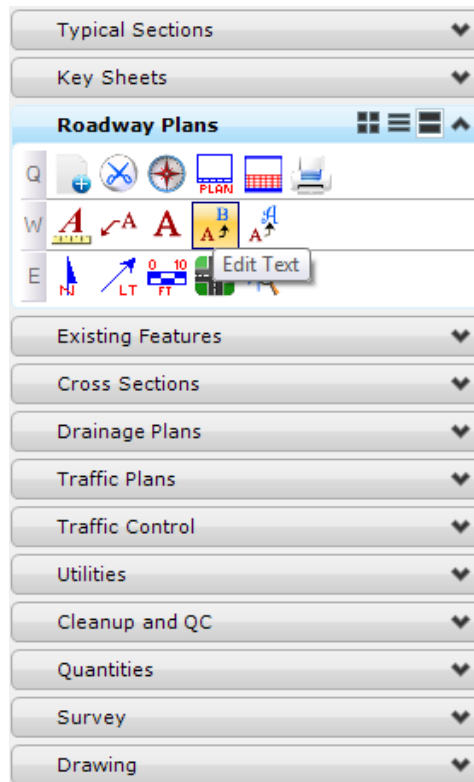
- In MicroStation select **File > Models**. The Models dialog displays.



- Right-click on the **PESeal** model and select **Copy**. Change the Model Name to **YourName_PESeal** and update the *Description*, then click **OK**. The created model opens.



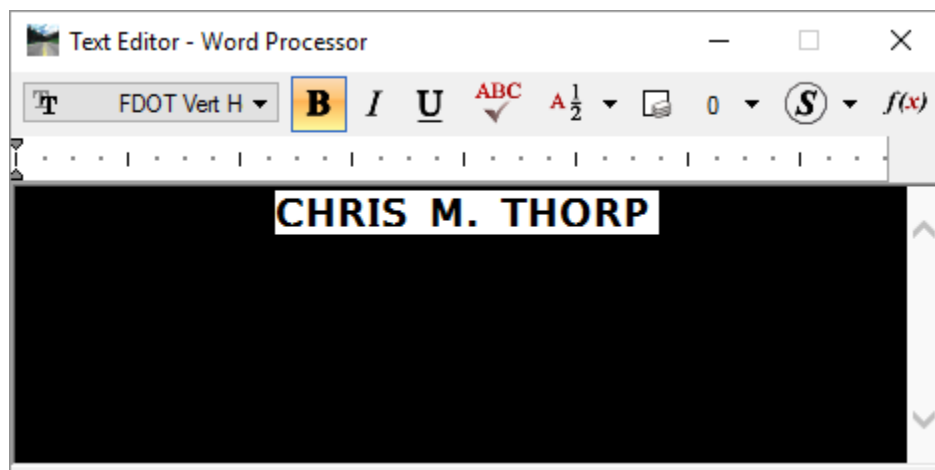
- From the FDOT Plans Development Task Menu, select to **Roadway Plans > Edit Text**.



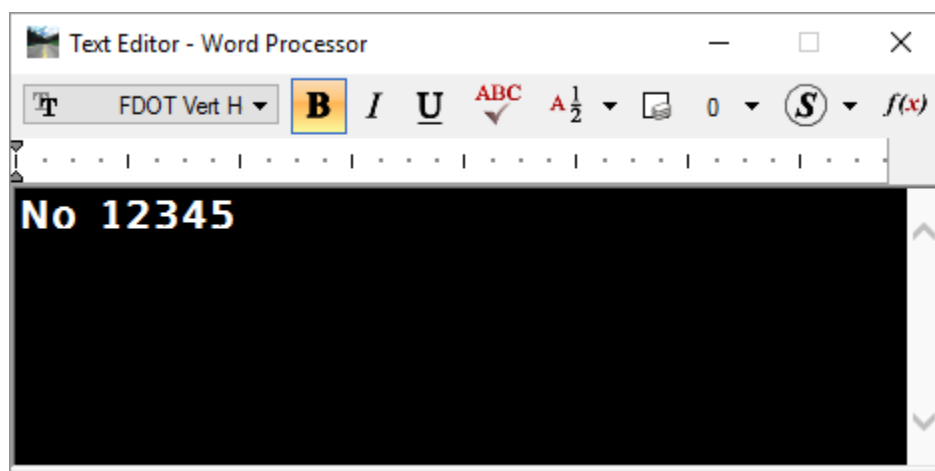
7. Select the *text* **SIGNATURE NAME** to edit.



8. In the Text Editor dialog, enter *your name* and **data point** to accept.



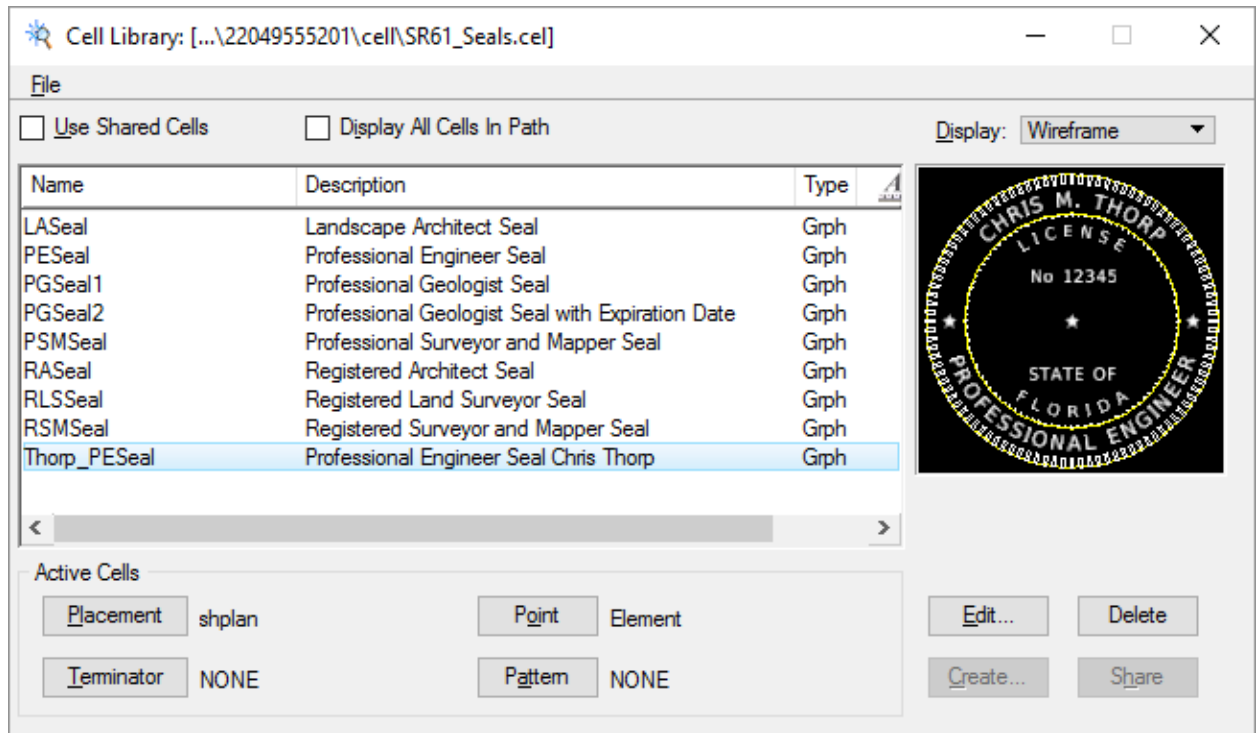
9. Next, select the **License No.** *text* and enter the *P.E. number* **12345** and **data point** to accept.



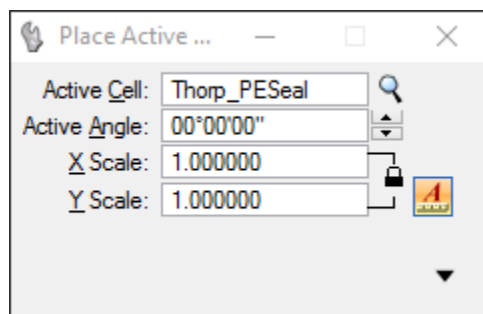
Exercise 3.3 *Placing the Signature Information*

➤ **Placing the Signature Information (Part 1)**

1. In MicroStation, select **File > Open**. Change the *File Type* to **.dgn** and open the *SIGNRD01.dgn* file.
2. In MicroStation, select **Element > Cells**. The Cell Library dialog displays.
3. From the Cell Library dialog, select **File > Attach File...** and navigate to the *SR61_Seals.cel* file and click **Open**.
4. From the Cell Library dialog, highlight the newly created *seal cell* and double-click on the name.



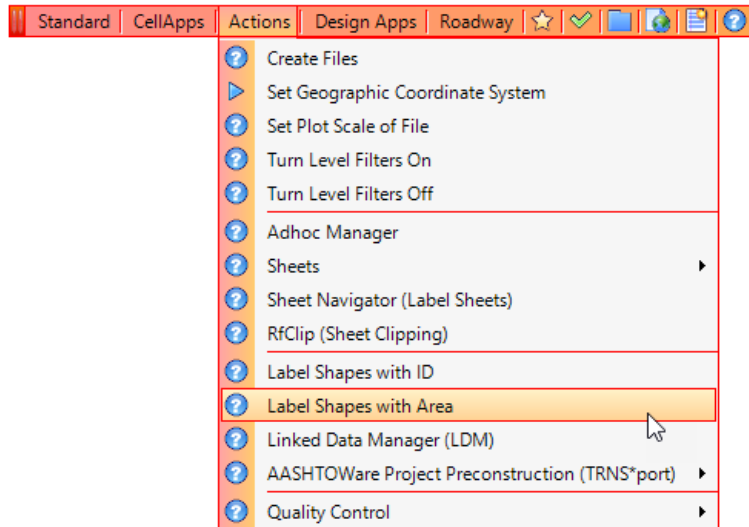
5. The MicroStation Place Active Cell command displays with **YourName_PESeal** set as the *Active Cell*. Set *scale* of the cell to **1.0**.



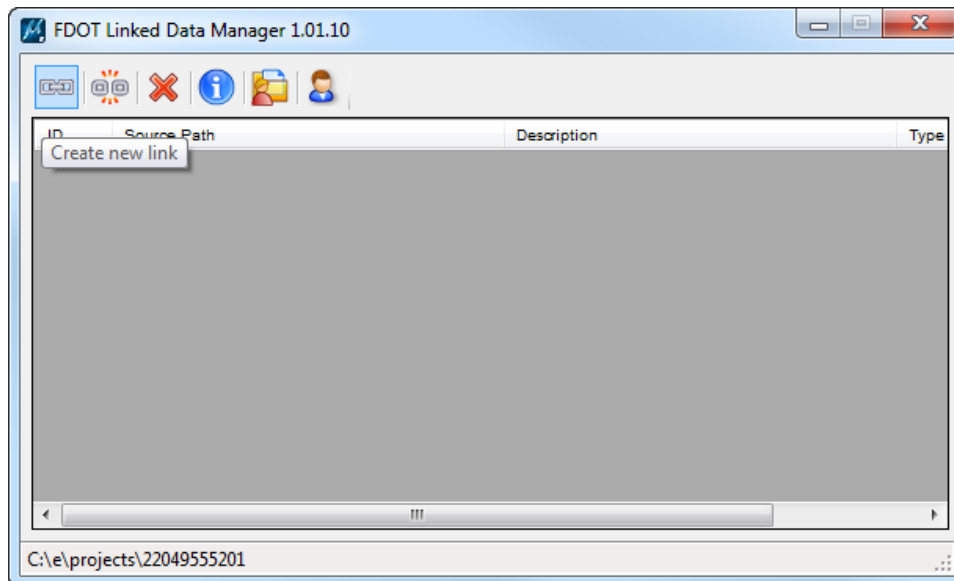
6. **Data point** to place the cell in the file. Place the *cell* in the upper left corner of the sheet. **Reset** when finished to get out of the *Place Cell* command.

➤ **Placing the Signature Information (Part 2)**

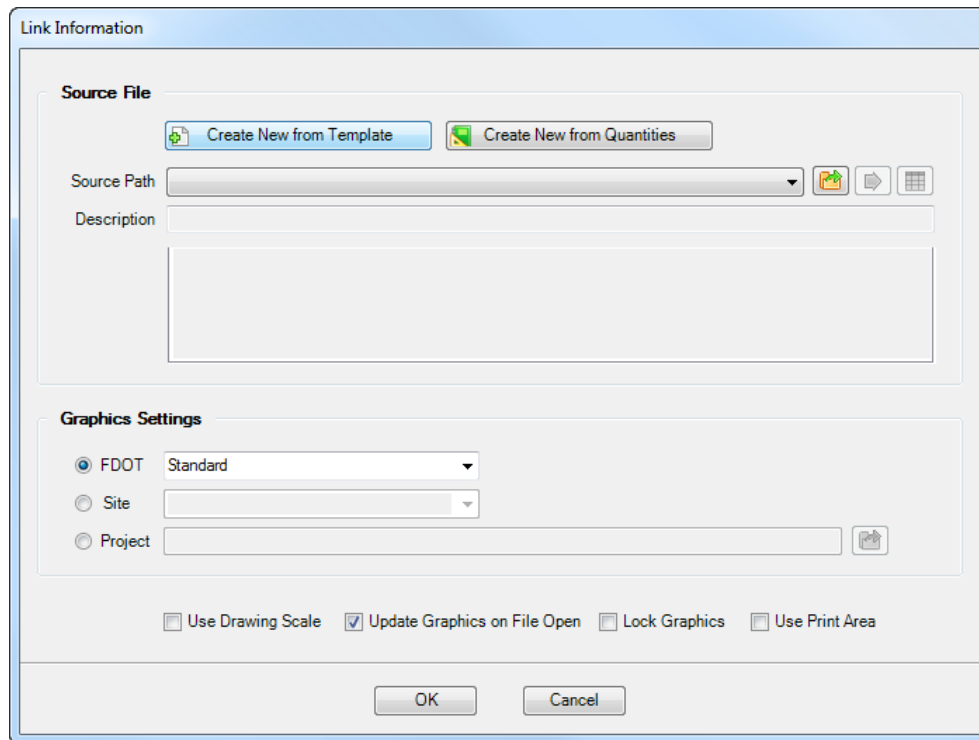
1. The *Statement of Responsibility* is placed using Linked Data Manager. From the FDOTSS4 Menu select **Actions > Linked Data Manager**.



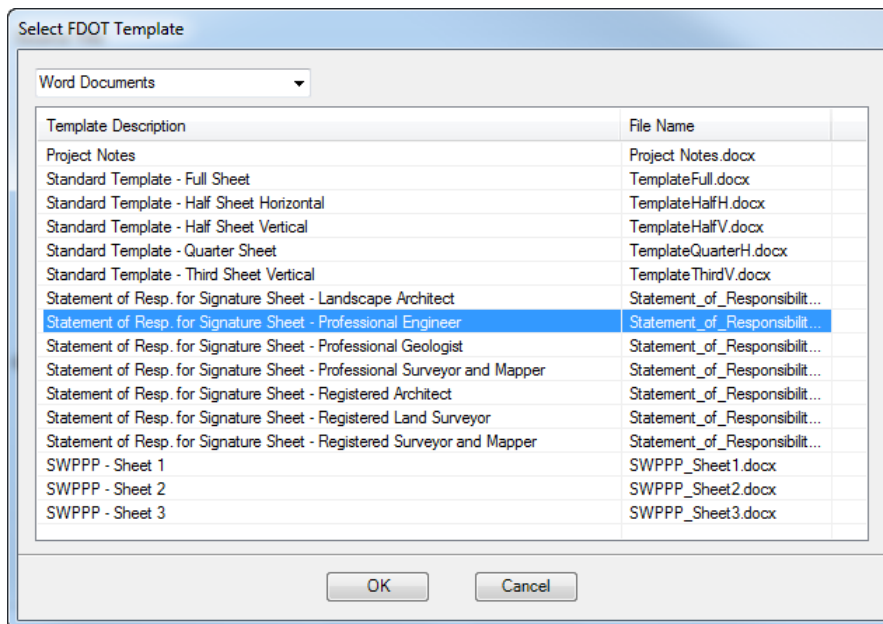
2. The FDOT Linked Data Manager dialog displays. Select the **Create New Link** icon.



3. The Link Information dialog displays. Click on the **Create New from Template** button.



4. The Select FDOT Template dialog displays.
 - a. Set the drop down to **Word Documents** and select the **Statement of Resp. for Signature Sheet – Professional Engineer Template**. Click **OK**.

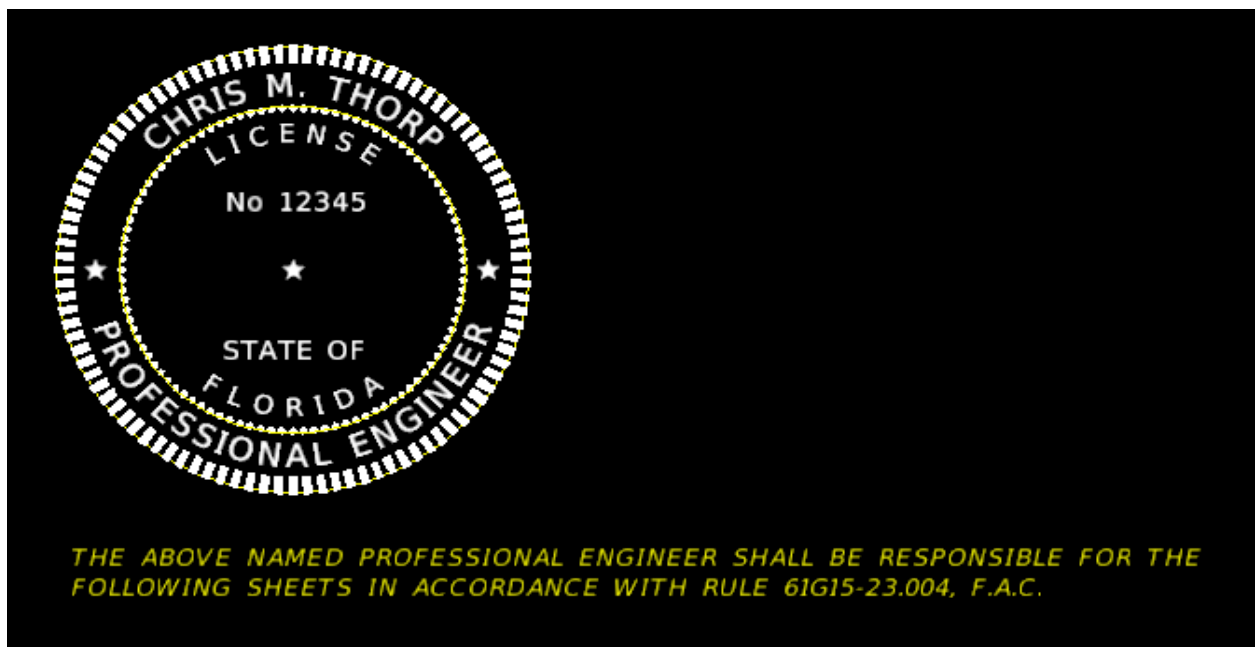


- b. The *Save File* dialog displays. Browse to the *c:\e\projects\22049555201\roadway* folder, accept the default *filename* and **Save** the file.

- From the Link Information dialog, toggle **Off** the *Page Boundary* check box and toggle **On** the *Use Drawing Scale* check box and click **OK**.

Note The file name of the document can be changed to reflect the Professional's name.

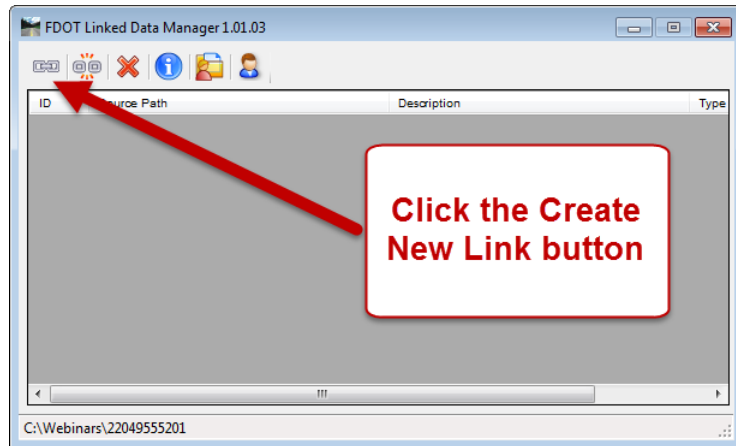
- With the *Statement of Responsibility Note* attached to cursor, **data point** under the *seal cell* to place the link. The *link* is created and listed in the Linked Data Manager dialog.



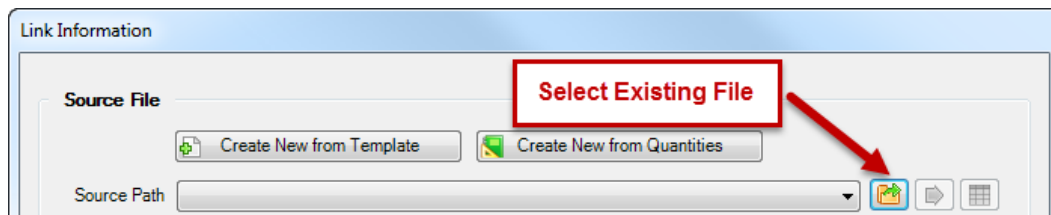
➤ **Placing the Signature Information (Part 3)**

The list of sheets the Engineer is responsible for is also placed using Linked Data Manager.

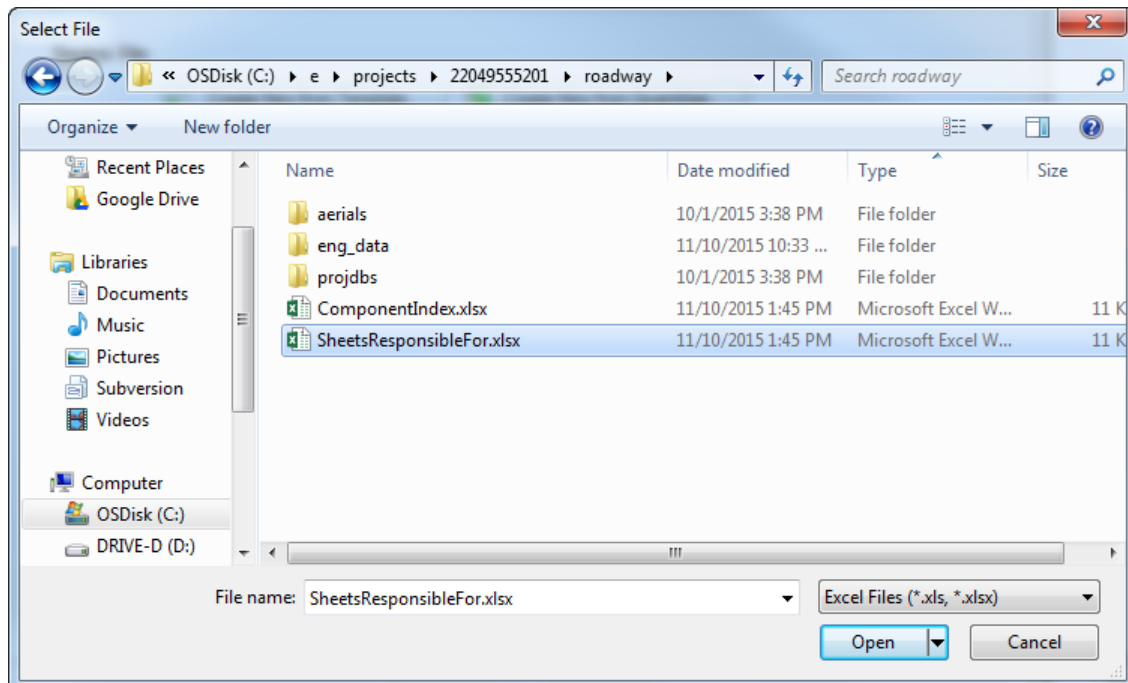
1. Navigate to the *C:\e\projects\22049555201\roadway* folder. Copy the *ComponentIndex.xlsx* file and paste it into the *Roadway* folder with the name *SheetsResponsibleFor.xlsx*
2. From the FDOT Linked Data Manager dialog, click the **Create New Link** button.



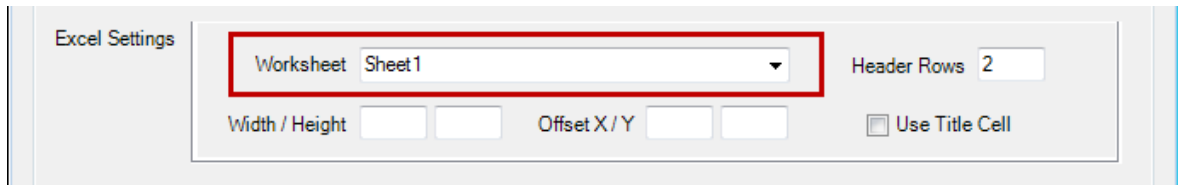
3. The Link Information dialog displays. Click the **Select Existing File** button.



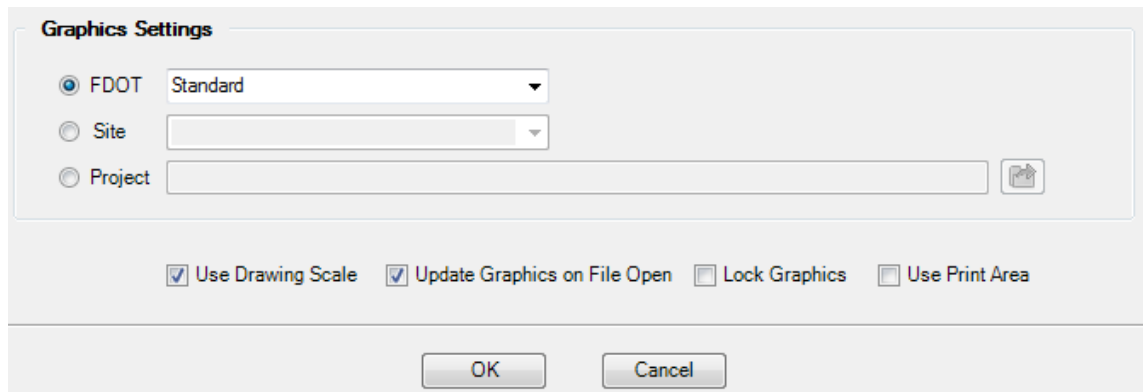
4. Select File displays. Select the *SheetsResponsibleFor.xlsx* and click the **Open** button.



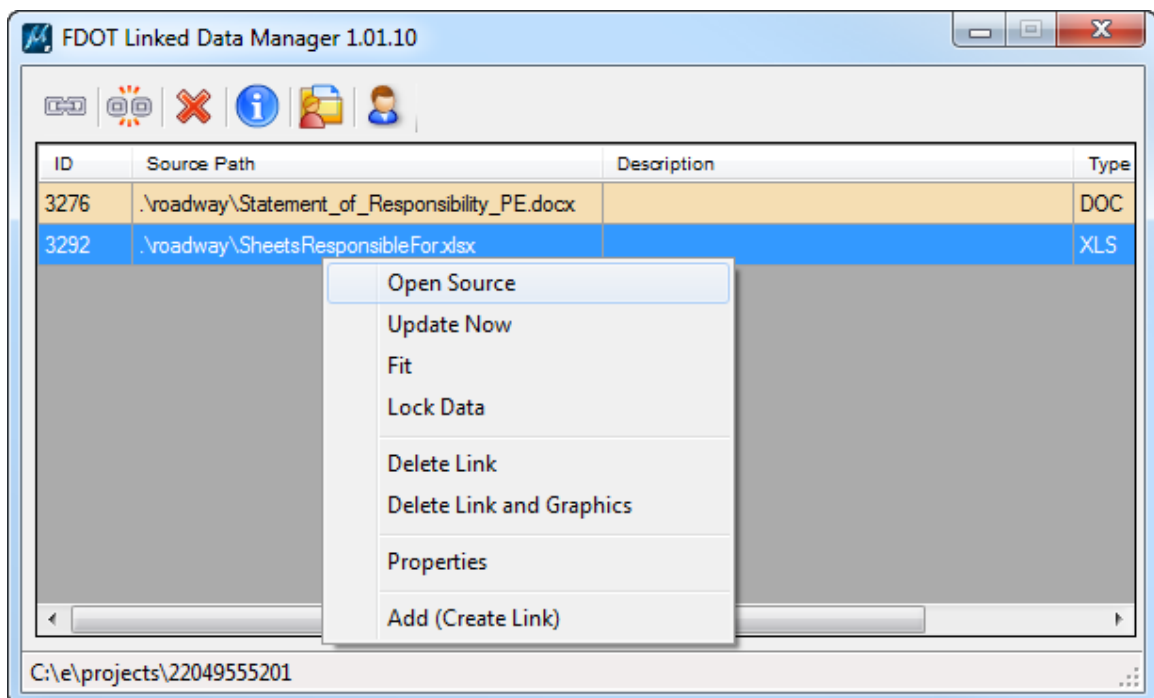
5. From the FDOT Linked Data Manager dialog, for the *Excel Settings*, set the *Worksheet* to **Sheet 1** as shown below.



6. Set the *Graphic Settings* as shown below. Click the **OK** button.



7. **Data Point** to place the text under the *Statement of Responsibility Note* in the MicroStation file.
8. From the FDOT Linked Data Manager dialog, right-click on the *SheetsResponsibleFor.xlsx* link and select **Open Source**.

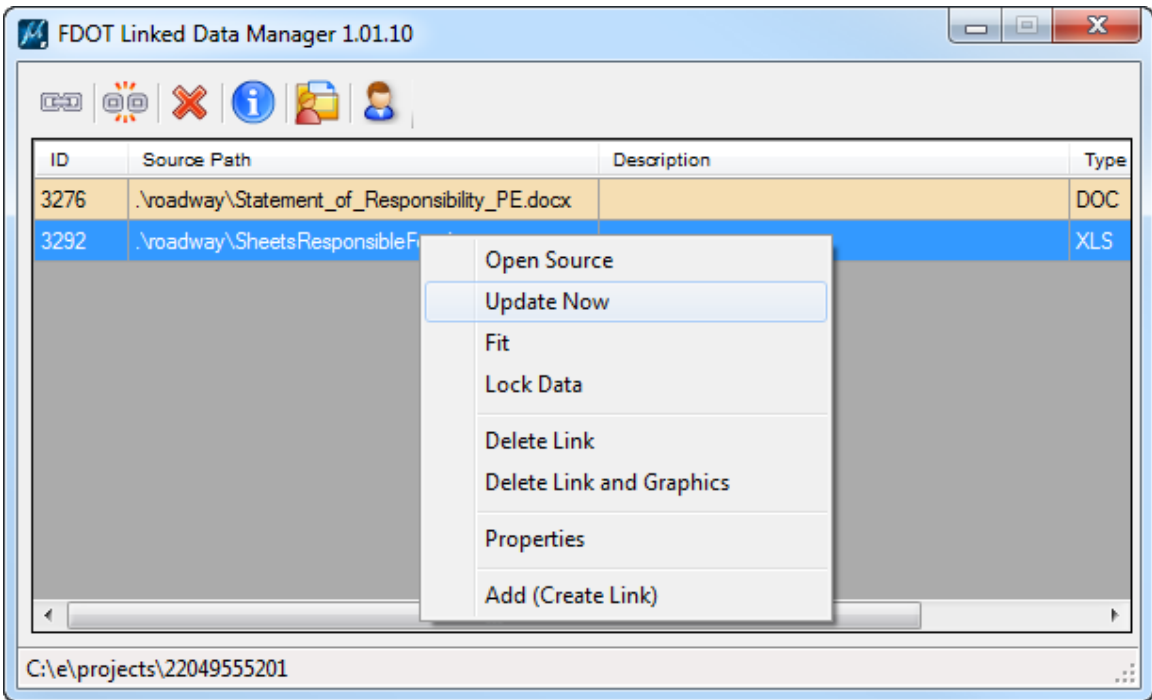


9. The Excel file opens. Insert a *row* and add the *title ROADWAY PLANS*.

2	<i>ROADWAY PLANS</i>	
3	<i>1</i>	<i>KEY SHEET</i>
4	<i>2</i>	<i>TYPICAL SECTION</i>
5	<i>3</i>	<i>PROJECT LAYOUT</i>
6	<i>4</i>	<i>PROJECT NOTES</i>
7	<i>5 - 8</i>	<i>PLAN SHEET</i>
8	<i>9 - 12</i>	<i>PLAN/PROFILE</i>
9	<i>13 - 25</i>	<i>CROSS SECTIONS</i>
10	<i>26 - 28</i>	<i>STORMWATER POLLUTION PREVENTION PLAN</i>
11	<i>29</i>	<i>TRAFFIC CONTROL TYPICAL SECTION</i>
12	<i>30</i>	<i>TRAFFIC CONTROL GENERAL NOTES</i>
13	<i>31 - 35</i>	<i>TEMPORARY TRAFFIC CONTROL PLAN</i>
14	<i>36 - 39</i>	<i>UTILITY ADJUSTMENT SHEETS</i>

10. **Save** and **close** the Excel file.

11. From the FDOT Linked Data Manager dialog, right-click on the *SheetsResponsibleFor.xlsx* link and select **Update Now**.

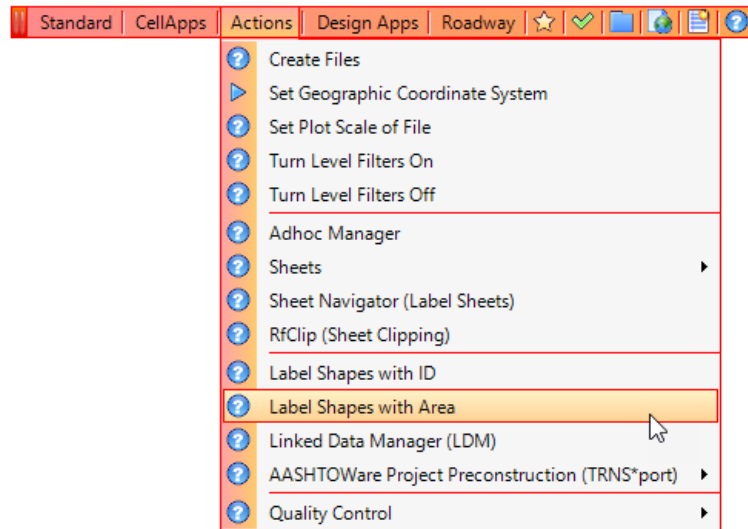


12. The link will be updated in the MicroStation file to reflect the changes made.

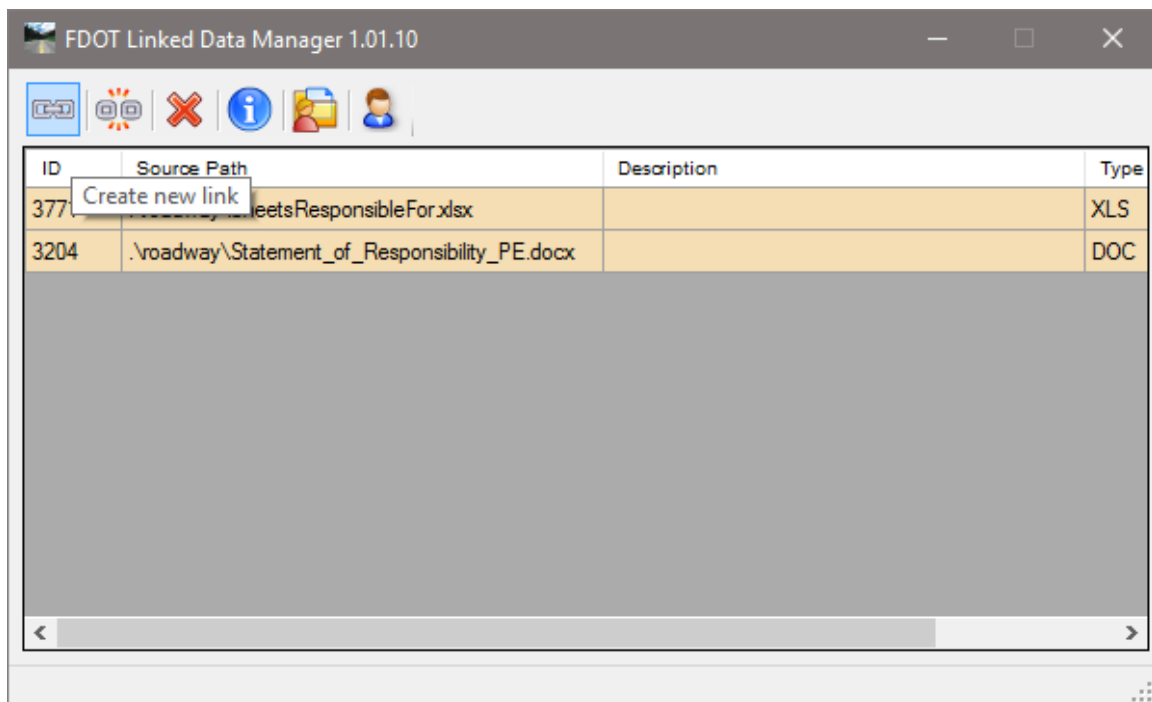
➤ **Placing the Signature Information (Part 4)**

The *Digital Signature Appearance* information text is placed using Linked Data Manager.

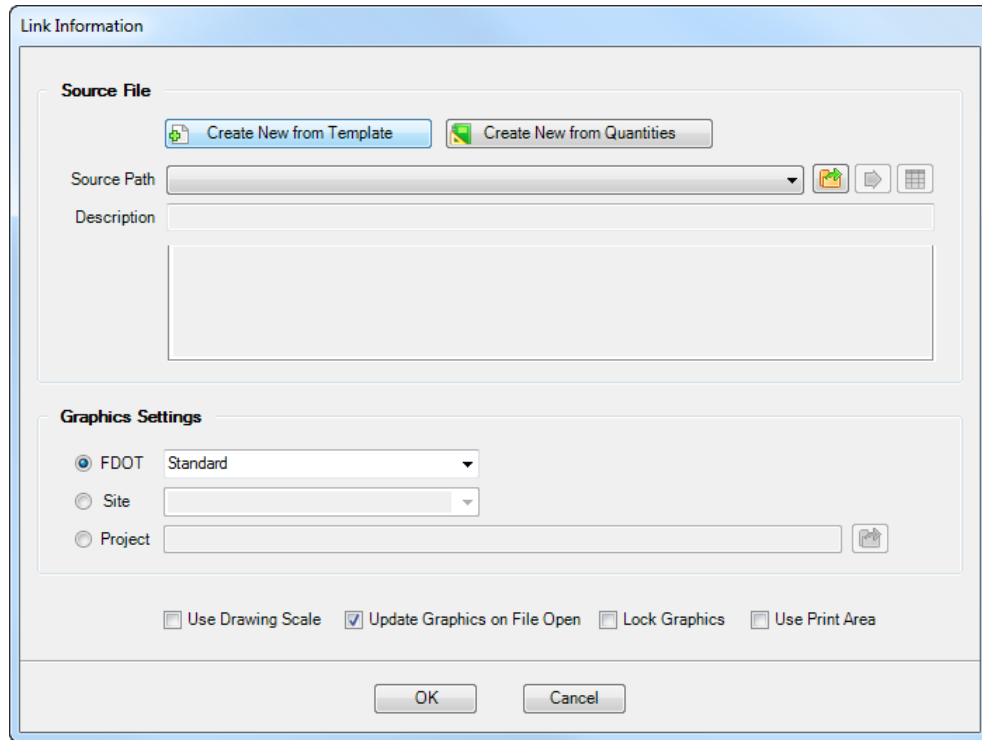
1. From the FDOTSS4 Menu select **Actions > Linked Data Manager**.



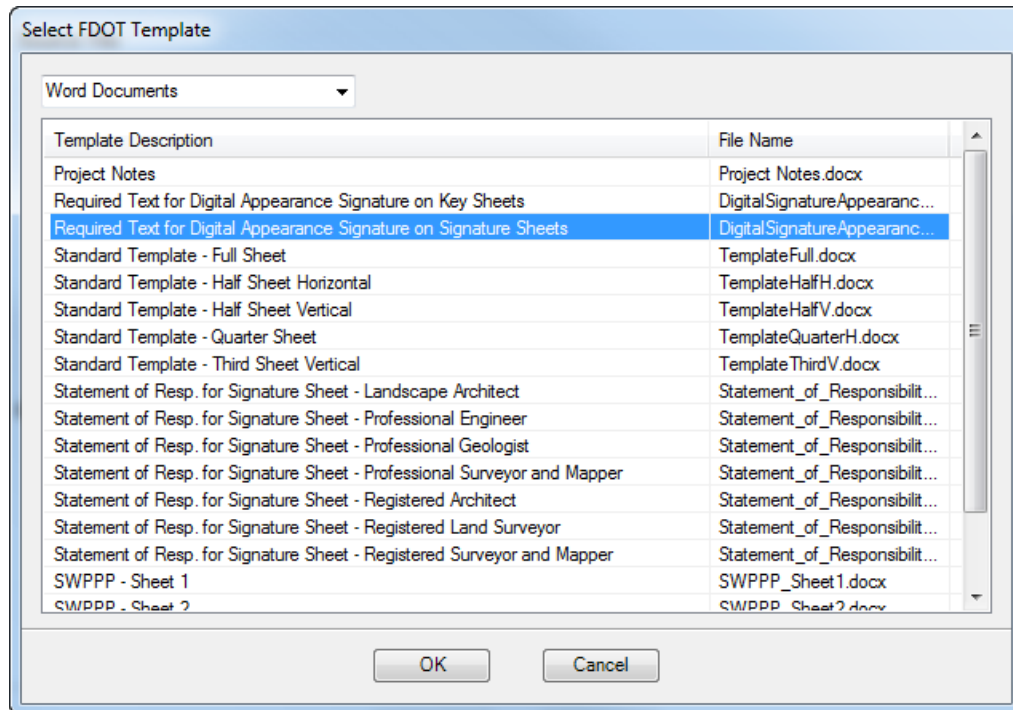
2. The FDOT Linked Data Manager dialog displays. Select the **Create New Link** icon.



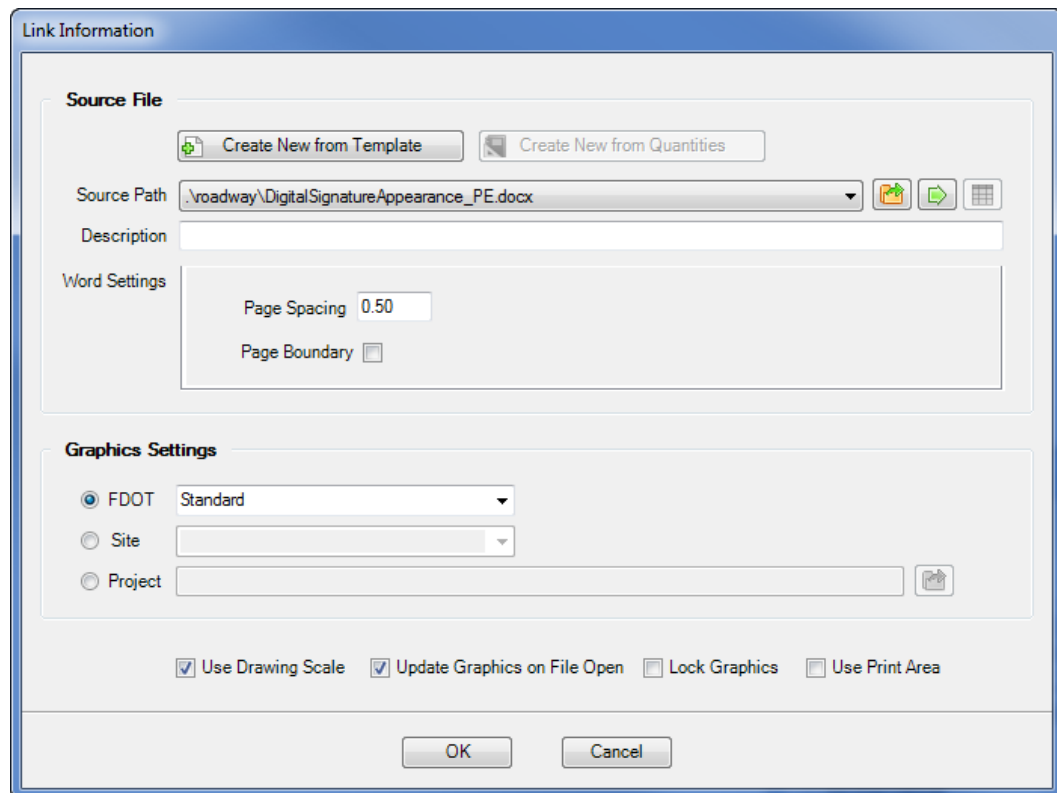
3. The Link Information dialog displays. Click on the **Create New from Template** button.



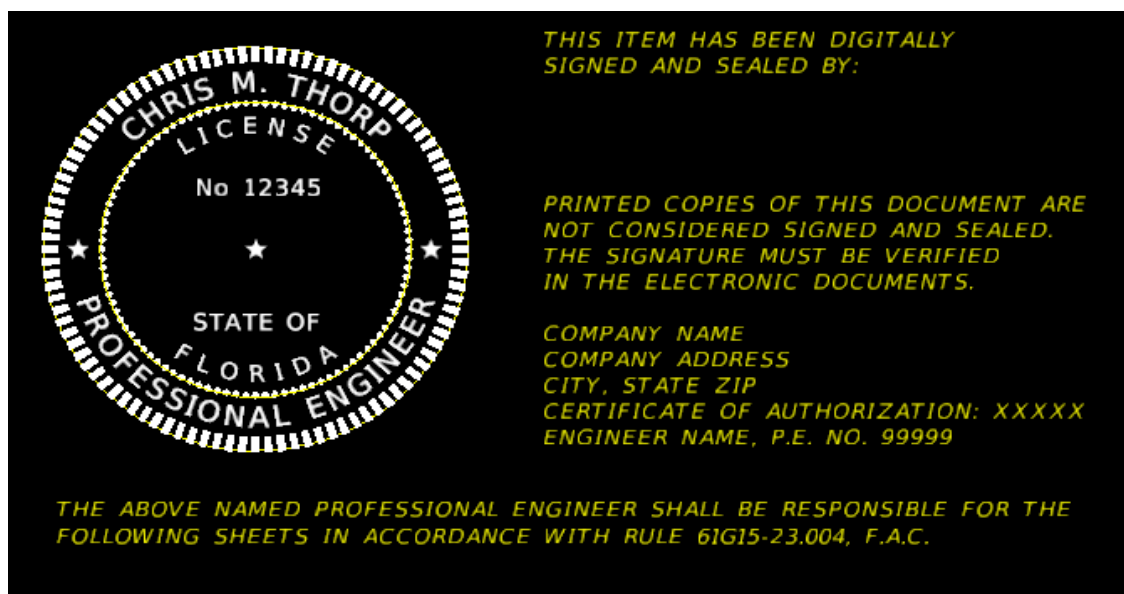
4. The Select FDOT Template dialog displays.
 - a. Set the drop down to **Word Documents** and select the **Required Text for Digital Appearance Signature on Signature Sheets Template**. Click **OK**.



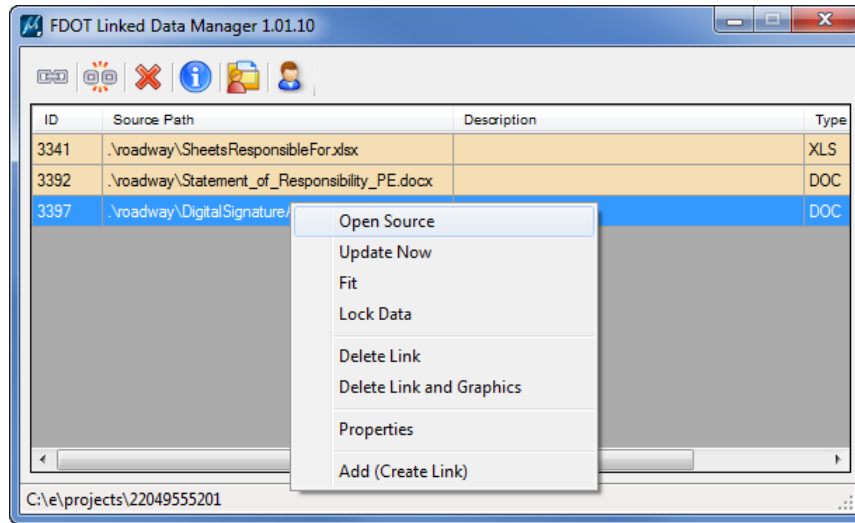
- b. The *Save File* dialog displays. Browse to the *c:\e\projects\22049555201\roadway* folder, accept the default *filename* and **Save** the file.
5. From the *Link Information* dialog, toggle **Off** the *Page Boundary* check box and toggle **On** the *Use Drawing Scale* check box and click **OK**.



6. With the *Digital Signature Appearance Note* attached to cursor, **data point** in the MicroStation file to the right of the seal cell to place the link. The link is created and listed in the *Linked Data Manager* dialog.



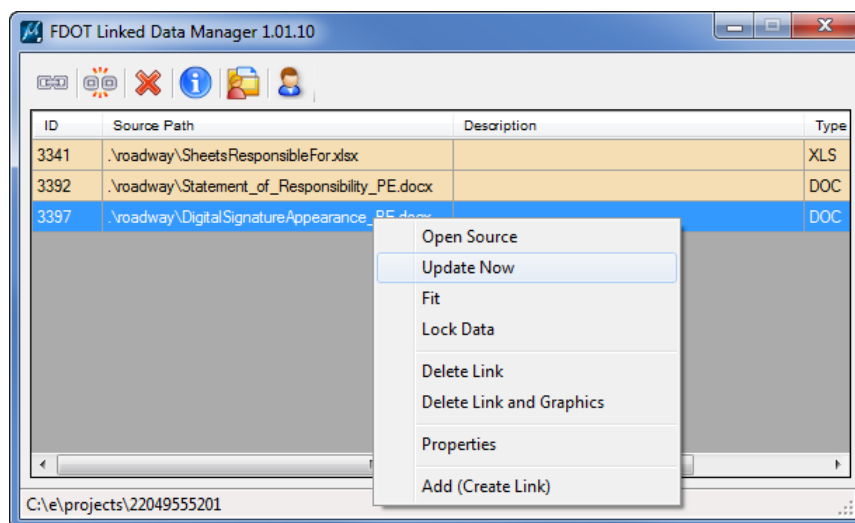
7. To edit the *Digital Signature Appearance Note*:
 - a. Go to the Linked Data Manager dialog, right-click on the *link* and select **Open Source**.



- b. The Word document displays. At the bottom portion of the note, input the correct *company information*. See below:

FDOT ENGINEERING, INC
605 SUWANNEE STREET
TALLAHASSEE, FL 32399
CERTIFICATE OF AUTHORIZATION, 12345
CHRIS M. THORP, P.E. NO. 12345

- c. **Save** the file and **close** it.
8. From the Linked Data Manager dialog, select the link again, right-click and select **Update Now**.



Note The note will be updated in the MicroStation file to reflect the changes.

9. Use MicroStation **Fit View** and then select **File > Save Settings**.
10. **Close** MicroStation

4 TYPICAL SECTION SHEETS

OBJECTIVES

- Create Typical Section Data Package
- Create Roadway Typical Section Sheets for plans

EXERCISE OVERVIEW

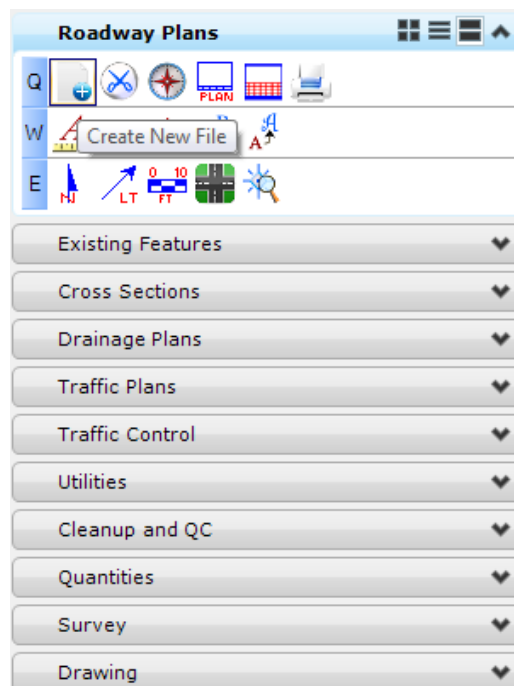
- 4.1 Creating the Typical Section Data Package
- 4.2 Creating the Roadway Typical Section Sheet

Exercise 4.1 *Creating the Typical Section Data Package*

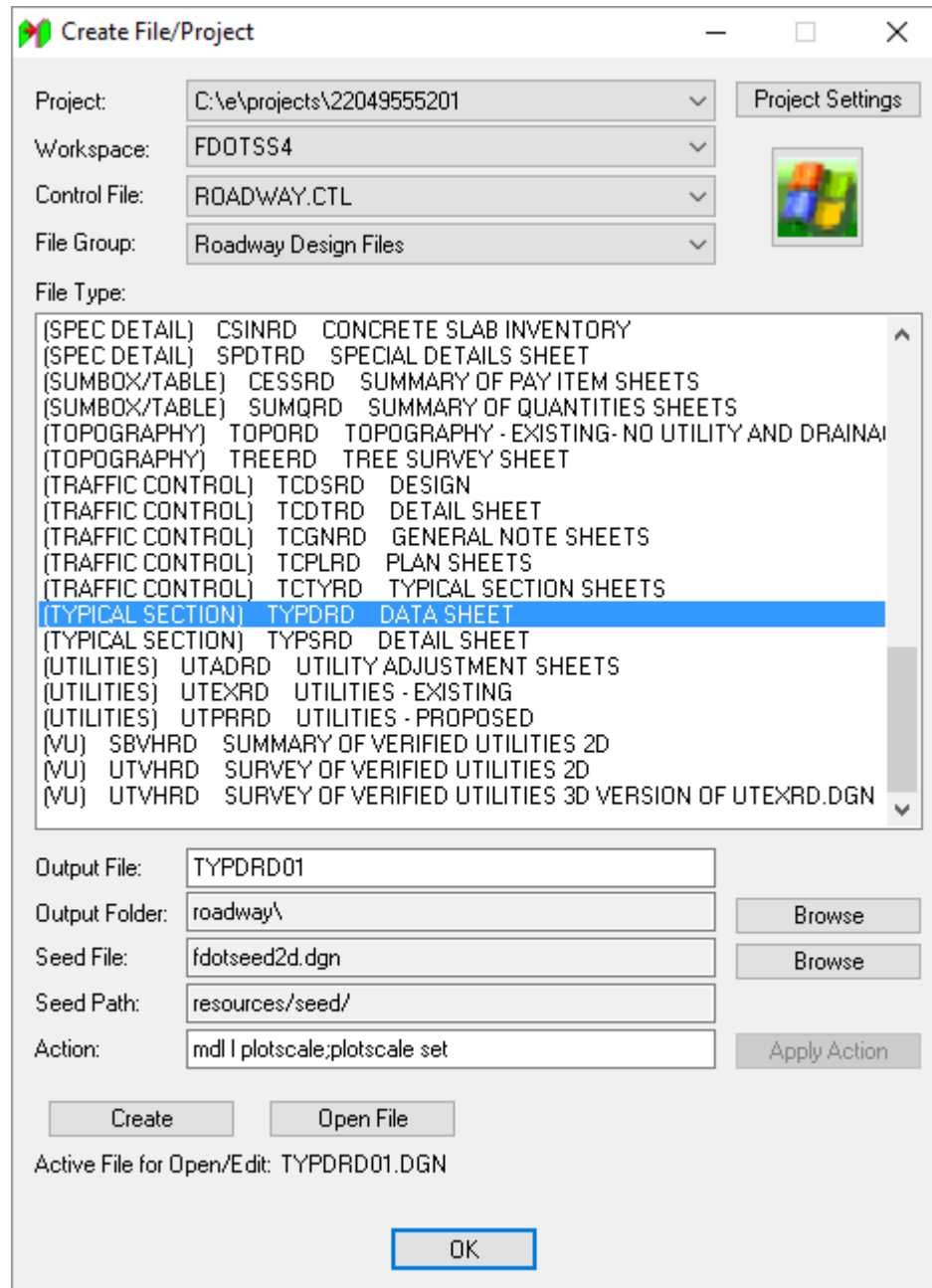
Typical Section Data sheets are used for what is called the “Typical Section Package”. This is done before the design starts but after the seed project is delivered from Florida Department of Transportation (FDOT). An approved Typical Sections Package must exist before the design on a project starts. This exercise will demonstrate how to create all of the sheets needed for the package.

➤ **Project Identification Sheet:**

1. (Optional) Extract the *22049555201(4).zip* file in the *Data Set* folder to the *c:\e\projects* folder.
2. Using the FDOT SS4 icon, open the MicroStation design file:
C:\E\Projects\22049555201\roadway\DSGNRD01.dgn
3. On the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.

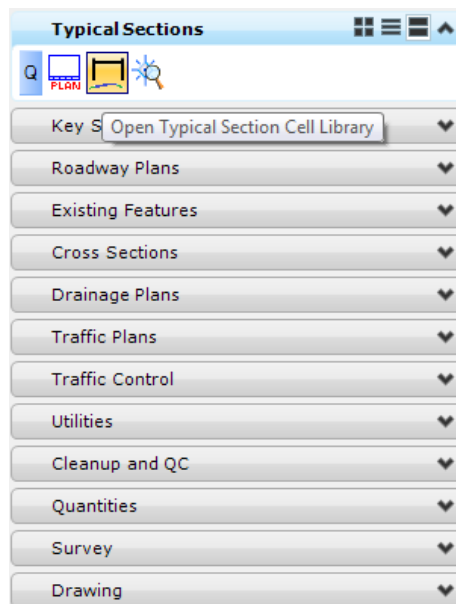


4. The Create File/Project dialog displays. Click on the **Project Settings** button.
5. The Project Settings dialog displays. Click on the **Select Active Project** button.
6. The Select Active Project dialog displays. Click **OK** and **OK** on the Project Settings dialog.
7. The *Project* is populated with the selected *Project path* and the *Workspace* is set to **FDOTSS4**. Complete the rest of the Create File/Project dialog as shown below.

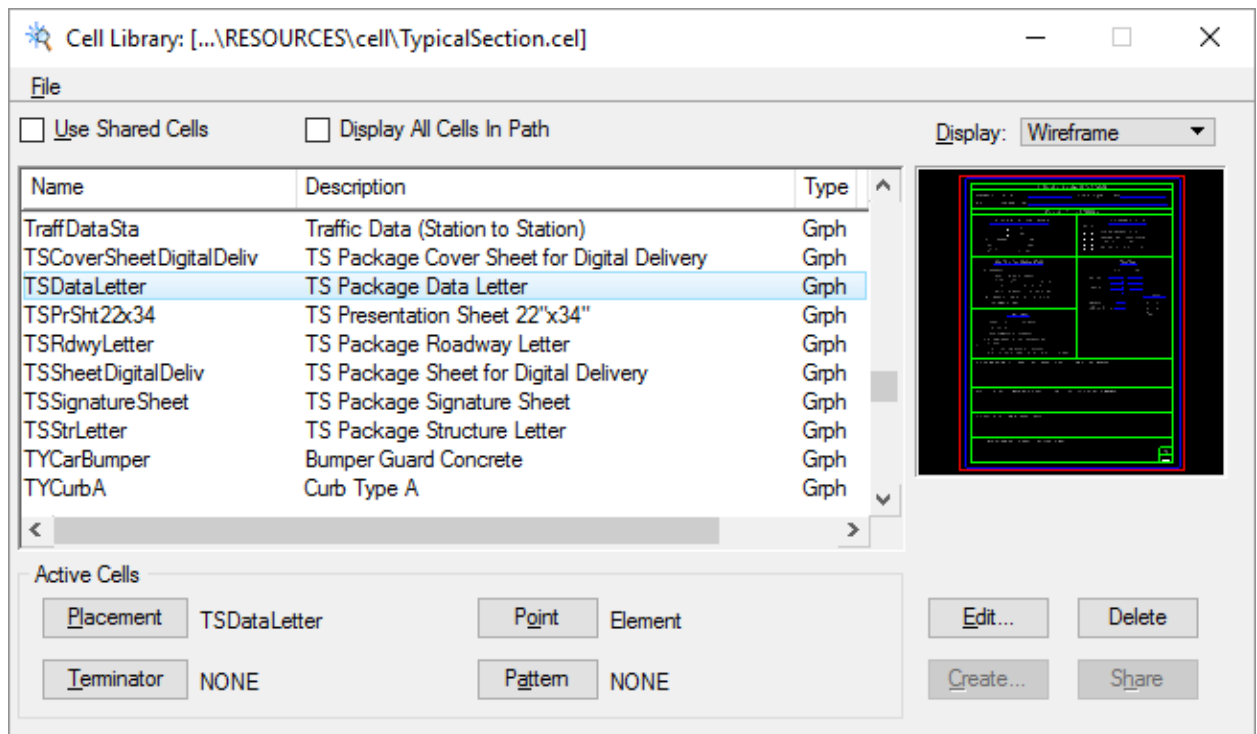


8. Click **Create** to create the file, *TYPDRD01.dgn*.
9. Click **Open File** to display the file *TYPDRD01.dgn*.
10. *Set/Update Plot Scale* displays. Use the *Default* settings and click **OK**.
11. Click **OK** to close the *Create File/Project* dialog.

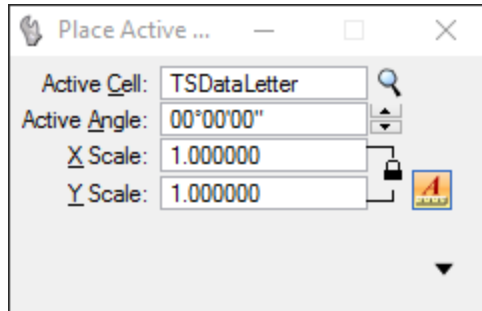
12. From the FDOT Plans Development Task Menu, select **Typical Sections > Open Typical Section Cell Library**.



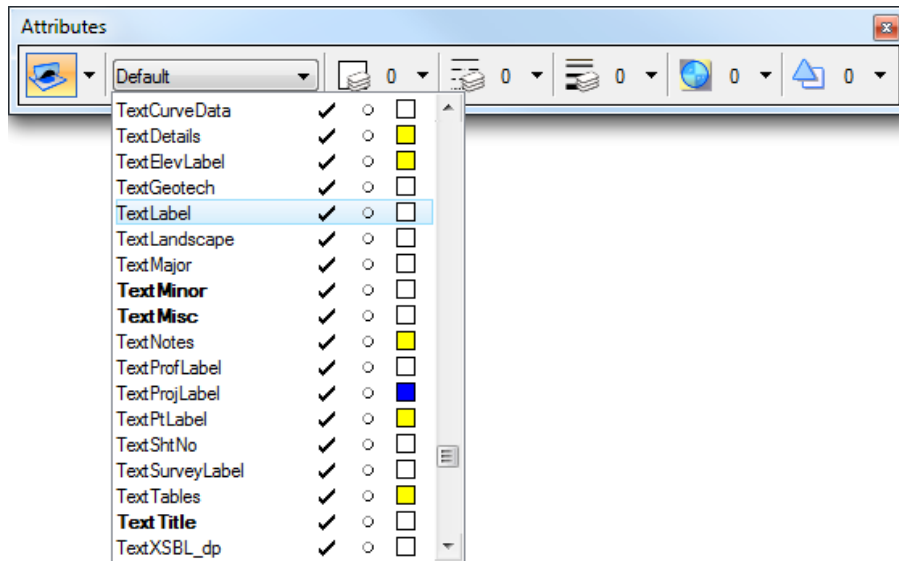
13. The MicroStation Cell Library dialog displays with the *TypicalSection.cel* library attached. Find the **TSDataLetter** cell and double click. The MicroStation Place Active Cell command displays with **TSDataLetter** set as the *Active Cell*.



14. Set *scale* of the cell to **1.0**.

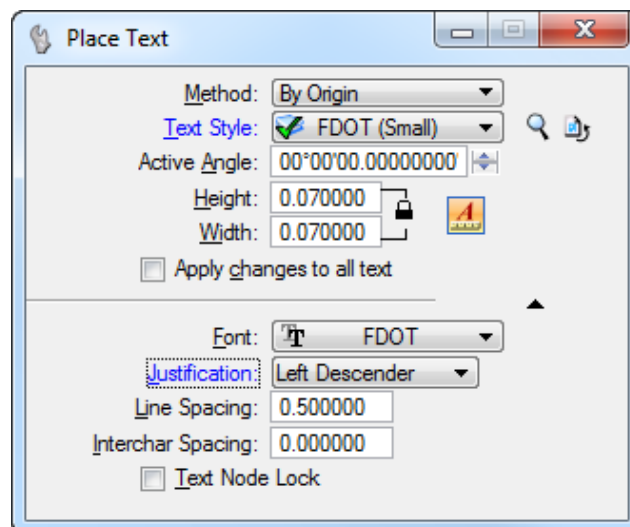


15. **Data point** to place the cell in the file. Reset when finished to get out of the *Place Cell* command.
16. Set the *Level* to **Text Label**.



17. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place Text** A.

18. The Place Text dialog displays. Set the *Text Parameters* as shown below.



19. Type **220495-5-52-01** into the Text Editor, **snap** to the end of the line beside the *Financial Project ID* and **data point** to place the text.
20. Follow the same steps for the *County (Section)* and *Project Description* using the information below.

County (Section): WAKULLA (59010)

*Project Description: SR 61 (US 319) (CRAWFORDVILLE HWY.)
FROM SR 30 (US 98) TO NORTH OF ALASKA WAY*

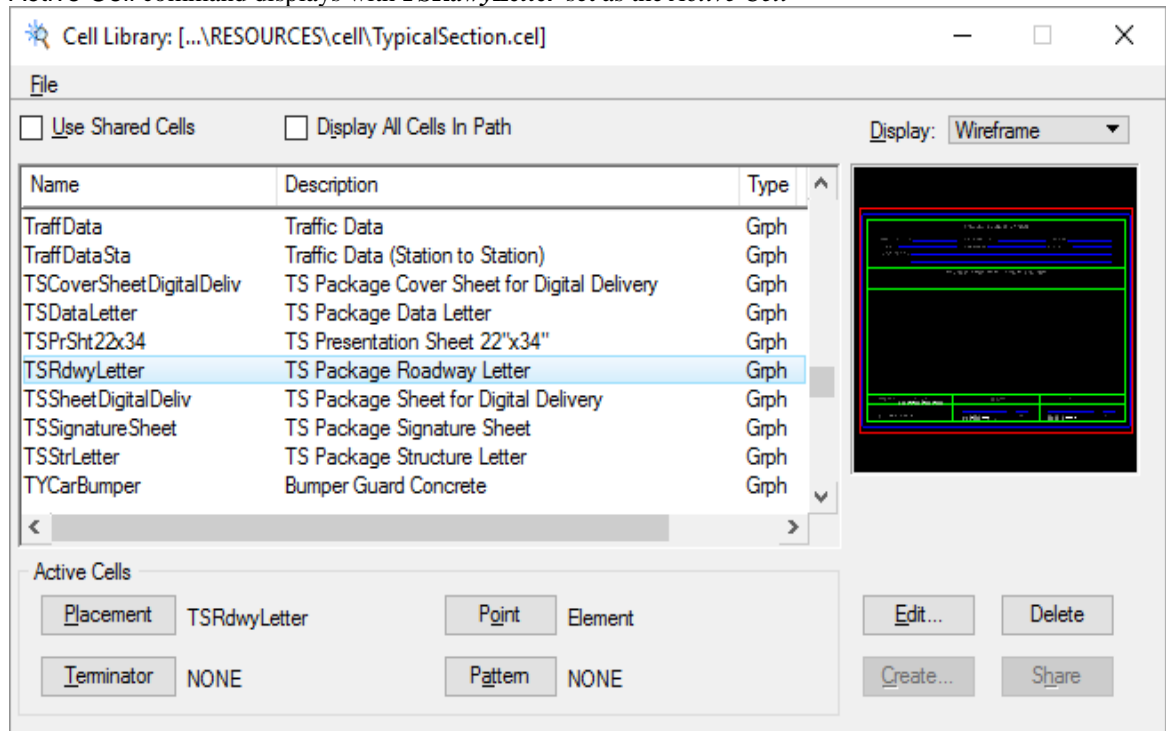
Note All of the text on the form under the *Project Controls* section of the sheet are *Enter Data Fields*.


21. From the FDOT Plans Development Task Menu, select **Roadway Plans > Edit Text** to edit the *Enter Data Fields* in the sheet and fill out the information as in the image below.

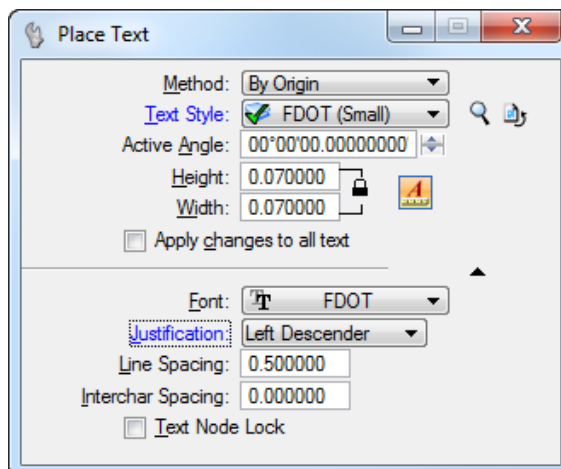
PROJECT IDENTIFICATION																													
FINANCIAL PROJECT ID <u>220495-5-52-01</u> COUNTY (SECTION) <u>WAKULLA (59010)</u>																													
PROJECT DESCRIPTION <u>SR 61 (US 319) (CRAWFORDVILLE HWY.) FROM SR 30 (US 98) TO NORTH OF ALASKA WAY</u>																													
PROJECT CONTROLS																													
<p style="text-align: center;"><u>FUNCTIONAL CLASSIFICATION</u></p> <p><input type="checkbox"/> RURAL</p> <p><input checked="" type="checkbox"/> URBAN</p> <p><input type="checkbox"/> FREEWAY/EXPWY. <input type="checkbox"/> MAJOR COLL.</p> <p><input type="checkbox"/> PRINCIPAL ART. <input type="checkbox"/> MINOR COLL.</p> <p><input type="checkbox"/> MINOR ART. <input type="checkbox"/> LOCAL</p>	<p style="text-align: center;"><u>HIGHWAY SYSTEM</u></p> <p>Yes No</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> NATIONAL HIGHWAY SYSTEM</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> STRATEGIC INTERMODAL SYSTEM</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> STATE HIGHWAY SYSTEM</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> OFF STATE HIGHWAY SYSTEM</p>																												
<p style="text-align: center;"><u>ACCESS CLASSIFICATION</u></p> <p><input type="checkbox"/> 1 - FREEWAY</p> <p><input type="checkbox"/> 2 - RESTRICTIVE w/Service Roads</p> <p><input checked="" type="checkbox"/> 3 - RESTRICTIVE w/660 ft. Connection Spacing</p> <p><input type="checkbox"/> 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing</p> <p><input type="checkbox"/> 5 - RESTRICTIVE w/440 ft. Connection Spacing</p> <p><input type="checkbox"/> 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing</p> <p><input type="checkbox"/> 7 - BOTH MEDIAN TYPES</p>	<p style="text-align: center;"><u>TRAFFIC</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">YEAR</th> <th style="text-align: center;">AADT</th> </tr> </thead> <tbody> <tr> <td>CURRENT</td> <td style="text-align: center;"><u>2015</u></td> <td style="text-align: center;"><u>4,000</u></td> </tr> <tr> <td>OPENING</td> <td style="text-align: center;"><u>2020</u></td> <td style="text-align: center;"><u>4,100</u></td> </tr> <tr> <td>DESIGN</td> <td style="text-align: center;"><u>2040</u></td> <td style="text-align: center;"><u>4,500</u></td> </tr> </tbody> </table> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">DESIGN SPEED</th> <th style="text-align: center;">DISTRIBUTION</th> </tr> </thead> <tbody> <tr> <td>DESIGN SPEED</td> <td style="text-align: center;"><u>55</u></td> <td style="text-align: center;">K 9.00%</td> </tr> <tr> <td>POSTED SPEED</td> <td style="text-align: center;"><u>45</u></td> <td style="text-align: center;">D 56.50%</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">T 24 6.90%</td> </tr> </tbody> </table> <p style="text-align: center; margin-top: 10px;"><u>DESIGN SPEED APPROVALS</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; border-top: 1px solid black; text-align: center;">DISTRICT DESIGN ENGINEER</td> <td style="width: 30%; border-top: 1px solid black; text-align: center;">DATE</td> </tr> <tr> <td style="border-top: 1px solid black; text-align: center;">DISTRICT TRAFFIC OPERATIONS ENGINEER</td> <td style="border-top: 1px solid black; text-align: center;">DATE</td> </tr> </table>		YEAR	AADT	CURRENT	<u>2015</u>	<u>4,000</u>	OPENING	<u>2020</u>	<u>4,100</u>	DESIGN	<u>2040</u>	<u>4,500</u>		DESIGN SPEED	DISTRIBUTION	DESIGN SPEED	<u>55</u>	K 9.00%	POSTED SPEED	<u>45</u>	D 56.50%			T 24 6.90%	DISTRICT DESIGN ENGINEER	DATE	DISTRICT TRAFFIC OPERATIONS ENGINEER	DATE
	YEAR	AADT																											
CURRENT	<u>2015</u>	<u>4,000</u>																											
OPENING	<u>2020</u>	<u>4,100</u>																											
DESIGN	<u>2040</u>	<u>4,500</u>																											
	DESIGN SPEED	DISTRIBUTION																											
DESIGN SPEED	<u>55</u>	K 9.00%																											
POSTED SPEED	<u>45</u>	D 56.50%																											
		T 24 6.90%																											
DISTRICT DESIGN ENGINEER	DATE																												
DISTRICT TRAFFIC OPERATIONS ENGINEER	DATE																												
<p style="text-align: center;"><u>CRITERIA</u></p> <p><input checked="" type="checkbox"/> NEW CONSTRUCTION / RECONSTRUCTION</p> <p><input type="checkbox"/> RRR INTERSTATE / FREEWAY</p> <p><input type="checkbox"/> RRR NON-INTERSTATE / FREEWAY</p> <p><input type="checkbox"/> TOLC / NEW CONSTRUCTION / RECONSTRUCTION</p> <p><input type="checkbox"/> TOLC / RRR</p> <p><input type="checkbox"/> MANUAL OF UNIFORM MINIMUM STANDARDS (FLORIDA GREENBOOK) (OFF-STATE HIGHWAY SYSTEM ONLY)</p>																													
<p>LIST ANY POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION ELEMENTS.</p> <p>NONE EXPECTED</p>																													
<p>LIST MAJOR STRUCTURES LOCATION/DESCRIPTION - REQUIRING INDEPENDENT STRUCTURE DESIGN.</p>																													
<p>LIST MAJOR UTILITIES WITHIN PROJECT CORRIDOR.</p> <p>CABLE, WATER, TELEPHONE, ELECTRIC, SEWER</p>																													
<p>LIST OTHER INFORMATION PERTINENT TO DESIGN OF PROJECT.</p>																													

➤ **Typical Section Data Sheet**

1. On the Cell Library dialog find the **TSRdwyLetter** cell and double click. The MicroStation Place Active Cell command displays with **TSRdwyLetter** set as the *Active Cell*



2. Set *scale* of the cell to **1.0**.
3. **Data point** to place the cell in the file. **Reset** when finished to get out of the *Place Cell* command.
4. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place Text**  and set the *Text Parameters* as shown below:

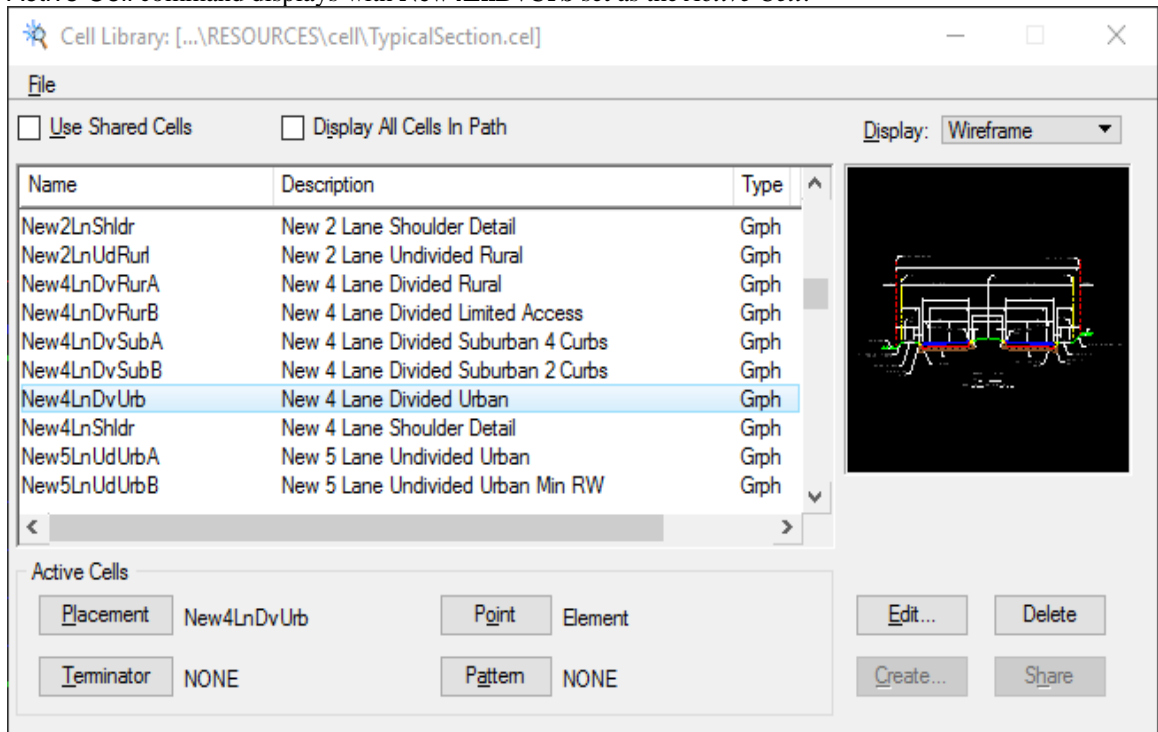


5. Type **220495-5-52-01** into the *Text Editor*, **snap** to the end of the line beside the *Financial Project ID* and **data point** to place the text.
6. Follow the same steps for the other *Project information*.

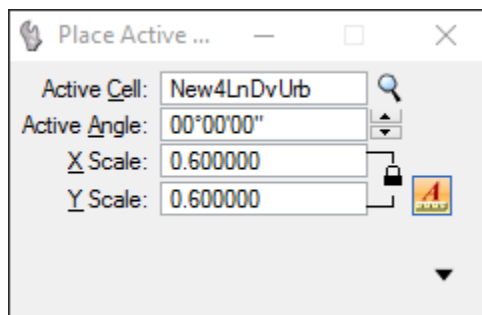
Federal Aid Project No.: N/A

County Name: WAKULLA
 Section No.: 59010
 Road Designation: SR 61 (US 319) (CRAWFORDVILLE HWY.)
 Limits/Milepost: MP 9.342 TO 9.981
 Project Description: NEW CONSTRUCTION - SR 61
 (CRAWFORDVILLE HWY.) FROM SR 30 (US 98) TO NORTH OF
 ALASKA WAY


- On the Cell Library dialog find the **New4LnDvUrb** cell and double click. The MicroStation Place Active Cell command displays with **New4LnDvUrb** set as the *Active Cell*.



- Set the *scale* of the cell to **0.6**.



- Data point** to place the cell in the middle of the *TSRdwyLetter* sheet. **Reset** when finished to get out of the *Place Cell* command.

- From the FDOT Plans Development Task Menu, select **Roadway Plans > Edit Text** .

- The Text Editor dialog displays. Double click on the C *CONST. **** label and change it to display: C *CONST. SR 61*.

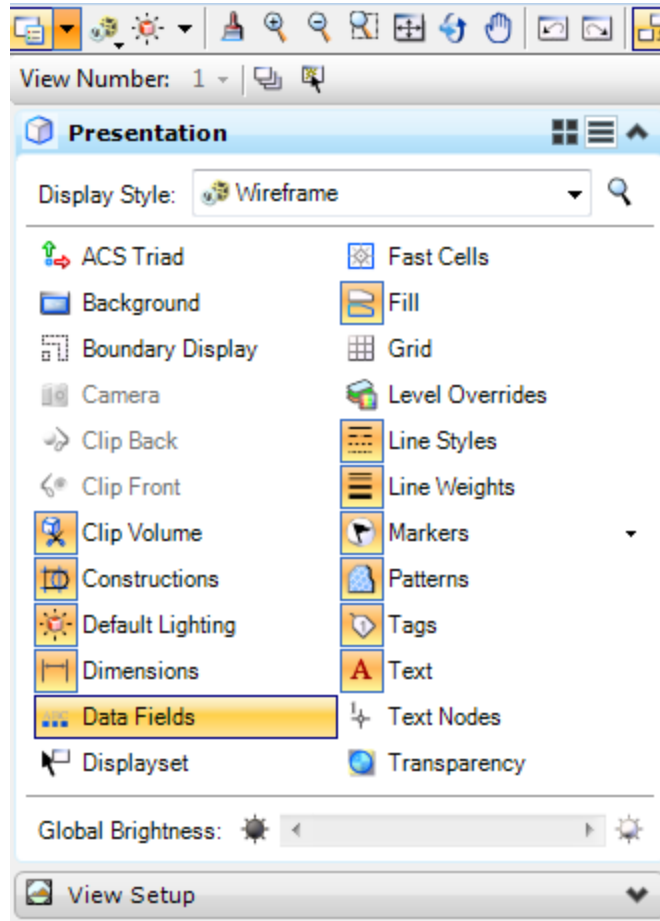
- Edit the *Road* and *Station* information as shown below:

TYPICAL SECTION
SR 61 (US 319) (CRAWFORDVILLE HWY.)
STA 700+00.00 TO STA. 715+50.00

13. Input the correct *Engineer of Record* information at the bottom of the sheet. See the image below.

PROJECT IDENTIFICATION		
FINANCIAL PROJECT ID <u>220495-S-52-01</u>	FEDERAL AID PROJECT NO <u>N/A</u>	COUNTY NAME <u>WAKULLA</u>
SECTION NO. <u>59010</u>	ROAD DESIGNATION <u>SR 61 (US 319) (CRAWFORDVILLE HWY.)</u>	LIMITS/MILEPOST <u>MP 9.342 TO 9.981</u>
PROJECT DESCRIPTION <u>NEW CONSTRUCTION - SR 61 (CRAWFORDVILLE HWY) FROM SR 30 (US 98) TO NORTH OF ALASKA WAY</u>		
PROPOSED ROADWAY TYPICAL SECTION		
APPROVED BY: <u>CHRIS M. THORP, P.E.</u>	FDOT CONCURRENCE	FHWA CONCURRENCE
Engineer Of Record Signature and Date	<u>JOHN ENGINEER, P.E.</u> FDOT District Design Engineer	<u>N/A</u> FHWA Transportation Engineer
Date	Date	Date
SUSANS	SUSANS	SUSANS

14. Go to the *View* options and turn **Off** the *Data Fields* option. Select **File > Save Setting**.

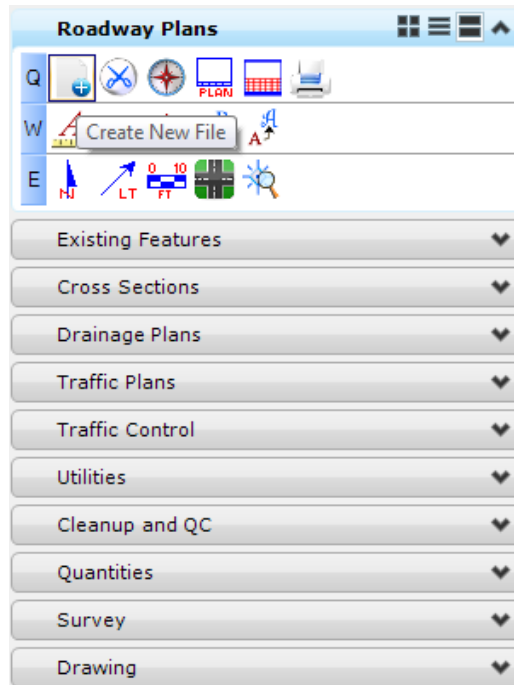


Exercise 4.2 *Creating the Roadway Typical Section Sheet*

The FDOT Workspace contains a number of Typical Sections that can be used and adjusted to suit the conditions of a particular project. For the purposes of this project and class, the New 4 Lane, Divided Urban Typical will be used. This Typical Section should be modified based on project specific requirements.

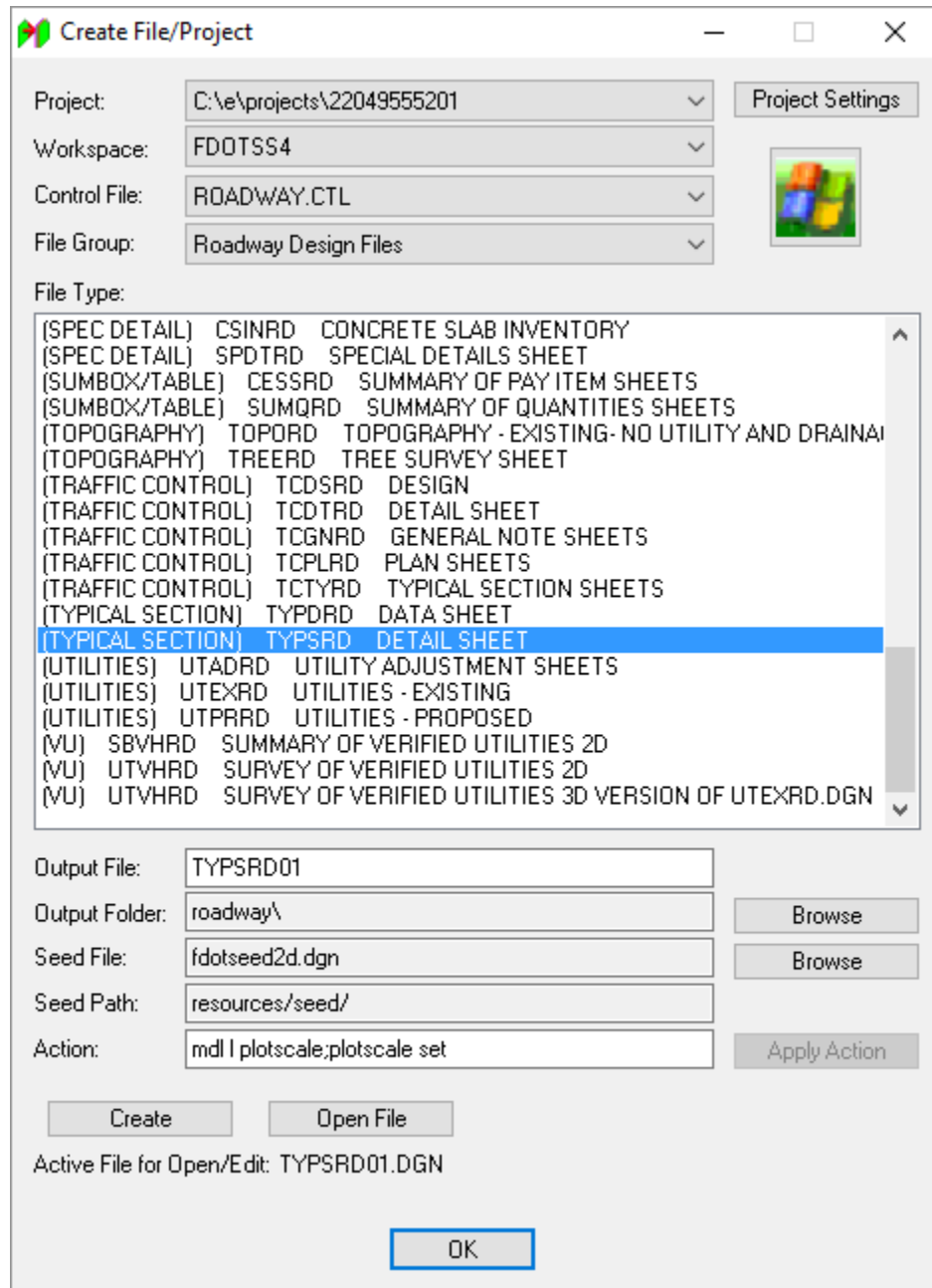
Note Due to time constraints of this course, the design modification of the Typical Section is assumed.

1. From the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.

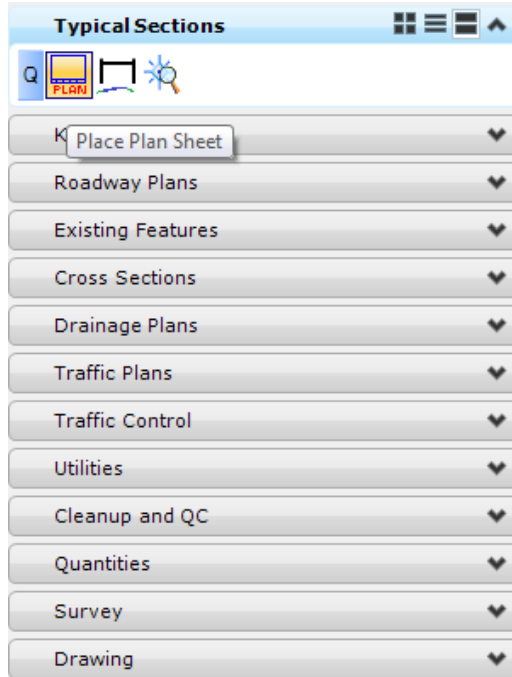


2. The Create File/Project dialog displays. Click on the **Project Settings** button.
3. The Project Settings dialog displays. Click on the **Select Active Project** button.
4. The Select Active Project dialog displays. Click the **Browse** button, navigate to *C:\E\Projects\2204955201*, click **Select** and then click **OK**.
5. Click **OK** on the Project Settings dialog.

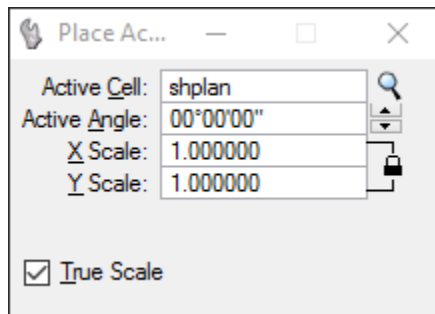
- The *Project* is populated with the selected *Project path* and the *Workspace* is set to **FDOTSS4**. Complete the rest of the dialog as shown below:



7. Click **Create** to create the file, *TYP SRD01.dgn*.
8. Click **Open File** to display *TYP SRD01.dgn*. The Set/Update Plot Scale displays. Use the **Default** settings and click **OK**.
9. Click **OK** to close the Create File/Project dialog.
10. From the FDOT Plans Development Task Menu, select **Typical Sections > Place Plan Sheet**.

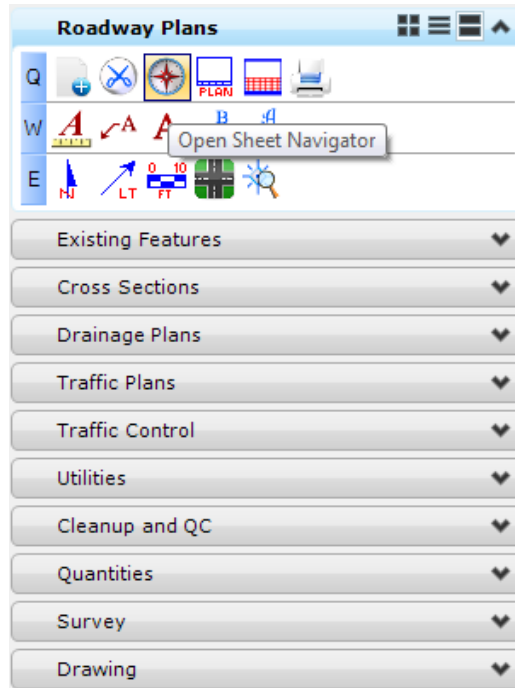


11. The MicroStation Place Active Cell command displays with SHPlan set as the Active Cell. Set scale of the cell to 1.0.

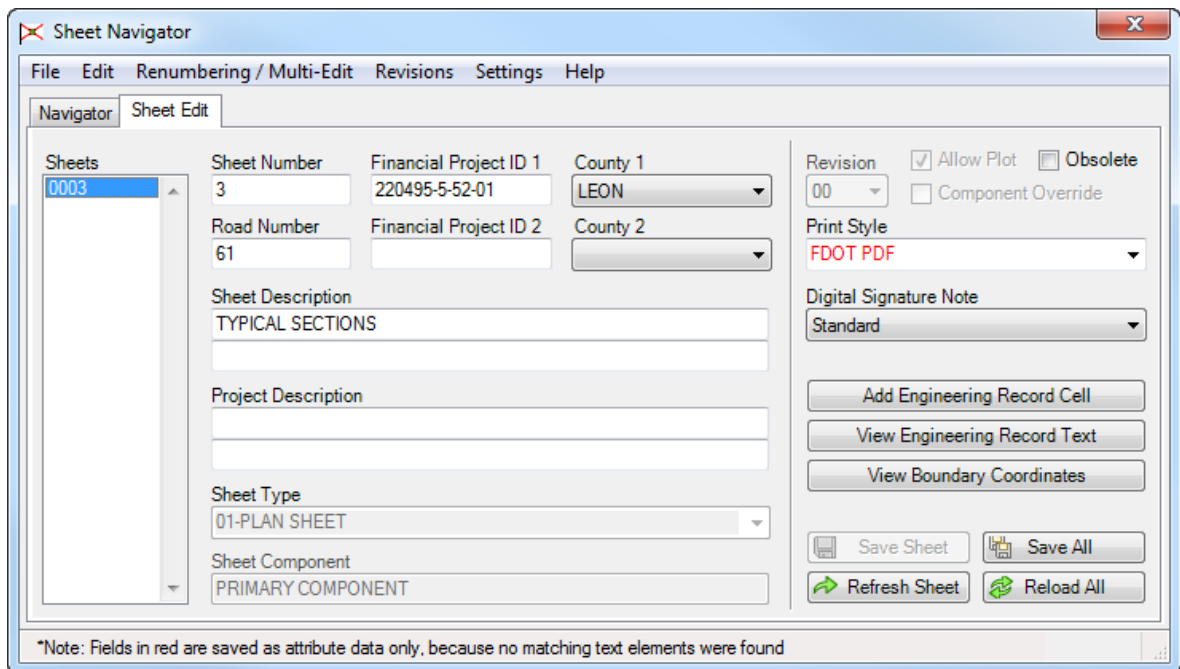


12. **Data point** to place the *cell* in the file. **Reset** when finished to get out of the *Place Cell* command.

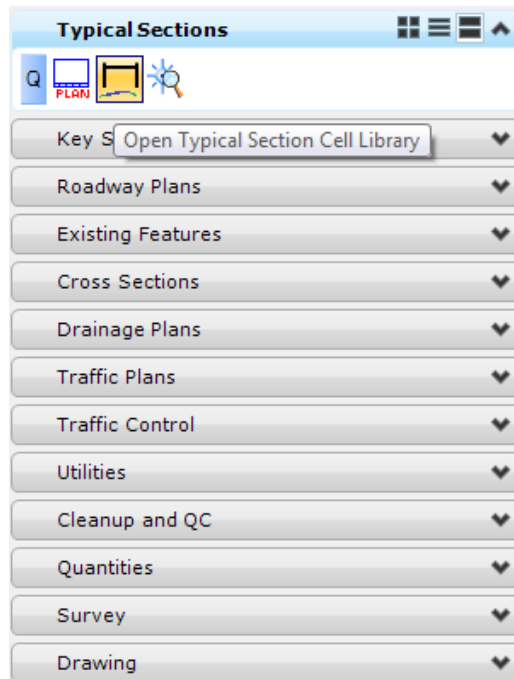
- From the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.



- The Sheet Navigator dialog displays. Populate by adding the *Sheet Number*, *Financial Project ID*, *County*, *Road Number*, *Print Style*, and *Digital Signature Note*, as shown below and click the **Save Sheet** button. All of the information entered will be saved to the sheet.

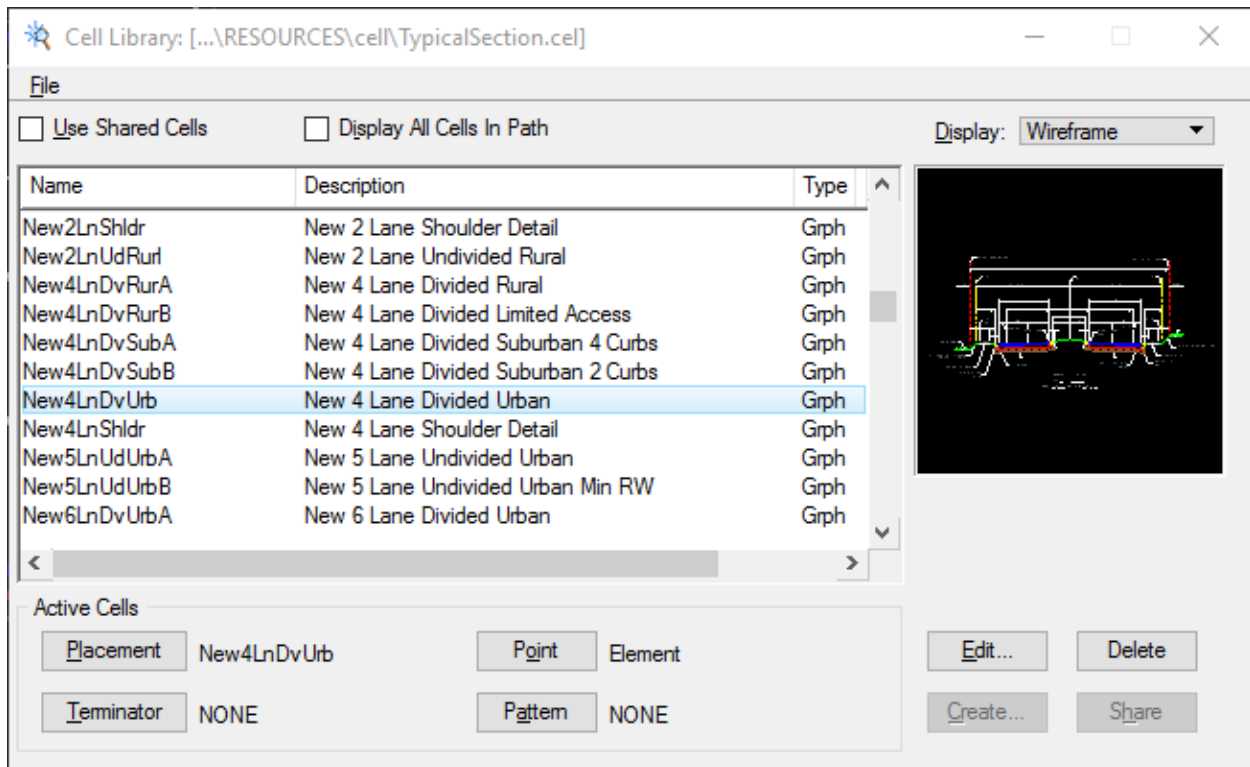


- From the FDOT Plans Development Task Menu, select **Typical Sections > Open Typical Section Cell Library**.

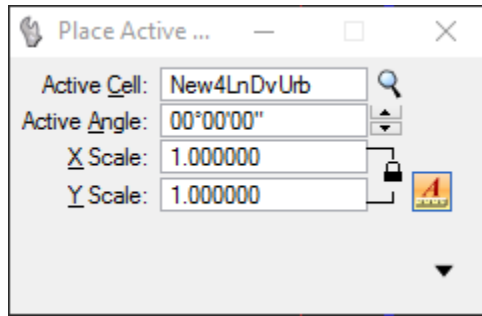


The MicroStation Cell Library dialog displays with the TypicalSection.cel library attached.

- Find the **New4LnDvUrb** cell and double click. The MicroStation *Place Active Cell* command displays with **New4LnDvUrb** set as the *Active Cell*.



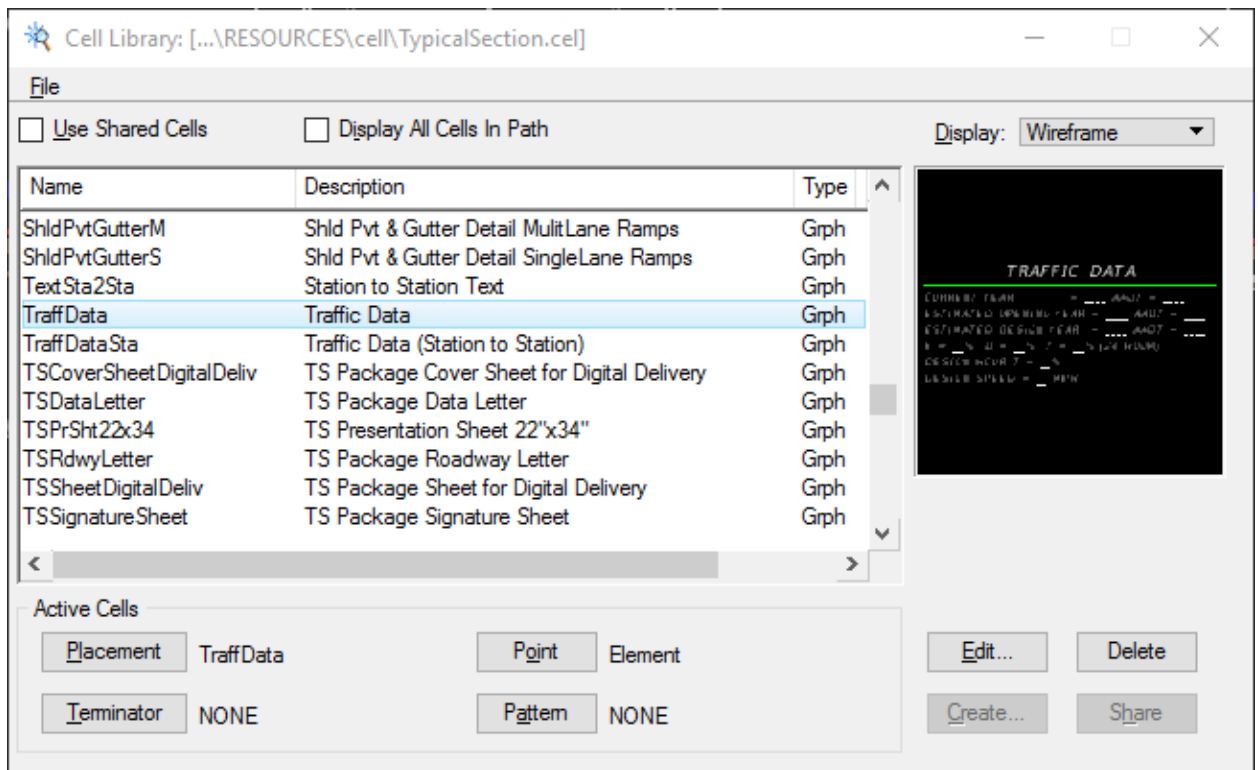
17. Set *scale* of the cell to **1.0**.



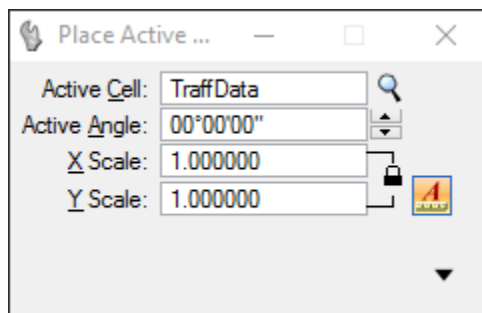
18. **Data point** to place the *cell* in the sheet. **Reset** when finished to exit the *Place Cell* command.

19. Follow steps 10 through 12 in Exercise 4.1 to edit the *Typical Section* information.


20. On the Cell Library dialog, double click on the *cell* **TraffData**. The MicroStation Place Active Cell command displays with **TraffData** set as the *Active Cell*.



21. Set *scale* of the cell to **1.0**



22. **Data point** to place the *cell* in the left bottom corner of the sheet. **Reset** when finished to get out of the *Place Cell* command.

23. Use the Edit Text tool  to enter the correct *Traffic Data* information as shown below.

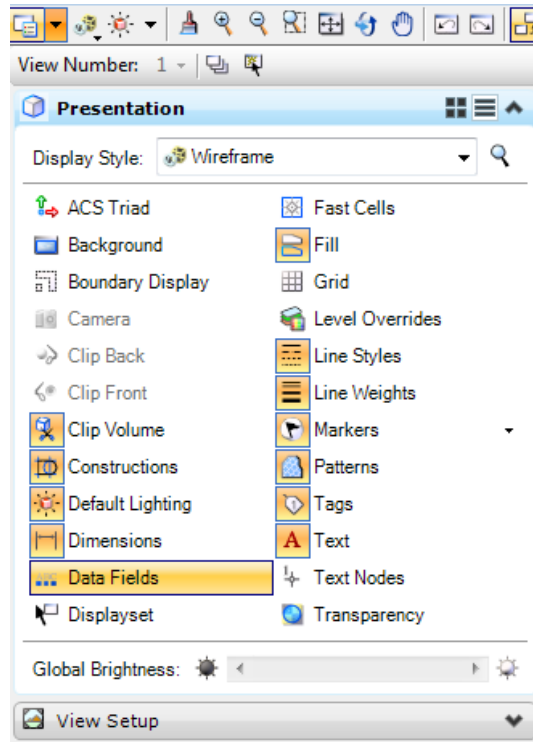
TRAFFIC DATA

CURRENT YEAR = 2015 AADT = 8,400
 ESTIMATED OPENING YEAR = 2020 AADT = 9,900
 ESTIMATED DESIGN YEAR = 2040 AADT = 14,100
 K = 9.5% D = 56.5% T = 2.74% (24 HOUR)
 DESIGN HOUR T = 3.5%
 DESIGN SPEED = 45 MPH

24. Repeat steps 21 through 24 to place and edit the following cells with the information shown below. Place these cells in the middle of the sheet, under the *typical section*.

- Cell Name: **NewOBGSPFC125**
 OPTIONAL BASE GROUP 6 WITH
 TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2 1/2")
 AND FRICTION COURSE FC-9.5 (TRAFFIC B) (1") (PG 76-22)
- Cell Name: **MillPvt**
 MILL EXISTING ASPHALT
 PAVEMENT FOR DEPTH (1")
- Cell Name: **ResrPvtFC95**
 FRICTION COURSE FC-9.5 (TRAFFIC B) (1") (PG 76-22)

25. Go to the MicroStation *View* options and turn **Off** the *Data Fields* option. Select **File > Save Setting**.



26. Close MicroStation.

5 PLAN-PROFILE SHEETS

Part 3, Chapter 312 of the *FDOT Design Manual (FDM)* outlines Florida Department of Transportation (FDOT) Roadway Plan and Roadway Plan-Profile Sheets. The Roadway plan sheets show the project's complete horizontal alignment. The plan-profile sheets show the project's complete horizontal and vertical alignment. Various Roadway elements such as pavement width, medians, paved shoulders, curbs, drainage elements, tapers, turn provisions, and intersecting roadways, are also shown on these sheets.

OBJECTIVES

- Export Profile to a GPK file
- Create Profile DGN File
- Layout the Profile
- Clip Plan-Profile Sheets using standard methods and with live nesting
- Generate Plan-Profile and Plan Sheet Files

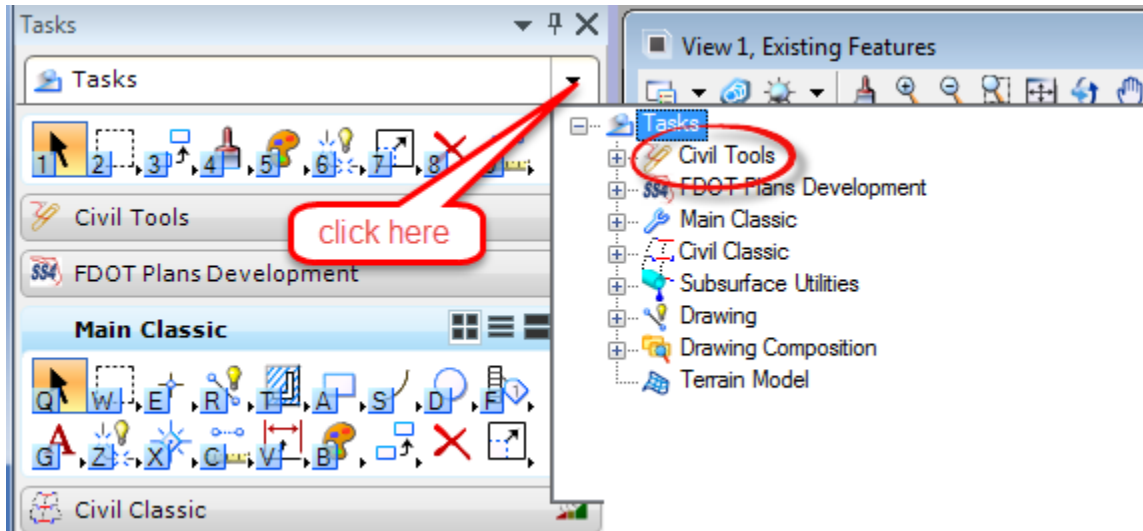
EXERCISE OVERVIEW

- 5.1 Exporting the Profile Information to the GPK
- 5.2 Creating the Profile DGN File and Laying out the Profile
- 5.3 Creating the Clip DGN File and Laying out the Clip Borders
- 5.4 Generating the Plan Profile Sheets
- 5.5 Clipping Plan Sheets Using Live Nesting

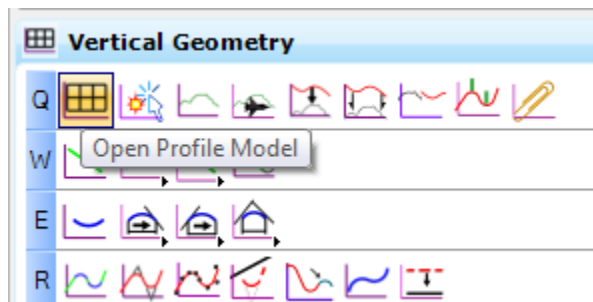
Exercise 5.1 *Export the Profile Information to the GPK*

In this exercise, the profile information will be exported to the legacy GEOPAK format.

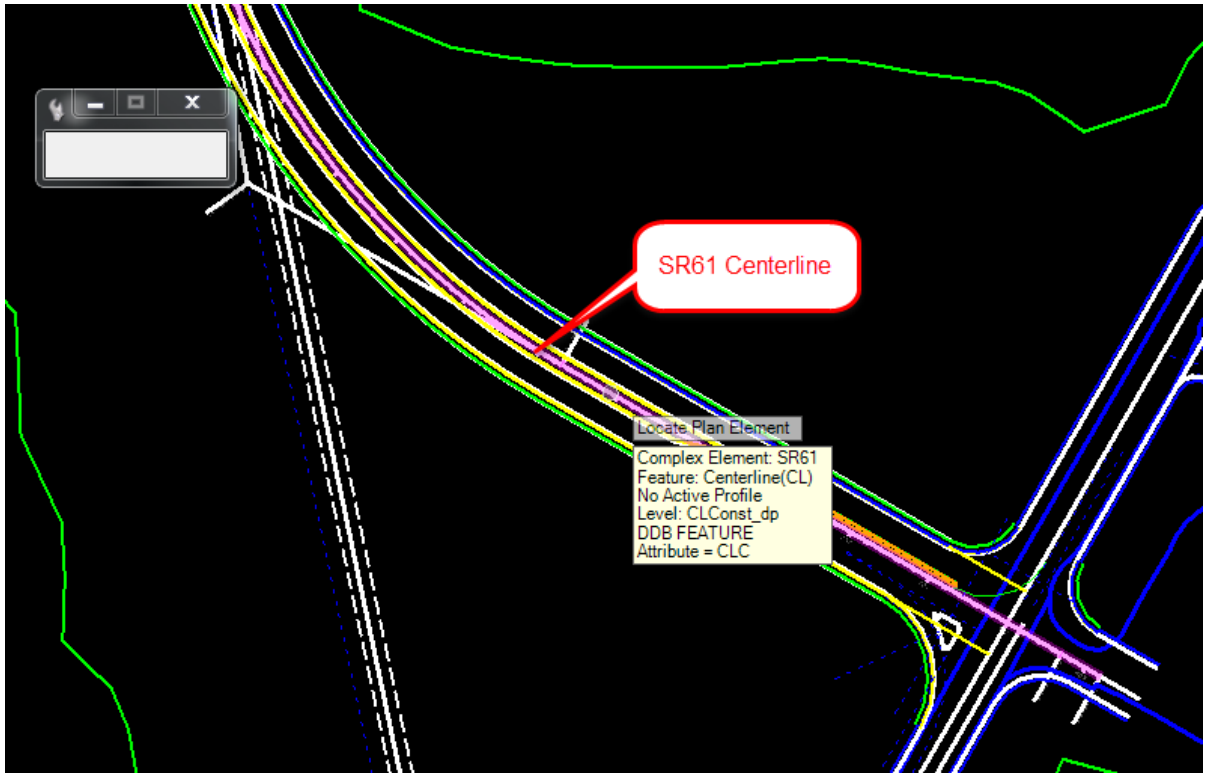
1. (Optional) Extract the 22049555201(5).zip file in the *Data Set* folder to the *c:\e\projects* folder.
2. Use the **FDOTSS4** icon, open MicroStation design file:
 C:\E\Projects\22049555201\roadway\DSGNRD01.dgn.
3. Change the *Task Menu* to **Civil Tools**.



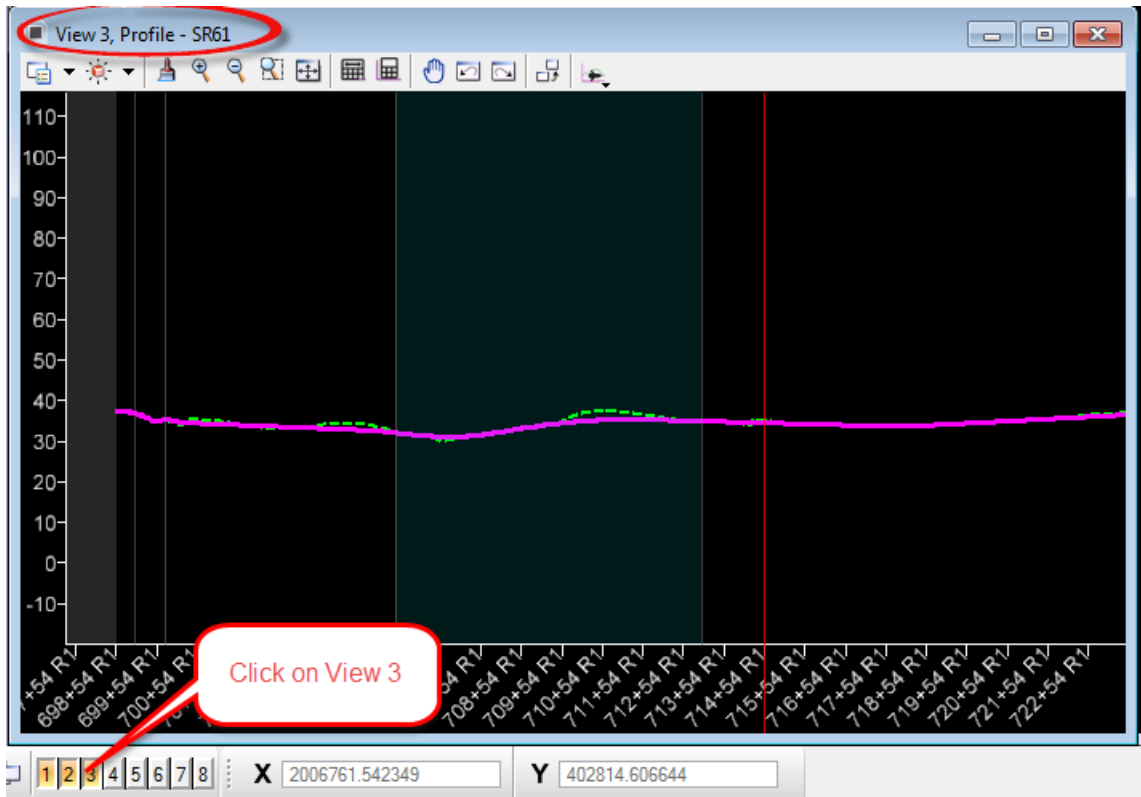
4. On the Civil Tools Task Menu, select **Vertical Geometry > Open Profile Model**.



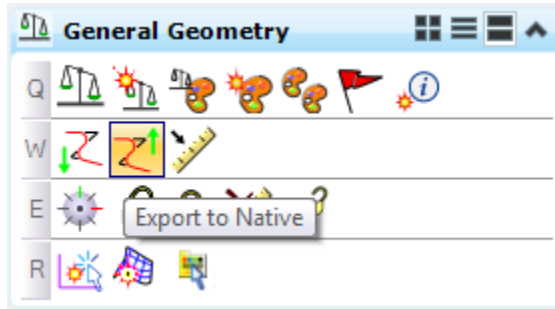
- a. At the cursor prompt, select on the mainline **SR61 Centerline**.



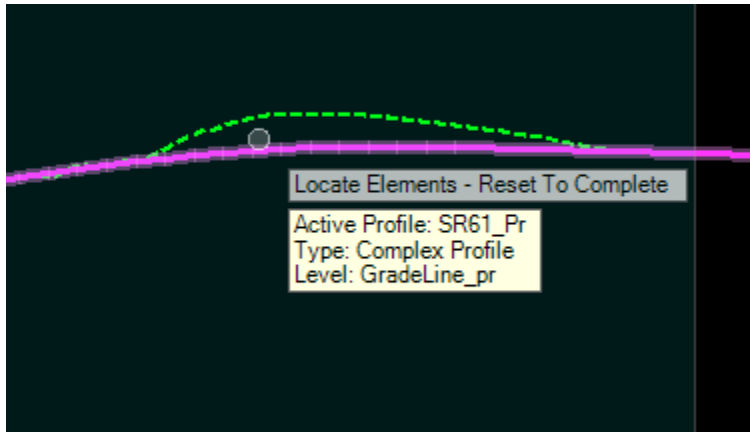
- b. At the prompt select to open **View 3**, then **data point** in the *View*.



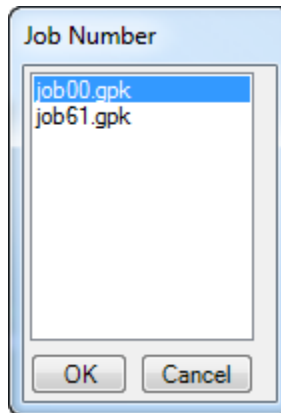
5. On the Civil Tools Task Menu, select **General Geometry > Export to Native**.



- a. At the prompt select the **SR61_Pr** profile in *View 3* and **reset** (right-click).



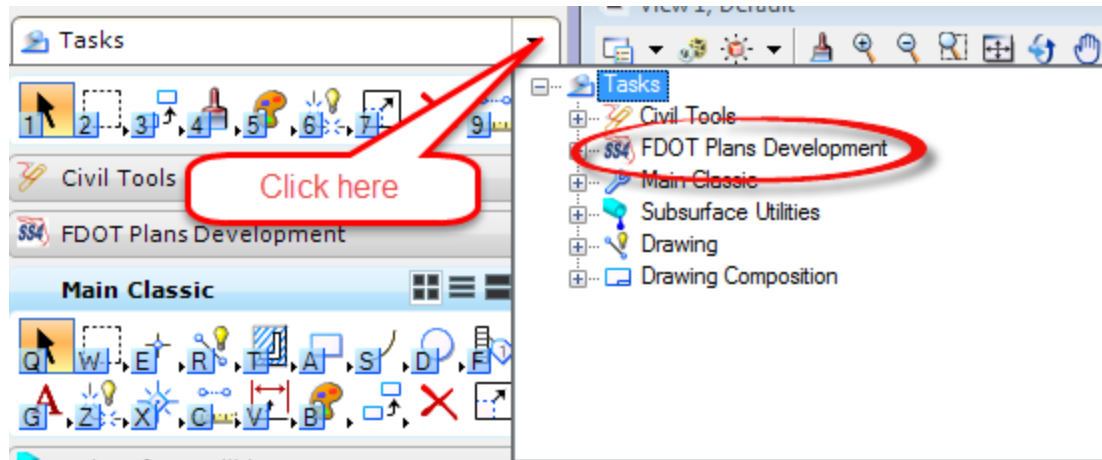
- b. The Job Number dialog opens. Select **job00.gpk** file and click **OK**.



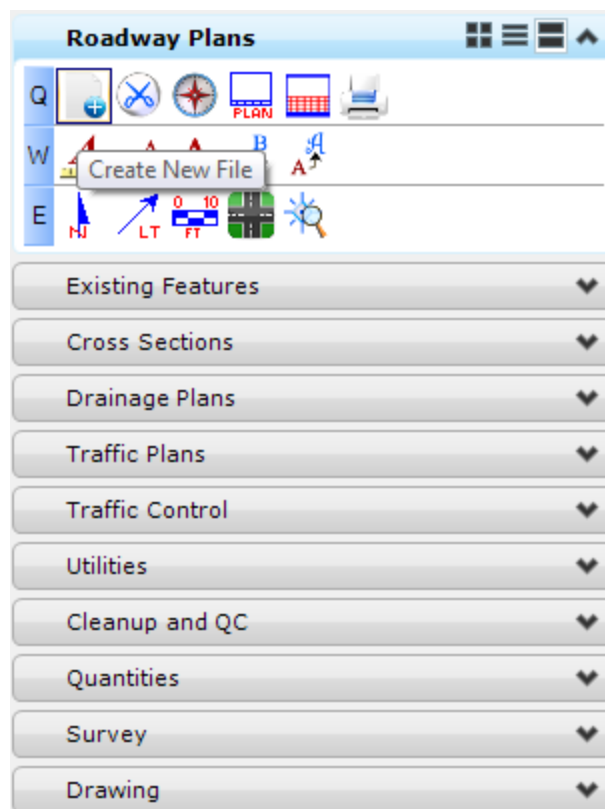
Note It is very important to make sure profiles have a Feature Name set **BEFORE** exporting to native.

Exercise 5.2 Creating the Profile DGN File and Laying out the Profile

- Continuing in the *DSGNRD01.dgn* file, change the *Task Menu* to **FDOT Plans Development**.

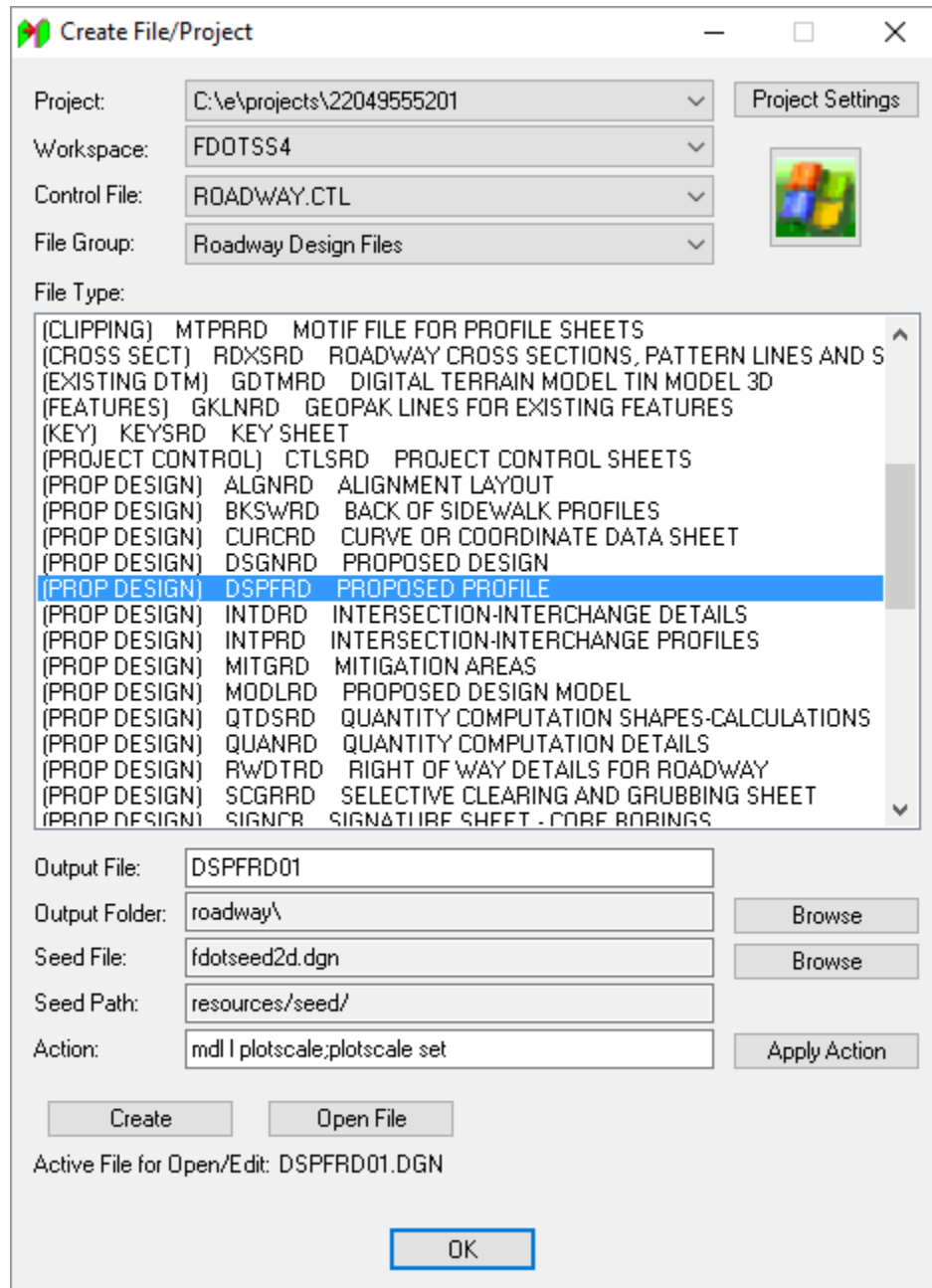


- On the **FDOT Plans Development** Task Menu, select **Roadway Plans > Create New File**.



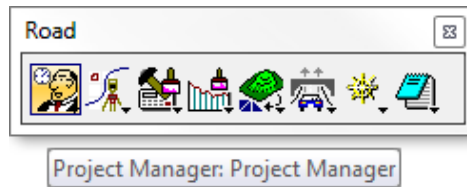
- The **Create File/Project** dialog displays. Click on the **Project Settings** button.
 - The **Project Settings** dialog displays. Click on the **Select Active Project** button.
 - The **Select Active Project** dialog displays. Click the **Browse** button, navigate to the Project *C:\E\Projects\22049555201*, click **Select** and then click **OK**.
 - From the **Project Settings** dialog, click **OK**.

4. The *Project* is populated with the selected Project path and the *Workspace* is set to **FDOTSS4**. Complete the Create File/Project dialog as shown below:

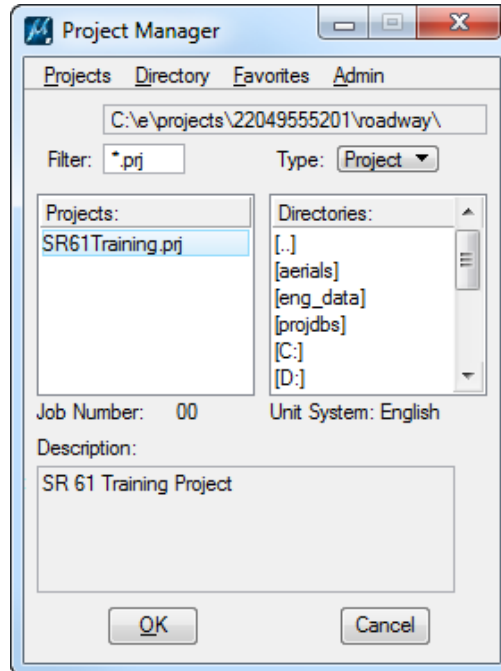


- Click **Create** to create the file, *DSPFRD01.dgn*.
 - Click **Open File** to open the newly created *DSPFRD01.dgn*. Set/Update Plot Scale displays. Use the **Default** settings and click **OK**.
 - Click **OK** to close the Create File/Project dialog.
5. Reference in the *DSGNRD01.dgn* file and **Fit View**.

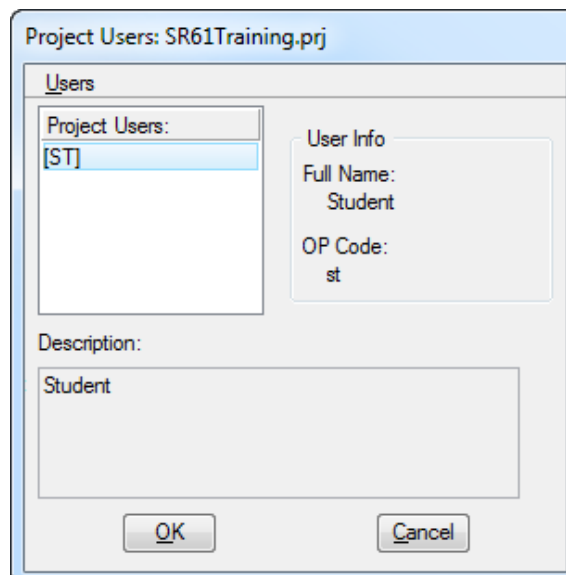
- From the MicroStation menu open **GEOPAK > ROAD > Road Tools** and select the **Project Manager** tool.



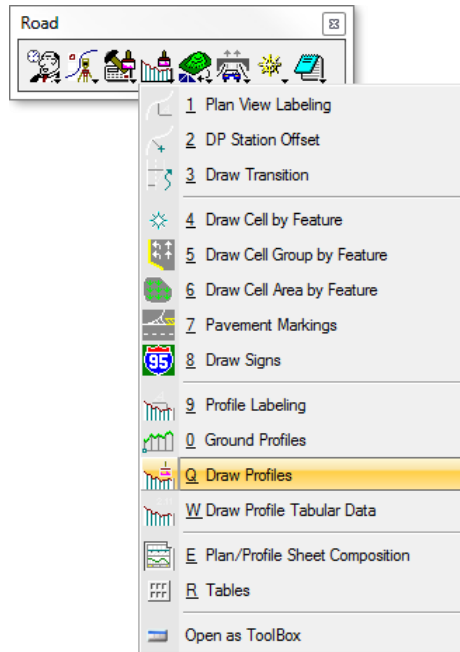
- The Project Manager dialog displays. Select the **SR61Training.prj** Projects file and click **OK**.



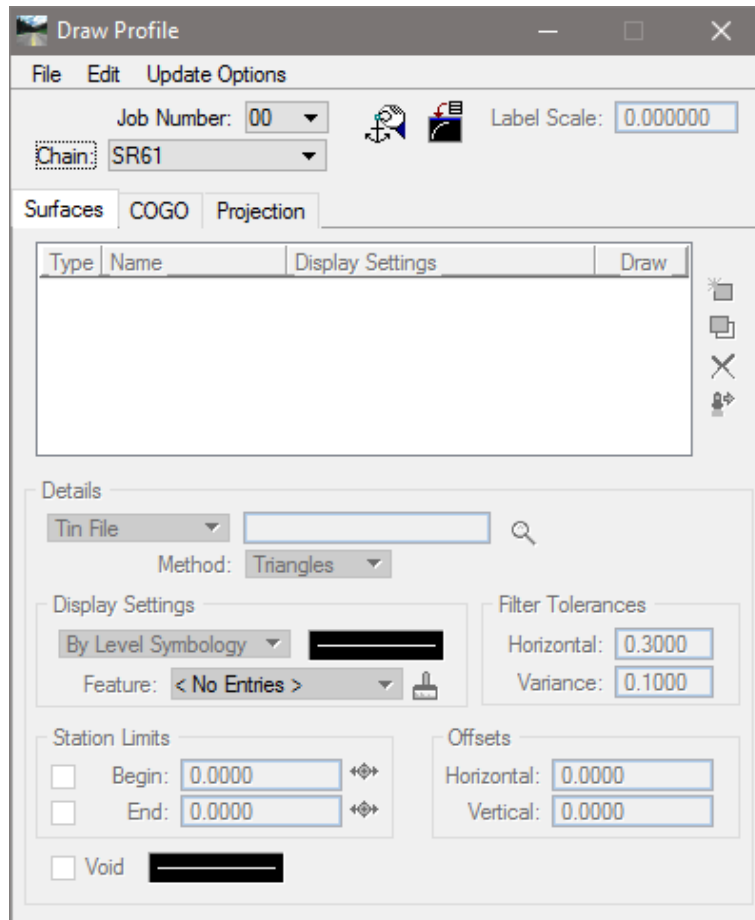
- The Project Users dialog displays. Select the *Project User* **ST <OR> student** user and click **OK**. The Road Project dialog displays.



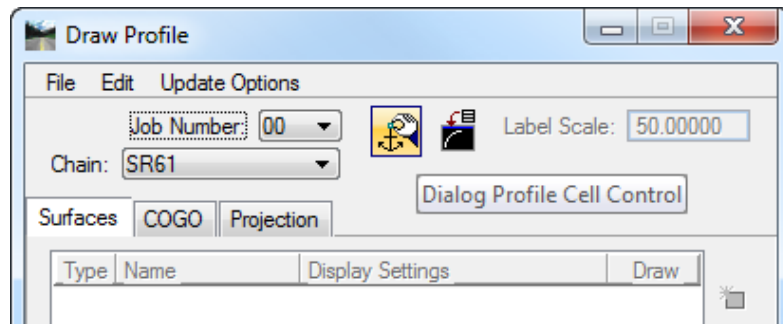
9. From the *GEOPAK Road* toolbox, select the **Draw Profiles** tool.



10. The Draw Profiles dialog displays. Select **00** for the *Job Number* and set the *Chain* to **SR61**.

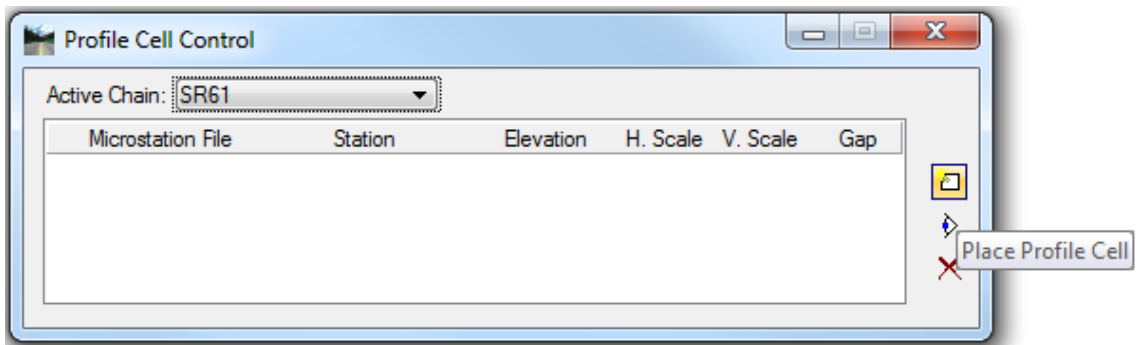


11. Click the **Dialog Profile Cell Control** button.

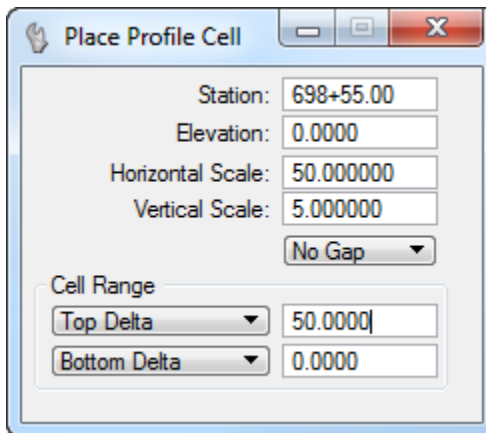


12. The Profile Cell Control dialog displays. Select **SR61** as the *Active Chain*.

13. Click the **Place Profile Cell** button on the right side of the dialog box.



14. The Place Profile Cell dialog displays. Complete the information as shown below.

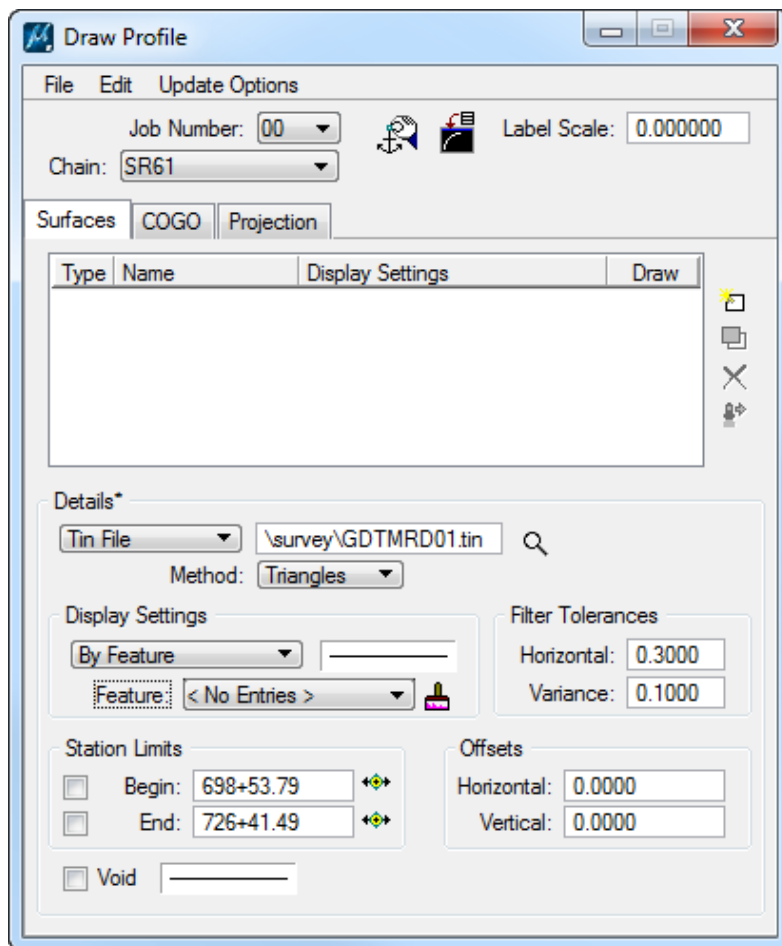


15. **Data point** near the *Plan View* to place the **Profile cell** in the design file. The Place Profile Cell dialog closes.

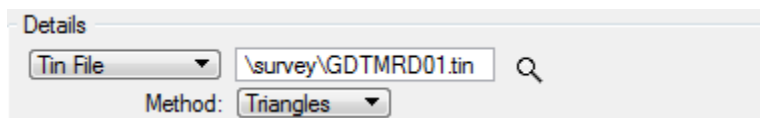
16. **Close Profile Cell Control** dialog.

17. From MicroStation, click the **Fit View** button.

18. From the Draw Profile dialog, select the **Surfaces** tab.



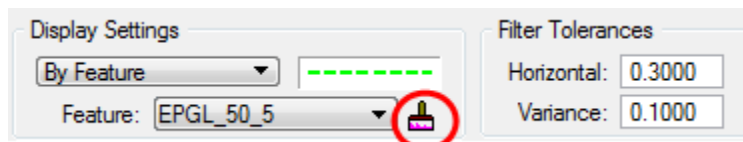
19. Under *Details*, use the **Magnifying Glass** icon to browse to the *TIN* file at:
 C:\e\projects\22049555201\survey\GDTMRD01.tin.



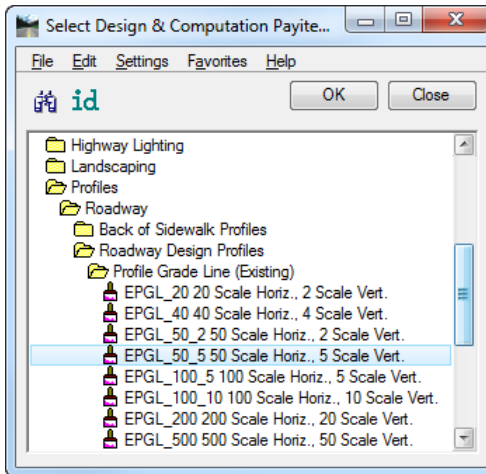
20. Select **Triangles** as the *Method* for extraction.

21. Under *Display Settings*, set to **By Feature**.

22. Use the **Paintbrush** icon to browse to the *DDB Feature*.

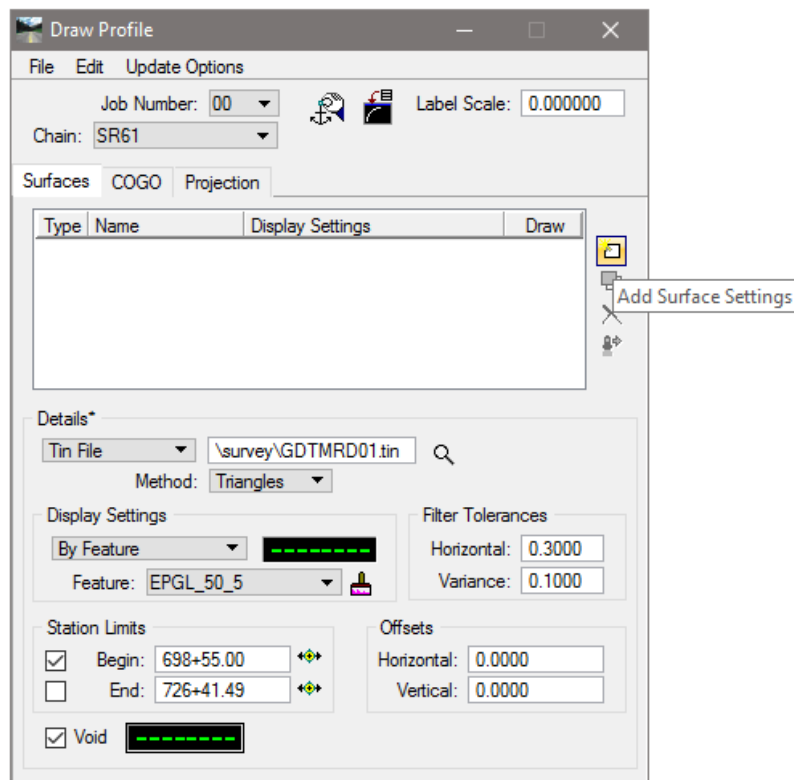


23. The Select Design & Computation Payitem dialog displays. Navigate to: *Profiles > Roadway > Roadway Design Profiles > Profile Grade Line (Existing)* and select **EPGL_50_5 50 Scale Horiz., 5 Scale Vert.**. Click **OK**.

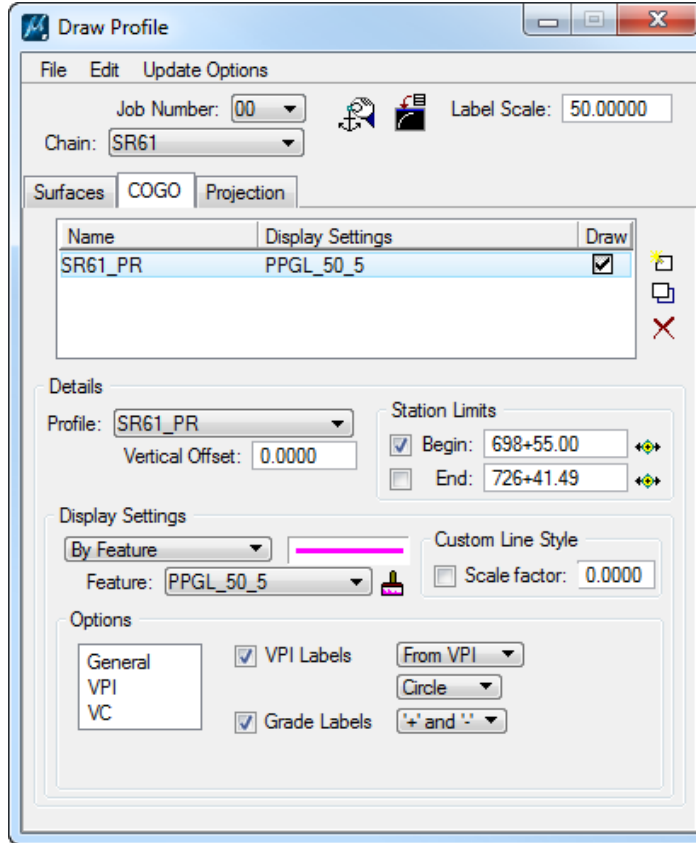


Note Feature is set to the selected item's symbology and the Select Design & Computation Pay Item dialog closes.

24. From the Draw Profile dialog, toggle **On** the *Void* check box.
25. Right-click on the *symbology box* under *Display Settings* and select **Copy**.
26. Right-click on the *symbology box* next to *Void* and select **Paste** to set the Void symbology.
27. Toggle **On** the *Begin Station Limit* and enter **698+55.00**.
28. Click the **Add Surface Settings** button to add the *Profile* to the list and to the design file.

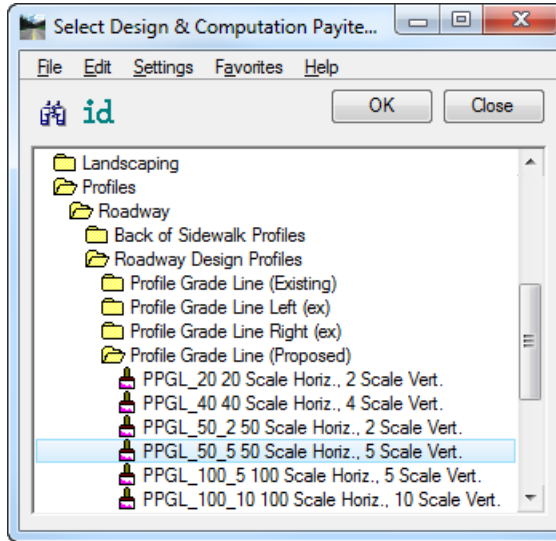


29. From the Draw Profile dialog, select the **COGO** tab.
30. Set the *Label Scale* to **50.0**.
31. Under the *Details* section, select **SR61_PR** as the *Profile*.
32. Toggle **On Station Limits: Begin** and set to **698+55.00**.



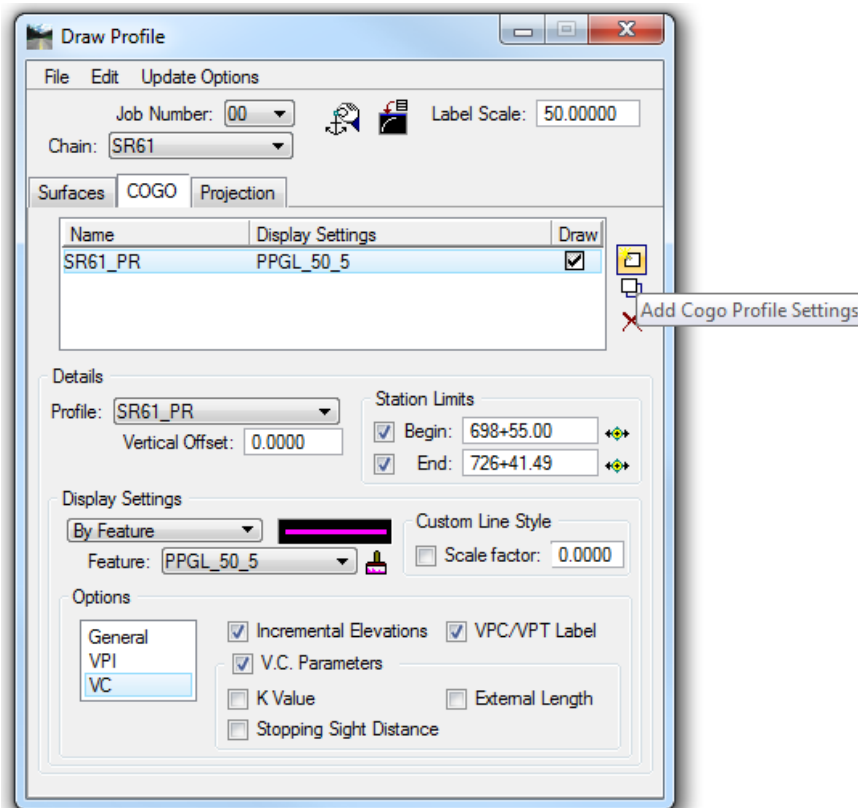
33. Under the *Display Settings* section set to **By Feature**.
34. Click the **Paintbrush** icon to select the correct *DDB Feature*.

35. The Select Design & Computation Pay Item dialog displays. Navigate to: *Profiles > Roadway > Roadway Design Profiles > Profile Grade Line (Proposed)*, select **PPGL_50_5 50 Scale Horiz., 5 Scale Vert.** and click **OK**.



Note Feature is set to the selected item's symbology and the Select Design & Computation Pay Item dialog closes.

36. Click the **Add COGO Profile Settings** button on the right side of the list box to draw the *Profile* into the MicroStation design file.

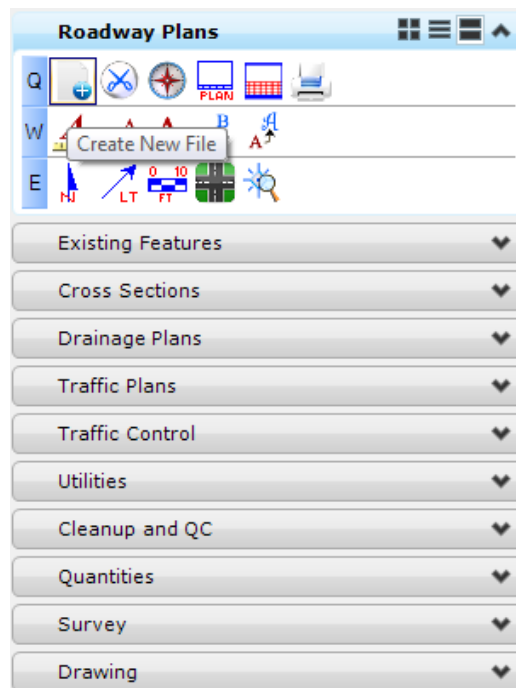


37. Close the Draw Profile dialog.

Exercise 5.3 *Creating the Clip DGN File and Laying out the Clip Borders*

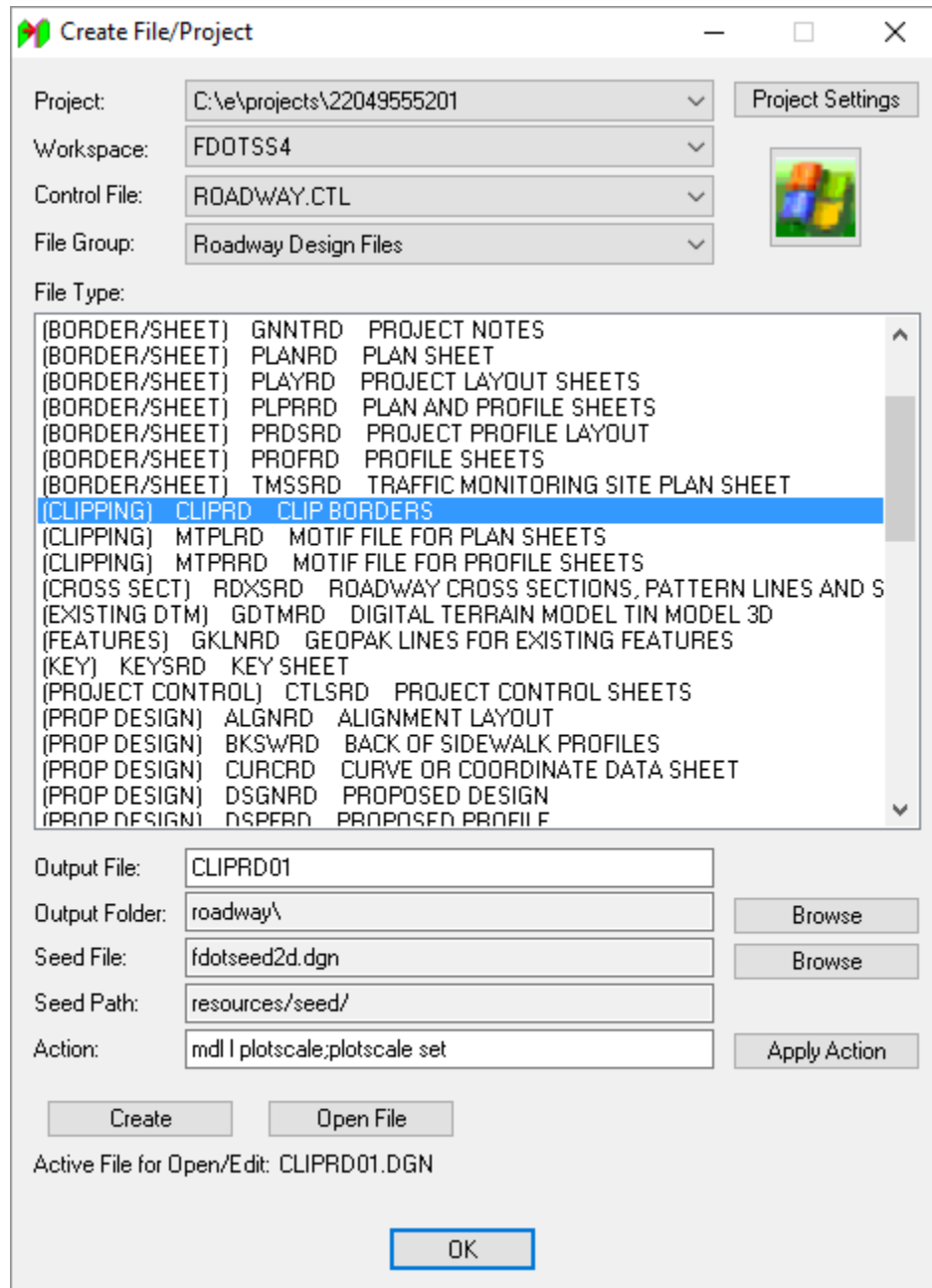
In this exercise the design file will be created for the clip borders, the clip borders will be generated, and the plan profile sheets will be created.

1. Continuing in the *DSPFRD01.dgn* file, on the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



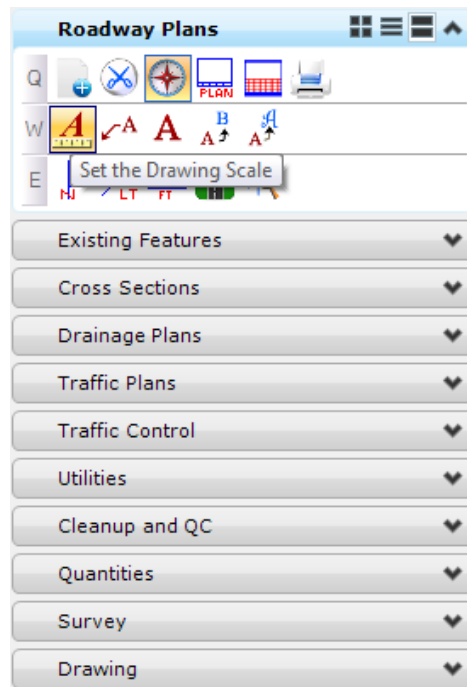
2. The Create File/Project dialog displays. Click on the **Project Settings** button.
 - a. The Project Settings dialog displays. Click on the **Select Active Project** button.
 - b. The Select Active Project dialog displays. Click the **Browse** button, navigate to the Project *C:\e\projects\2204955201*, click **Select** and then click **OK**.
 - c. From the Project Settings dialog click **OK**.

- The *Project* is populated with the selected *Project path* and the *Workspace* is set to **FDOTSS4**. Complete the Create File/Project dialog as shown below.

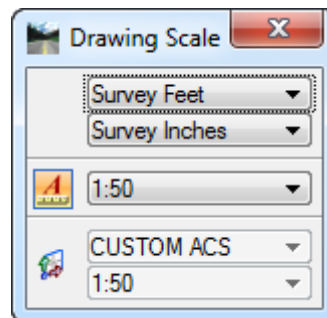


- Click **Create** to create the file, *CLIPRD01.dgn*
- Click **Open File** to open the newly created *CLIPRD01.dgn*. Set/Update Plot Scale displays. Use the *Default* settings and click **OK**.
- Click **OK** to close the Create File/Project dialog.

7. On the FDOT Plans Development Task Menu, select **Roadway Plans > Set the Drawing Scale**.



8. The Drawing Scale dialog displays. Toggle **On** the *Annotation Scale* button and set the *Scale* value to **1:50**.

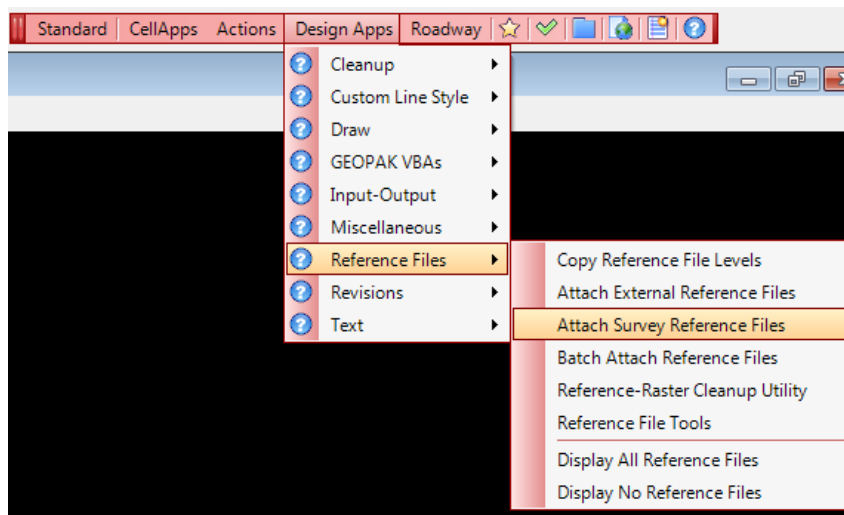


9. If the project **does not include** a *SURVRD* file (Step a):
 - a. Reference in the following design files:
 - o C:\e\projects\22049555201\roadway\ALGNRD01.dgn; model ALGNRD_50
 - o C:\e\projects\22049555201\roadway\DSGNRD01.dgn
 - o C:\e\projects\22049555201\roadway\DSPFRD01.dgn
 - o C:\e\projects\22049555201\drainage\DREXRD01.dgn; logical DREXRD00
 - o C:\e\projects\22049555201\drainage\DRPRRD01.dgn
 - o C:\e\projects\22049555201\rwmap\RWDTRD01.dgn
 - o C:\e\projects\22049555201\survey\TOPTRD01.dgn; logical TOPORD00
 - o C:\e\projects\22049555201\utils\UTEXRD01.dgn; logical UTEXRD00
 - o C:\e\projects\22049555201\utils\UTPRRD01.dgn

Note Make sure the option for the Raster References is turned OFF.

<OR> if the project *includes* the *SURVRD* file do the following:

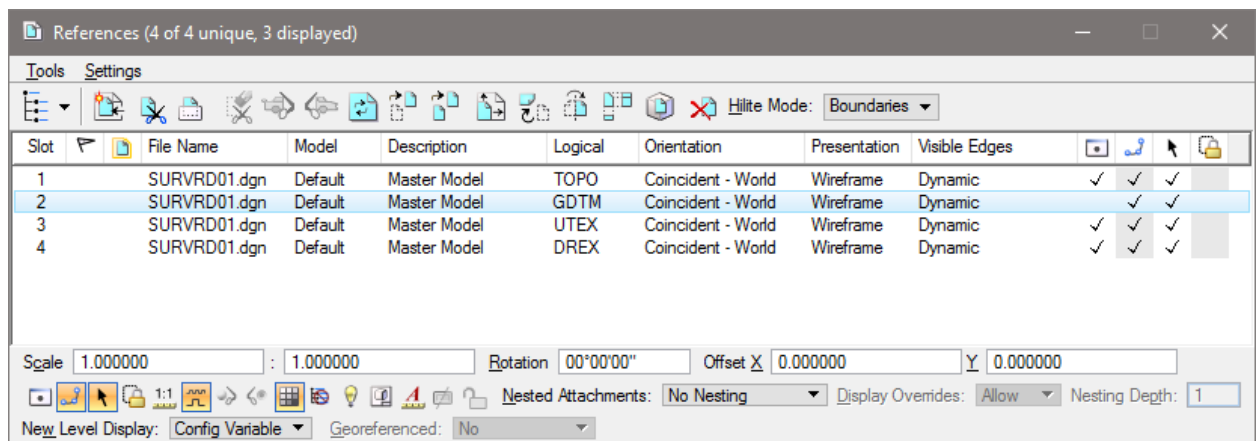
- b. Navigate to the FDOT SS4 Menu **Design Apps > Reference Files > Attach Survey Reference Files**.



The *SURVRD01.dgn* file located within the project directory will be referenced 4 times with different logical names and filters set for each type of file.

- o *SURVRD01.dgn*, logical *TOPO* (Existing Roadway)
- o *SURVRD01.dgn*, logical *GDTM* (Existing Terrain)
- o *SURVRD01.dgn*, logical *DREX* (Existing Drainage)
- o *SURVRD01.dgn*, logical *UTEX* (Existing Utilities)

10. Turn **Off** the display for the *existing terrain, GDTM*.

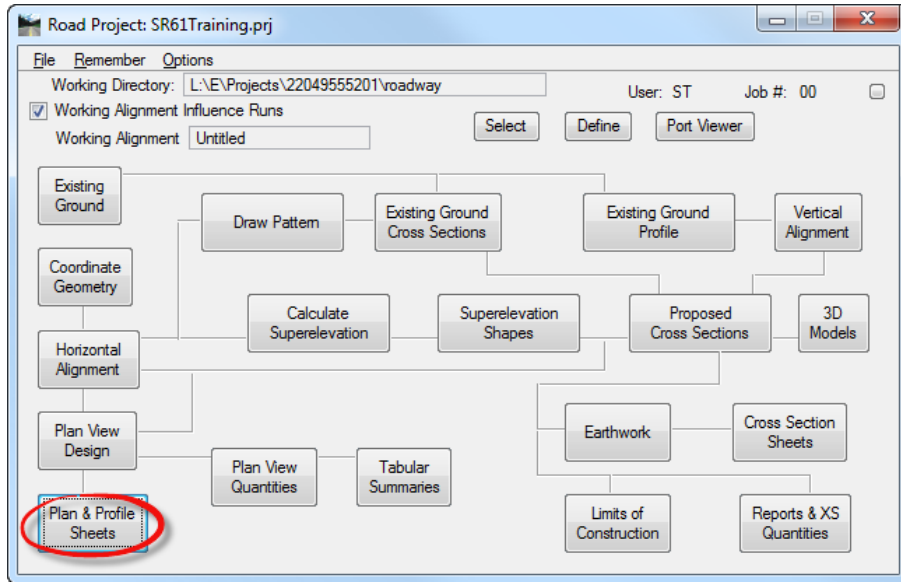


11. **Reference** in the additional design files:

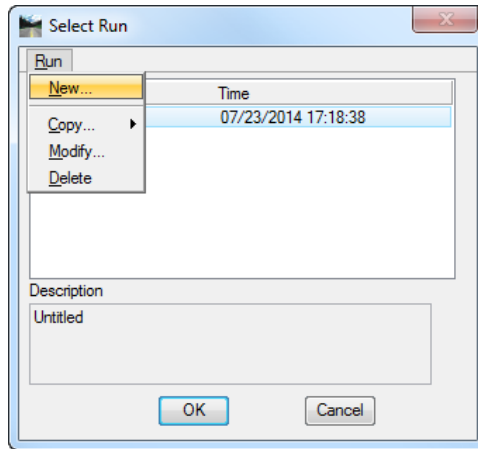
- o C:\e\projects\22049555201\roadway\ALGNRD01.dgn; model ALGNRD_50
- o C:\e\projects\22049555201\roadway\DSGNRD01.dgn
- o C:\e\projects\22049555201\roadway\DSPFRD01.dgn
- o C:\e\projects\22049555201\drainage\DRPRRD01.dgn
- o C:\e\projects\22049555201\rwmap\RWDTRD01.dgn
- o C:\e\projects\22049555201\utils\UTPRRD01.dgn

12. **Fit View** in MicroStation.

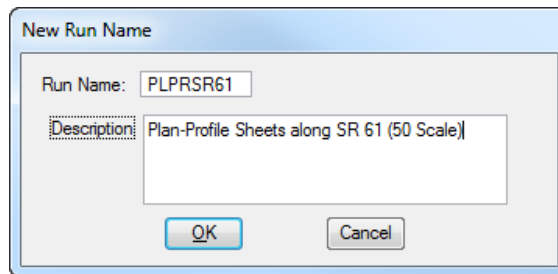
13. From the Road Project dialog, click the **Plan & Profile Sheets** button.



14. The Select Run dialog displays. Select **Run > New** to create a *New Run*.

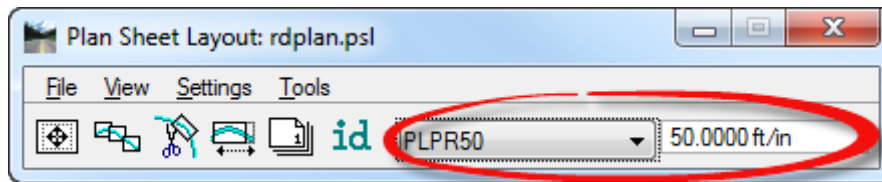


- a. The New Run Name dialog displays. Enter **PLPRSR61** for the *Run Name*.
- b. Add a *Description* for the run as shown below. Click **OK** to close New Run Name dialog.

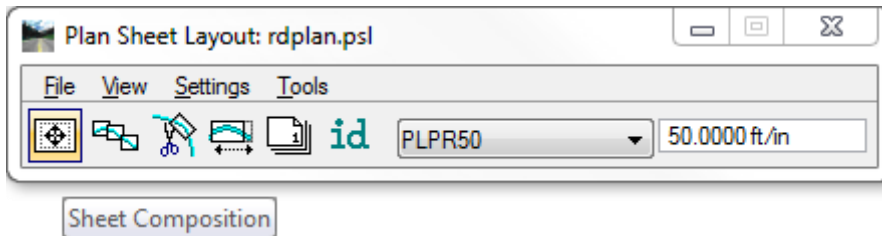


- c. From the **Select Run** dialog, highlight **PLPRSR61** from the list and click **OK**.

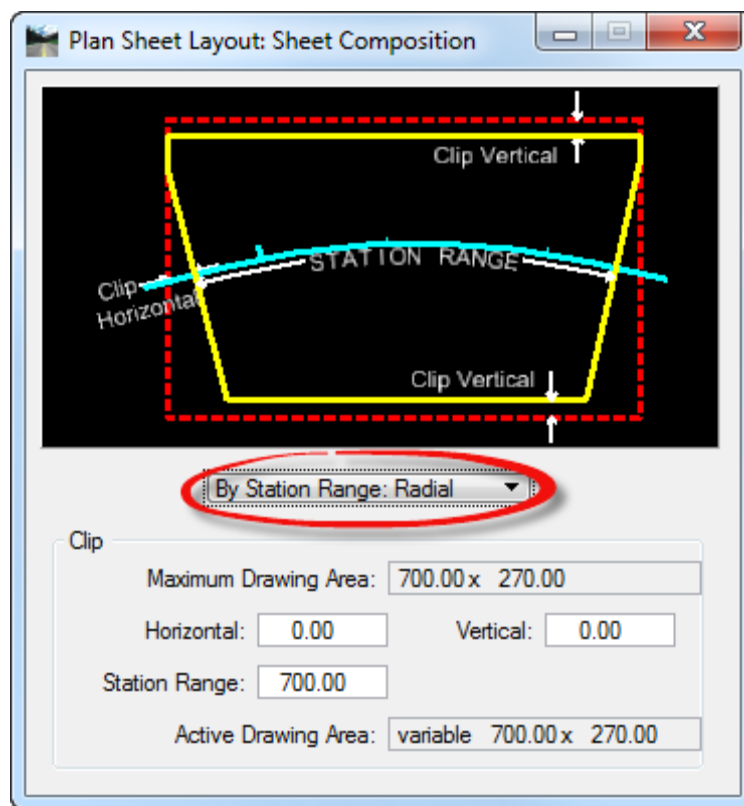
15. The Plan Sheet Layout dialog displays. Set the *Sheet* to **PLPR50** and the *Scale* to **50.00 ft/in**.



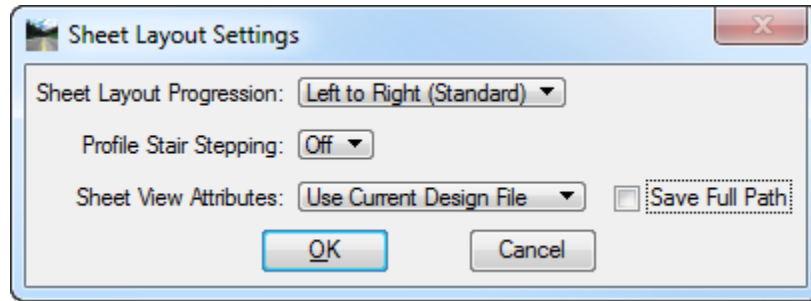
16. Click the **Sheet Composition** button.



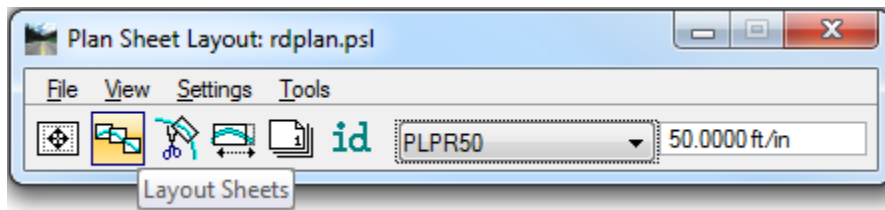
17. The Plan Sheet Layout: Sheet Composition dialog displays. Set to **By Station Range: Radial** and close the Plan Sheet Layout: Sheet Composition dialog.



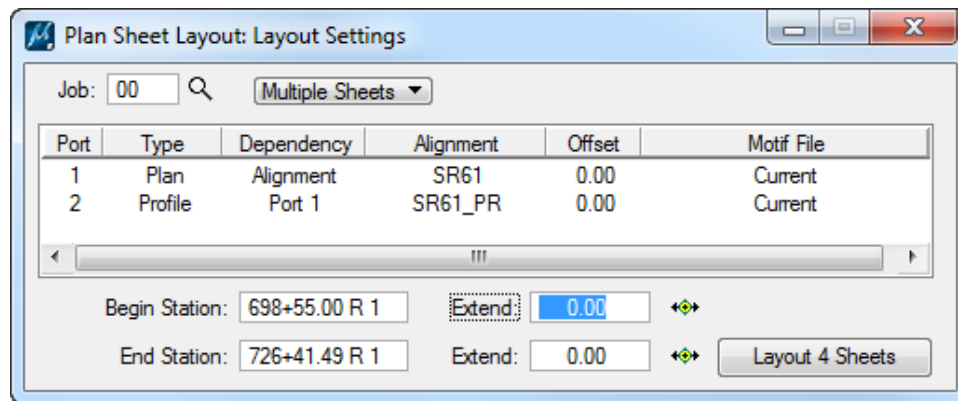
18. From the Plan Sheet Layout dialog, select **Settings > Sheet Layout**.
19. The Sheet Layout Settings dialog displays. Set the *Sheet Layout* options as shown below and click **OK** to close Sheet Layout Settings dialog.



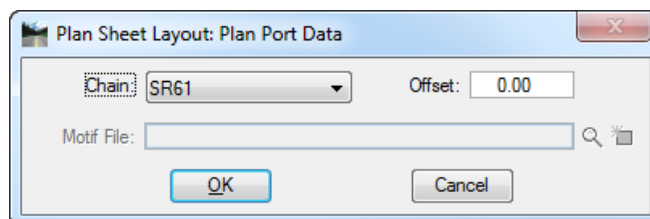
20. From the Plan Sheet Layout dialog, click the **Layout Sheets** button.



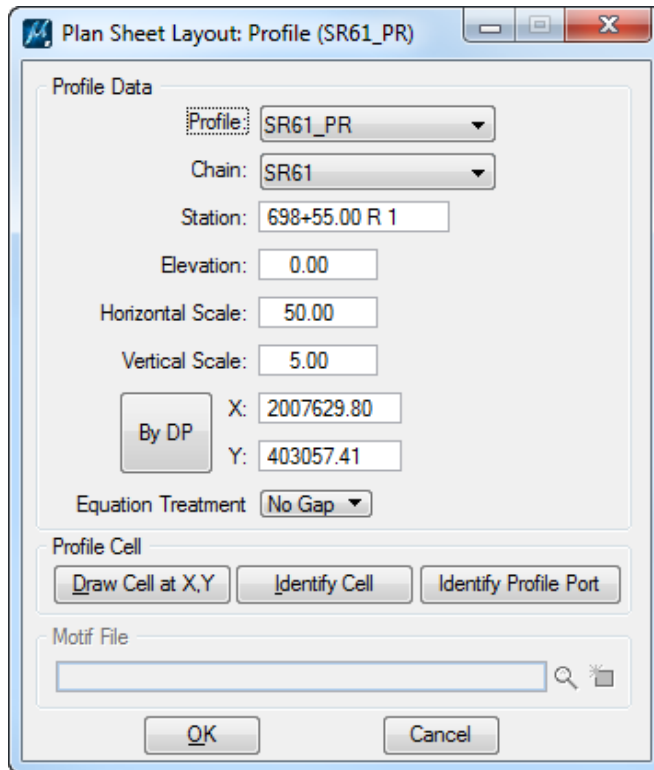
21. The Plan Sheet Layout: Layout Settings dialog displays: Be sure that **Job 00** is selected.



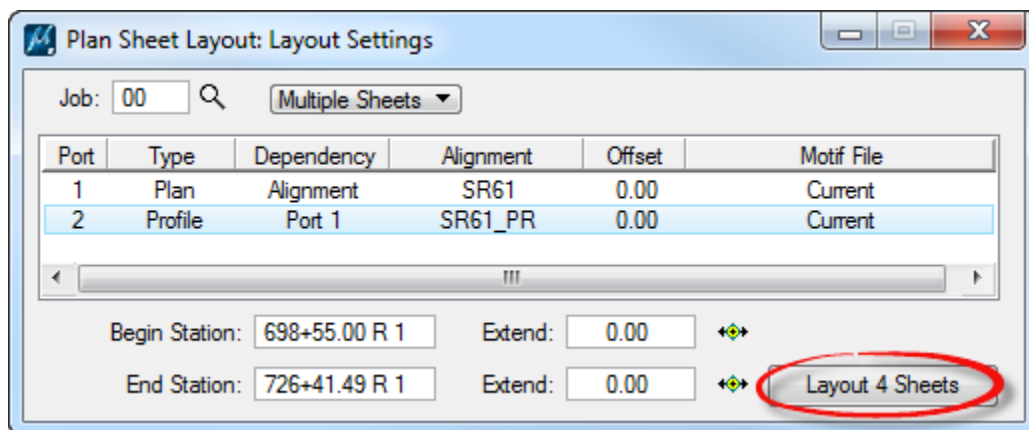
- a. Highlight **Port 1** and double click to open Plan Sheet Layout: Plan Port Data dialog. Verify that the *Chain* is set to **SR61** and click **OK** to close Plan Sheet Layout: Plan Port Data dialog.



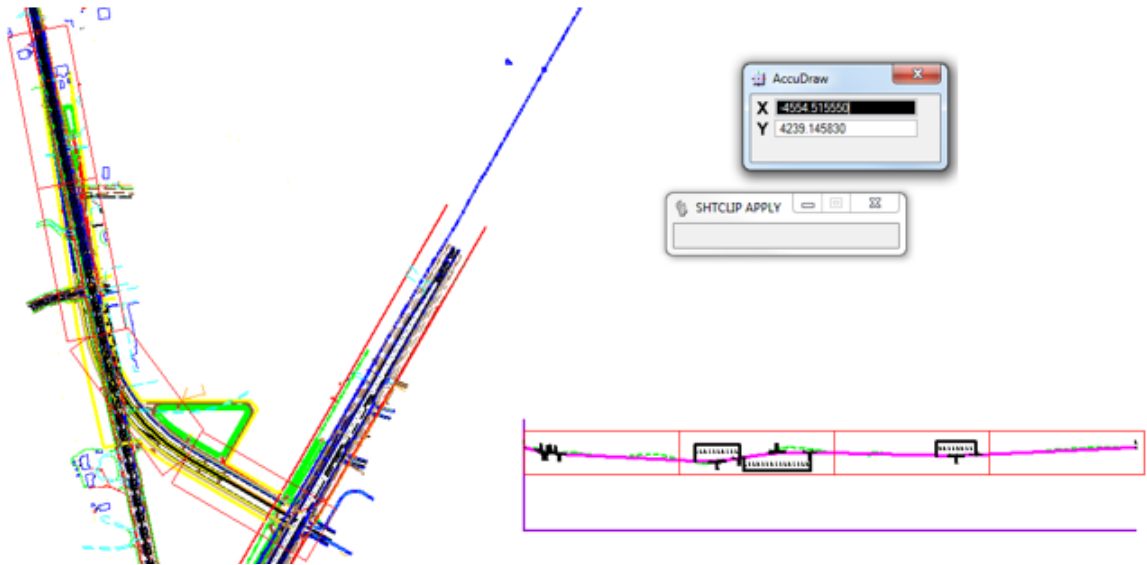
- b. Highlight **Port 2** and double click to open Plan Sheet Layout: Profile dialog. Click on the **Identify Cell** button and **data point** on the *Profile Cell* in the DGN file. (This will populate all of the correct *Profile* information.) Make sure the *Profile* is set to **SR61_PR** and the *Chain* is set to **SR61**. Click **OK** to close Plan Sheet Layout: Plan Port Data dialog.



- 22. From the Plan Sheet Layout: Layout Settings dialog, set the *Begin Station* to **698+55.00** and click on the **Layout 4 Sheets** button.



23. The *clip borders* will be laid out for the Plan and Profile in the *CLIPRD01* design file.



24. Close Plan Sheet Layout: Layout Settings dialog.

Exercise 5.4 *Generating the Plan Profile Sheets*

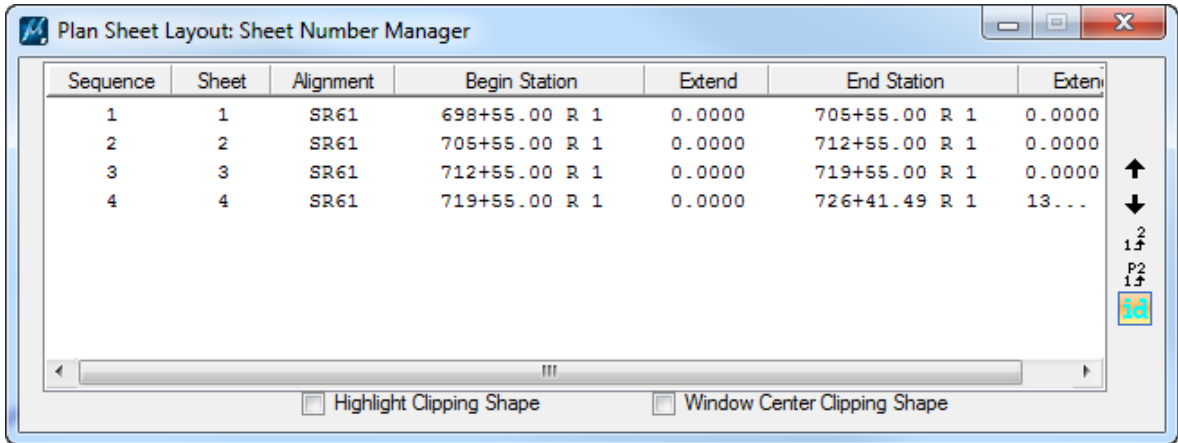
- Continuing in MicroStation turn **OFF** the following Levels:

Note Make sure the Level Filter is set to *(none)*.

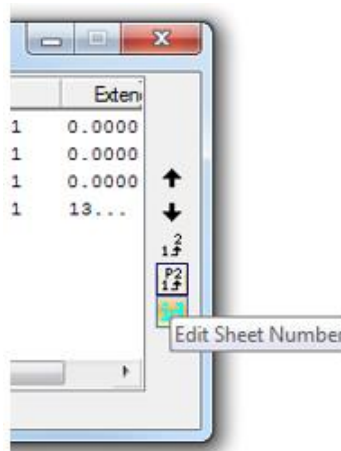
File Name	Levels
CLIPRD01	ClipBorder_dp
DREX	Text**
DRPRRD01	ScratchEle2_dp DrainDivides00 CLConst_dp
DSPFRD01	XSCell
DSGNRD01	**_ep **_pm TmpDrpHndlStg1_dp TmpDrpHndlStg2_dp TmpDrpHndlStg3_dp Scratch2_dp Scratch1_dp PavtCrown PavtBreak_dp Miscellaneous0 Default CorrHndlStg1_dp CorrHndlStg2_dp CorrHndlStg3_dp ConstLines

File Name	Levels
RWDTRD01	Text** LeaderLine_dp BoundaryLineImp Default PropertyLine_ep
TOPO	Text** XSpt_ep PavemkTL_ep Pavemk_ep Monument_ep Groundshot_ep Default
UTEX	Text** Default
UTPRRD01	NonPlottingEle_dp

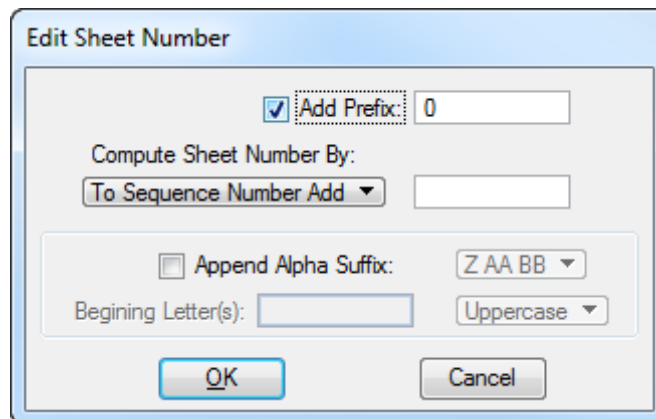
- Use MicroStation **Fit View** and then select **File > Save Settings**.
- From the Plan Sheet Layout dialog, go to **Tools > Sheet Number Manager**.
- The Plan Sheet Layout: Sheet Number Manager Dialog displays.



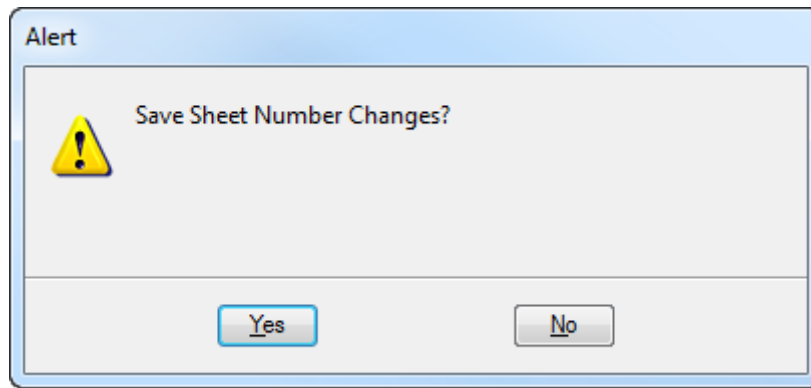
- Select all of the *sheets* in the dialog.
- On the right side of the dialog select the *Edit Sheet Number* icon.



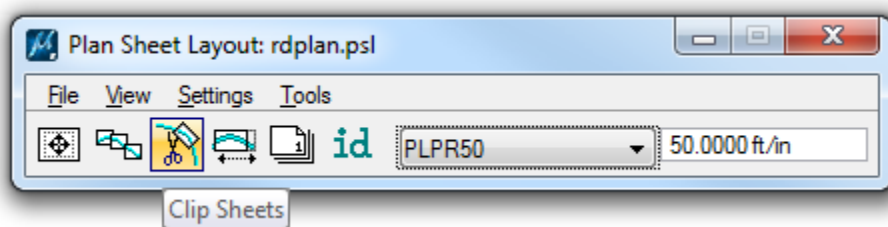
- The Edit Sheet Number dialog displays. Toggle **On: Add Prefix** and enter a **0** in the field. Click **OK**.



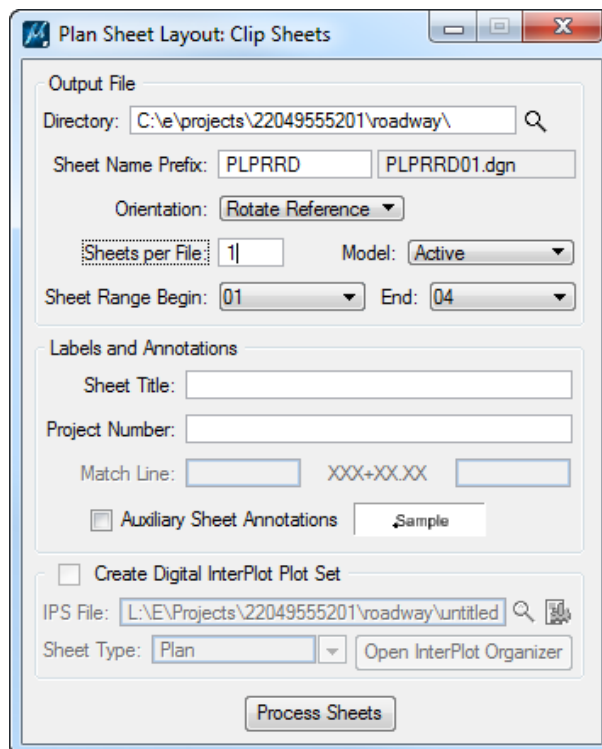
- Close the Plan Sheet Layout: Sheet Number Manager dialog. An Alert message will appear. Click **Yes** to *Save the Sheet Number Changes*.



5. From the Plan Sheet Layout dialog, click the **Clip Sheets** button.

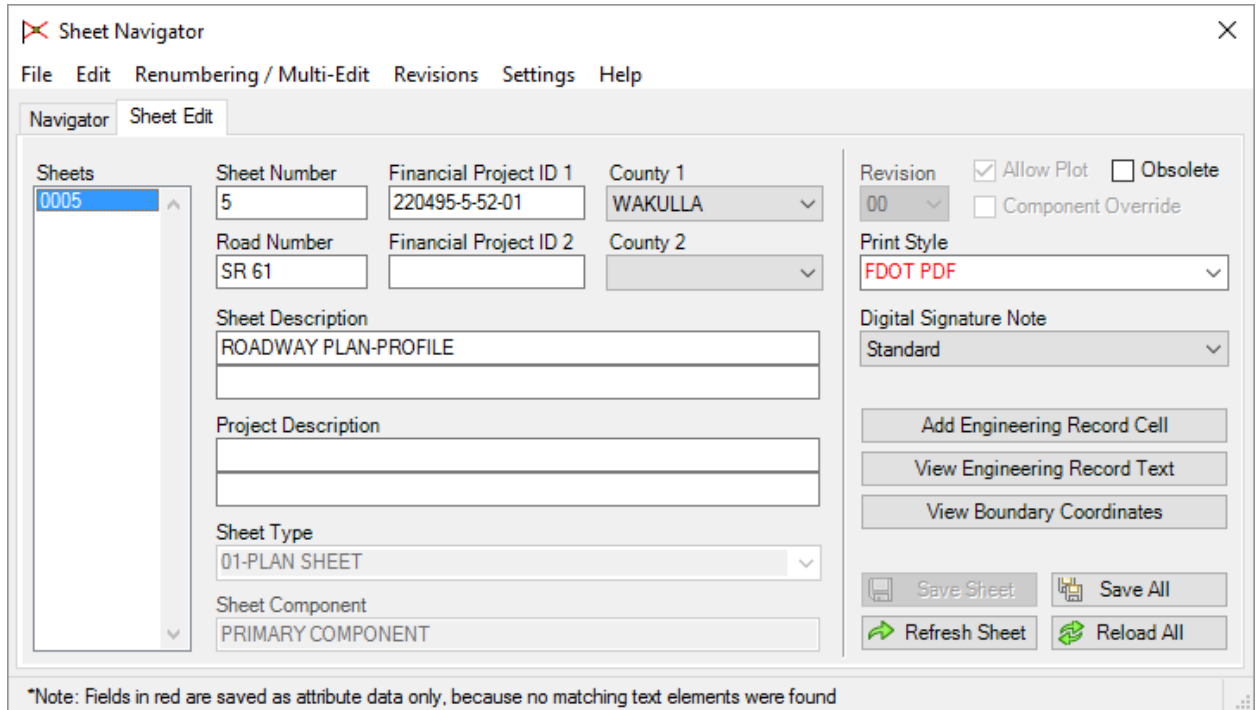


6. The Plan Sheet Layout: Clip Sheets dialog displays. Under the *Output File* section:



- a. Set the *Directory* to
c:\e\projects\22049555201\roadway\.
- b. Set the *Sheet Name Prefix* to **PLPRRD**.
- c. Set the *Orientation* to **Rotate Reference**.

- d. Set all other settings as shown above.
 - e. Click the **Process Sheets** button. All of the sheets are created with all of the references attached.
 - f. Once all the sheets are created, **Close** the Plan Sheet Layout: Clip Sheets dialog.
7. **Close** the Plan Sheet Layout dialog. Click **Yes** to save the *Plan Sheet Project Manager Settings*.
 8. In MicroStation, open *PLPRRD01.dgn* in the *\roadway* folder and **review** the file.
 9. On the FDOT Menu, go to **Actions > Set the Plot Scale of the File** and set the *plot scale* to **50.0**.
 10. Use Sheet Navigator to *label* and *number* each **sheet 5-8**. See the image below.



11. From MicroStation, turn **Off** the *Data Fields*, **Fit View** and **Save Settings** in each file.
12. **Close** MicroStation.

Exercise 5.5 *Clipping Plan Sheets Using Live Nesting*

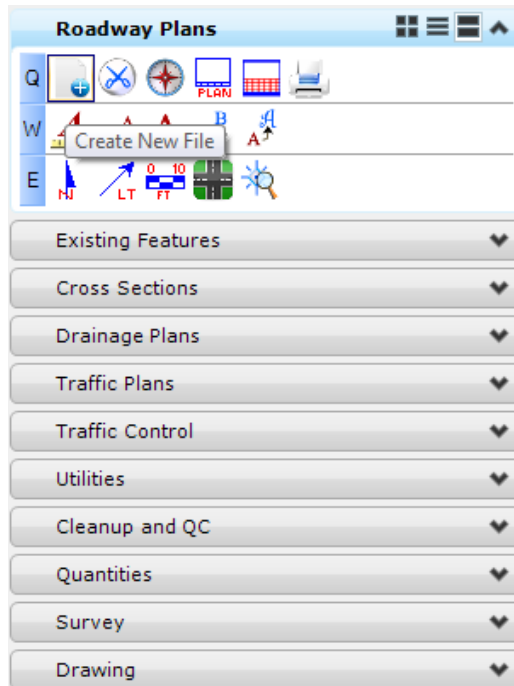
In this exercise the motif or “reference container” design file will be created for all needed reference files, the clip borders will be generated, and the plan sheets will be created. This is an alternative way to clip sheets.

➤ **Create the Motif File**

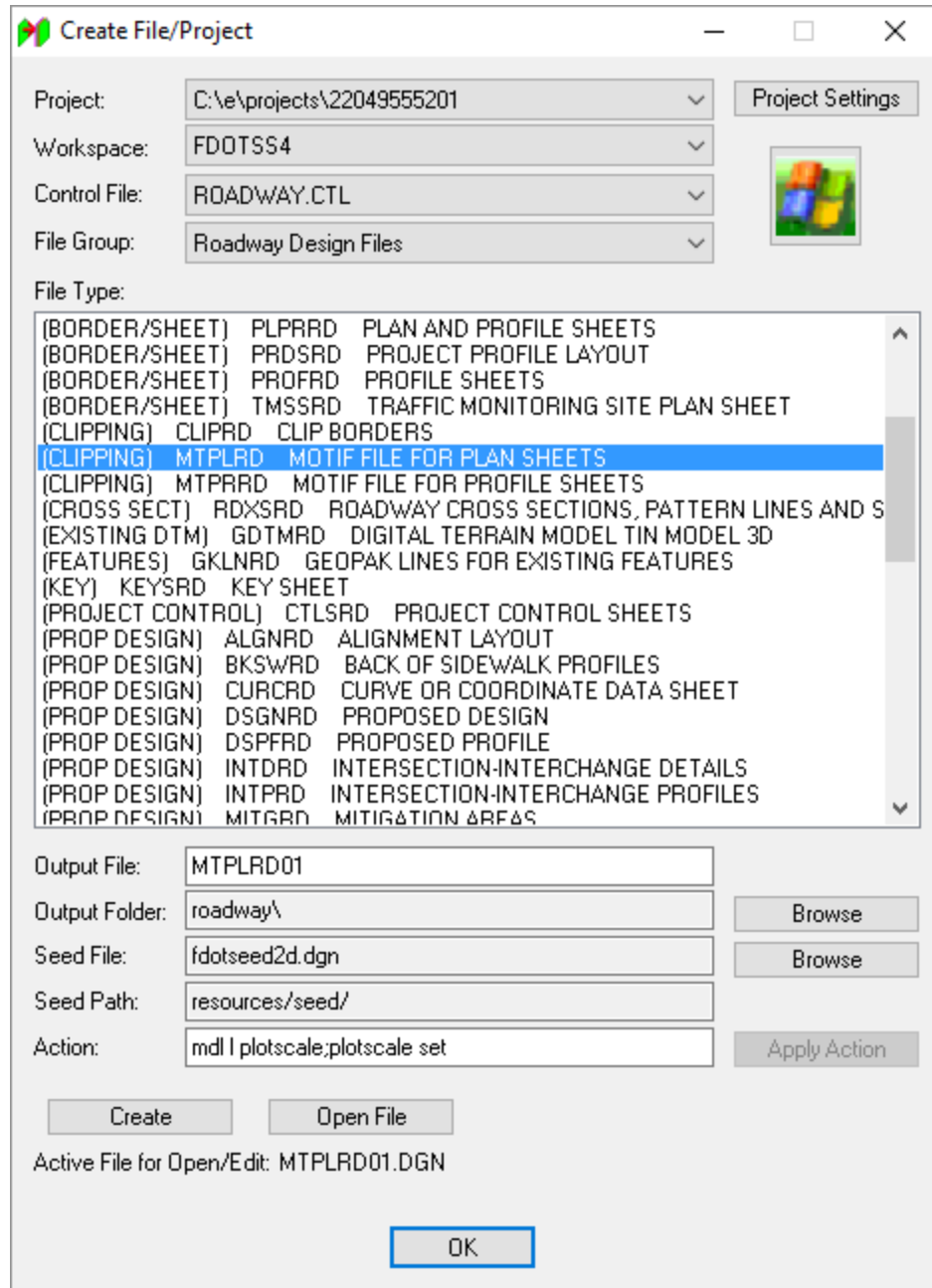
1. Use the FDOTSS4 icon, open MicroStation design file:

C:\e\projects\22049555201\roadway\DSGNRD01.dgn.

2. On the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



3. The Create File/Project dialog displays. Click on the **Project Settings** button.



- The Project Settings dialog displays. Click on the **Select Active Project** button.
- The Select Active Project dialog displays. Click the **Browse** button, navigate to the Project *C:\e\projects\22049555201*, click **Select** and then click **OK**.
- From the Project Settings dialog click **OK**.
- The *Project* is populated with the selected Project path and the *Workspace* is set to **FDOTSS4**. Complete the Create File/Project dialog as shown below.
- Click **Create** to create the file, *MTPLRD01.dgn*
- Click **Open File** to open the newly created *MTPLRD01.dgn*. Set/Update Plot Scale displays. Use the **Default** settings and click **OK**.

g. Click **OK** to close the Create File/Project dialog.

This file will be a container file for all of the reference file and level settings for the plan sheet(s).

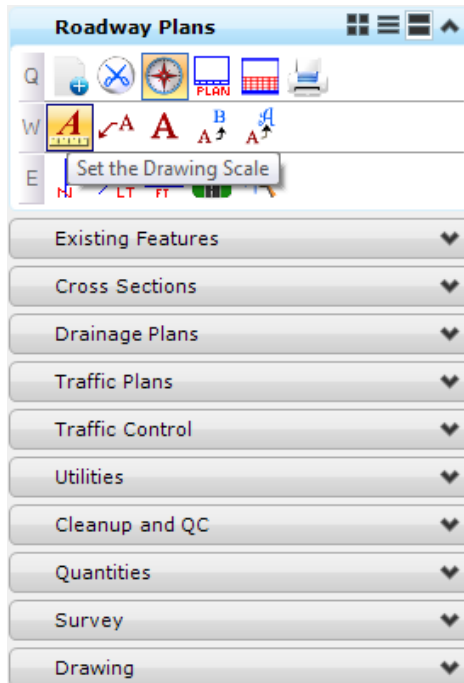
4. **Reference** in the following design files:

- o C:\e\projects\22049555201\roadway\ALGNRD01.dgn; model ALGNRD_50
- o C:\e\projects\22049555201\roadway\DSGNRD01.dgn
- o C:\e\projects\22049555201\drainage\DREXRD01.dgn logical DREXRD00
- o C:\e\projects\22049555201\drainage\DRPRRD01.dgn
- o C:\e\projects\22049555201\rwmap\RWDTRD01.dgn
- o C:\e\projects\22049555201\survey\TOPORD01.dgn logical TOPORD00
- o C:\e\projects\22049555201\utils\UTEXRD01.dgn; logical UTEXRD00
- o C:\e\projects\22049555201\utils\UTPRRD01.dgn

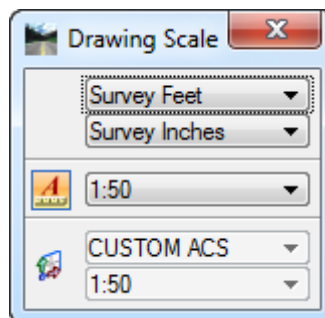
Note Make sure the option for the Raster References is turned OFF.

5. **Fit View** in MicroStation.

6. On the FDOT Plans Development Task Menu, select **Roadway Plans > Set the Drawing Scale**.



7. The Drawing Scale dialog displays. Toggle **On Annotation Scale** button and set *Scale* value to **1:50**.



8. Turn **OFF** the following *Levels*:

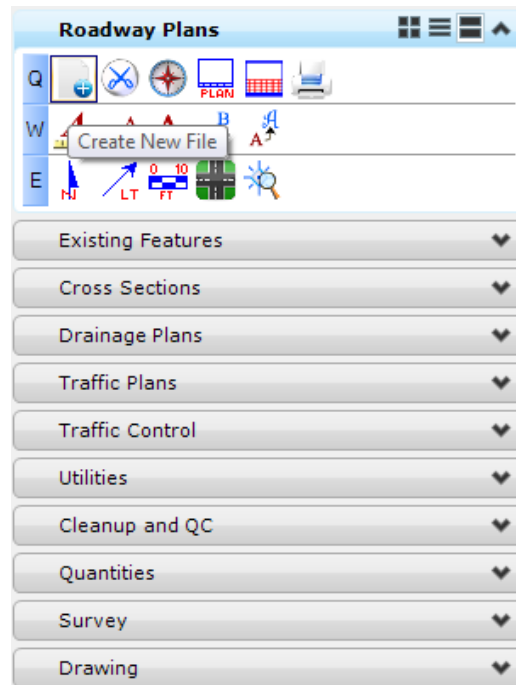
File Name	Levels
DREXRD01	TextDrainLabel_ep TextDrainInvElev_ep
DRPRRD01	ScratchEle2_dp DrainDivides00 CLConst_dp
DSGNRD01	**_ep **_pm TmpDrpHndlStg1_dp TmpDrpHndlStg2_dp TmpDrpHndlStg3_dp Miscellaneous0 Default CorrHndlStg1_dp CorrHndlStg2_dp CorrHndlStg3_dp ConstLines

File Name	Levels
TOPORD01	Text** Pavemk_ep DummyChains_ep
RWDTRD01	TextMisc TextMinor TextLabel TextCurveData LeaderLine_dp BoundaryLineImp PropertyLine_ep Default

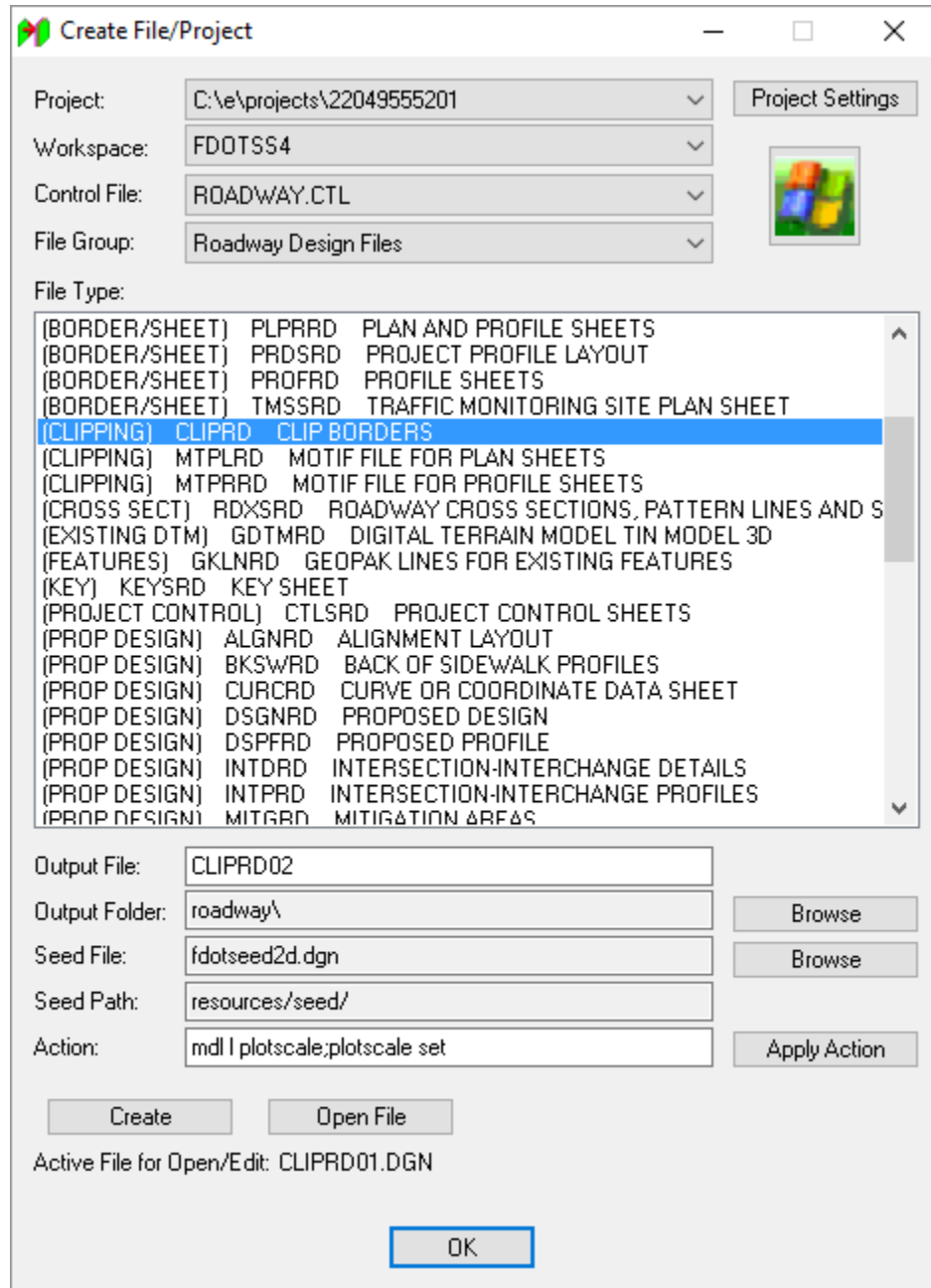
9. In MicroStation, select **File > Save Settings**.

➤ **Create the Clip Border File**

1. Continuing in the *MTPLRD01.dgn* file, on the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



2. The Create File/Project dialog displays.
 - a. Click on the **Project Settings** button.
 - b. The Project Settings dialog displays. Click on the **Select Active Project** button.
 - c. The Select Active Project dialog displays. Click the **Browse** button, navigate to the Project *C:\E\Projects\22049555201*, click **Select** and then click **OK**.
 - d. From the Project Settings dialog click **OK**.
 - e. The *Project* is populated with the selected Project path and the *Workspace* is set to **FDOTSS4**. Complete the Create File/Project dialog as shown below.



- f. Click **Create** to create the file, *CLIPRD02.dgn*
 - g. Click **Open File** to open the newly created *CLIPRD02.dgn*. Set/Update Plot Scale displays. Use the *Default* settings and click **OK**.
 - h. Click **OK** to close the Create File/Project dialog.
3. **Reference** in the *MTPLRD01.dgn* design files with the settings below. Make sure *Nested Attachments* is set to **Live Nesting** with a *Nesting Depth* of **1** and *Display Overrides* is set to **Never**.

Note Turning the Display Overrides to Never will keep the level settings based on how they are set within *MTPLRD01.dgn* each time the sheet file is reopened.

Reference Attachment Settings for MTPLRD01.DGN

File Name: MTPLRD01.DGN
 Full Path: C:\e\projects\22049555201\roadway\MTPLRD01.DGN
 Model: Default

Logical Name:
 Description: Master model

Orientation:

View	Description
Coincident	Aligned with Master File
Coincident - World	Global Origin aligned with Master File
Standard Views	
Saved Views (none)	
Named Fences (none)	

Detail Scale: 1:50
 Scale (Master:Ref): 1.000000 : 1.000000

Named Group:
 Revision:
 Level:

Nested Attachments: Live Nesting Nesting Depth: 1
 Display Overrides: Never

New Level Display: Use MS_REF_NEWLEVELD
 Global Line Style Scale: Master
 Synchronize View: Volume Only

Toggles

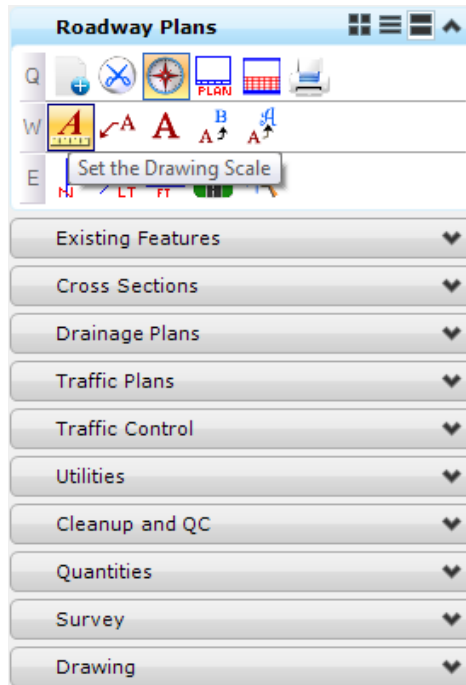
Drawing Title
 Create
 Name: Drawing

OK Cancel

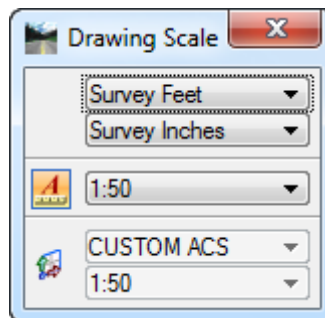
Note Using the above settings will allow levels and references to be quickly turned off or added within the container file and those changes propagated in the plan sheets immediately.

4. **Fit View** in MicroStation.

5. On the FDOT Plans Development Task Menu, select **Roadway Plans > Set the Drawing Scale**.



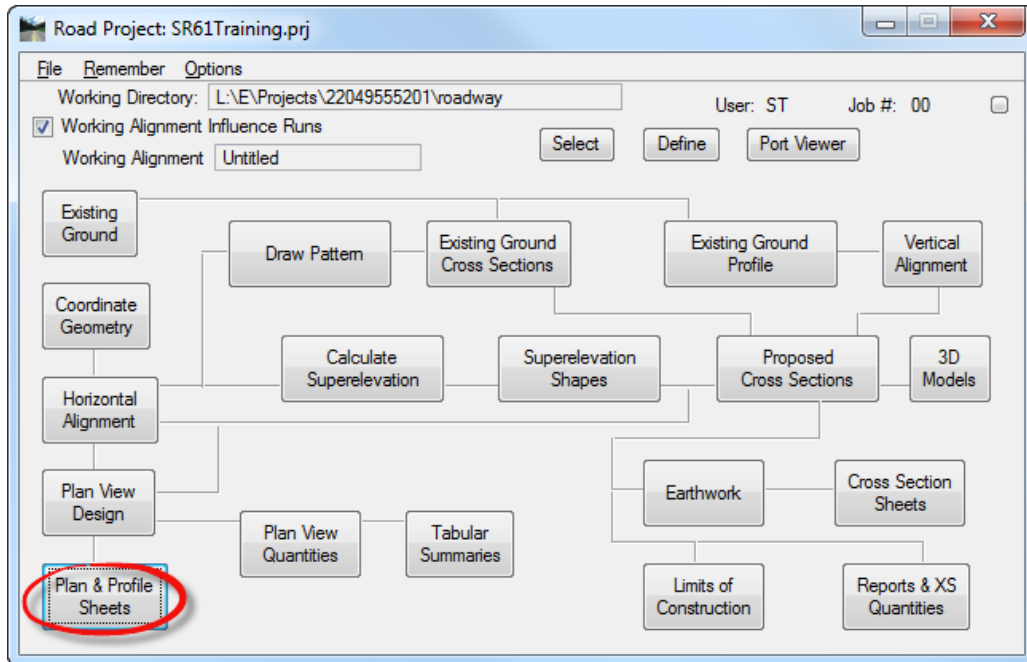
6. The Drawing Scale dialog displays. Toggle **On** the *Annotation Scale* button and set *Scale* value to **1:50**.



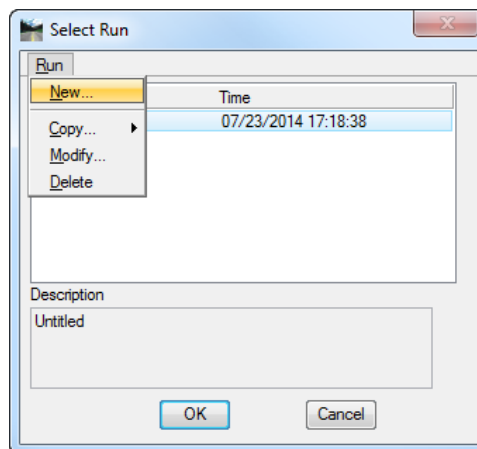
7. In MicroStation go to **File > Save Settings**.

➤ **Layout Plan & Profile Sheets**

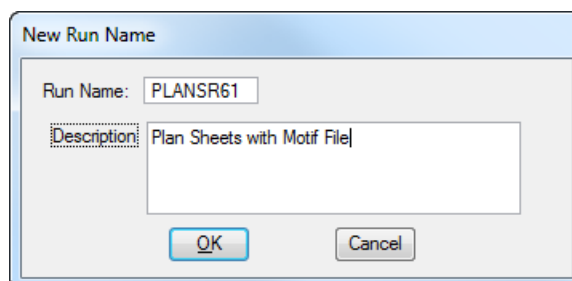
1. From the Road Project dialog, click the **Plan & Profile Sheets** button.



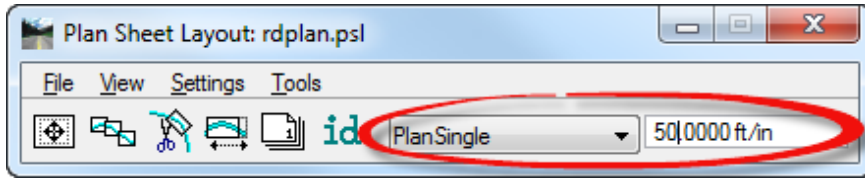
2. The Select Run dialog displays. Select **Run > New** to create a *New Run*.



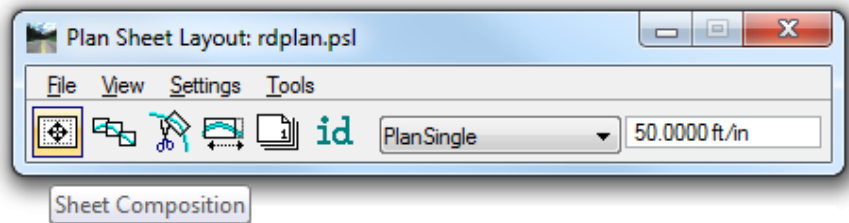
3. The New Run Name dialog displays. Enter **PLANSR61** for the *Run Name*.
4. Add a *Description* for the run as shown below. Click **OK** to close New Run Name dialog.



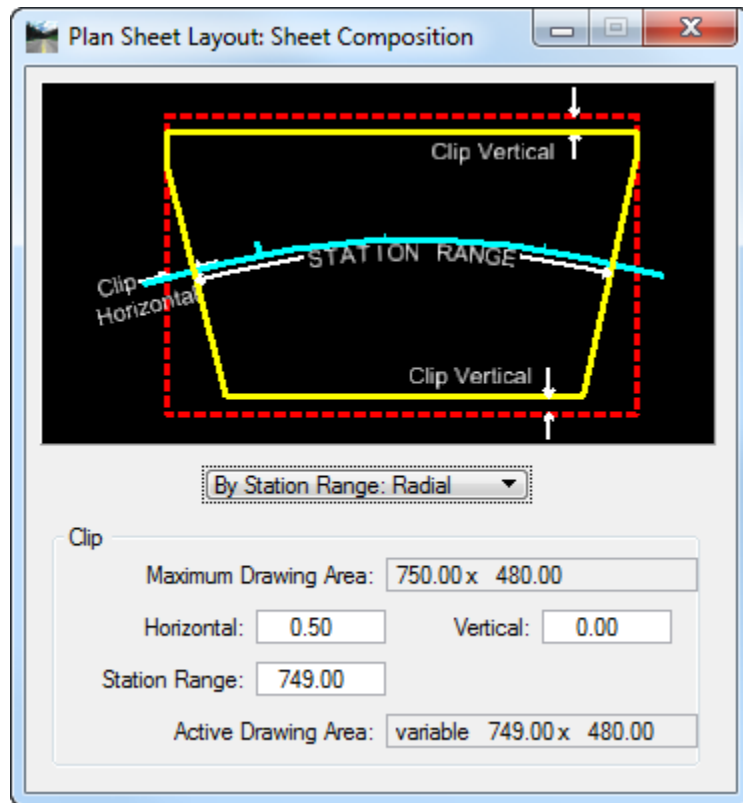
5. From the Select Run dialog highlight **PLANSR61** from the list and click **OK**.
6. The Plan Sheet Layout dialog displays. Set the *Sheet* to **PlanSingle** and the *Scale* to **50.00 ft/in**.



- a. Click the **Sheet Composition** button.

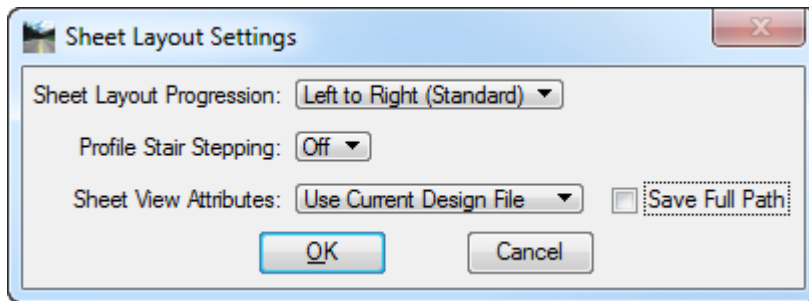


- b. The Plan Sheet Layout: Sheet Composition dialog displays. Set to **By Station Range: Radial** and close the Plan Sheet Layout: Sheet Composition dialog.

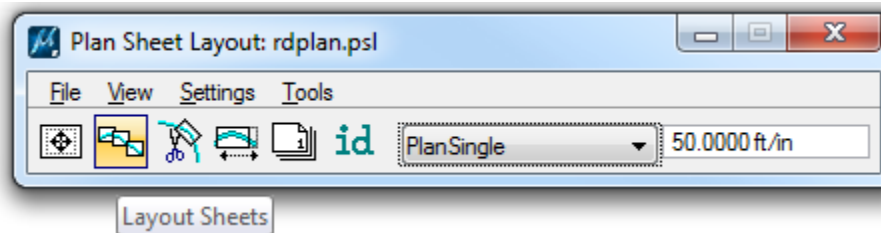


- c. From the Plan Sheet Layout dialog select **Settings > Sheet Layout**.

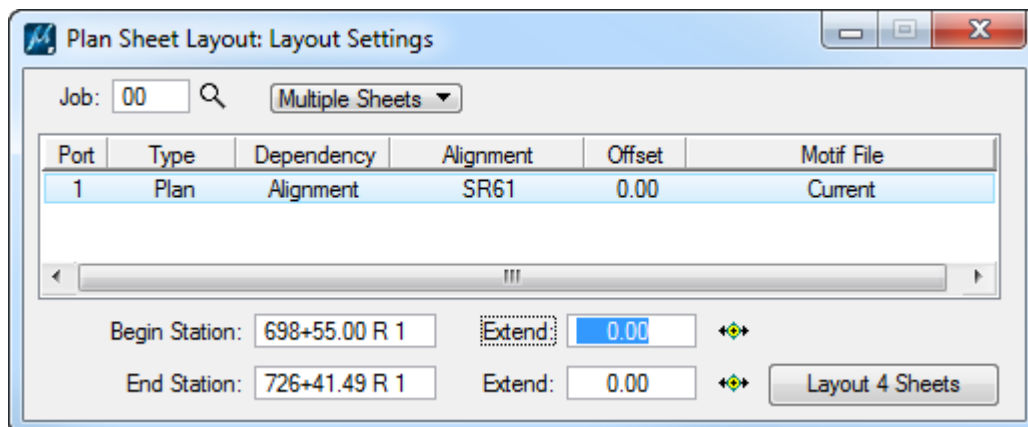
- d. The Sheet Layout Settings dialog displays. Set the *Sheet Layout options* as shown below and click **OK** to close Sheet Layout Settings dialog.



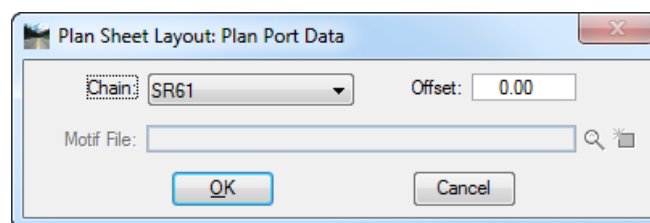
- e. From the Plan Sheet Layout dialog click the **Layout Sheets** button.



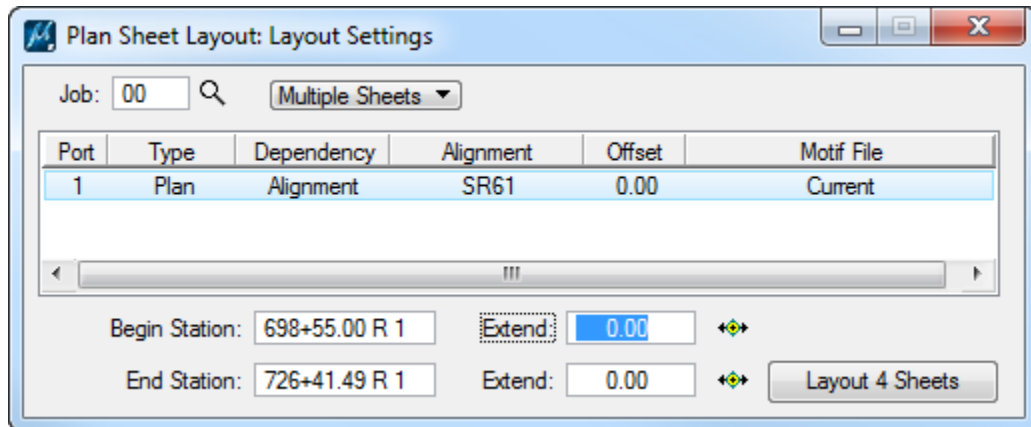
- 7. The Plan Sheet Layout: Layout Settings dialog displays: Be sure that *Job 00* is selected.



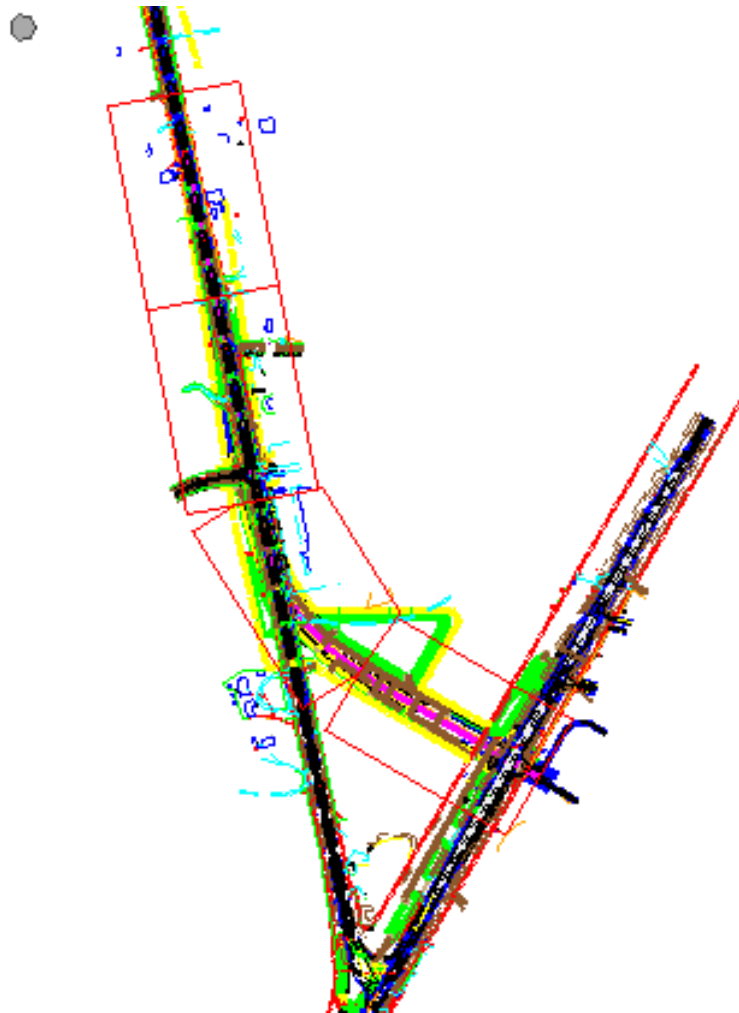
- a. Highlight **Port 1** and double click to open Plan Sheet Layout: Plan Port Data dialog. Verify that the *Chain* is set to **SR61** and click **OK** to close Plan Sheet Layout: Plan Port Data dialog.



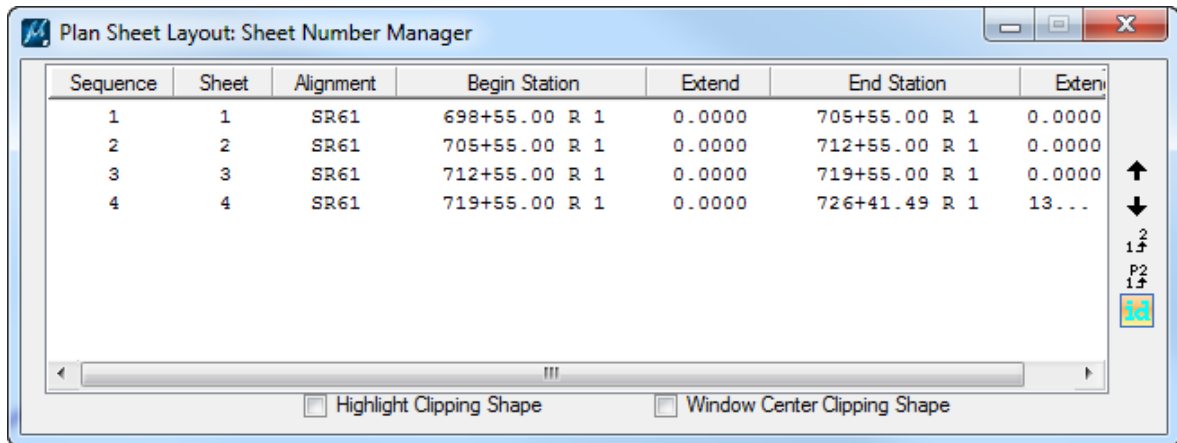
b. Click on the **Layout 4 Sheets** button.



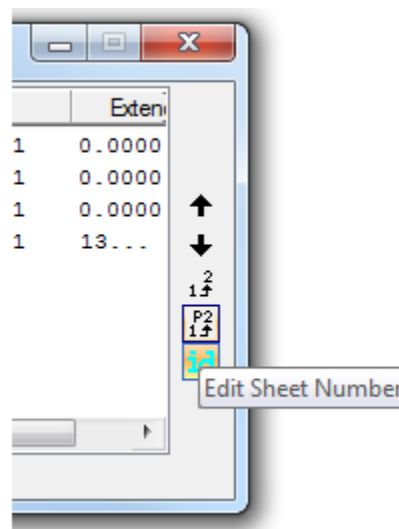
c. The *clip borders* will be laid out for the Plan in the *CLIPRD02* design file.



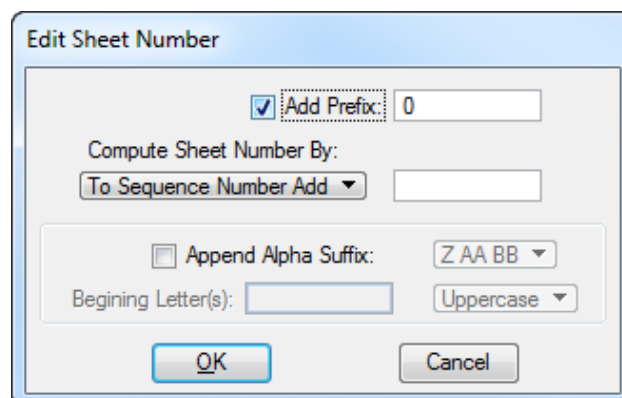
8. From the Plan Sheet Layout dialog, go to **Tools > Sheet Number Manager**.
9. The Plan Sheet Layout: Sheet Number Manager dialog displays.



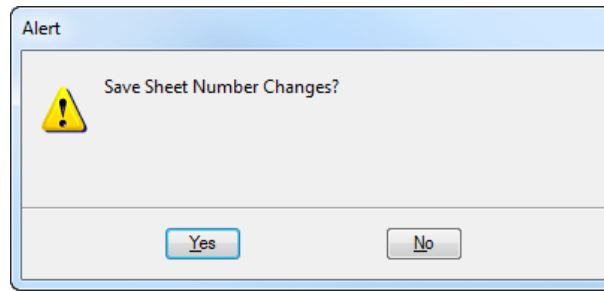
- a. **Highlight** all of the *sheets* in the dialog.
- b. On the right side of the dialog select the **Edit Sheet Number** icon.



- c. The Edit Sheet Number dialog displays. Toggle **On** the *Add Prefix* box and enter a **0** in the field. Click **OK**.



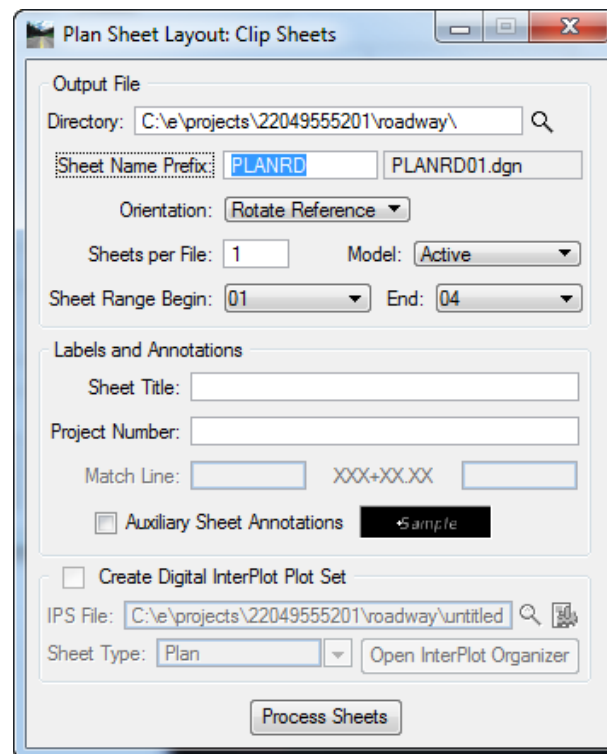
- d. Close the **Plan Sheet Layout: Sheet Number Manager** dialog. An **Alert** message will appear. Click **Yes** to *Save the Sheet Number Changes*.



10. From the **Plan Sheet Layout** dialog, click the **Clip Sheets** button.

11. The **Plan Sheet Layout: Clip Sheets** dialog displays. Under the *Output File* section:

- Set the *Directory* to *c:\e\projects\22049555201\roadway*.
- Set the *Sheet Name Prefix* to **PLANRD**.
- Set the *Orientation* to **Rotate Reference**.
- Set all other settings as shown below.



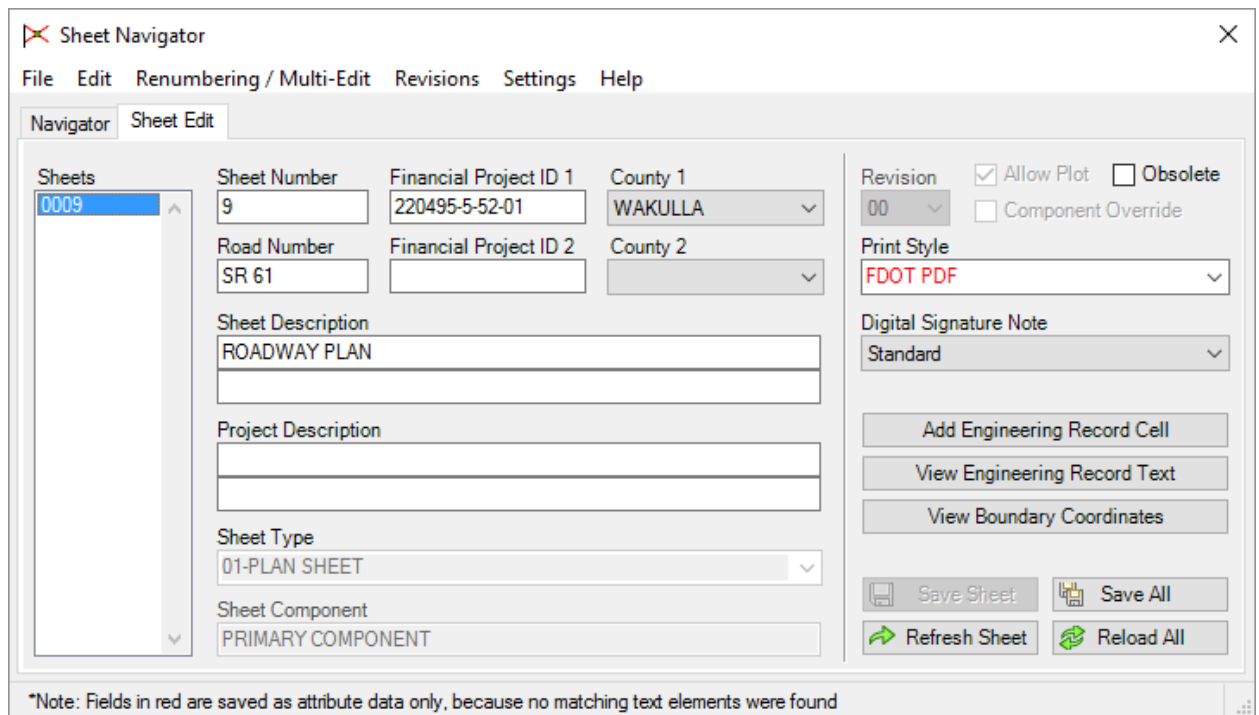
- Click the **Process Sheets** button. All of the sheets are created with all of the references attached.
- Once all the sheets are created **Close** the **Plan Sheet Layout: Clip Sheets** dialog.

12. **Close** the **Plan Sheet Layout** dialog. Click **Yes** to save the *Plan Sheet Project Manager Settings*.

13. In MicroStation, open *PLANRD01.dgn* in the \roadway folder and review the file.

➤ **Label Sheets**

1. On the FDOT Menu, go to **Actions > Set the Plot Scale of the File** and set the *plot scale* to **50.0**.
2. Use Sheet Navigator to *label* and *number* each **sheet 9-12**. See the image below.



3. From MicroStation turn **Off Data Fields**, set the *Annotation Scale* to **1:50**, **Fit View** and **Save Settings** in each file.

Note The clip border file is referenced and will have to be turned off or detached in each file.

4. **Close MicroStation.**

[THIS PAGE INTENTIONALLY LEFT BLANK.]

6 GENERAL NOTES & PROJECT LAYOUT

OBJECTIVES

- Create General Notes Sheet
- Create Roadway Project Layout

EXERCISE OVERVIEW

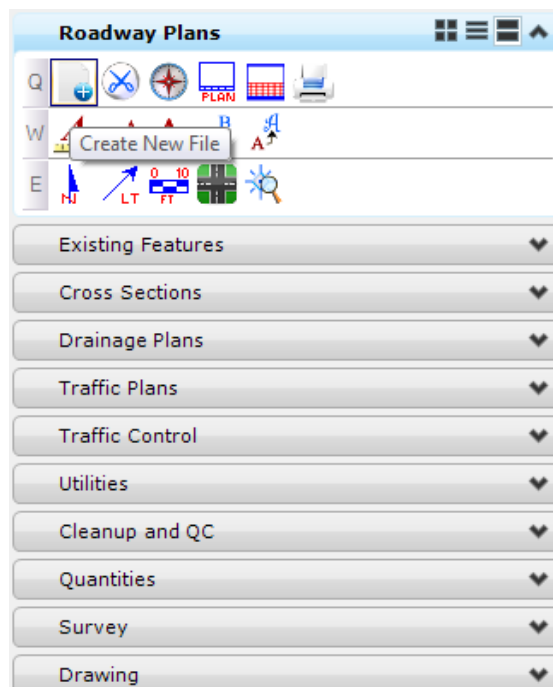
- 6.1 Creating the General Notes Sheet
- 6.2 Creating the Project Layout Sheet

GENERAL NOTES SHEET

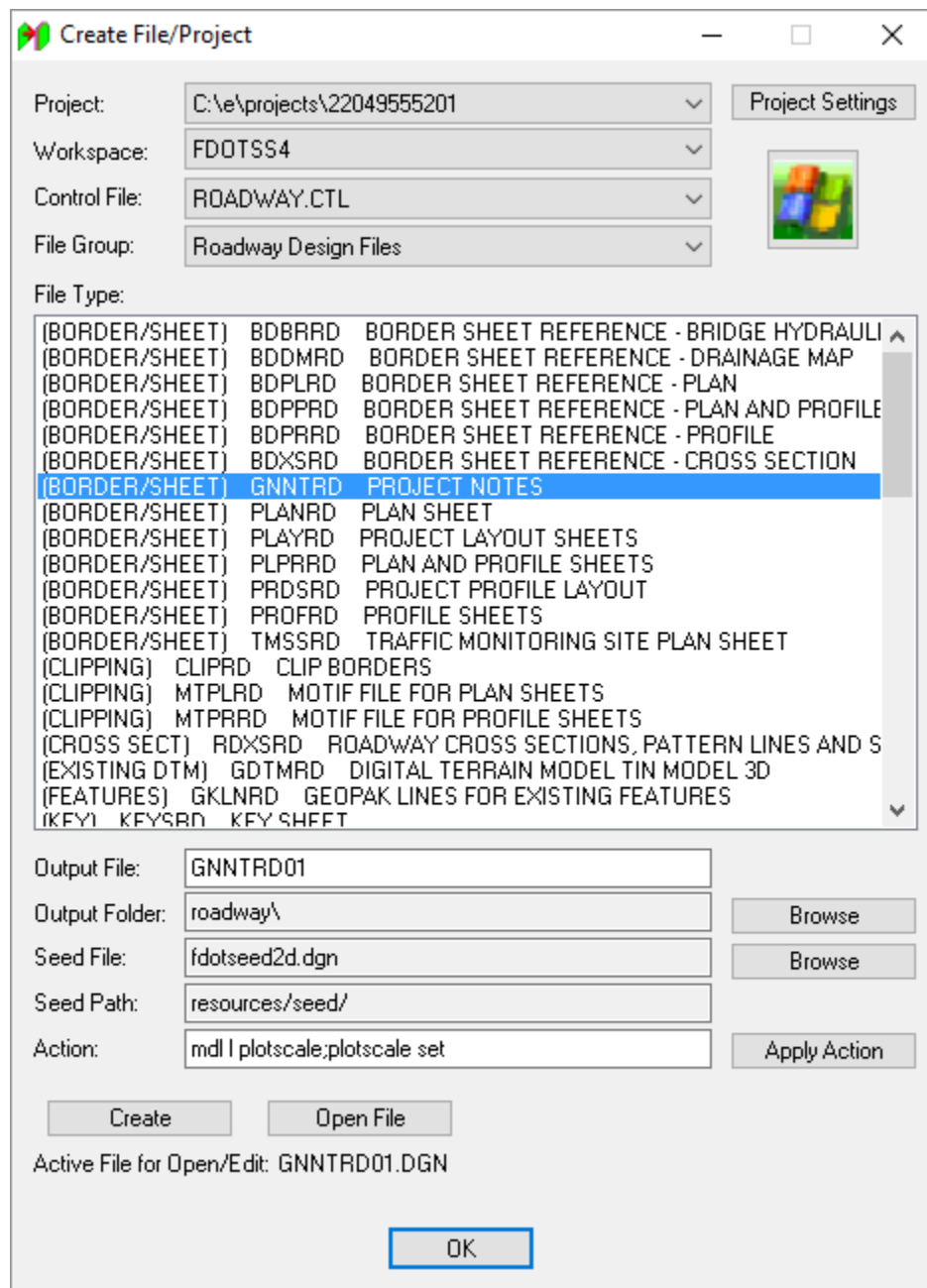
The General Notes sheet is required for each project. See *Exhibit 311-1* in *Part 3* of the *FDOT Design Manual (FDM)* for a list of General Notes that are required.

Exercise 6.1 Creating the General Notes Sheet

1. (Optional) Extract the *22049555201(6).zip* file in the *Data Set* folder to the *c:\e\projects* folder.
2. Use the **FDOTSS4** icon open MicroStation design file:
C:\E\Projects\22049555201\roadway\DSGNRD01.dgn.
3. On the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



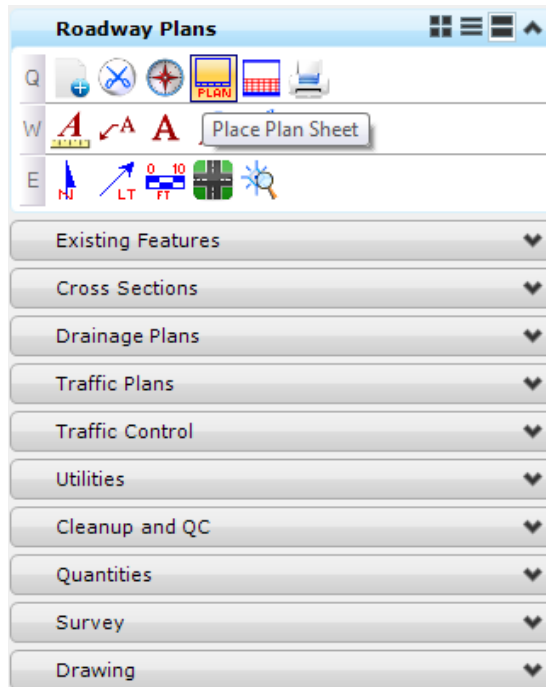
4. The Create File/Project dialog displays. Click on the **Project Settings** button.
 - a. The Project Settings dialog displays. Click on the **Select Active Project** button.
 - b. The Select Active Project dialog displays. Click the **Browse** button, navigate to C:\e\Projects\22049555201\, click **Select** and then click **OK**.
 - c. From the *Project Settings* dialog, click **OK**.
 - d. The *Project* is populated with the selected *Project path* and the *Workspace* is set to **FDOTSS4**. Complete the Create File/Project dialog as shown below.



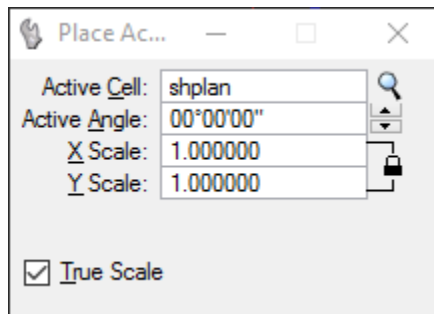
- e. Click **Create** to create the file, *GNNTRD01.dgn*.
- f. Click **Open File** to open the newly created *GNNTRD01.dgn*. *Set/Update Plot Scale* displays. Use the *Default* settings and click **OK**.

g. Click **OK** to **close** the Create File/Project dialog.

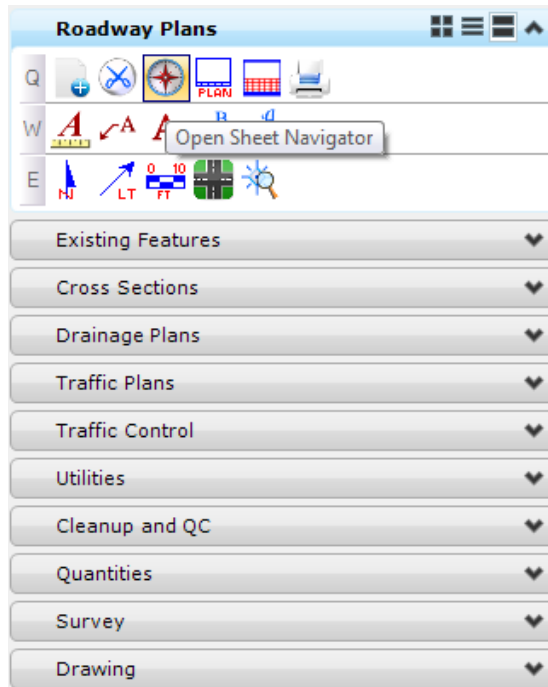
5. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place Plan Sheet**.



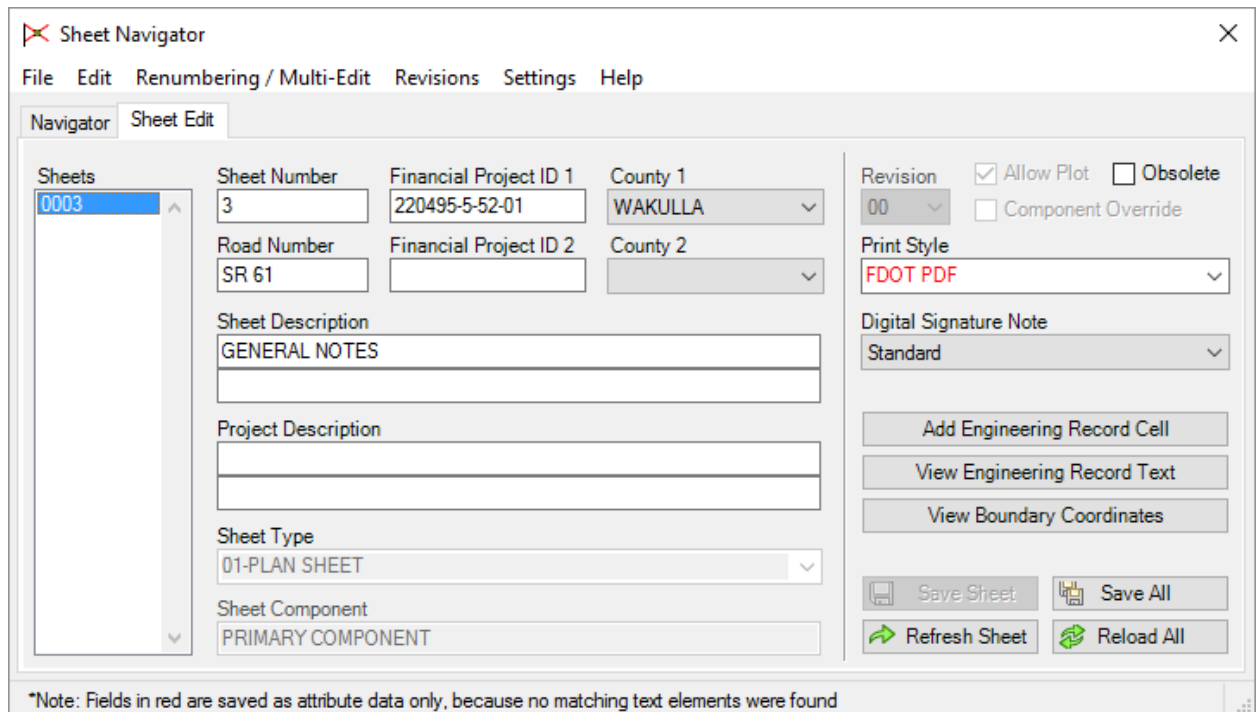
6. The MicroStation Place Active Cell command launches with **SHPlan** set as the *Active Cell*. Set *Scale* of the cell to **1.0**, **data point** to place the *cell* in the file, and **right-click** to exit the *Place Active Cell* command.



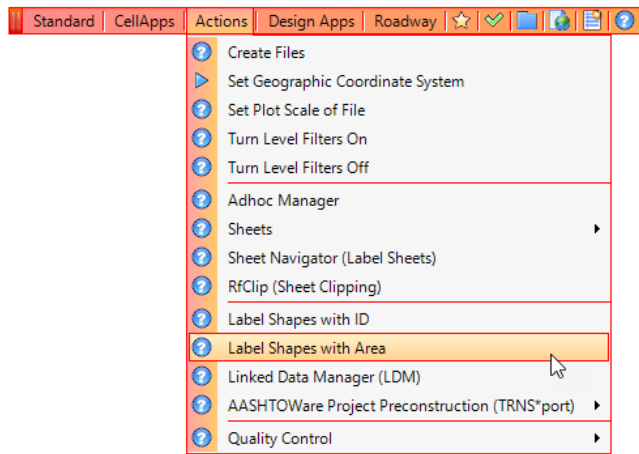
- From the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.



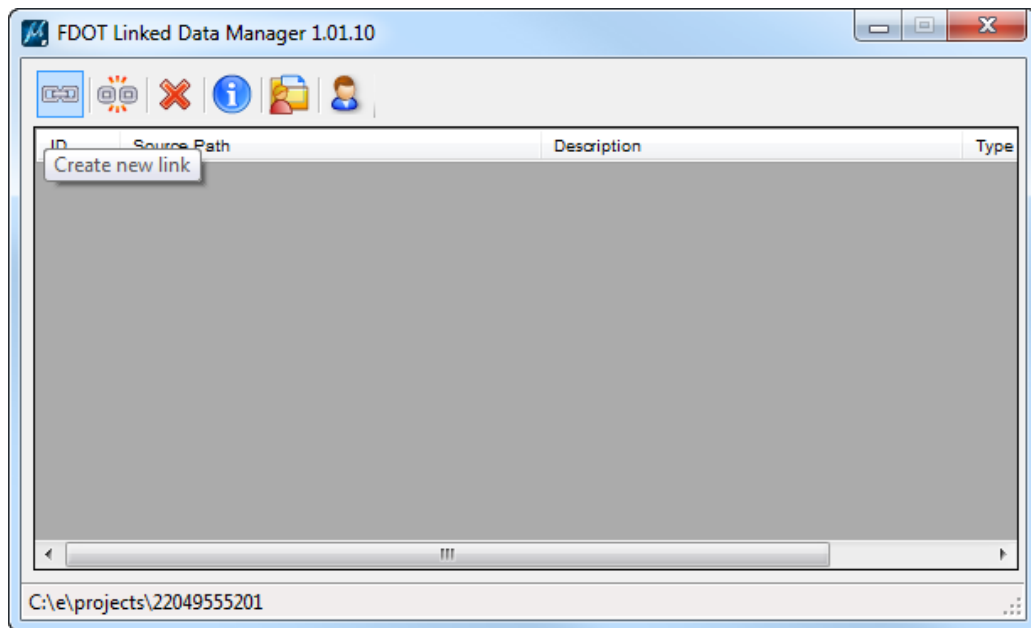
- The Sheet Navigator dialog displays. Populate by entering the *Sheet Number*, *Financial Project ID*, *County*, *Road Number*, *Print Style*, and *Digital Signature Note*, as shown below and then click **Save Sheet**. All of the information entered will be saved to the sheet.



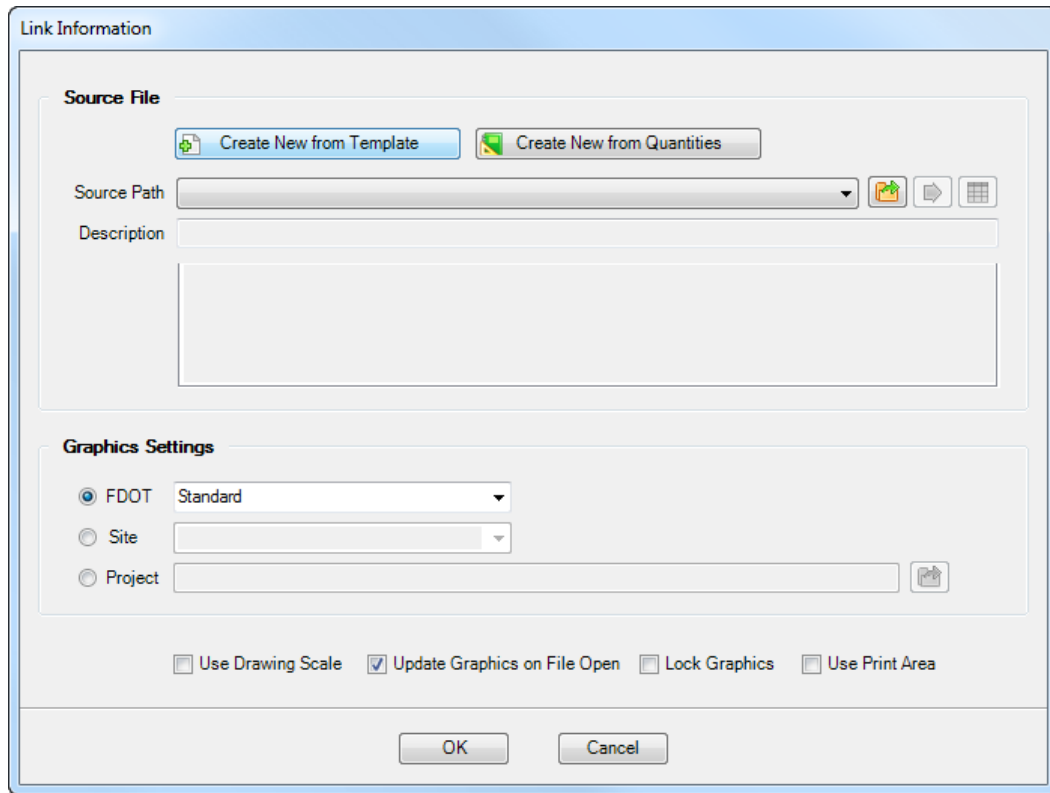
9. From the FDOTSS4 Menu select **Actions > Linked Data Manager**.



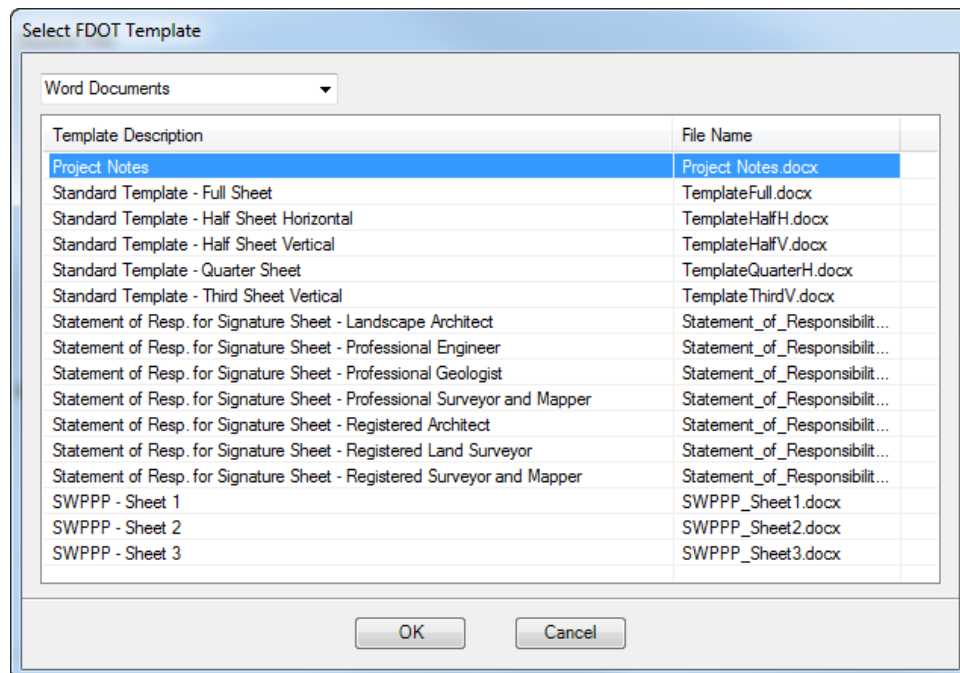
10. The FDOT Linked Data Manager dialog displays. Select the **Create New Link** icon.



- a. The Link Information dialog displays. Click on the **Create New from Template** button.

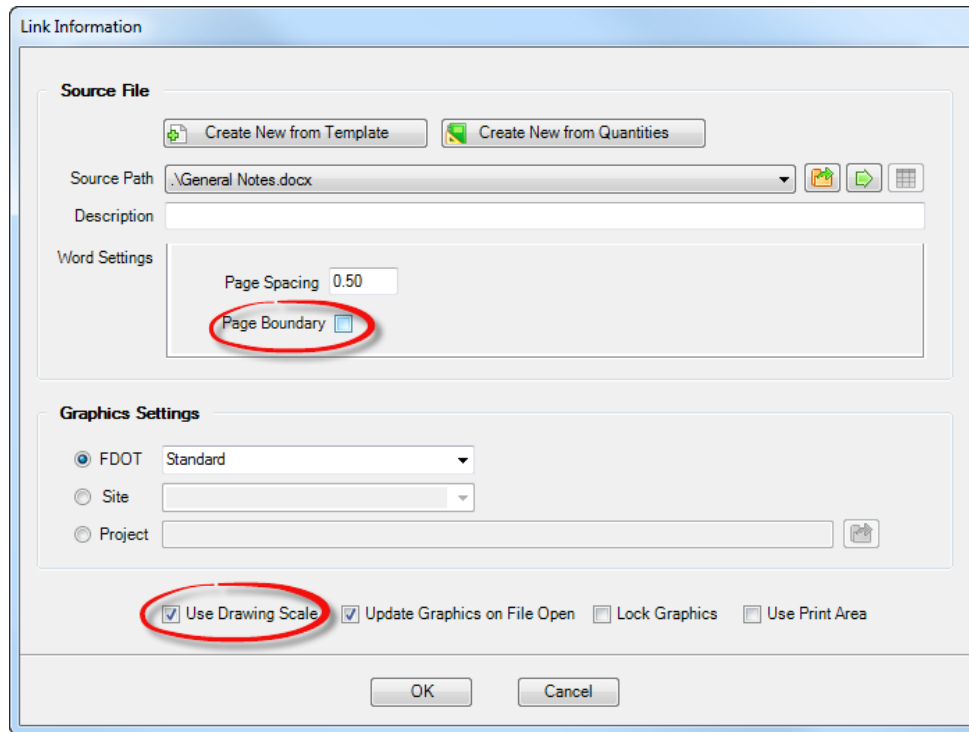


- b. The Select FDOT Template dialog displays. Set the drop down to **Word Documents** and select the **Project Notes Template**. Click **OK**.



- c. From the *Save File* dialog browse to the c:\e\projects\22049555201\roadway folder, accept the default filename and **Save** the file.

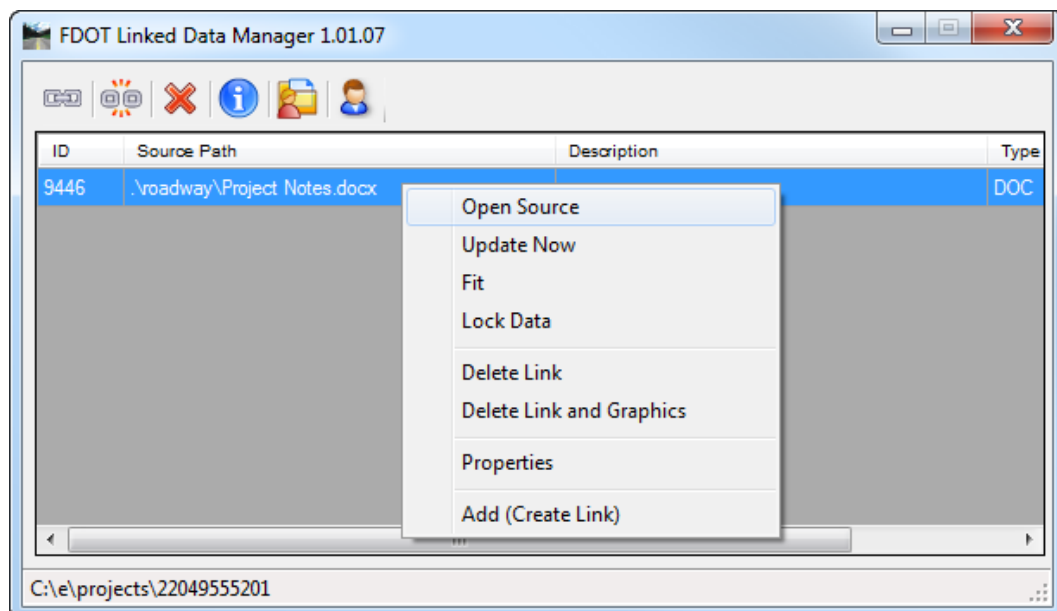
- d. From the **Link Information** dialog, toggle **Off** the *Page Boundary* check box, toggle **On** the *Use Drawing Scale* check box and click **OK**.



- e. With the *Project Notes* attached to cursor snap to the top, left corner of the *Plan Sheet* and data point to place the link. The Link is created and listed in the **Linked Data Manager** dialog.

- To edit the *Project Notes*: Go to the **Linked Data Manager** dialog, right-click on the link and select **Open Source**.

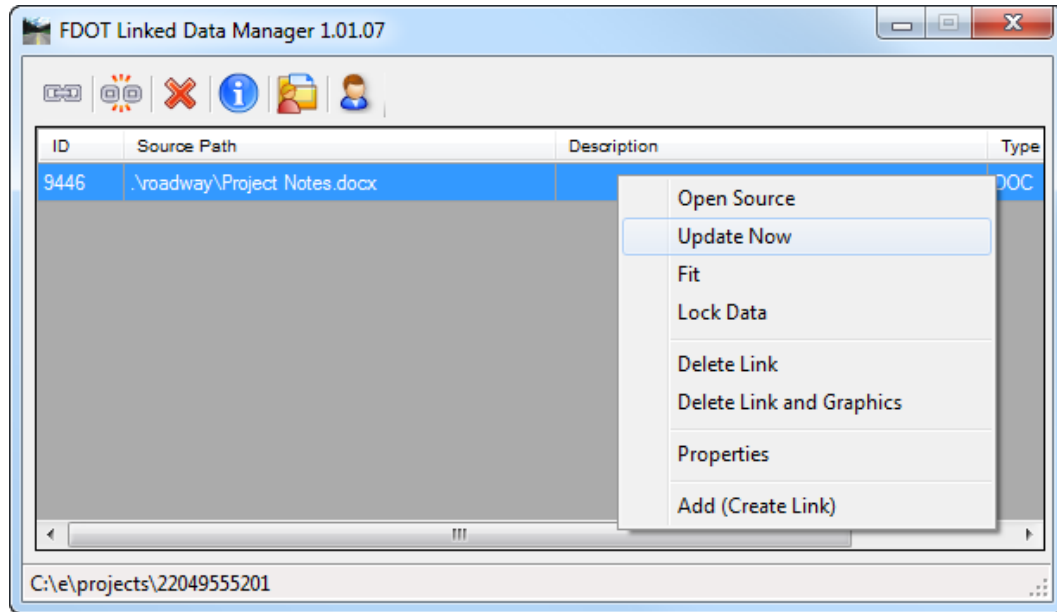
Note **DO NOT** edit the text for the *Project Notes* in the MicroStation file. Always edit the word document or the link will be broken.



- a. The Word Document opens the .docx file. **Add** the utility owners below, **Save** the file and **close** it.

<i>UTILITY AGENCY/OWNERS:</i>	<i>CONTACT</i>	<i>TELEPHONE NUMBERS</i>
<i>TELEPHONE COMPANY A</i>	<i>OWNER A</i>	<i>(850) 222-2222</i>
<i>GAS COMPANY B</i>	<i>OWNER B</i>	<i>(850) 333-3333</i>

- b. From the Linked Data Manager dialog, select the link again, right-click and select **Update Now**. The *Project Notes* will be updated in the MicroStation file to reflect the changes made.



- 12. From MicroStation turn **Off Data Fields**, **Fit View** and then select **File > Save Settings**.

Note The project notes are also available through Linked Data Manager as a Text Document Template. Follow the same steps as shown above, except use the template under the Text Notes option.

PROJECT LAYOUT SHEETS

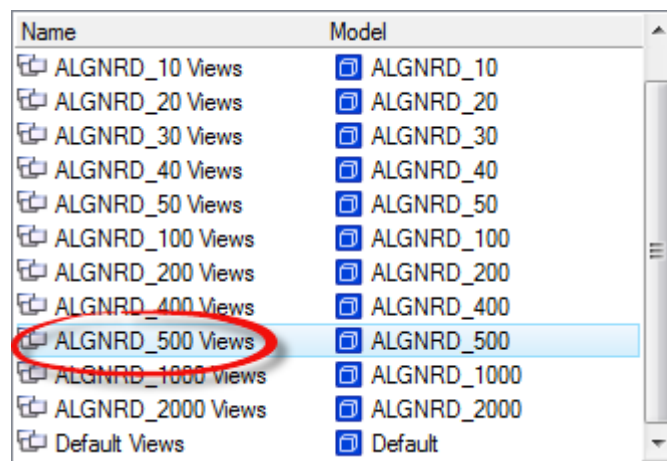
The project layout sheet (or sheets) shows the horizontal alignment and plan or plan-profile sheet sequence and numbering for the project. This is an optional sheet, to be included in the plans set at the discretion of the district. The project layout sheet shall be prepared on a standard plan format sheet in the Florida Department of Transportation (FDOT) CADD Office Workspace.

Requirements for the Project Layout sheet, according to the *FDM, Part 3, Chapter 309* include:

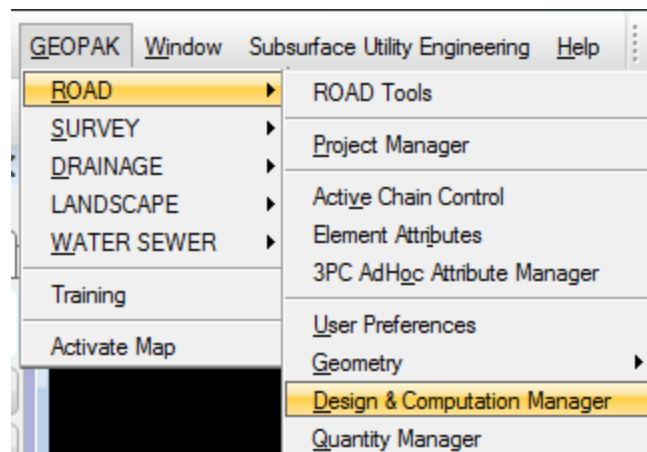
- Plan/Profile Sheet sequence (mainline and cross roads)
- Reference Points
- Beginning and ending stations for project, construction, and ramps

Exercise 6.2 Creating the Project Layout Sheet

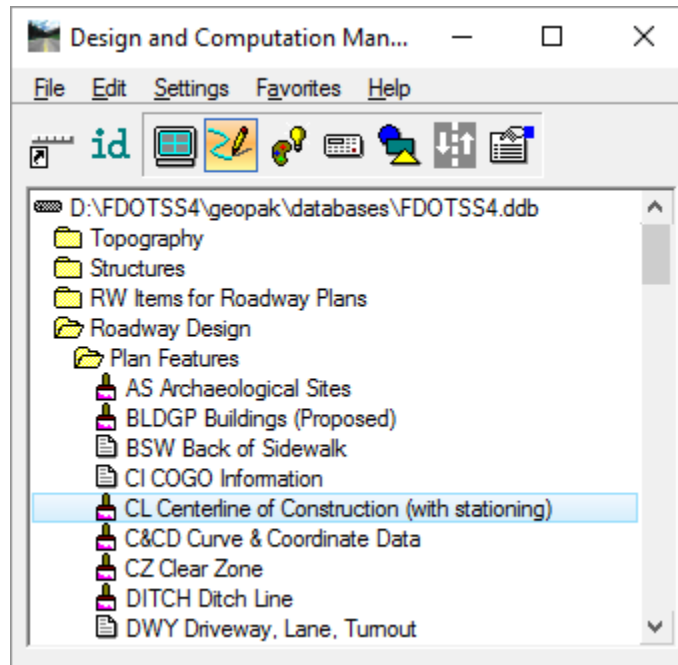
1. Open the *ALGNRD01.dgn* design file and select the **ALGNRD_500 Model**.



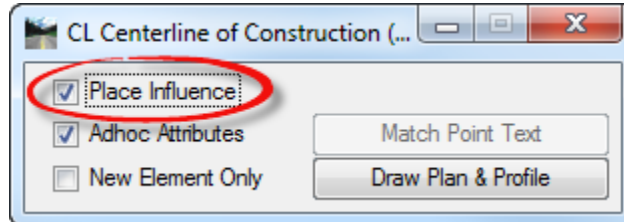
2. In MicroStation, select **GEOPAK > ROAD > Design & Computation Manager**.



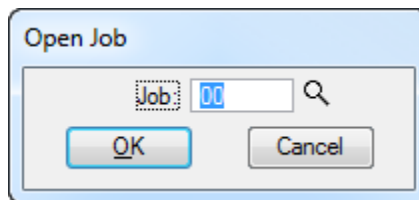
3. Design and Computation Manager dialog displays. Navigate to the *Roadway Design > Plan Features* folder and select **CL Centerline of Construction (with stationing)**.



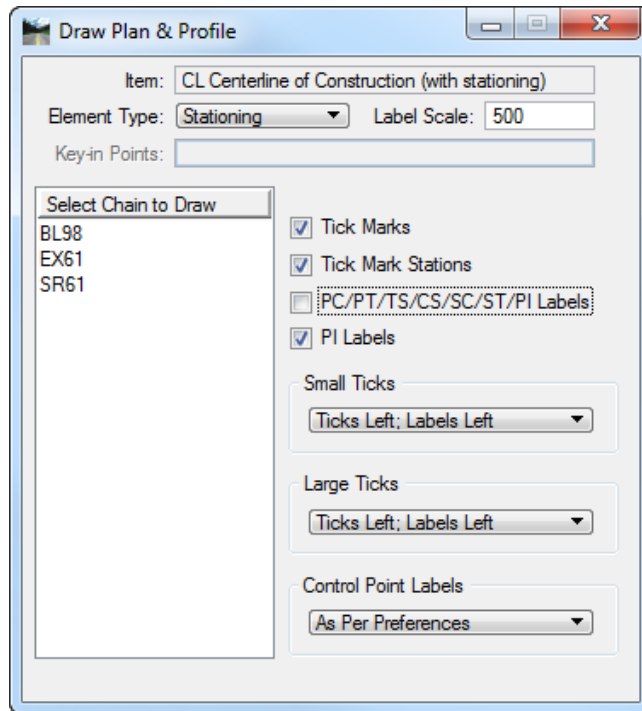
- a. The CL Centerline of Construction dialog displays. Check the **Place Influence** box and click the **Draw Plan & Profile** button.



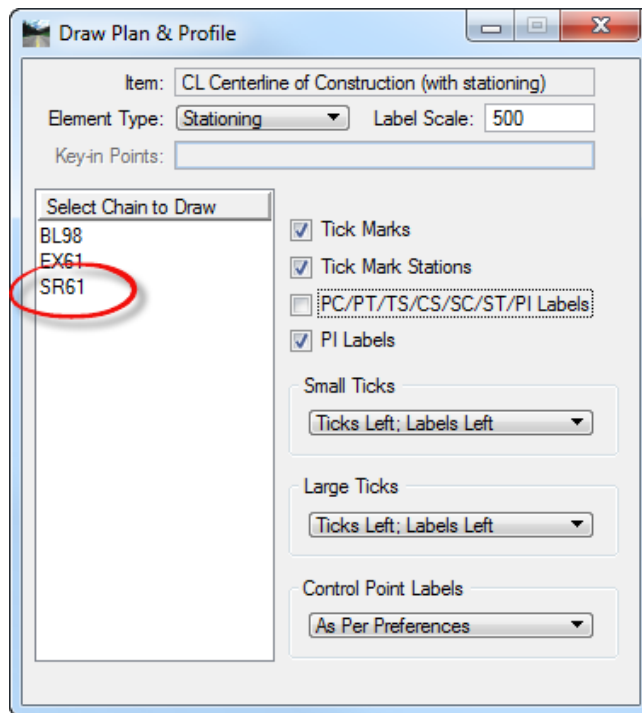
- b. On the Open Job dialog, browse to the *job00.gpk* Job file and click **OK**.



4. The Draw Plan & Profile dialog displays.
 - a. Change the *Element Type* to **Stationing**.
 - b. Enter **500** for the *Label Scale*.

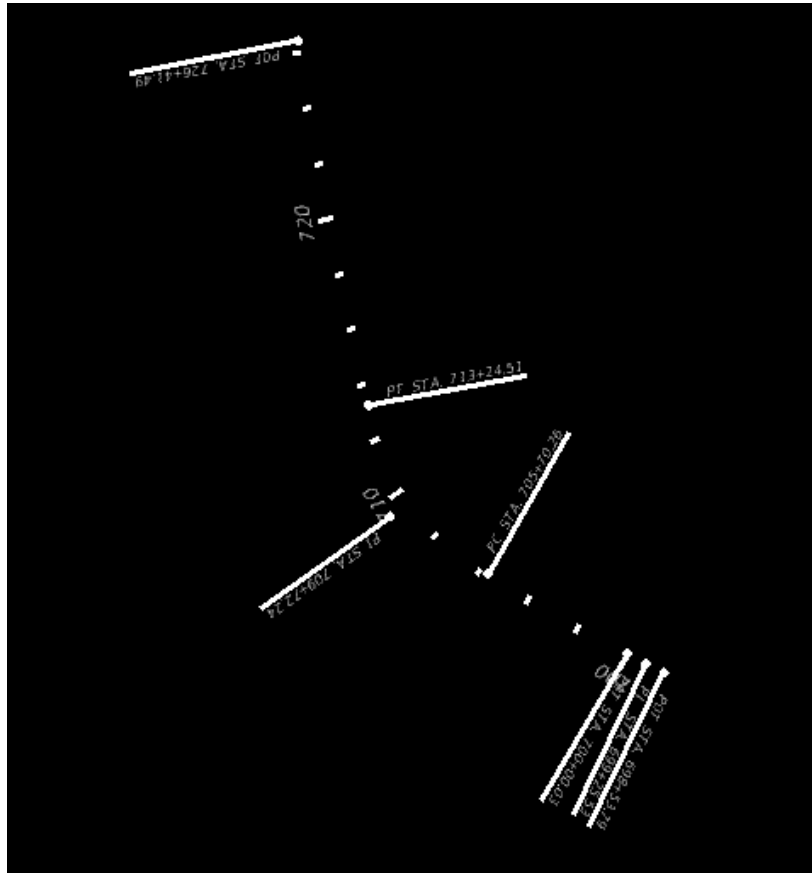


- c. In the *Select Chain to Draw List* box, select on **SR61** and **close** Draw Plan & Profile dialog.

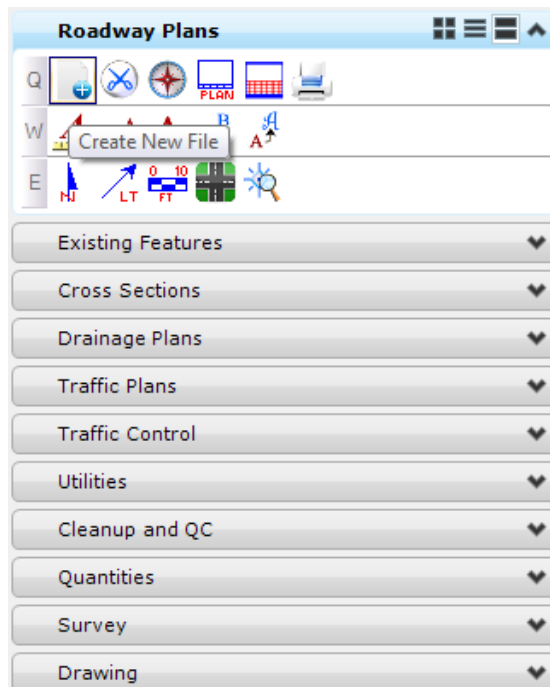


5. **Close** the CL Centerline of Construction dialog and the Design & Computation Manager.

- In MicroStation, select **Fit View** to see the results.



- In MicroStation, select **File > Save Settings** <OR> select **Ctrl F**.
- From the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



9. The Create File/Project dialog displays. Complete the Create File/Project dialog as shown below.

Create File/Project

Project: C:\e\projects\22049555201 Project Settings

Workspace: FDOTSS4

Control File: ROADWAY.CTL

File Group: Roadway Design Files

File Type:

(BORDER/SHEET)	BDBRRD	BORDER SHEET REFERENCE - BRIDGE HYDRAULI
(BORDER/SHEET)	BDDMRD	BORDER SHEET REFERENCE - DRAINAGE MAP
(BORDER/SHEET)	BDPLRD	BORDER SHEET REFERENCE - PLAN
(BORDER/SHEET)	BDPPRD	BORDER SHEET REFERENCE - PLAN AND PROFILE
(BORDER/SHEET)	BDPRRD	BORDER SHEET REFERENCE - PROFILE
(BORDER/SHEET)	BDXSRD	BORDER SHEET REFERENCE - CROSS SECTION
(BORDER/SHEET)	GNNTRD	PROJECT NOTES
(BORDER/SHEET)	PLANRD	PLAN SHEET
(BORDER/SHEET)	PLAYRD	PROJECT LAYOUT SHEETS
(BORDER/SHEET)	PLPRRD	PLAN AND PROFILE SHEETS
(BORDER/SHEET)	PRDSRD	PROJECT PROFILE LAYOUT
(BORDER/SHEET)	PROFRD	PROFILE SHEETS
(BORDER/SHEET)	TMSSRD	TRAFFIC MONITORING SITE PLAN SHEET
(CLIPPING)	CLIPRD	CLIP BORDERS
(CLIPPING)	MTPLRD	MOTIF FILE FOR PLAN SHEETS
(CLIPPING)	MTPRRD	MOTIF FILE FOR PROFILE SHEETS
(CROSS SECT)	RDXSRD	ROADWAY CROSS SECTIONS, PATTERN LINES AND S
(EXISTING DTM)	GDTMRD	DIGITAL TERRAIN MODEL TIN MODEL 3D
(FEATURES)	GKLNRD	GEOPAK LINES FOR EXISTING FEATURES
(KEY)	KEYSRD	KEY SHEET

Output File: PLAYRD01

Output Folder: roadway\ Browse

Seed File: fdotseed2d.dgn Browse

Seed Path: resources/seed/

Action: mdl | plotscale;plotscale set Apply Action

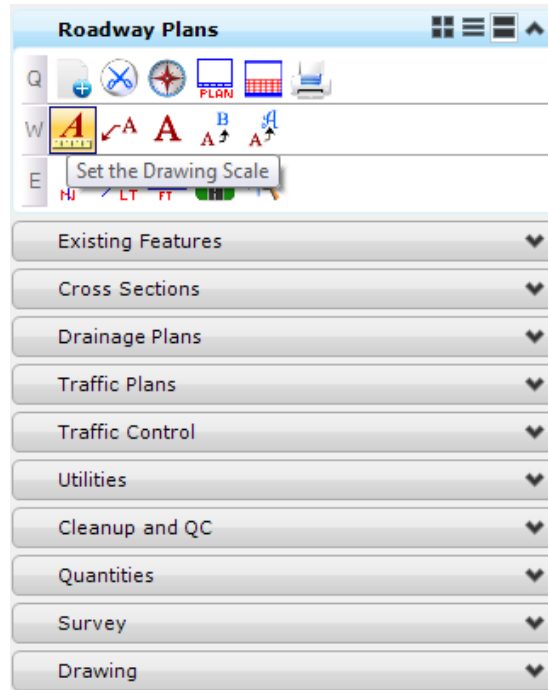
Create Open File

Active File for Open/Edit: PLAYRD01.DGN

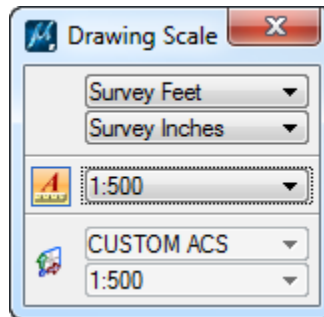
OK

- Click **Create** to create the file, *PLAYRD01.dgn*.
- Click **Open File** to open the newly created *PLAYRD01.dgn*. The Set/Update Plot Scale displays. Change the *Scale* to **500.0** and click **OK**.
- Click **OK** to close the Create File/Project dialog.

10. From the FDOT Plans Development Task Menu, select the **Roadway Plans > Set the Drawing Scale**.



11. The Drawing Scale dialog displays. Toggle **On** the *Annotation Scale* button and set the *Scale* value to **1:500**.

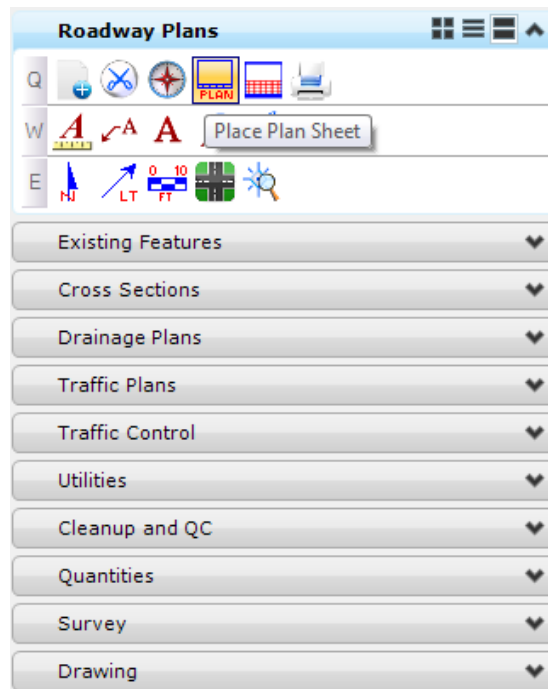


12. Reference in the following files:

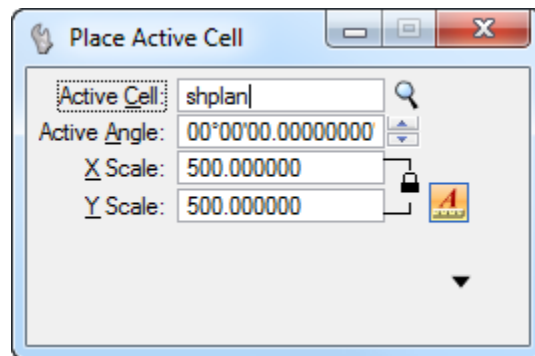
CLIPRD02.dgn
ALGNRD01.dgn; model ALGNRD_500
DSGNRD01.dgn
TOPORD01.dgn files

- a. In the referenced *DSGNRD01.dgn* design file turn **Off** all *Levels except: PavtAsphalt, PavtMilling, BaselineSurvey, and CLConst_dp*
 - b. In the referenced *TOPORD01.dgn* design file turn **Off** all *Levels except: PavtAsphalt_ep.*
13. Rotate the *View* so that the *new alignment* can be shown **left to right** across the sheet.

14. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place Plan Sheet**.

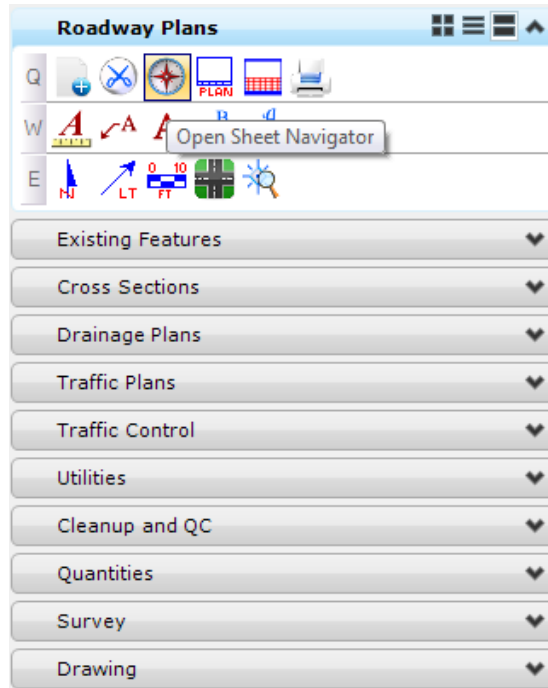


- a. The MicroStation Place Active Cell command displays with *SHPlan* set as the *Active Cell*. Set *Scale* of the cell to **500.0**.

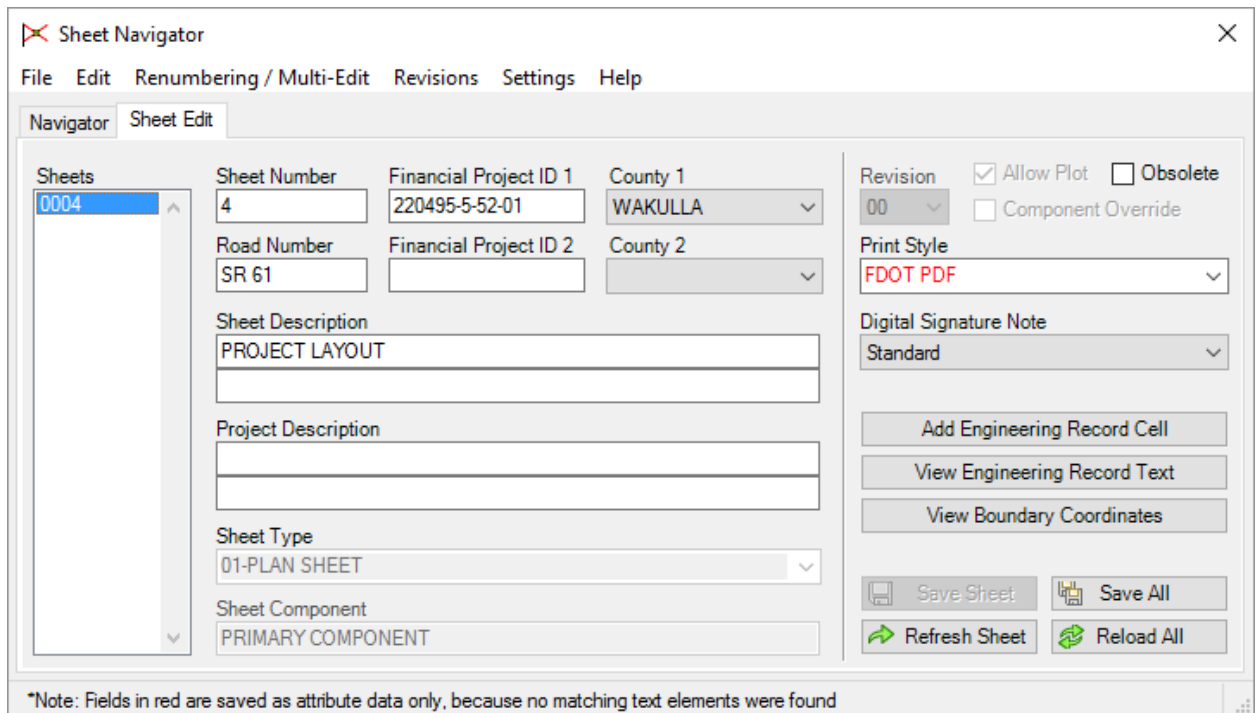


- b. **Data point** to place the *Plan Sheet Border* around the project in the file.
 - c. Right-click when finished to exit the *Place Active Cell* command.
15. Using a *Fence*, clip the **Reference Boundaries**.

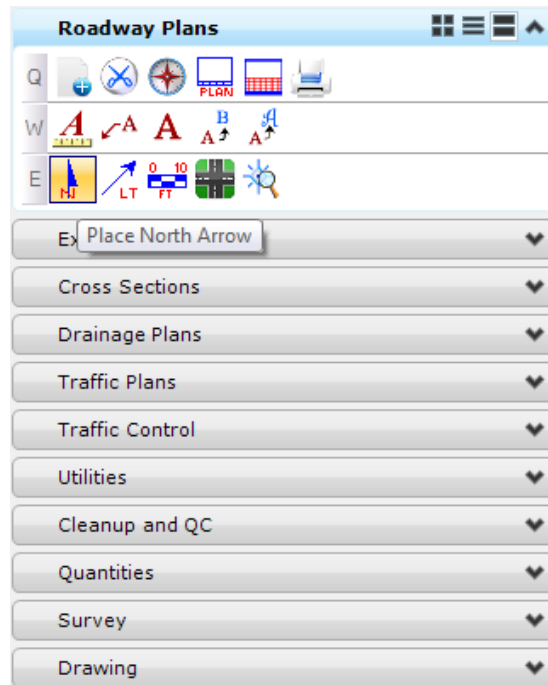
- From the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.



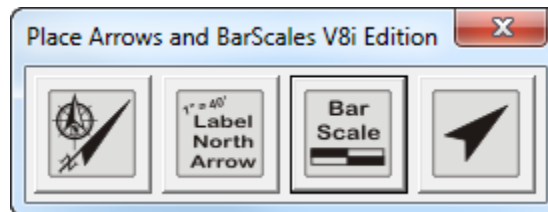
- The Sheet Navigator dialog displays. Populate by entering the *Sheet Number*, *Financial Project ID*, *County*, *Road Number*, *Print Style*, and *Digital Signature Note*, as shown below and then click **Save Sheet**. All of the information entered will be saved to the sheet.



18. Un-rotate the *View*.
19. From the FDOT Plans Development Task Menu, select **Roadway Plans** > **Place North Arrow**.

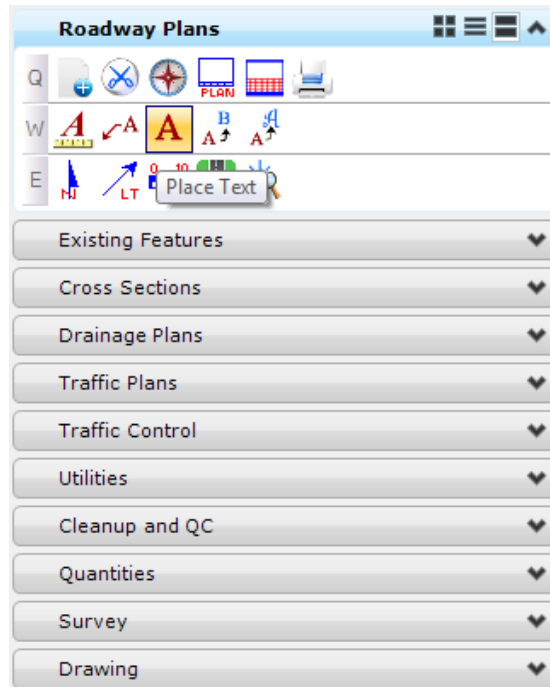


20. The Place Arrows and BarScales toolbar displays.

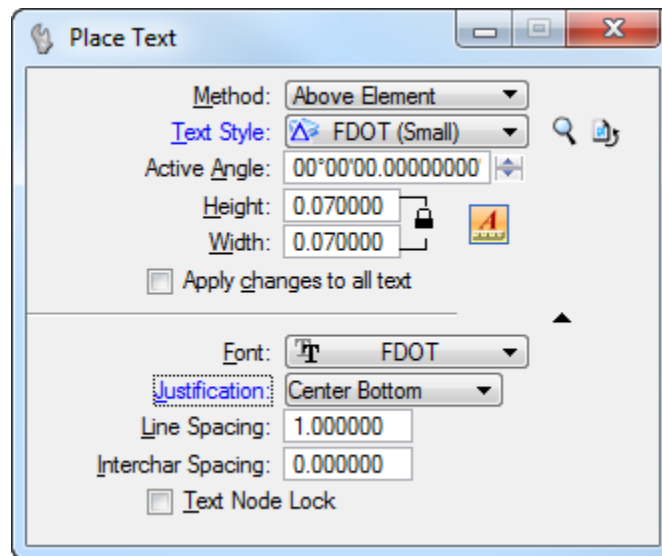


- a. Click on the **Place North Arrow** button and **data point** inside the sheet to place the *North Arrow*.
- b. Rotate the *View* back to the **Sheet View**.
- c. Click on the **Place Barscale** button and **data point** to place the *Barscale* under the North Arrow.

21. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place Text**.

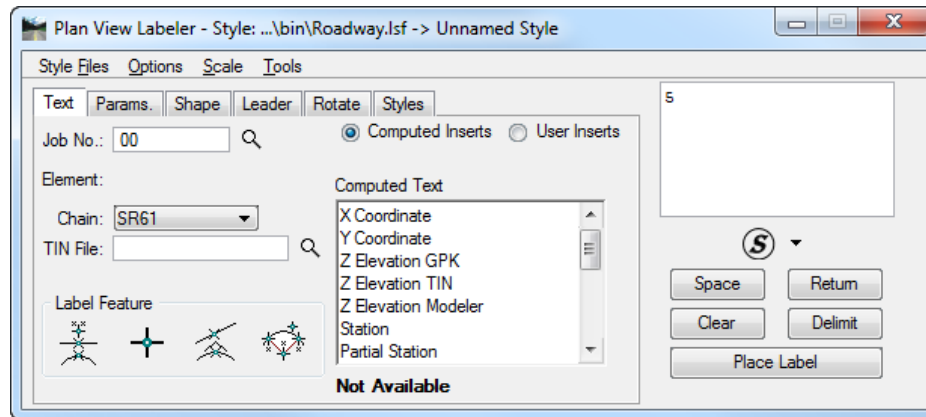


22. The Place Text dialog displays. Set the *Text Parameters* as shown below.

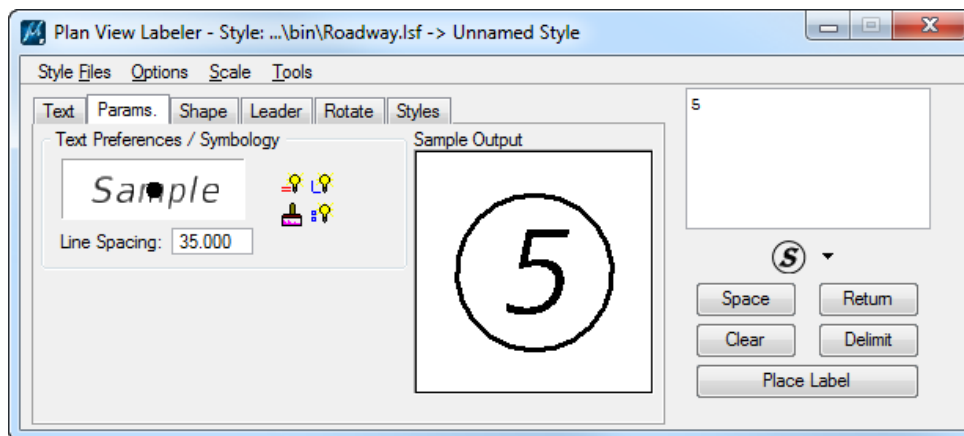


- a. In the Text Editor type **1" = 500'**.
- b. Select the *North Arrow* to place the text above it.
- c. **Right-click** to finish the command.

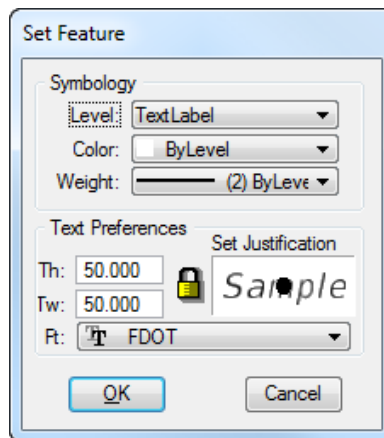
23. Select the MicroStation menu: **GEOPAK > ROAD > Plans Preparation > Plan View Labeling.**
24. The Plan View Labeler dialog displays.



- a. Under the *Text* tab, select *Job No.* **00** and the **SR 61 Chain** and type in the *number of the first Plan/Profile Sheet (5)* in the *Text Editor* window to the right.
- b. Under the *Params.* tab, double click on the sample *Text Editor* window.

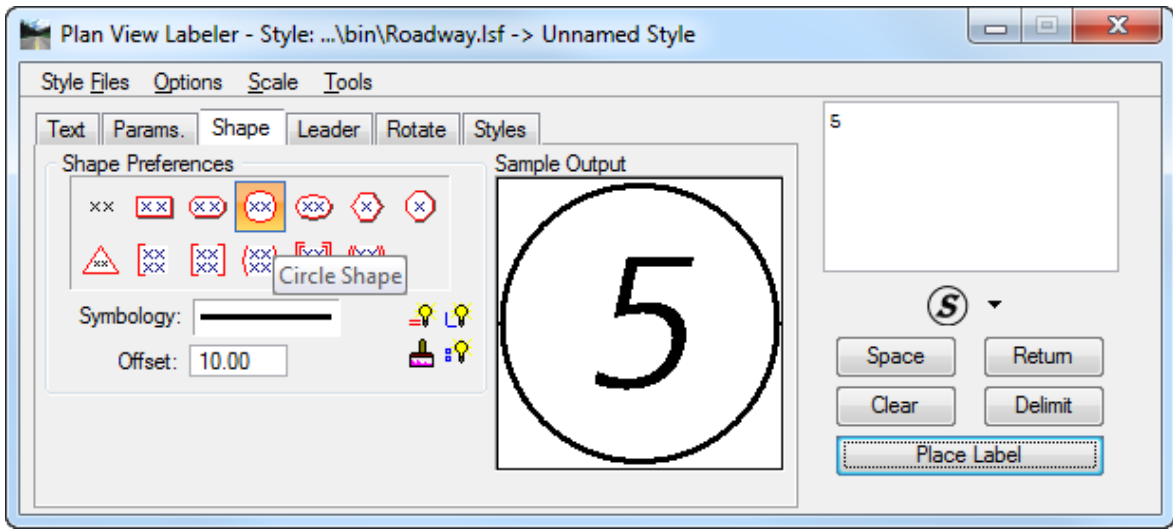


- c. Set the *Text Preferences/Symbology* as shown below and set the *Line Spacing* to **35.0**:

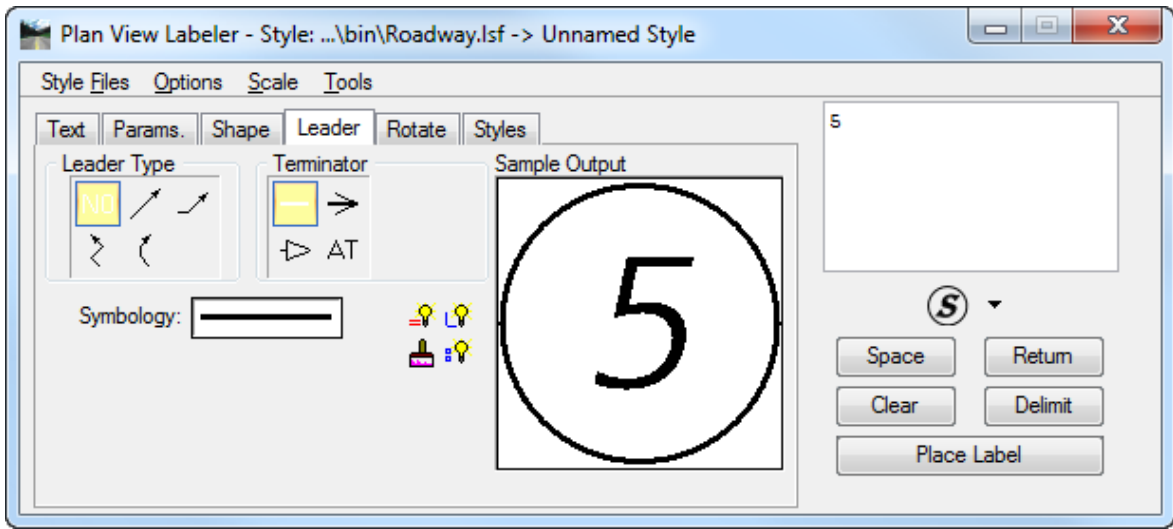


Note These settings are for a 500.0 Scale layout.

- d. Under the *Shape* tab, set the *Shape Preferences* to **Circle Shape**, the *Symbology* to **TextLabel**, and the *Offset* to **10.0**.

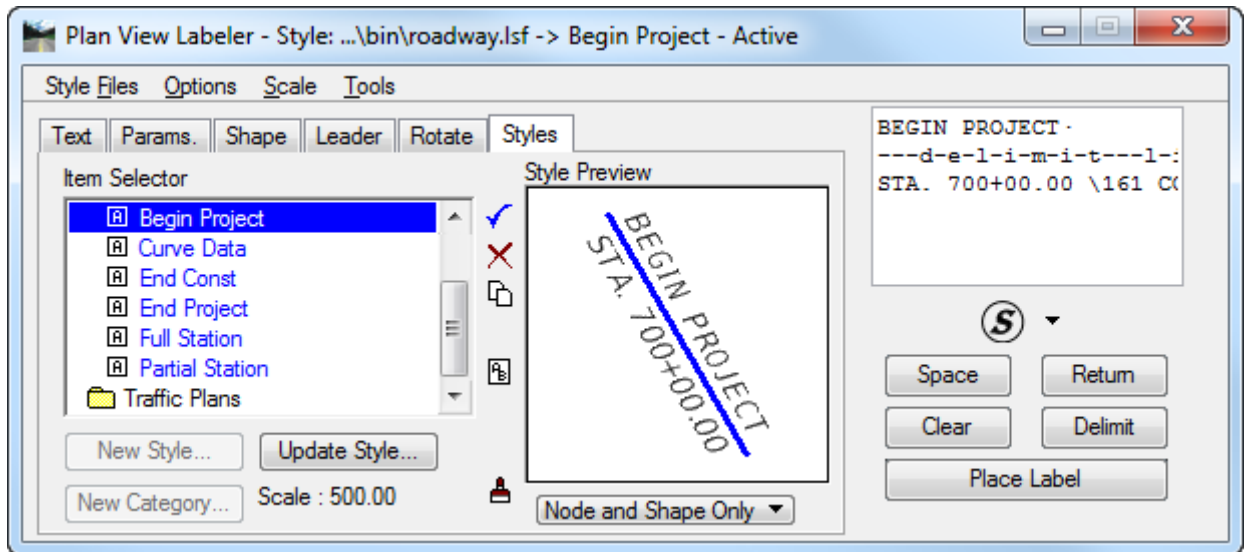


- e. Under the *Leader* tab, set the *Leader Type* to **No Leader** and the *Terminator* to **No Terminator**.

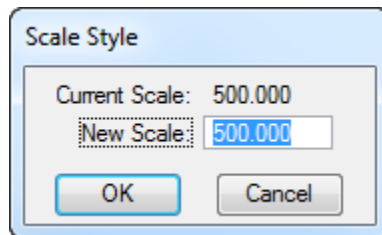


- f. Click **Place Label** and place a *number* next to each corresponding sheet.

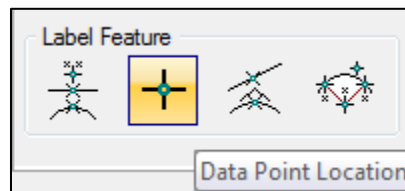
- g. All *Begin/End* labels must also be on the Project Layout Sheet. Under the *Styles* tab select the *Begin Project* label. Type $\text{\textcircled{S}}$ *CONST. SR 61* after *STA. 700+00.00* in the *Text Editor* window.



- h. On the Plan View Labeler menu, select **Scale > Change Scale**. Change the *Scale* to **500.0**.



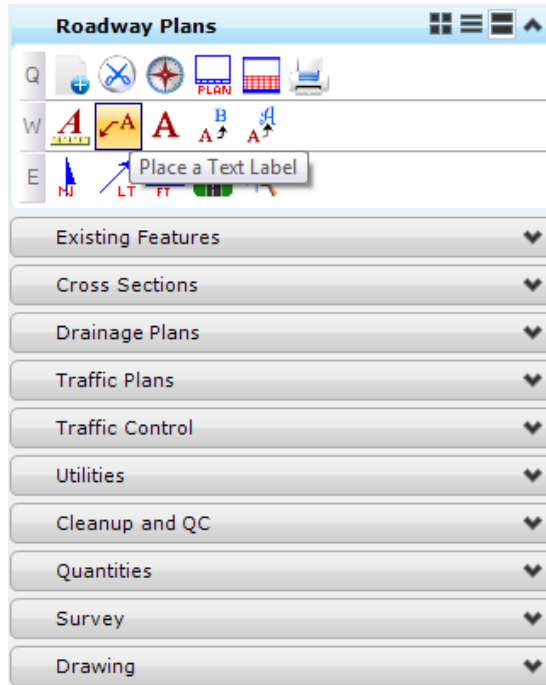
- i. On the *Text* tab under the *Label Feature* section, select the **Data Point Location** icon.



- j. Snap to **Sta. 700+00.00** in the *Plan View* and click **Place Label**.
- k. Orient the label where it should be placed and **data point** to place the **Begin Project** label.
- l. Follow the same steps for the **End Project** label, **Begin Construction** label, and **End Construction** label.

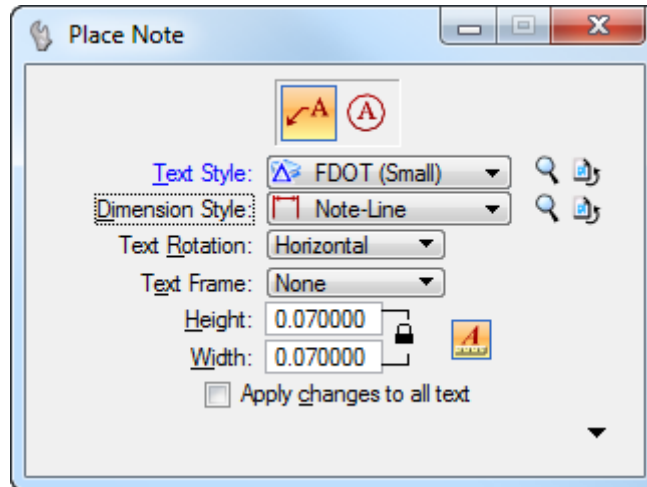
25. All *Baselines* and *Centerlines* must also be labeled. On the FDOT Plans Development Task Menu, select **Roadway Plans > Place a Text Label**.

Note FDM Part 3, Chapter 309, Section 309.2 lists all objects that must be labeled and/or shown on the Project Layout.



26. The Place Note dialog displays.

- a. Set the *Place Note Parameters* as shown below:



- b. Type *Q CONST. SR 61* into the *Text Editor* window, **data point** to determine where the terminator will point on the centerline and **data point** again to place the text.
- c. Follow the same steps for the **Baseline US 98** label.

27. Use MicroStation **Fit View** and then select **File > Save Settings**.

28. **Exit** the file.

7 CROSS SECTIONS & SHEETS

OBJECTIVES

Cross Sections depict the existing ground conditions, including all man-made features, as sections perpendicular to the respective stations along a survey baseline or construction centerline. The proposed cross-sectional outline of the new facility with all its functional elements is also shown on cross sections. Standard cross section sheets shall be used for showing roadway cross sections.

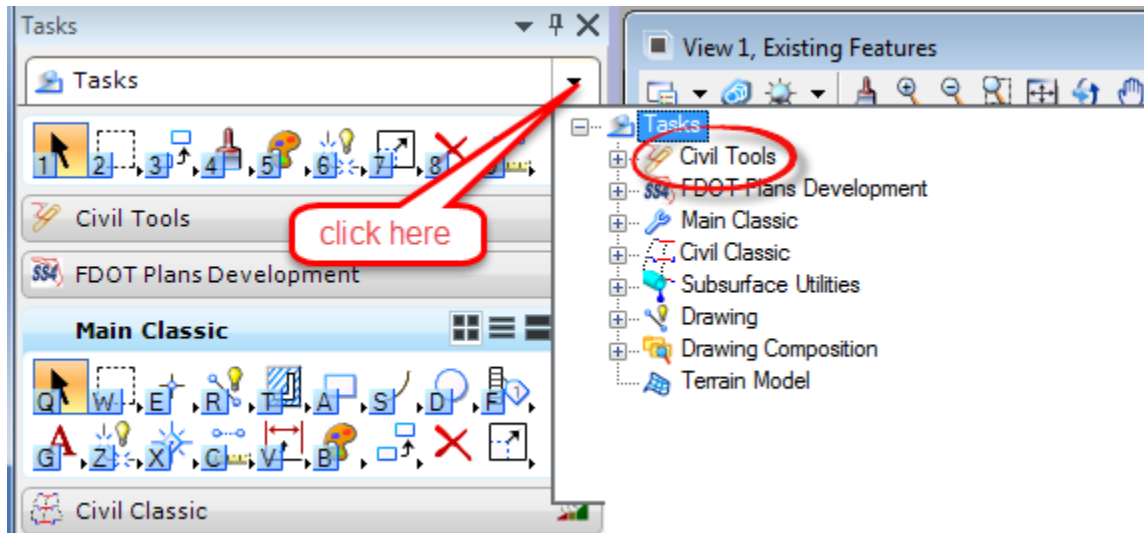
- Create Cross Sections
- Label Cross Sections
- Draw Ancillary Features
- Draw Boreholes
- Calculate Earthwork
- Create Sheets

EXERCISE OVERVIEW

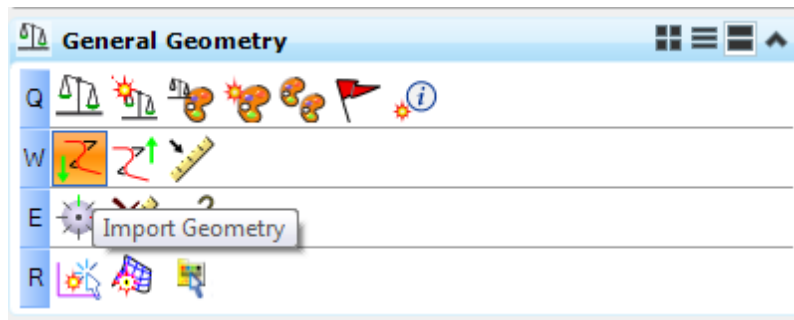
- 7.1 Create Existing Cross Sections
- 7.2 Place Ancillary Features
- 7.3 Borehole Navigator
- 7.4 Create Proposed Cross Sections
- 7.5 Annotate Cross Sections
- 7.6 Merge Existing and Proposed Cross Sections
- 7.7 Calculate Earthwork and Create a Final Cross Section Model
- 7.8 Create Cross Section Sheets

Exercise 7.1 Create Existing Cross Sections

1. (Optional) Extract the 22049555201(7).zip file in the *Data Set* folder to the *C:\e\projects* folder.
2. Using the **FDOTSS4** icon, open MicroStation design file:
 C:\e\Projects\22049555201\roadway\RDXSRD01.dgn.
3. With *RDXSRD01.dgn* open, go to the **Existing Features Model** and **reference** in the following files:
 C:\e\Projects\22049555201\roadway\GKLNRD01.dgn file
 C:\e\Projects\22049555201\survey\GDTMRD02.dgn file
4. Use the MicroStation **Fit View** and then select **File > Save Settings**.
5. Change the *Task Menu* to **Civil Tools**.

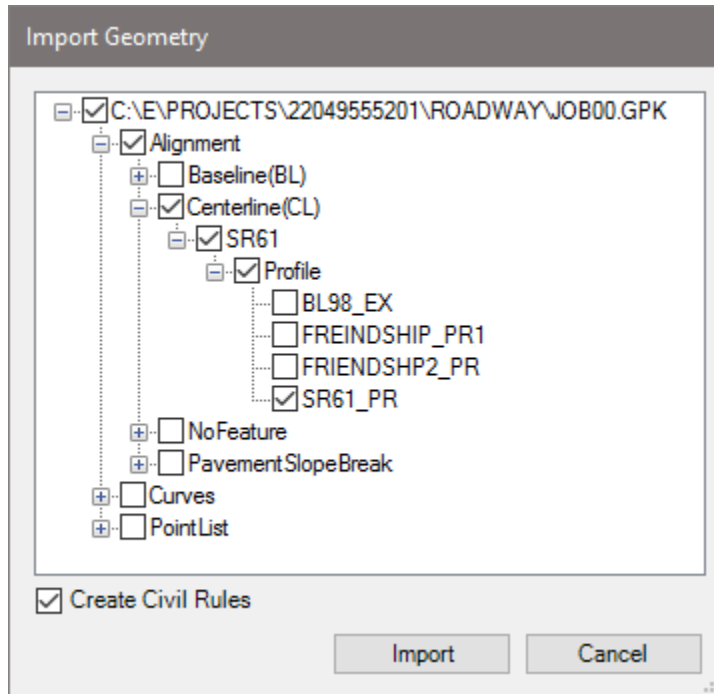


- a. Select **General Geometry > Import Geometry** and select the **job00.gpk** file in the *Roadway* folder.



- b. Navigate to the **Alignment > Centerline(CL)** folder and click the **SR61** checkbox.

Note Expand the **Profile** folder and make sure the only profile toggled on is **SR61_PR**.

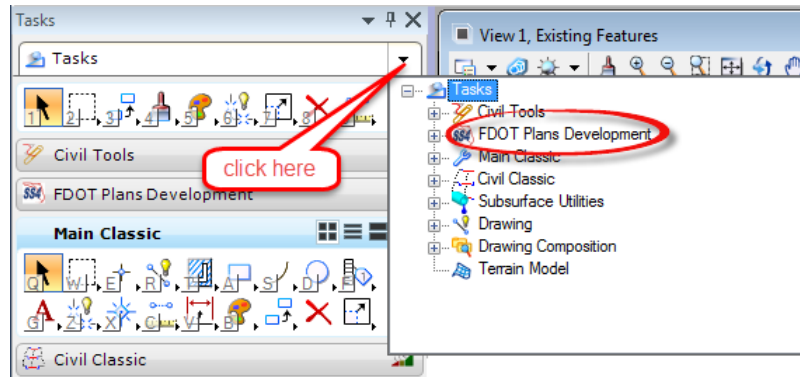


- c. Click **Import**.

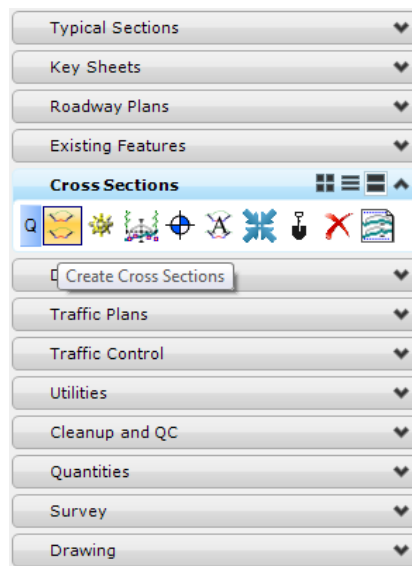
6. Zoom to the view the **SR61** alignment in the MicroStation file, hover over the *centerline* to verify the alignment imported in the previous step.



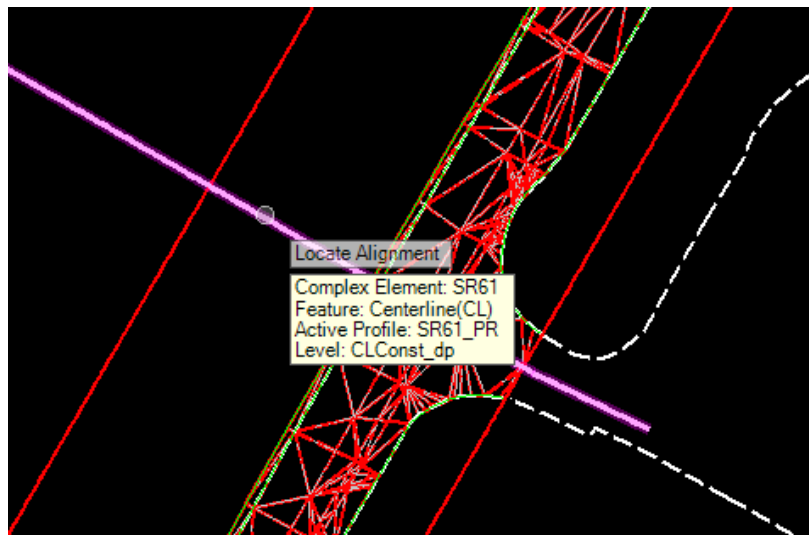
7. Change the *Task Menu* to **FDOT Plans Development**.



8. From the **FDOT Plans Development Task Menu**, select **Cross Sections > Create Cross Sections**.

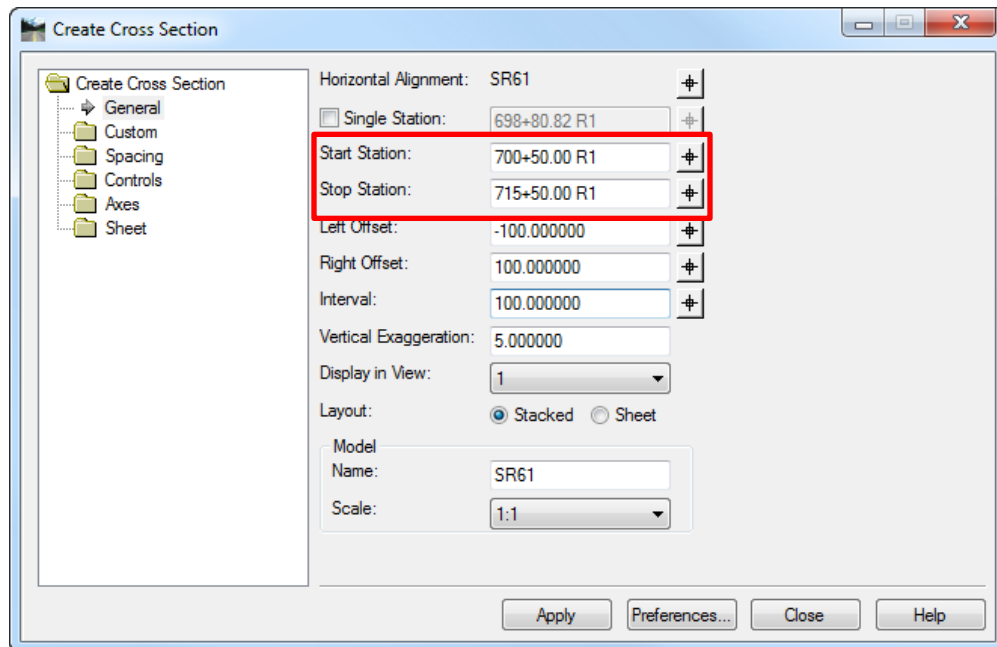


9. Following the prompt at the end of the cursor, locate the **SR 61 Alignment**.

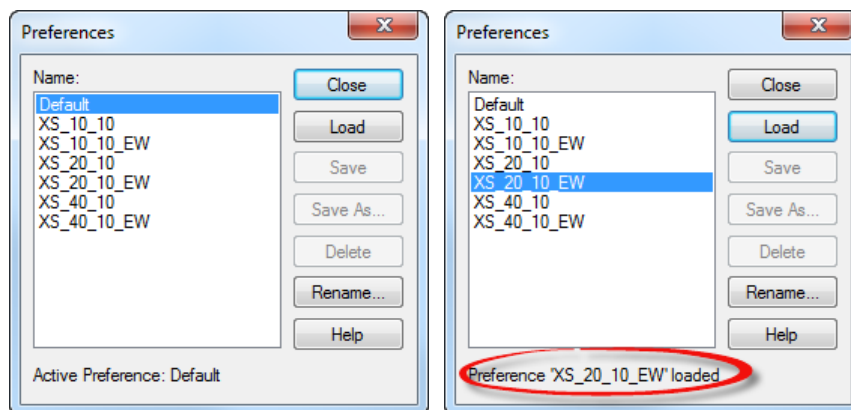


10. The Create Cross Section dialog displays.

- a. Key in the *Start Station* to be **700+50.00** and the *Stop Station* as **715+50.00**.

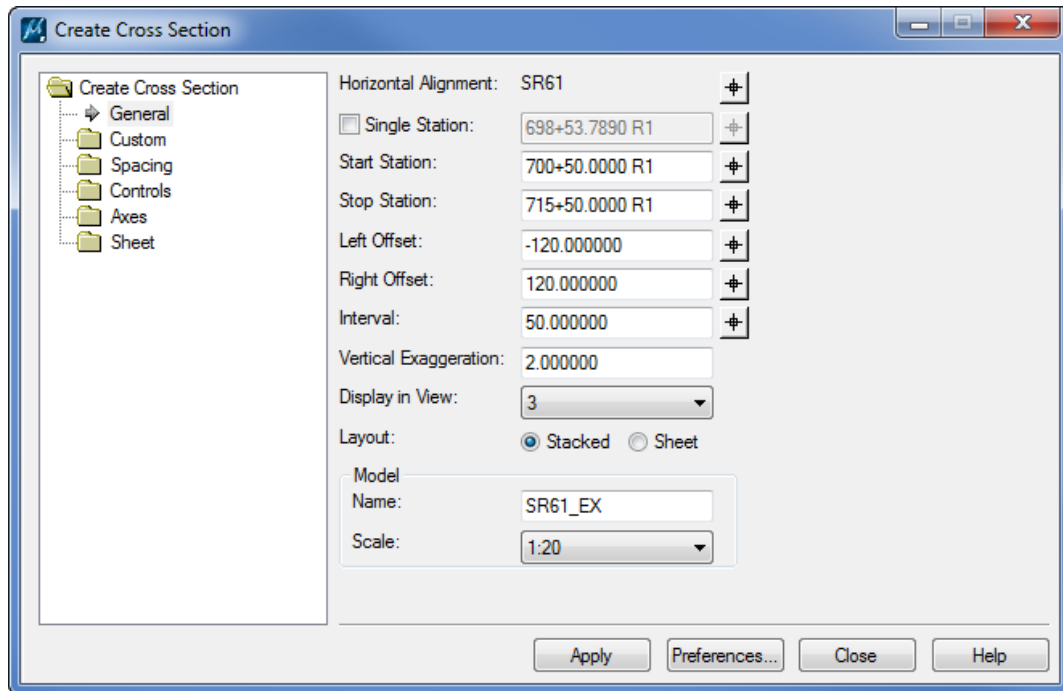


- b. Click on the **Preferences** button.
- c. The Preferences dialog displays. Select the *Preference Name XS_20_10_EW* from the list and click **Load**. Once loaded the dialog will display *Preference 'XS_20_10' loaded*.



- d. From the Preferences dialog click **Close**. All of those preset preferences will be loaded for 20' Scale Cross Sections with Earthwork.
- e. Change the *Display in View* to **3**.

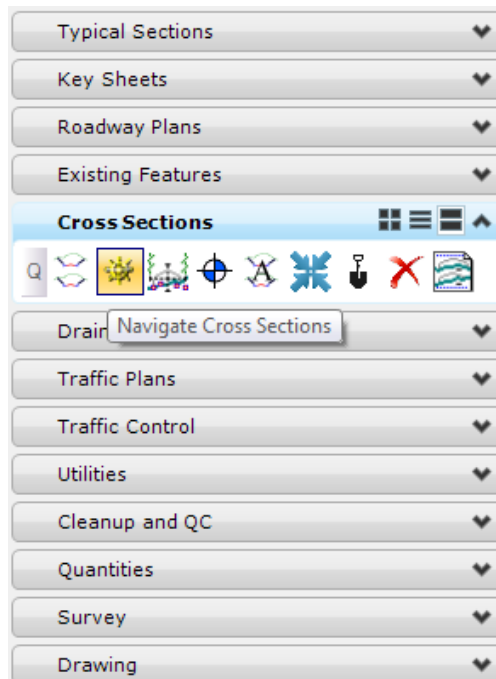
f. Change the *Model Name* to **SR61_EX**.



g. Click **Apply**. *View 3* is opened and the Cross Sections are generated with the cross section cell, existing ground, and existing features.

h. Click **Close** to exit the Create Cross Sections dialog.

11. From the FDOT Plans Development Task Menu, select **Cross Sections > Navigate Cross Sections** to review the existing cross sections.



Exercise 7.2 Place Ancillary Features

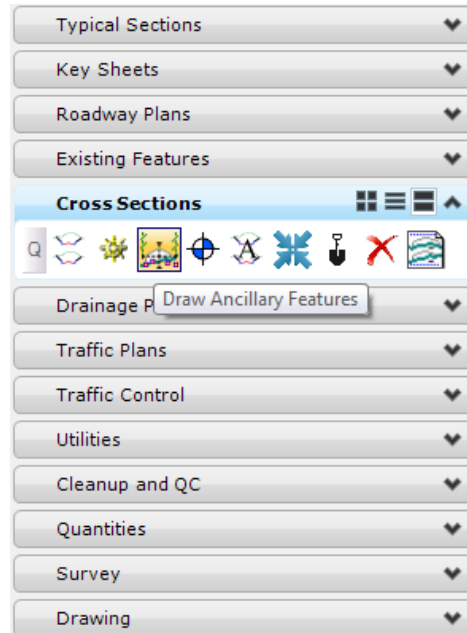
This exercise will demonstrate how to place existing and/or proposed utility elements on the cross sections.

Note If SUE or Civil Features are being used to display the utility information, this step is not needed. To view the SUE or Civil Feature information in the cross sections simply attach the utility file before creating the cross sections. See exercises 10.2-10.4 for more information.

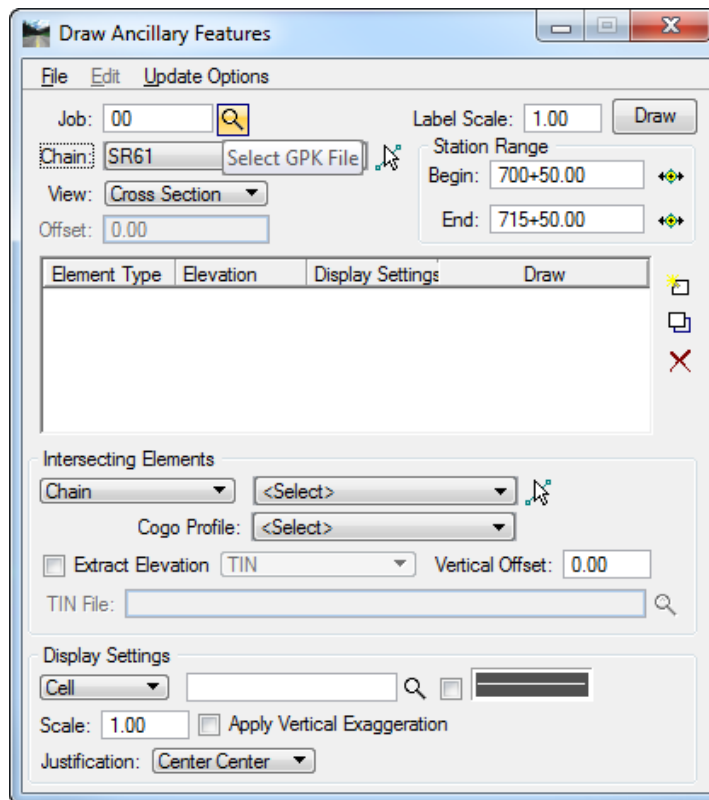
- Continuing in the *RDXSRD01.dgn*; *Existing Features Model*, **reference** in the following file:

C:\E\Projects\22049555201\utils\UTEXRD01.dgn

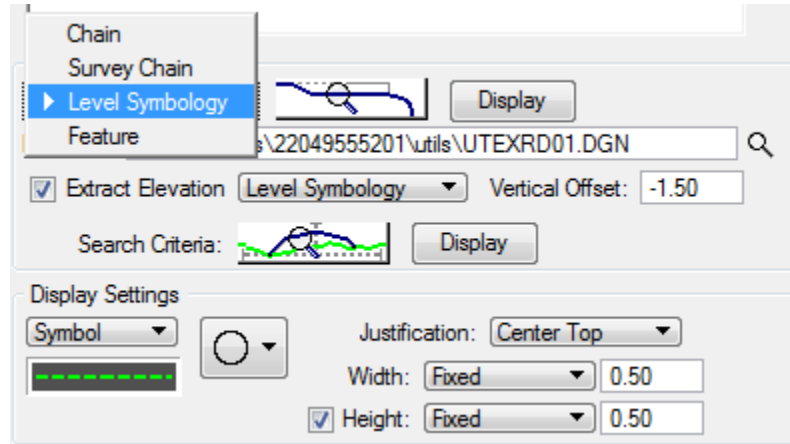
- Go to the **SR61_EX Model**. From the FDOT Plans Development Task Menu, select **Cross Sections > Draw Ancillary Features**.



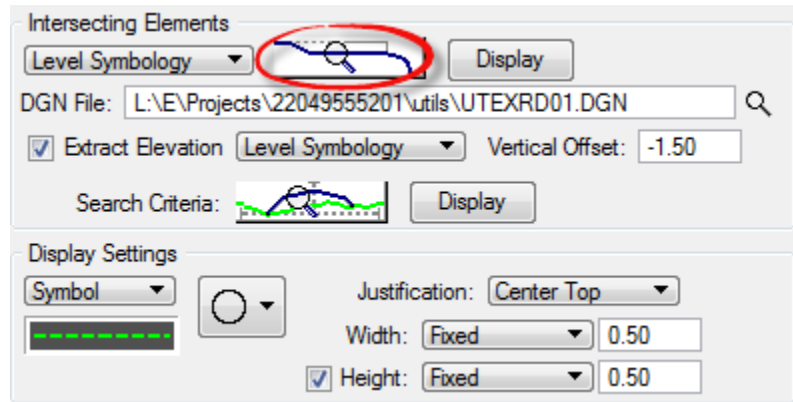
- The Draw Ancillary Features dialog displays.



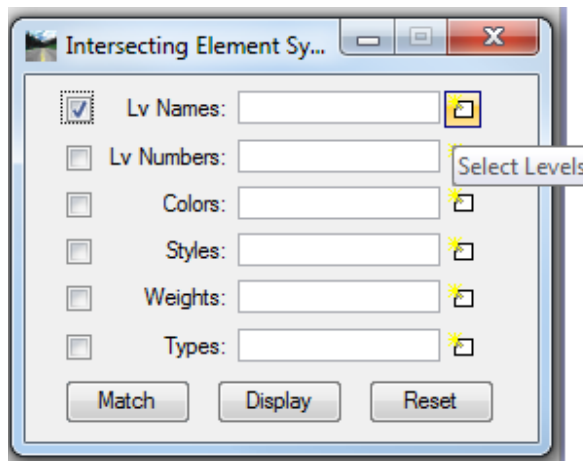
4. Click the **Magnifying Glass** and select *job00.gpk* as the *GPK file*.
5. Select **SR61** as the *Chain* and change the *View* to **Cross Section**.
6. Change the *Label Scale* to **20.00**.
7. Under the *Intersecting Elements* section, set the *search drop down* to **Level Symbology**.



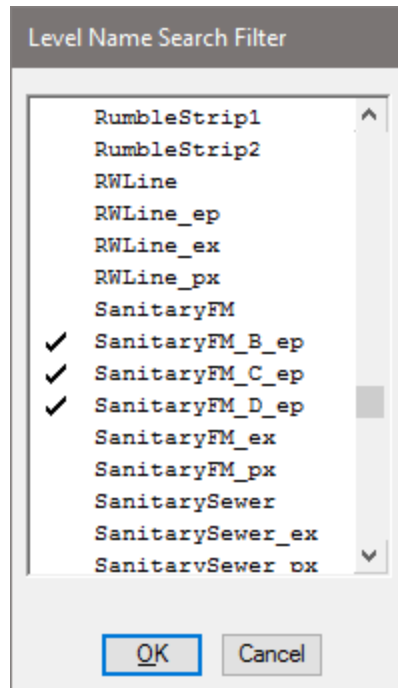
8. Click on the **Level Symbology** button.



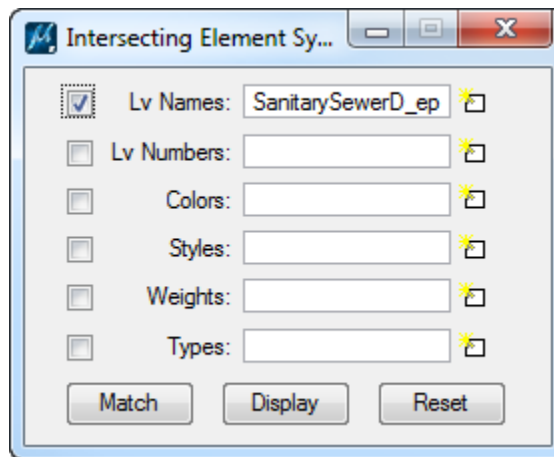
9. The Intersecting Element Symbology dialog displays. Toggle **On** the *Lv Names* option and click the **Select Levels** button.



- a. The Level Name Search Filter dialog opens. Select every level for *Existing Sanitary Force Main* and click **OK**.



- b. The level names will populate in the *Lv Names* field on the Intersecting Element Symbology dialog. **Close** the dialog.

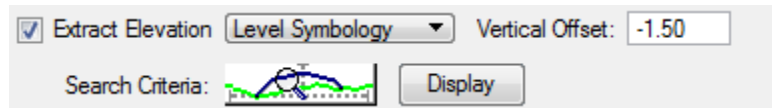


Note The levels can also be 'matched' from the reference file that is attached to the pattd model. Click on the Match button that is on the *Intersecting Element Symbology* dialog and select the elements that need to be targeted. The Lv Names field will populate with the Level Name of the element selected.

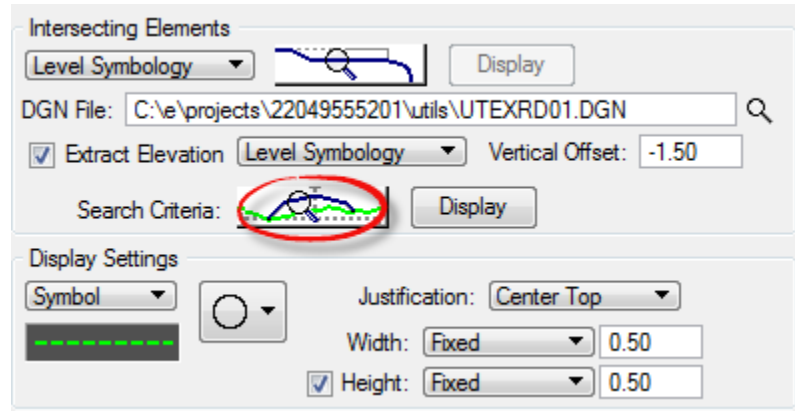
- 10. For the *DGN File*, click on the **Magnifying Glass** and browse to the design file *C:\e\projects\22049555201\utils\UTEXRD01.dgn*.



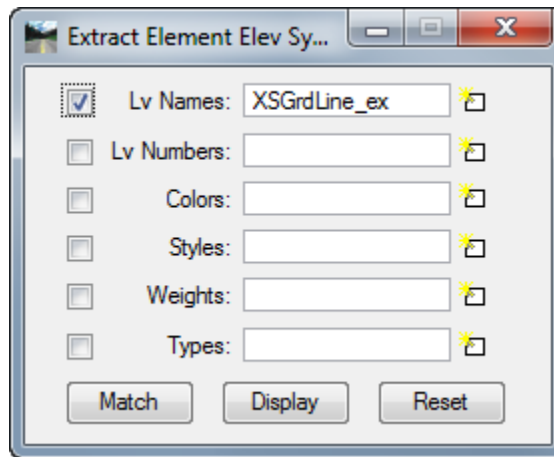
11. Toggle **On** the *Extract Elevation* and set the option to **Level Symbology**.



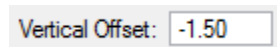
12. Click the **Extract Elevation Level Symbology** button.



13. The Extract Element Elev Symbology dialog displays. Complete the dialog as shown below and then close the Extract Element Elev Symbology dialog.

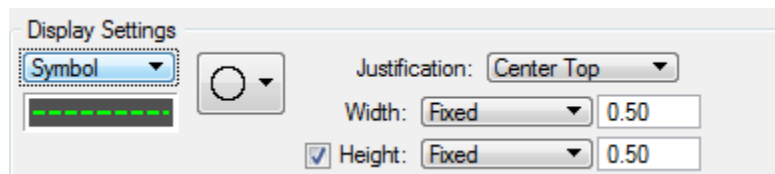


14. Key in a *Vertical Offset* of **-1.50**

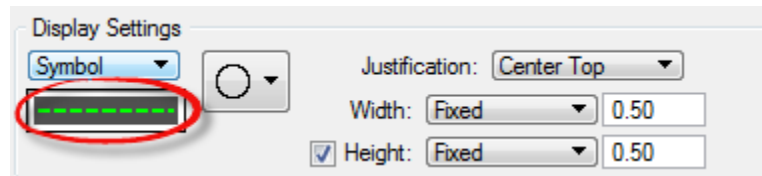


15. Under the *Display Settings*:

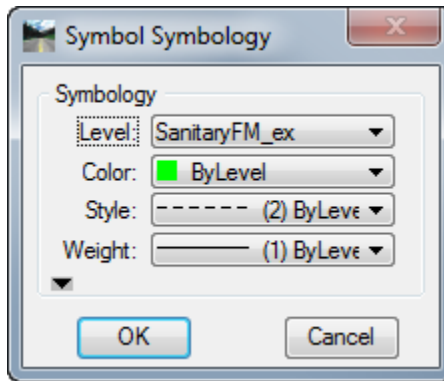
- a. Set left hand dropdowns to **Symbol** and select the **Circle**.



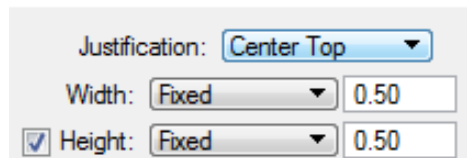
- b. Double click on the *Cell Symbology* box.



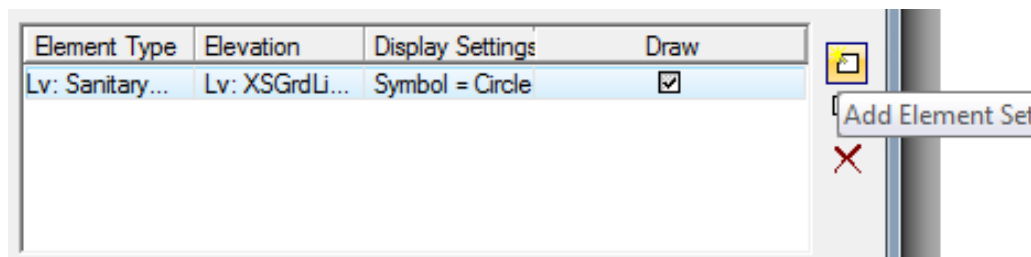
- c. The Cell Symbology dialog displays. Set the *Symbology* as shown below and click **OK** to close the Cell Symbology dialog.



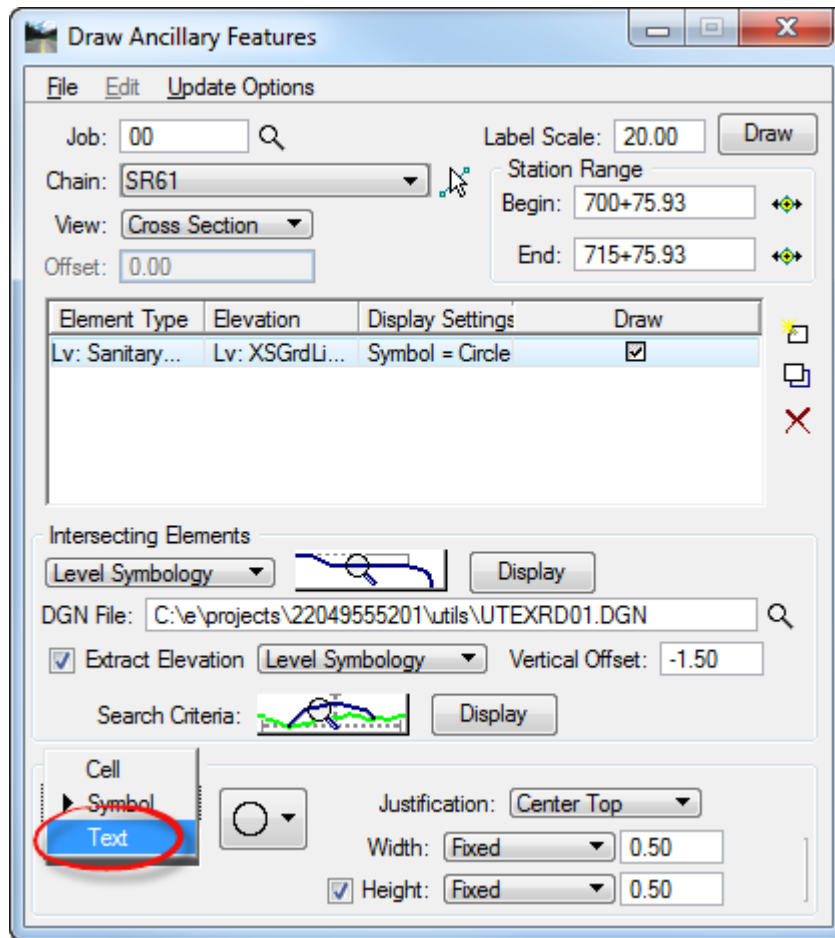
- d. Set the *Justification* to **Center Top**.
- e. Set the *Width* to **Fixed** and the *Value* to **0.50**.
- f. Toggle **On** the *Height* option, set to **Fixed** and the *Value* to **0.50**.



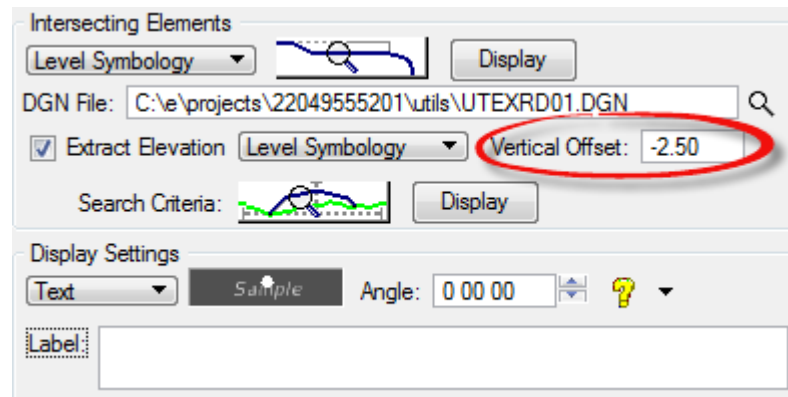
- 16. On the Draw Ancillary Features dialog, click on the **Add Element Set** icon to add the utility to the list box.



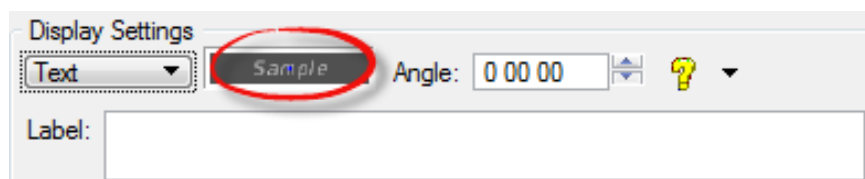
17. Change the *Display Setting* to **Text**.



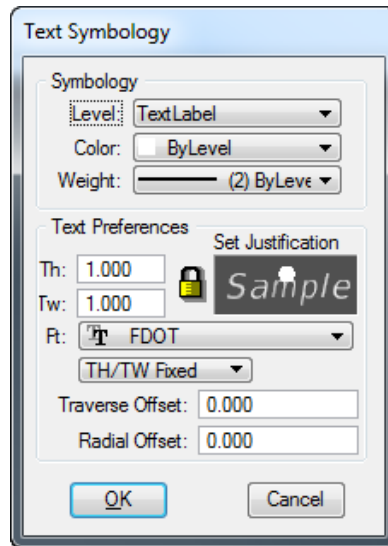
18. Change the *Vertical Offset* to **-2.50**.



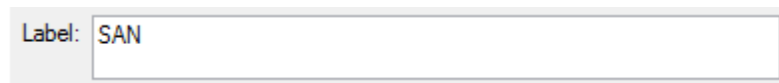
19. Double click on the *Display Settings: Text Symbology* box.



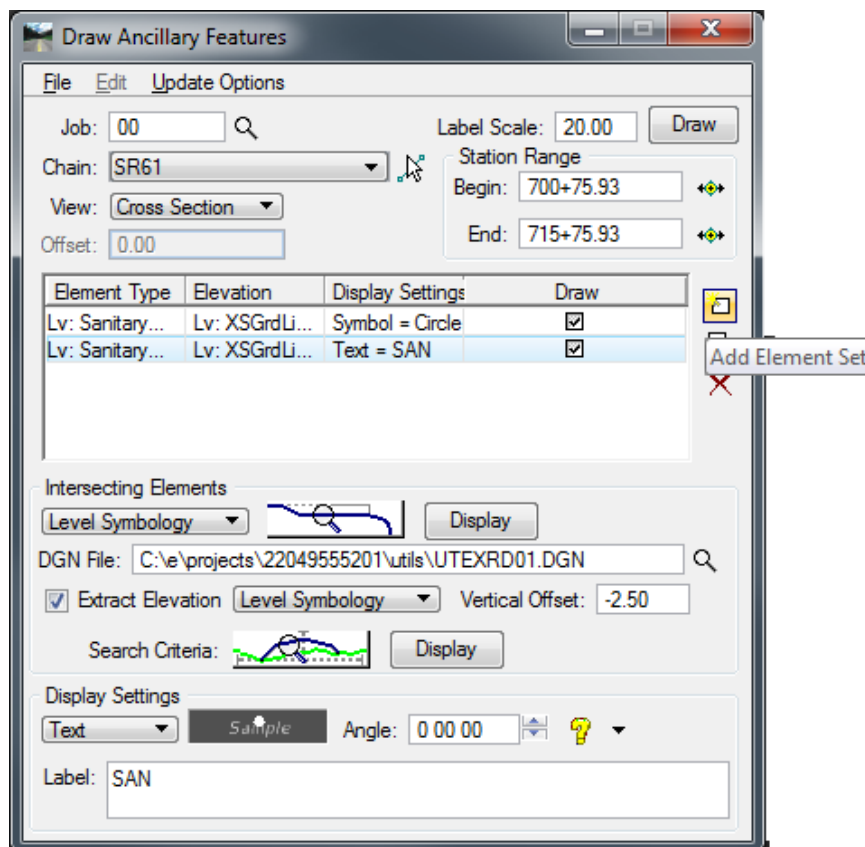
- The Text Symbology dialog displays. Complete as shown and click **OK** to close the Text Symbology dialog.



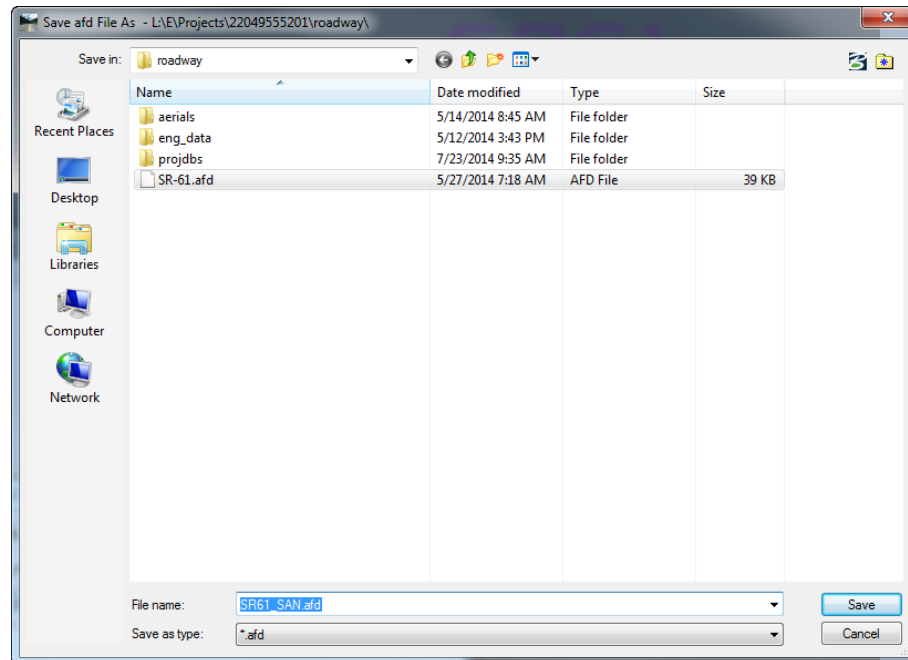
- In the *Display Settings: Label* box, key-in a label for the Utility (e.g. SAN).



- Click the **Add Element Set** icon to add the *Utility Label* to the list box.

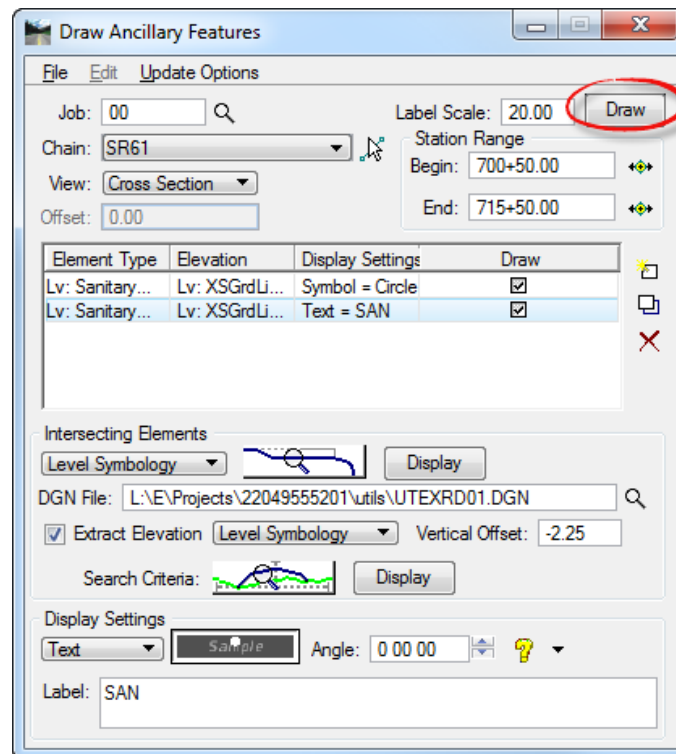


23. Select **File > Save**. The Save afd File As dialog displays. Key-in the *File Name* **SR61_SAN.afd** and click **Save**.

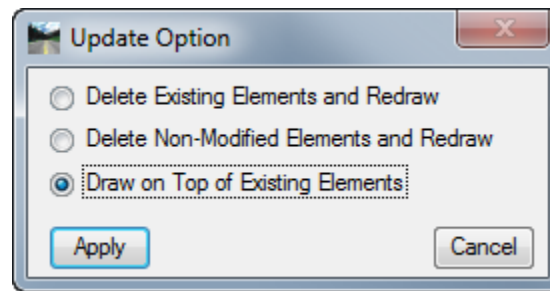


Note It is very important to save these settings for each type utility to easily load and run again when changes are made.

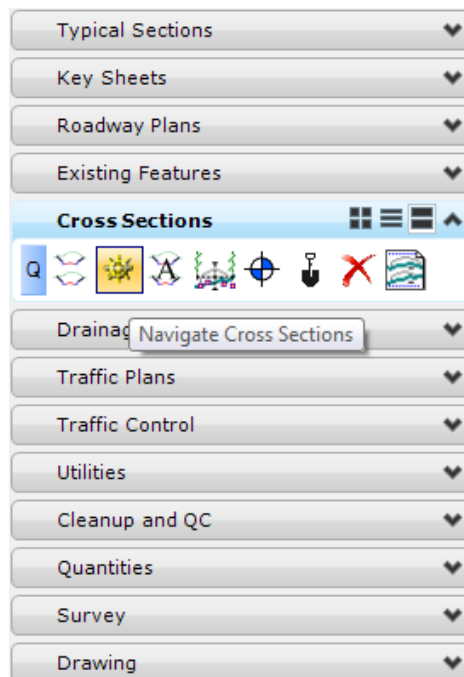
24. Click **Draw** to process the Utilities and draw them into the Cross Sections file.



25. The Update Option dialog displays, select the **Draw on Top of Existing Elements** and click **Apply**.



26. Repeat steps 9 through 25 for all of the other Utilities using the correct *Symbology*, *Label*, *Size*, and *Vertical Offset*.
27. **Close** the Draw Ancillary Features dialog.
28. From the FDOT Plans Development Task Menu, select **Cross Sections > Navigate Cross Sections** to review the utilities.

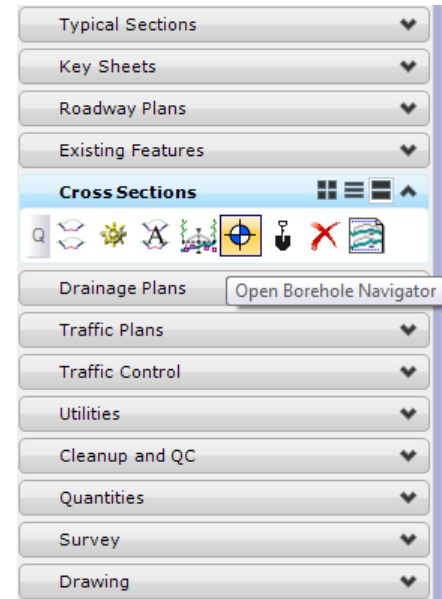
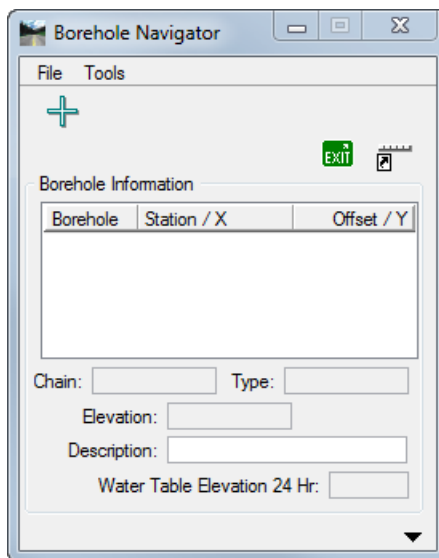


Exercise 7.3 Borehole Navigator

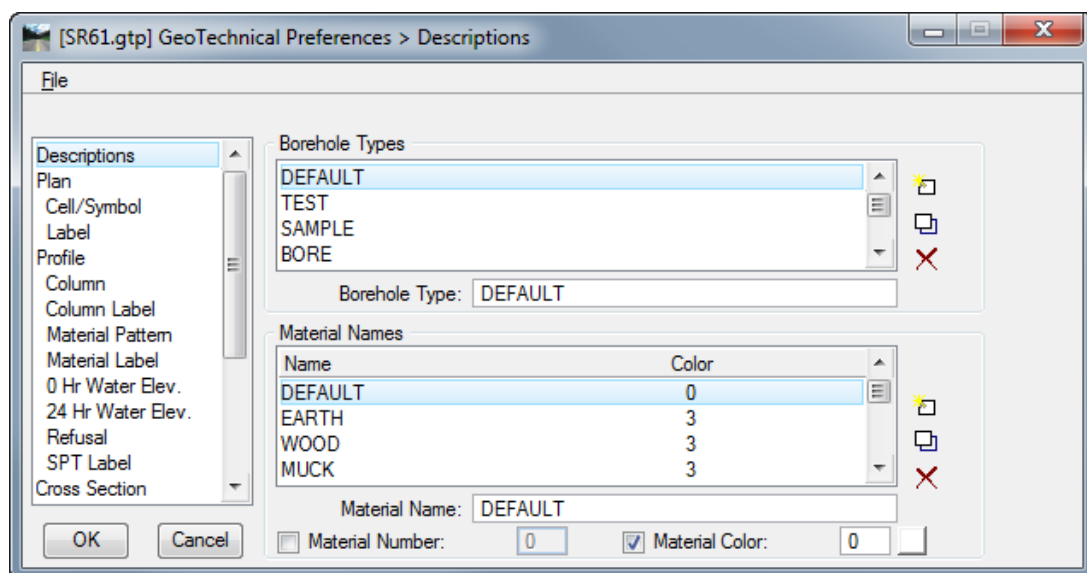
This exercise will demonstrate how to place soil borings in to the Cross Sections.

➤ **Reviewing the GeoTechnical Preferences**

- Continuing in the *RDXSRD01.dgn*; **SR61_EX** model, from the FDOT Plans Development Task Menu, select **Cross Sections > Open Borehole Navigator**.
- The Borehole Navigator dialog displays. Select **File > Preferences**.



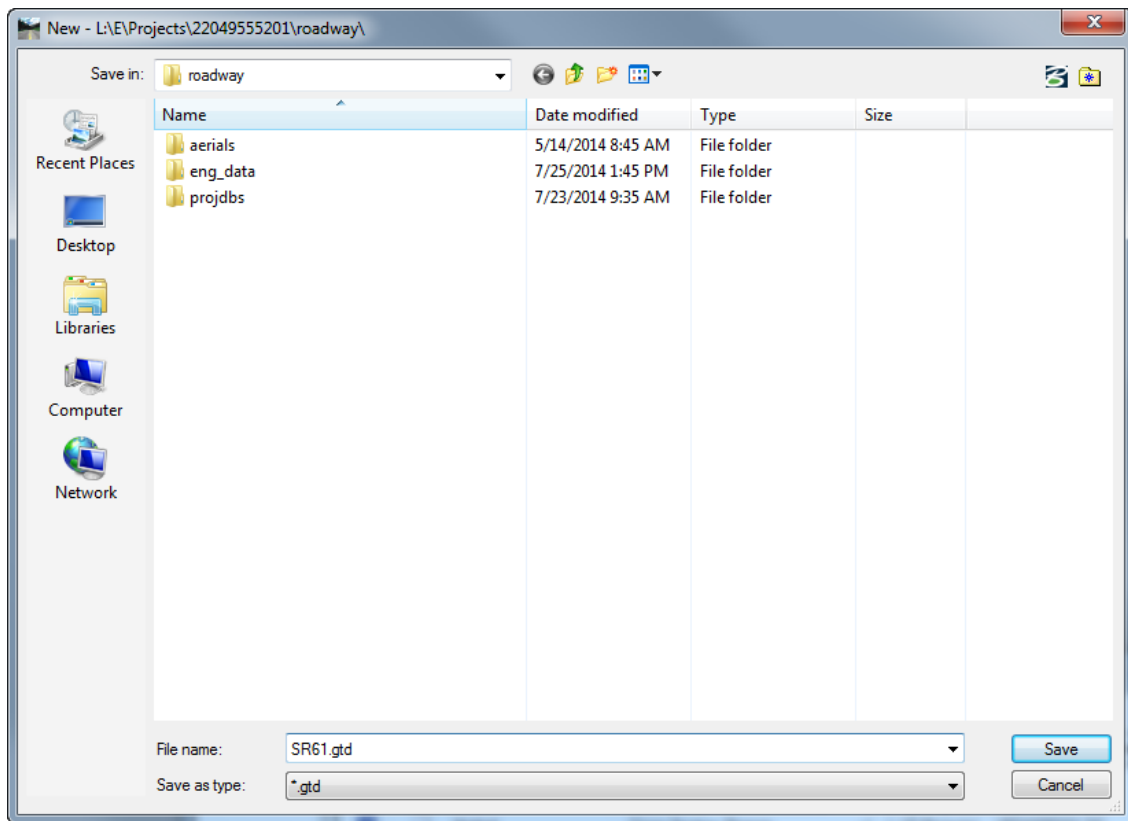
- The GeoTechnical Preferences > Descriptions dialog displays. Select **File > Open** and set the preference file *C:\e\projects\22049555201\roadway\SR61.gtp*



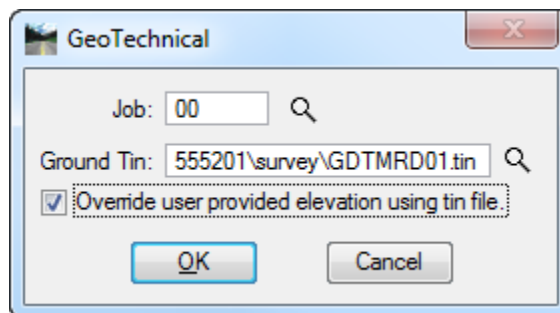
- Click **OK** to close the GeoTechnical Preferences > Descriptions dialog.

➤ **Creating and Populating the GeoTechnical Database:**

1. From Borehole Navigator, select **File > New** to create a borehole database.
2. Key-in the *File Name* **SR61.gtd** and click **Save**.

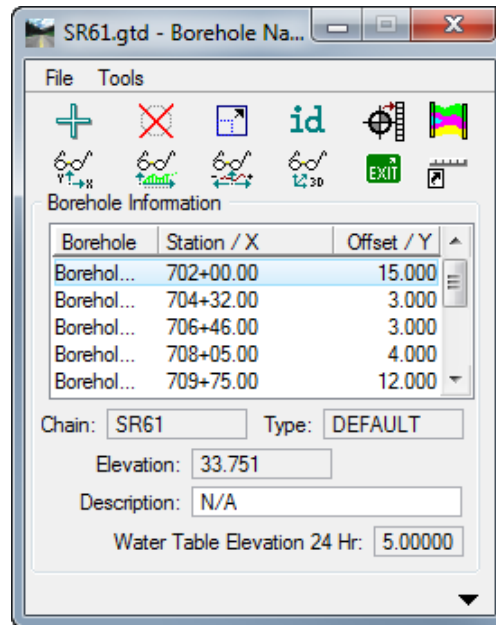


3. The GeoTechnical dialog displays.

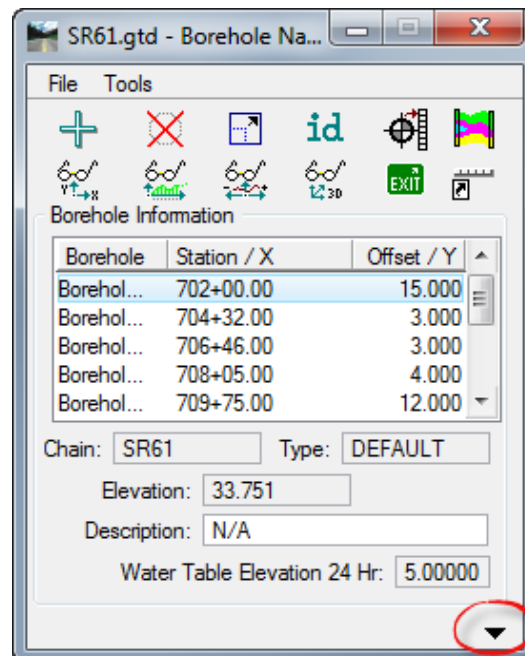


- a. Select the *Job 00*
 - b. Use *c:\e\projects\22049555201\survey\GDTMRD01.tin* as the *Ground Tin* file.
 - c. Toggle **On** *Override user provided elevation using tin file*.
 - d. Click **OK**.
4. From the Borehole Navigator dialog, select **File > Import > CSV > Borehole...** to import the *Borehole Location Data*.

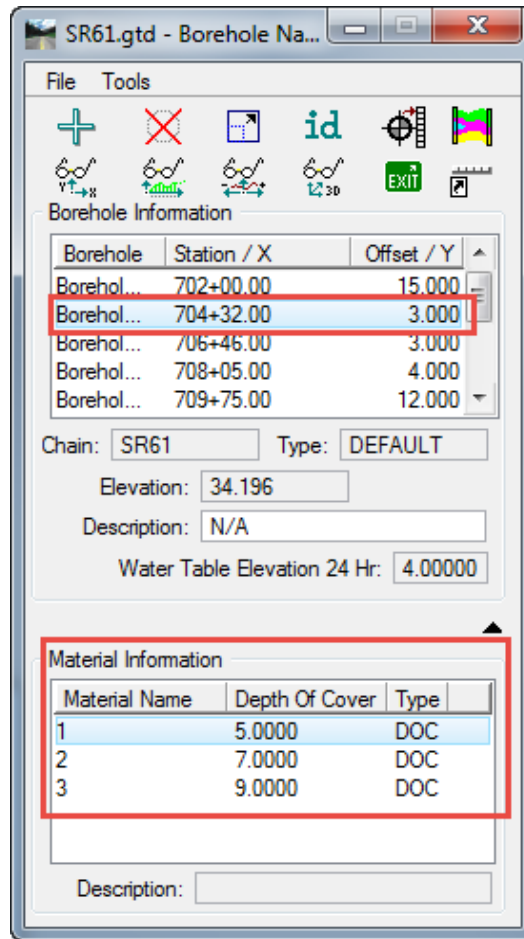
5. Select the file **SR_61boreholepk.brh**. This file contains the *Borehole Names* and *Location* information as well as the *Water Elevation* information.



6. Select **File > Import > CSV > Material...** to import the *Material* information.
7. Select the file **SR61_material.mtl**. This file contains the *Borehole Names* and *Strata Material* information for each borehole.
8. Click the **Arrow** at the bottom right corner of the Borehole Navigator dialog to view the *Material Information* for each borehole. As each borehole is selected, the information in the **Material Information** window will change.



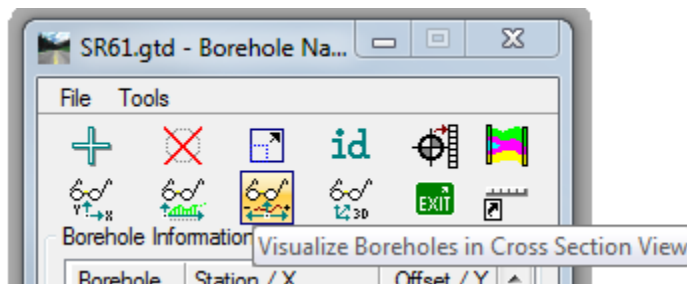
9. Navigate through each station, reviewing all of the information including the *Chain*, *Elevation*, *Description*, and *Water Table Elevation*.



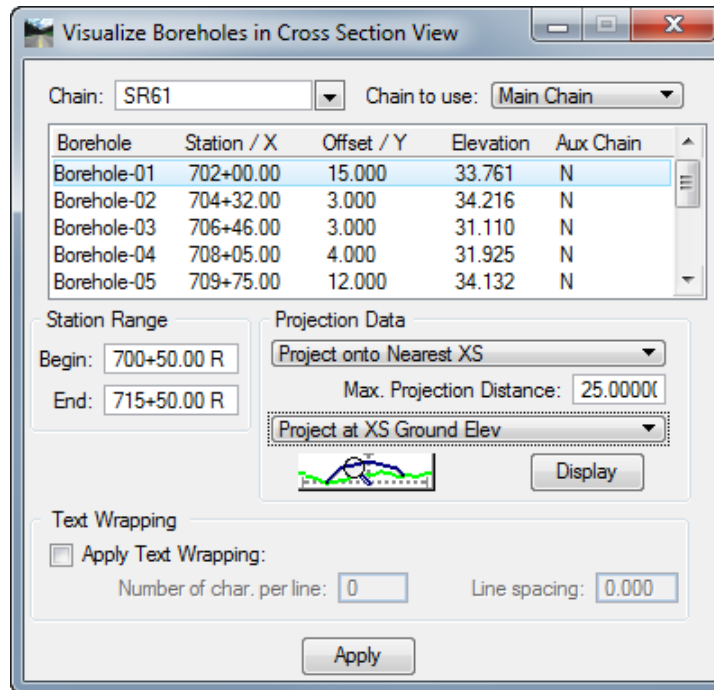
10. Click **File > Save** to update the *SR61.gtd*.

➤ **Plotting Boreholes in the Cross Sections**

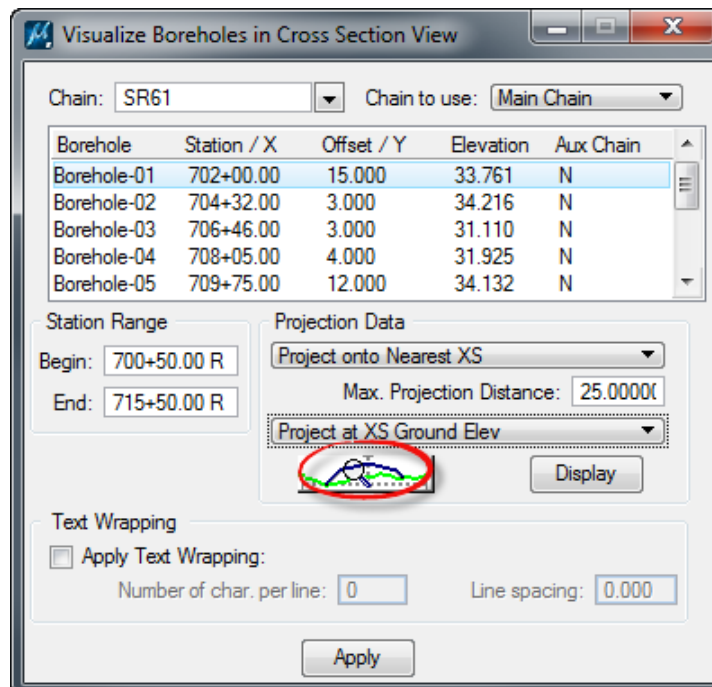
1. Select the **Visualize Boreholes in Cross Section View** tool.



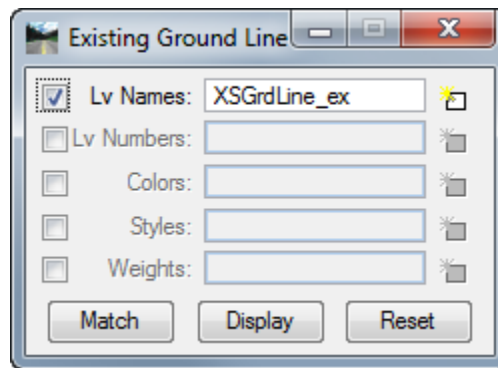
- The Visualize Boreholes in Cross Section dialog displays. Set the *Chain* to **SR61**. The display window will populate with all of the imported borehole data.



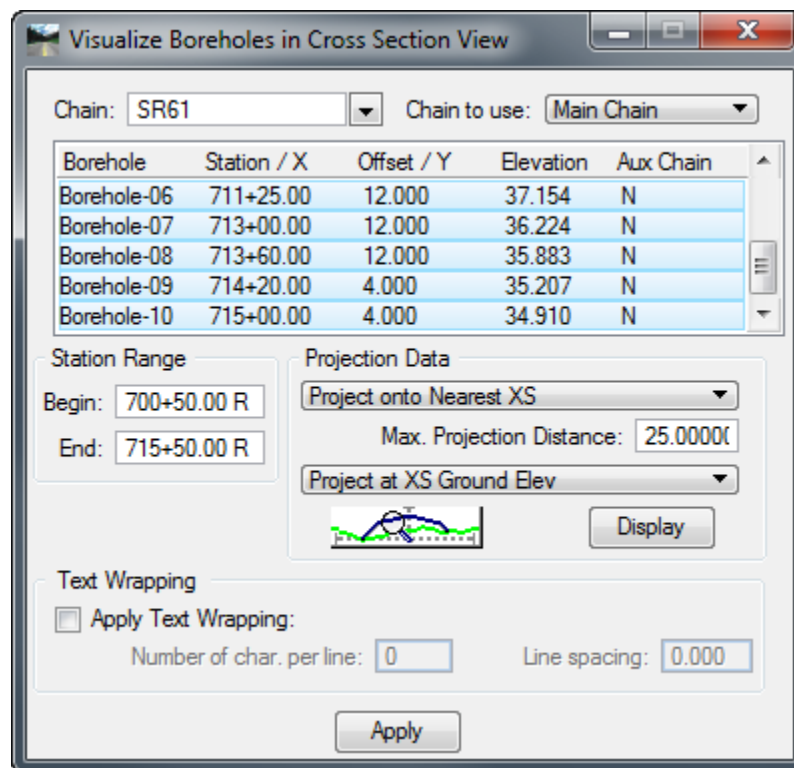
- Set the *Project Data* to the following settings:
 - Project onto Nearest XS
 - Max. Projection Distance = **25.0**
 - Project at XS Ground Elev.
- Click on the *Define Existing Ground* button.



- The Existing Ground Line dialog displays. Toggle **On** the *Lv Names* symbology, set the *Level* to **XSGrdLine_ex** and **close** the Existing Ground Line dialog.



- Highlight all of the *Boreholes* in the Visualize Boreholes in Cross Section View dialog and click **Apply**. All of the borehole information will be placed.



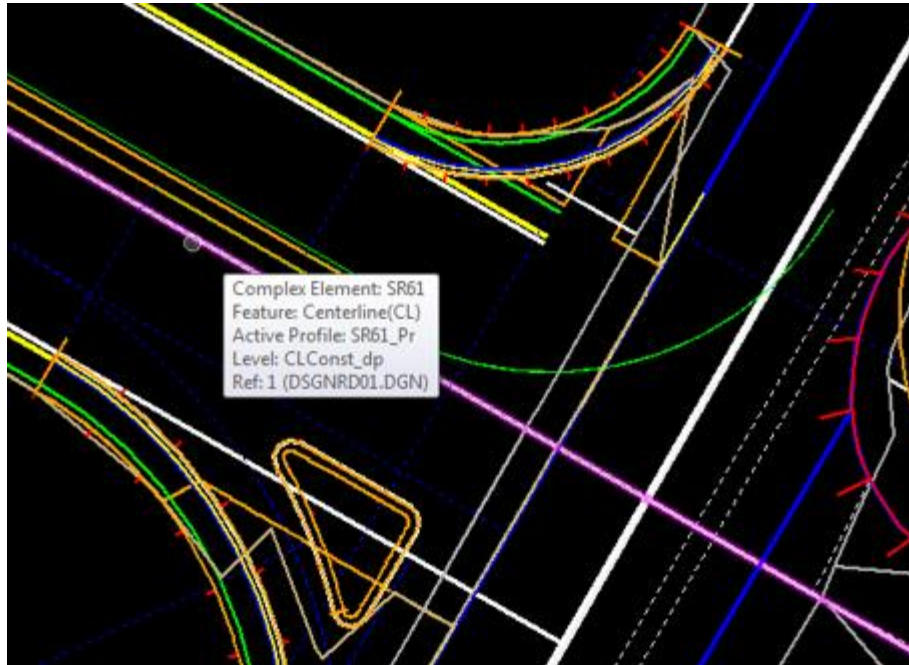
- Use the Cross Section Navigator to review the Boreholes on the Cross Sections.

Note In the case of Boreholes being separated by very small distances, some manual adjustments may be necessary in order to view them properly.

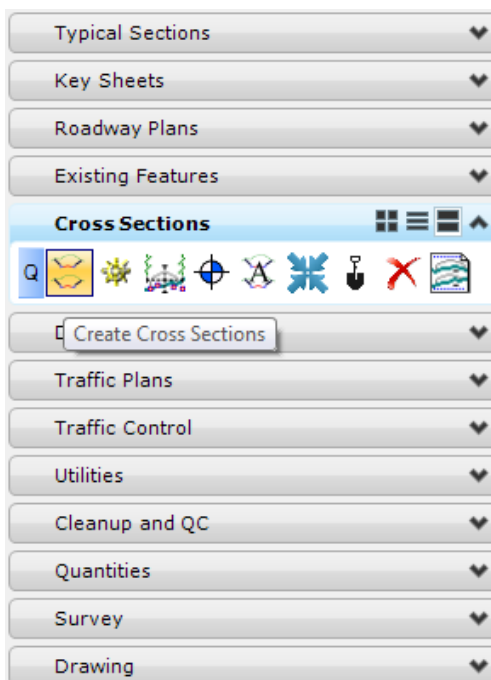
- Close** Borehole Navigator.

Exercise 7.4 Create Proposed Cross Sections

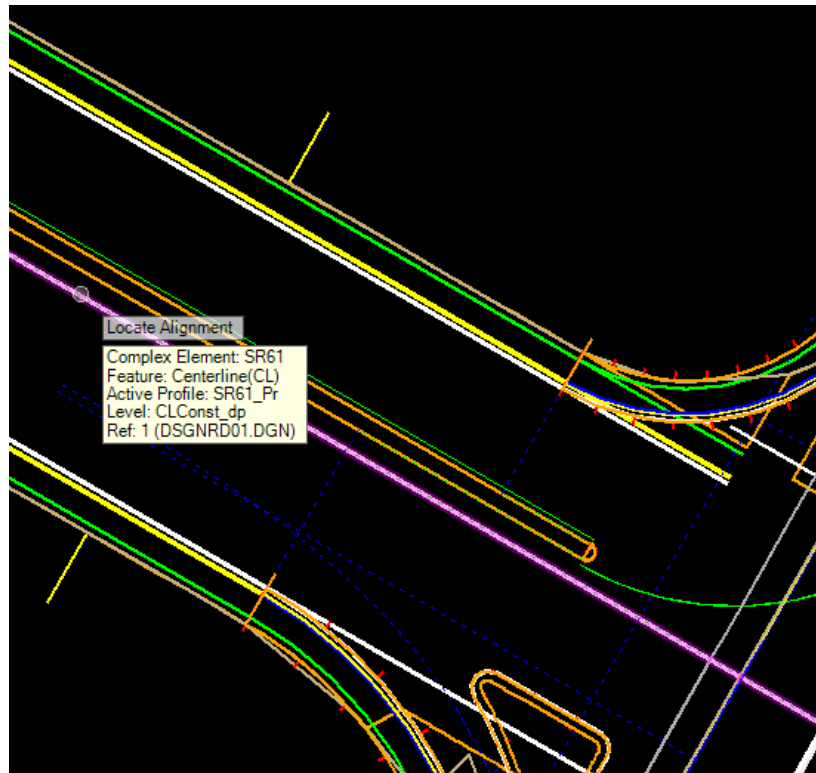
1. With *RDXSRD01.dgn* open, go to the **Proposed Features Model** and **reference** in the following file:
 C:\e\Projects\22049555201\roadway\DSGNRD01.dgn file
2. Use the MicroStation **Fit View** and then select **File > Save Settings**.
3. Zoom to the view the **SR61** alignment.



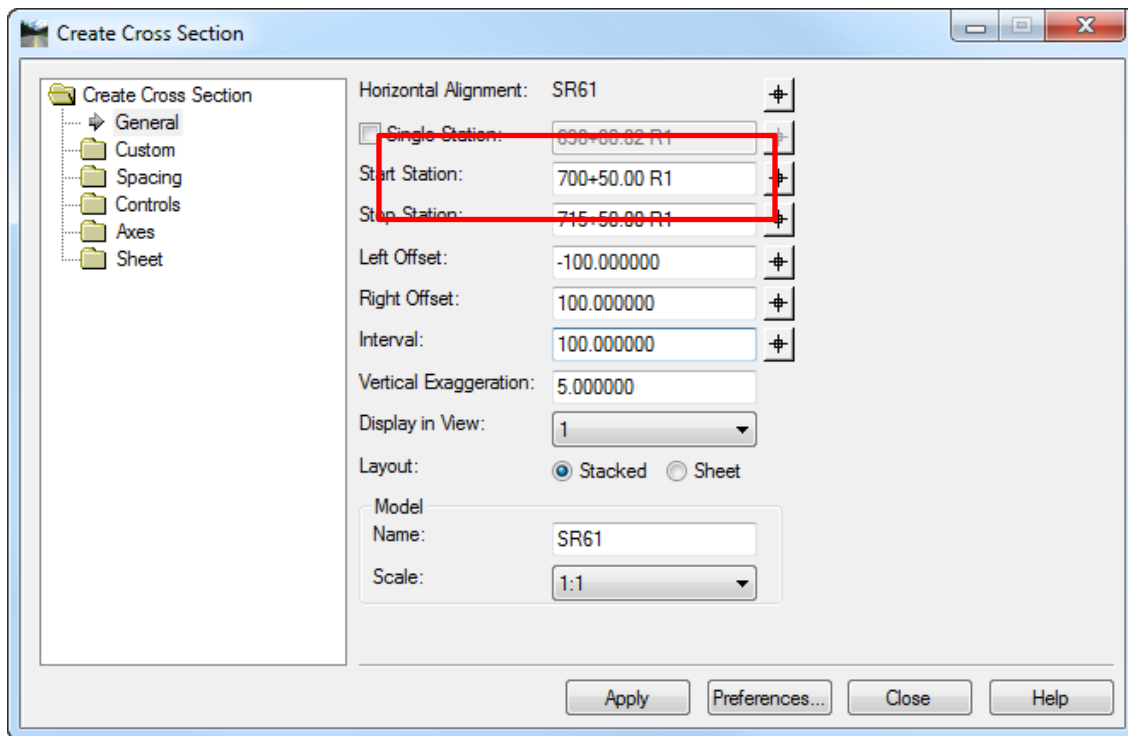
4. From the FDOT Plans Development Task Menu, select **Cross Sections > Create Cross Sections**.



5. Following the prompt at the end of the cursor, locate the **SR 61 Alignment**.

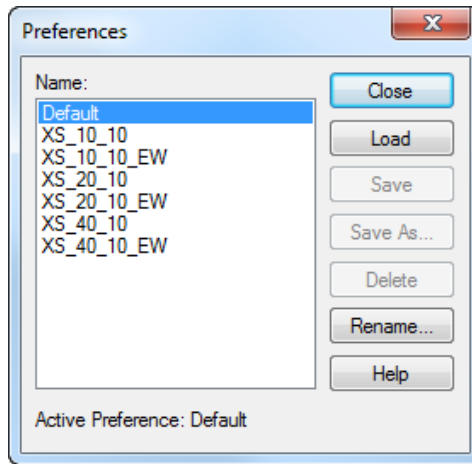


6. The Create Cross Section dialog displays.
 - a. Key in the *Start Station* to be **700+50.00** and the *Stop Station* as **715+50.00**.

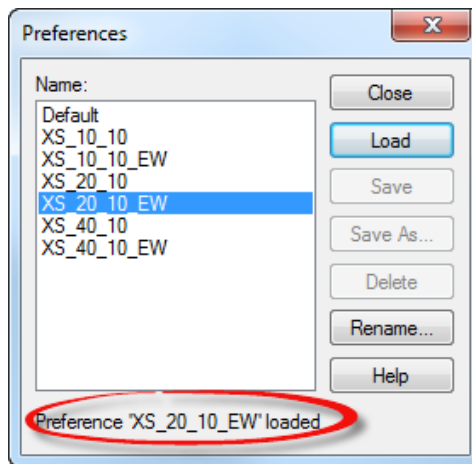


- b. Click on the **Preferences** button.

- c. The Preferences dialog displays. Select the *Preference Name XS_20_10_EW* from the list and click **Load**.

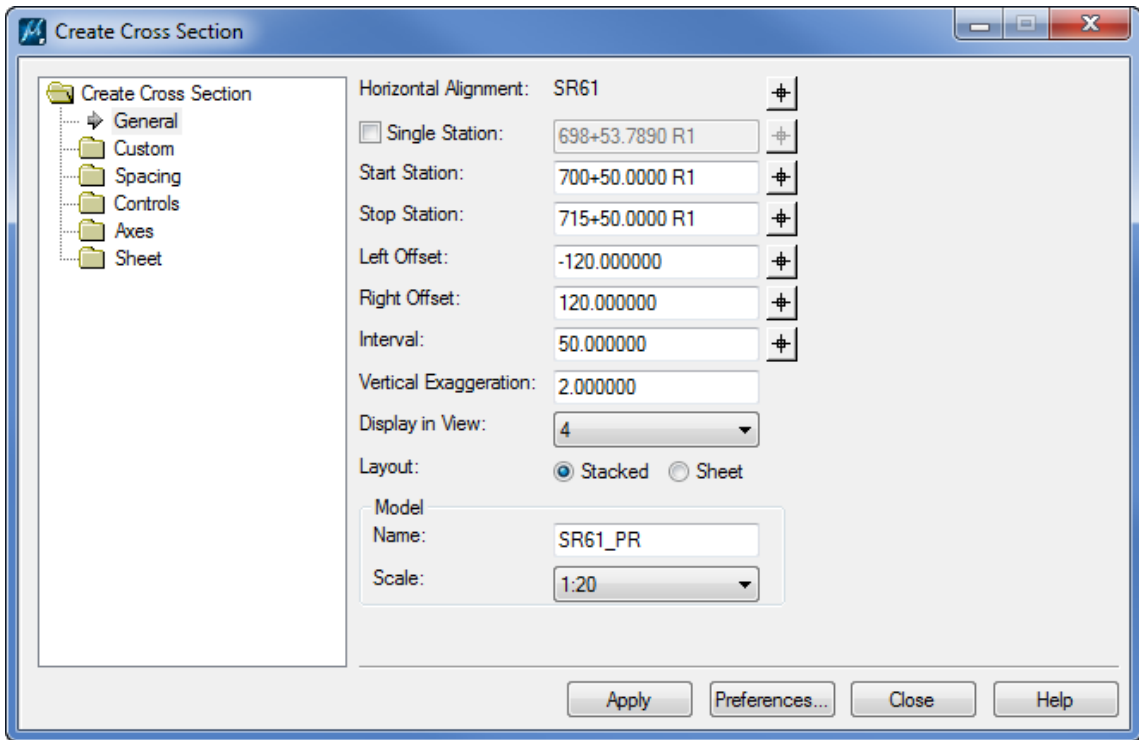


- d. Once loaded the dialog will display *Preference 'XS_20_10_EW' loaded*. Click **Close**. All of those preset preferences will be loaded for 20' Scale Cross Sections with Earthwork.



- e. From the Create Cross Section dialog change the *Display in View* to **4**.

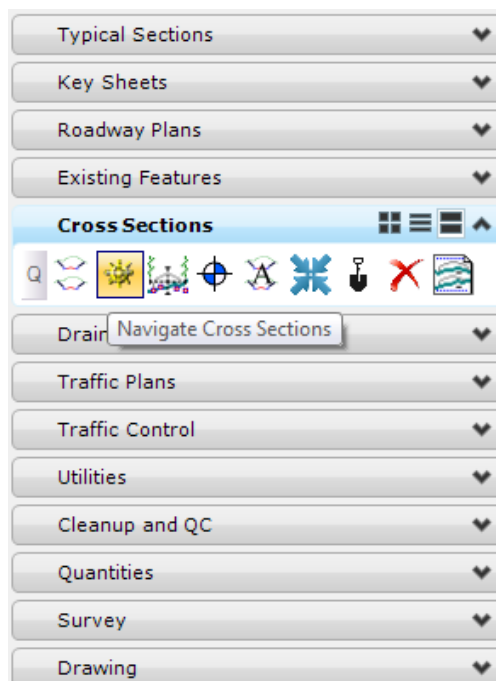
f. Change the *Model Name* to **SR61_PR**.



g. Click **Apply**. *View 4* is opened and the Cross Sections are generated with the cross section cell and proposed features.

h. Click **Close** to exit the Create Cross Sections dialog.

7. From the FDOT Plans Development Task Menu, select **Cross Sections > Navigate Cross Sections** to review the existing cross sections.

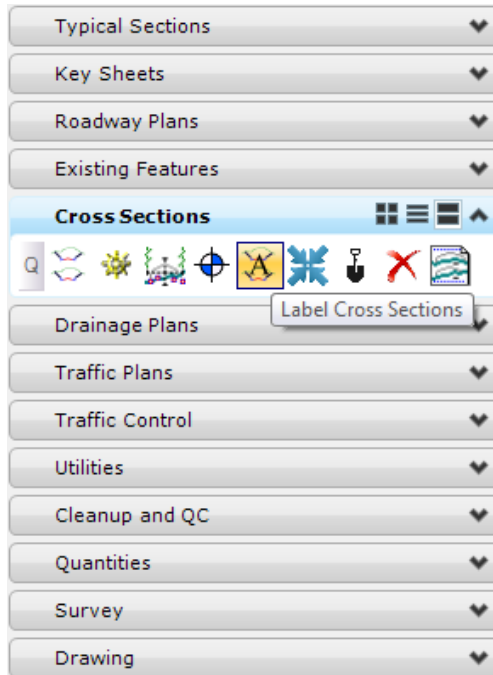


Exercise 7.5 Annotate Cross Sections

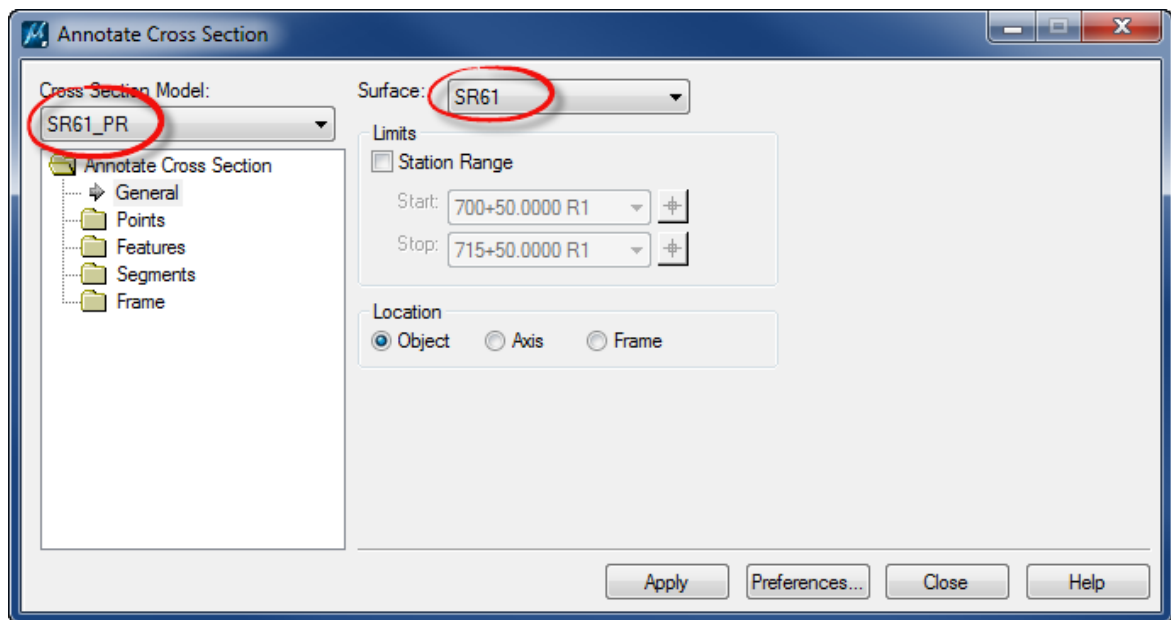
This exercise will demonstrate how to label different Elevations, Stations, and Slopes or Points on all of the Cross Sections.

➤ Label Elevations

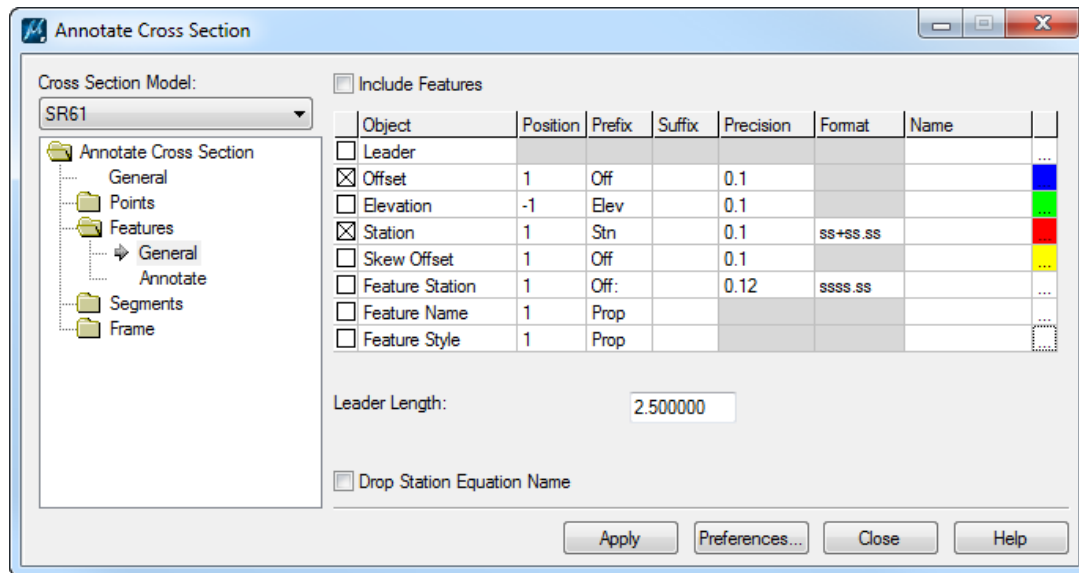
1. From the FDOT Plans Development Task Menu, select **Cross Sections > Label Cross Sections**.



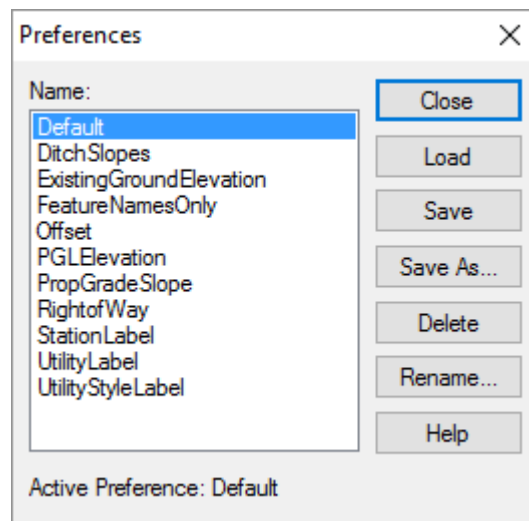
2. The Annotate Cross Section dialog displays. Be sure the *Cross Section Model* is set to **SR61_PR** and the *Surface* is set to **SR61**.



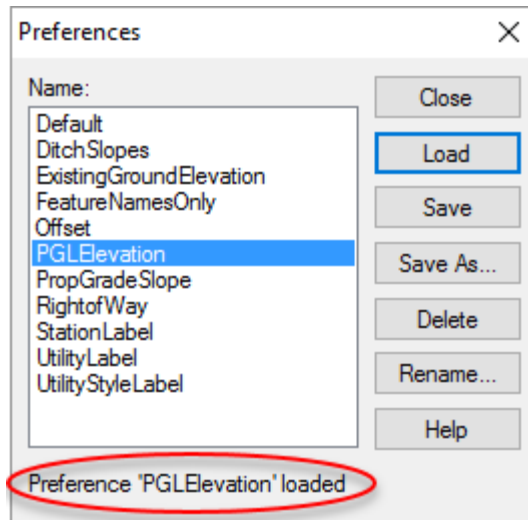
- From the window on the left, navigate to the *Features* folder and select the **General** tab.



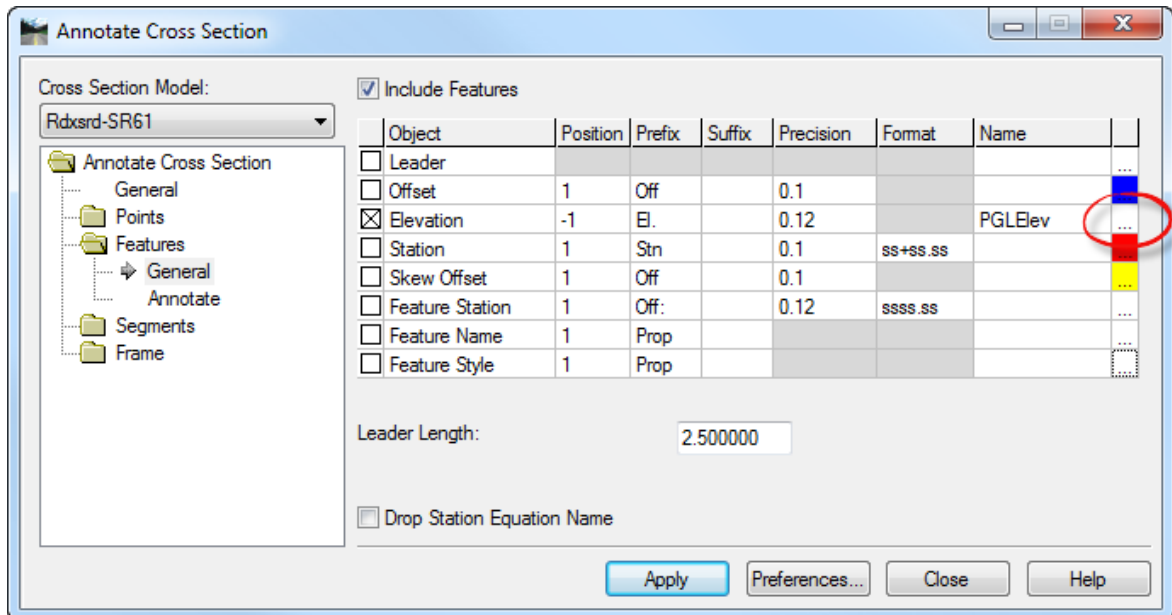
- Click the **Preferences** button to display the Preferences dialog.



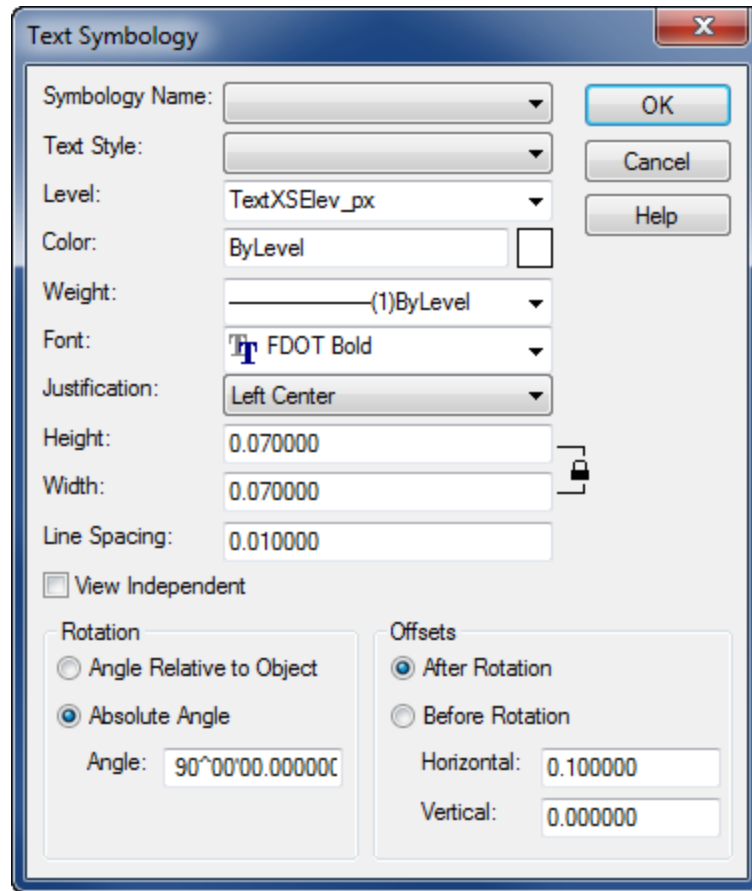
- Highlight the **PGLElevation** preference in the *Name* list box and click **Load**. A message pops up stating that *Preference 'PGLElevation' is loaded*. Click **Close** and the Preferences dialog closes.



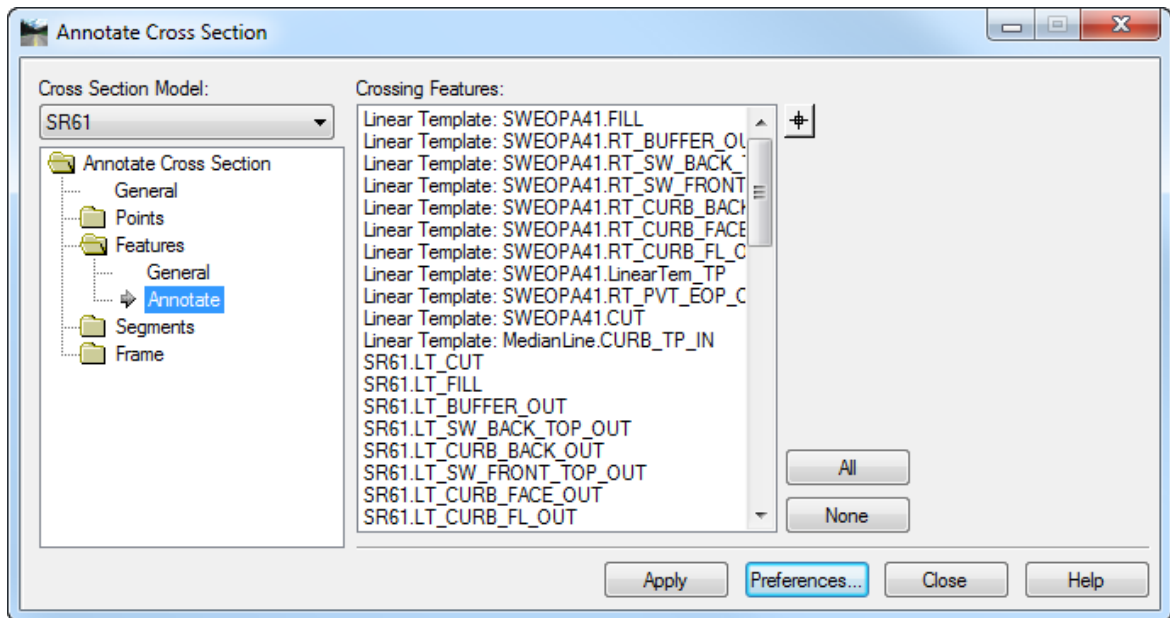
6. Click on the ... button at the end of the *Elevation* row.




7. The Text Symbology dialog displays. All of the text symbology should be set with the preference. Make sure the Text Symbology is as shown below and click **Ok** to close the Text Symbology dialog.



- Go to the *Features* folder and select the **Annotate** tab. This contains a list of points that correlate to the template used to create the model.

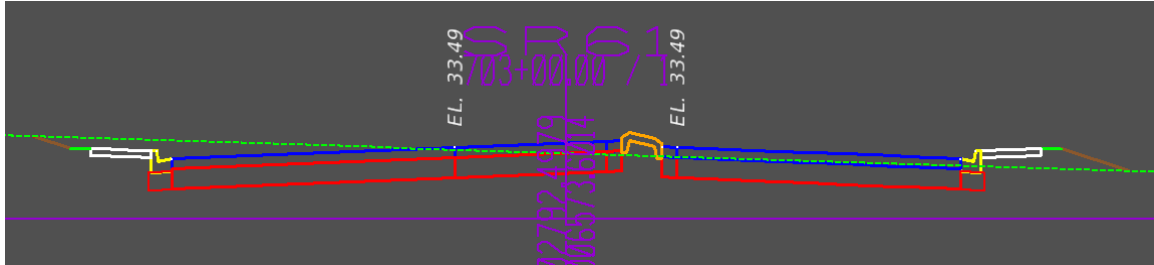


- Scroll down and highlight the *Feature* named **SR61.LT_PGL_IN** in the list.

Note This list is not in any defined order. Scroll down the list until the desired feature is found. If you know where the point is in the sections, you can also use the “selector”  button to select the point.

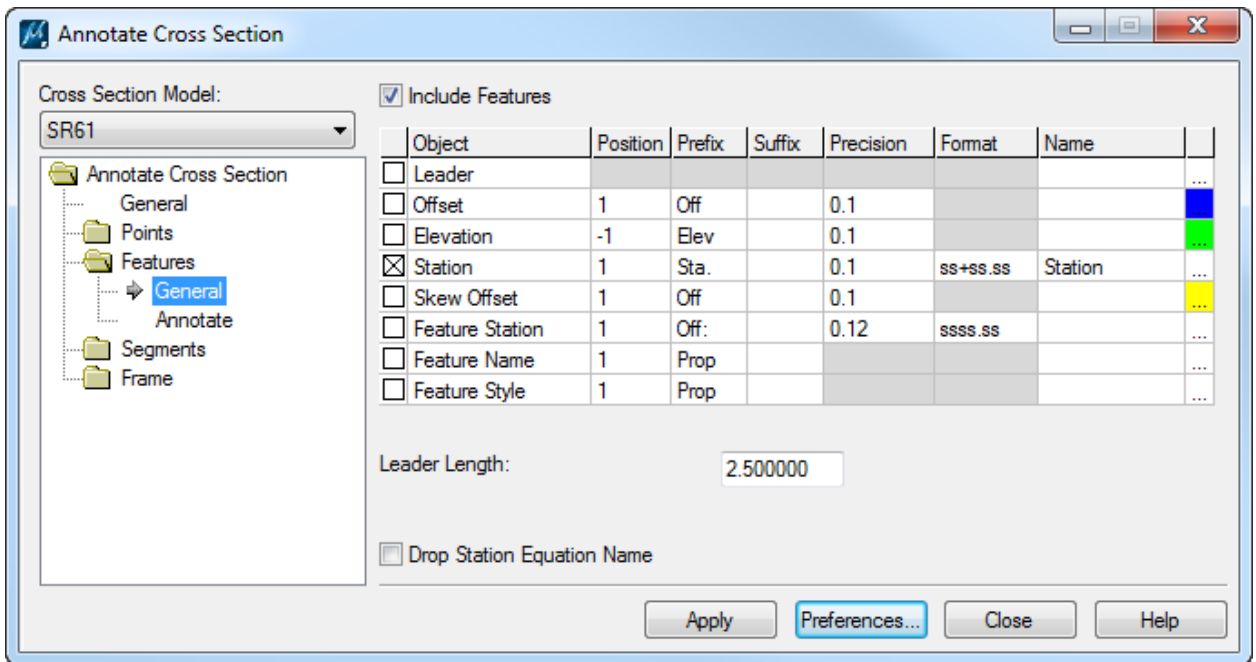
10. Click **Apply** and the *left PGL elevation* will be labeled for the entire set of Cross Sections.

11. Do the same for the *right PGL elevation*; Feature named **SR61.RT_PGL_IN**.



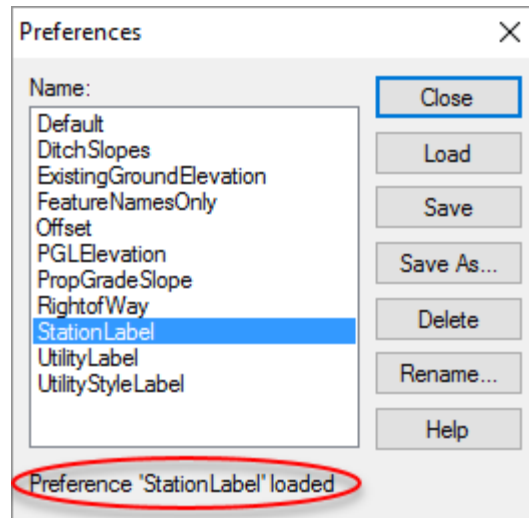
➤ **Label Stations**

1. Go to the *Features* folder and select the **General** tab.

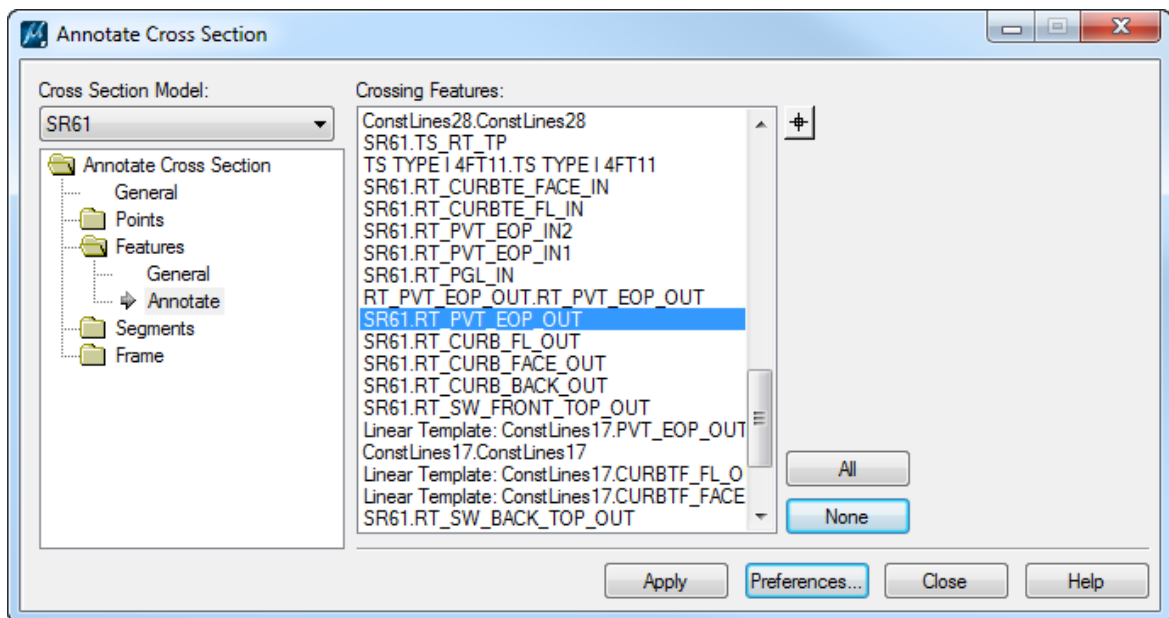


2. Click on the **Preferences** button.

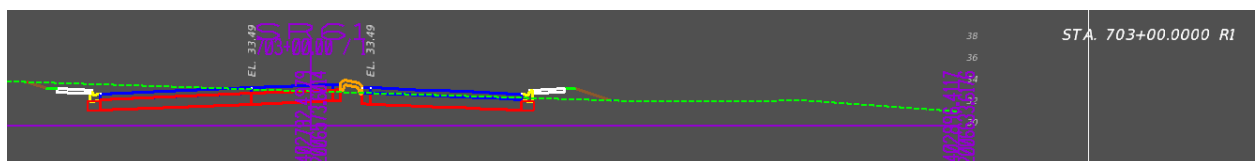
3. The Preferences dialog displays. Highlight the **Station Label** preference in the *Name* list box and click **Load**. A message pops up stating that *Preference ‘Station Label’ is loaded*. Click **Close** on the Preferences dialog box.



- Go to the *Features* folder and select the **Annotate** tab.
- Highlight the *Feature* **SR61.RT_PVT_EOP_OUT** in the list.

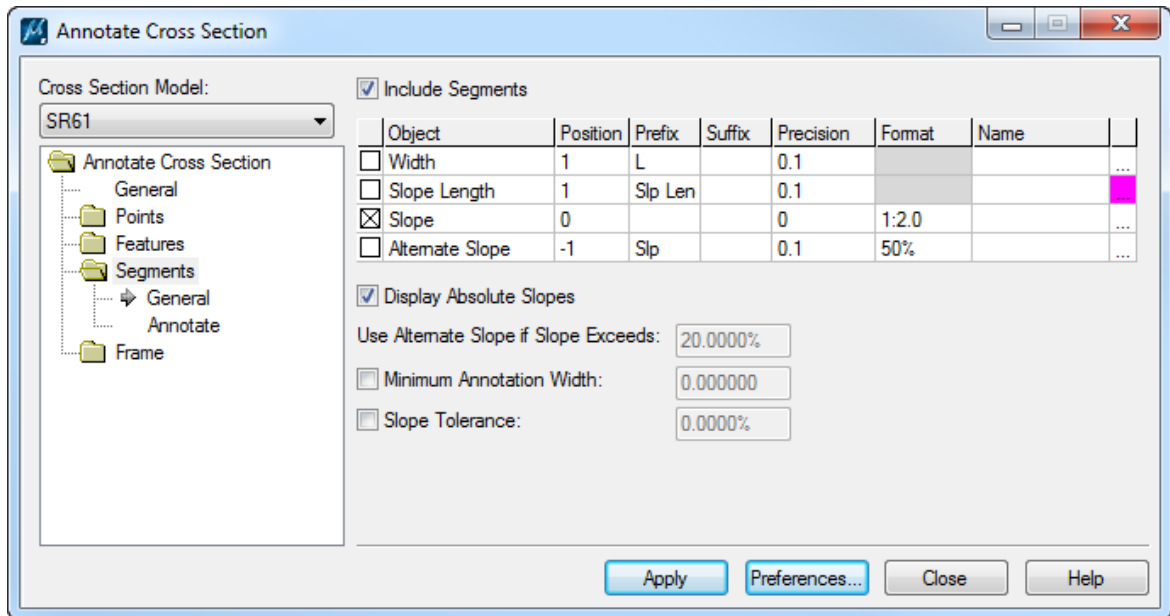


- Click **Apply** and all of the *Stations* will be labeled for every Cross Sections.

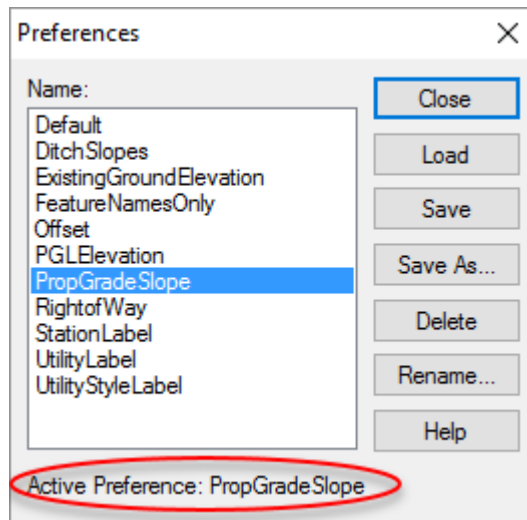



➤ Label Slopes

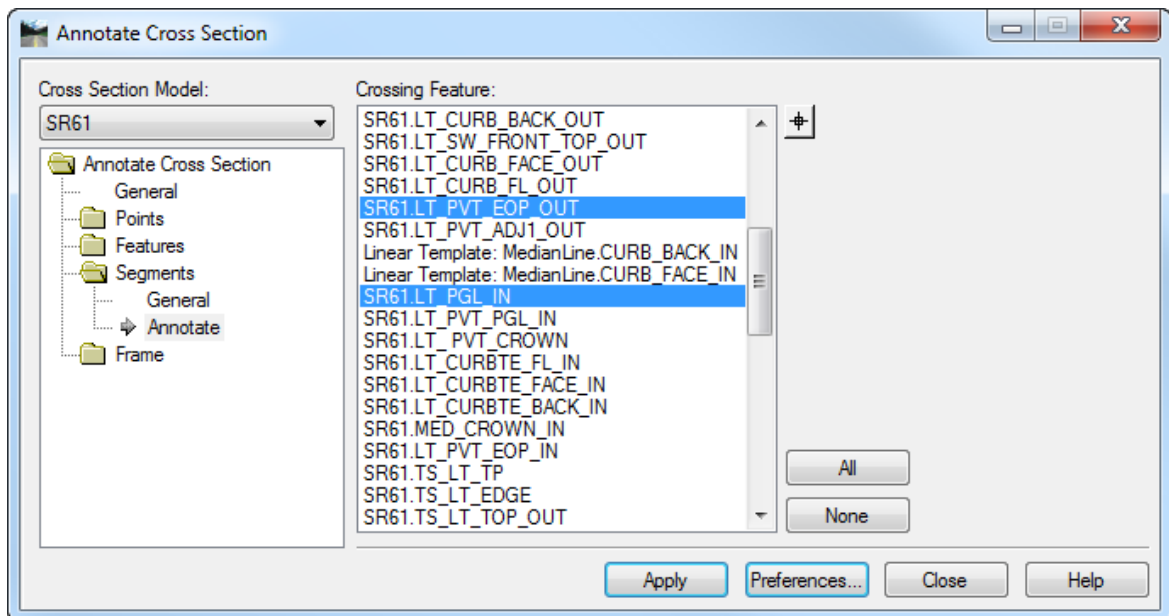
- Go to the *Segments* folder and select the **General** tab.



2. Click the **Preferences** button.
3. The Preferences dialog displays. Highlight the **PropGradeSlope** preference in the *Name* list box and click **Load**. A message pops up stating that *Preference 'PropGradeSlope' is loaded*. Click **Close** and the Preferences dialog closes.



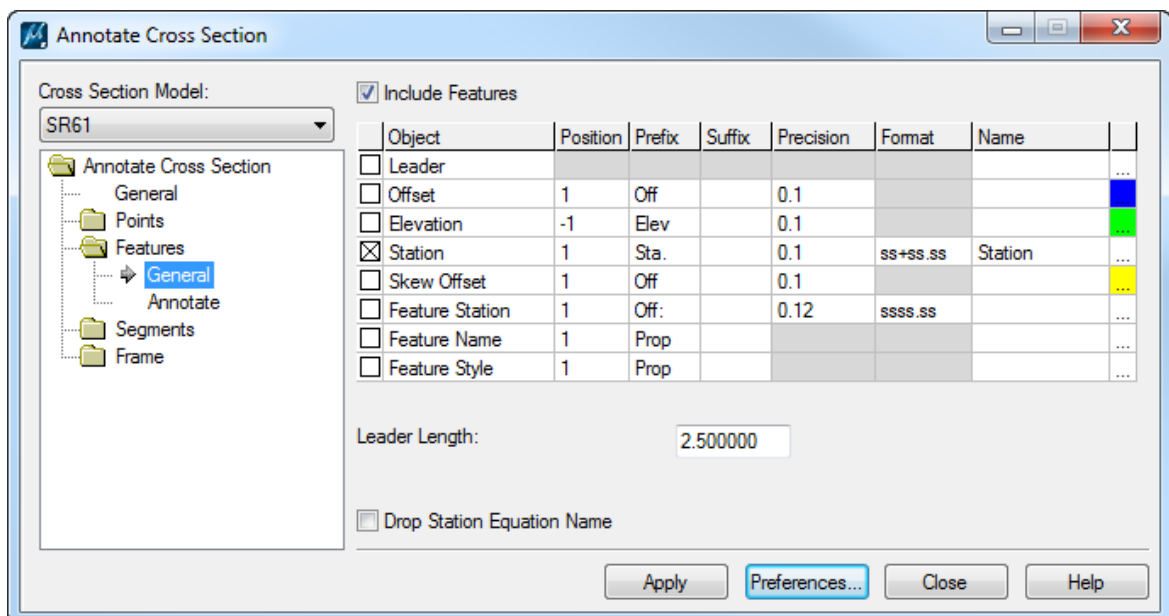
4. Go to the *Segments* folder and select the **Annotate** tab.
5. Click on the **Selector** icon  and select the **left PGL** point. That point becomes highlighted in the *Crossing Feature* list.
6. Click on the **Selector** icon again and select the **left outside EOP** point. That point becomes highlighted in the *Crossing Feature* list.



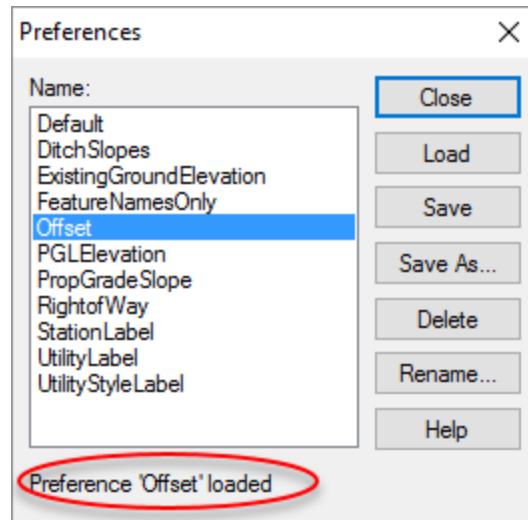
7. Click **Apply**. That *Slope* on each Cross Section will be labeled.
8. Do the same for the *right side* of the roadway.

➤ **Label Offsets**

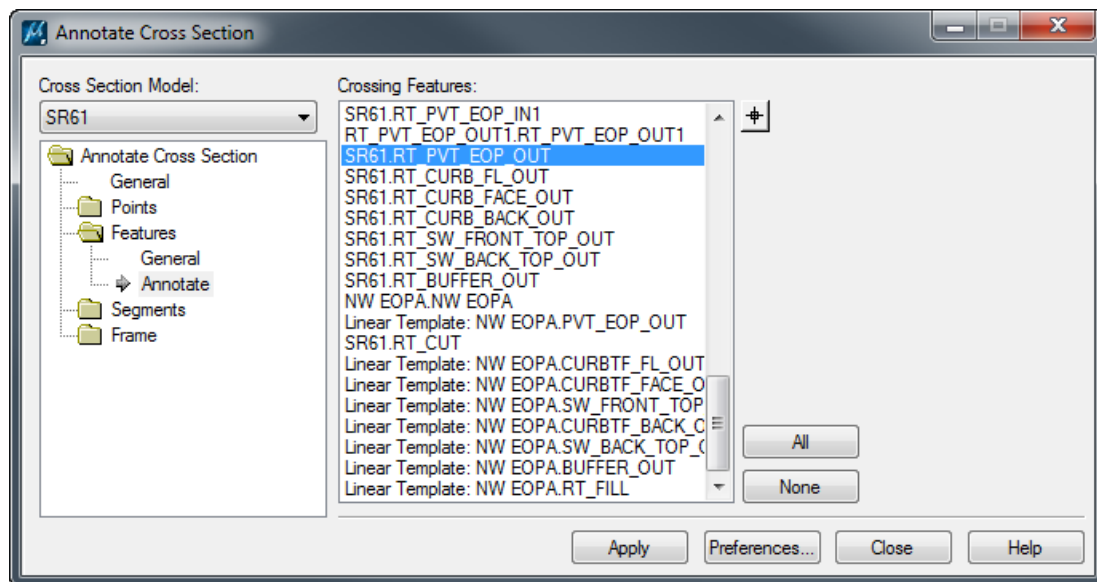
1. Go to the *Features* folder and select the **General** tab.



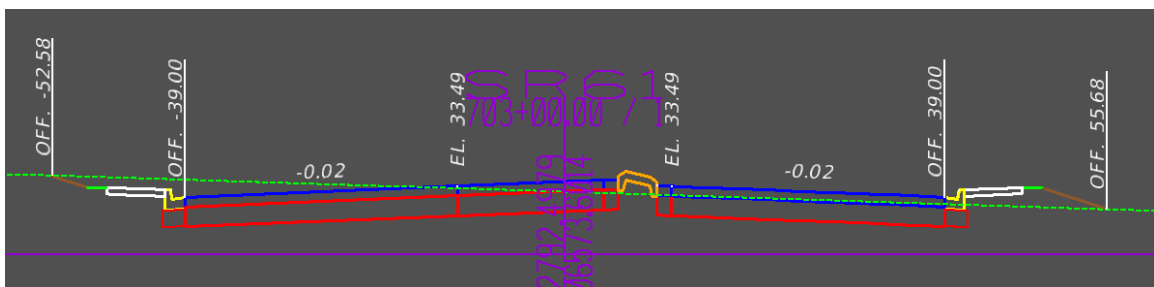
2. Click on the **Preferences** button.
3. The Preferences dialog displays. Highlight the **Offset** preference in the *Name* list box and click **Load**. A message pops up stating that *Preference 'Offset' is loaded*. Click **Close** on the Preferences dialog box.



4. Go to the *Features* folder and select the **Annotate** tab.
5. Highlight the *Feature SR61.RT_PVT_EOP_OUT* in the list.



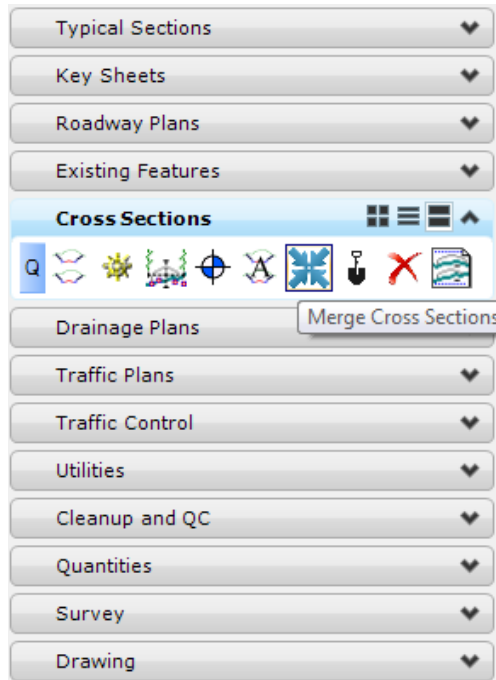
6. Click **Apply** and all of the *Stations* will be labeled for every Cross Sections.
7. Repeat steps 5&6 to label the offset for the left edge of pavement and the left and right tie down points.



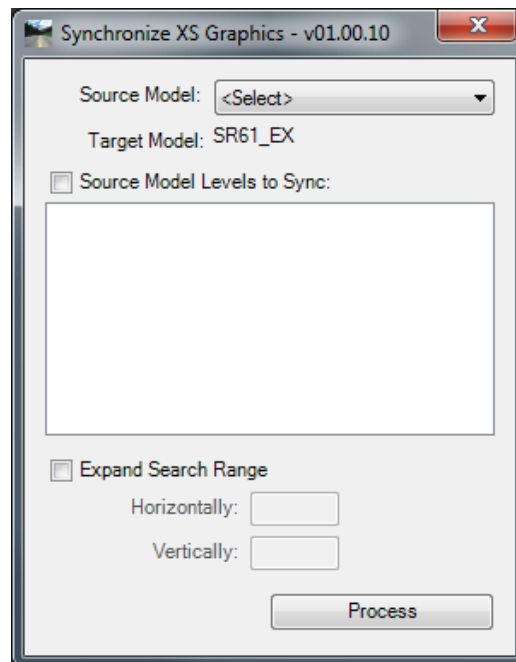
Exercise 7.6 *Merge Existing and Proposed Cross Sections*

With RDXSRD01.dgn open, go to the SR61_EX Model.

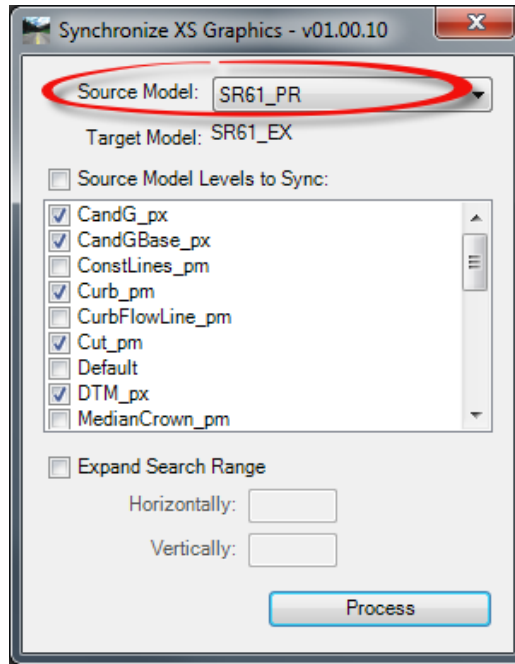
1. From the FDOT Plans Development Task Menu, select **Cross Sections > Merge Cross Sections**.



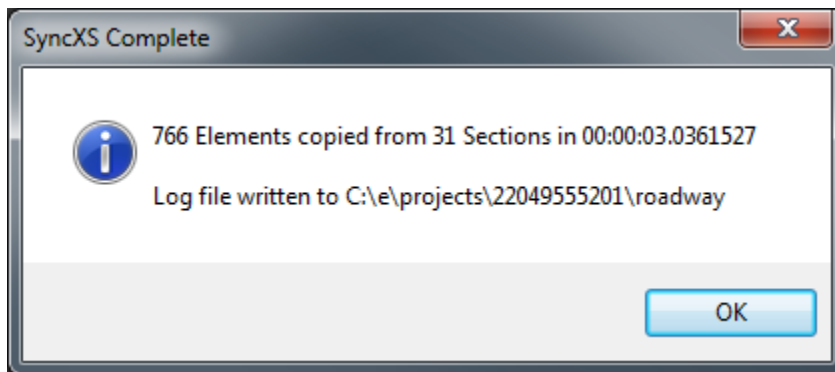
2. The Synchronize XS Graphics dialog displays.



3. Set the *Source Model* to **SR61_PR**.



4. Under *Source Model Levels to Sync* toggle **Off** the following levels:
 - *_pm
 - XSCell
 - XSMisc_px
 - Default
5. Click **Process**. All of the proposed elements will be copied into the **SR61_EX** model.
6. Once the application is finished processing a message will appear stating the number of elements that were copied over to the *Target Model*. It also stores a log file in the active directory. Click **OK** to close the message.



7. Close the Synchronize XS Graphics dialog.

Exercise 7.7 *Calculate Earthwork and Create a Final Cross Section Model*

This exercise will demonstrate how to calculate the earthwork, display the values on the cross section sheets, and create a report of the earthwork.

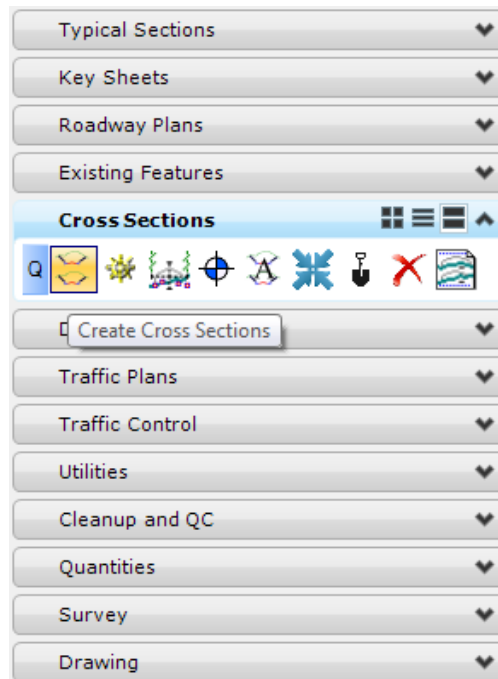
1. With *RDXSRD01.dgn* open, go to the **Patrrd Model** and **reference** in the following files:

C:\e\Projects\22049555201\roadway\GKLNRD01.dgn file

C:\e\Projects\22049555201\roadway\DSGNRD01.dgn file

C:\e\Projects\22049555201\survey\GDTMRD02.dgn file

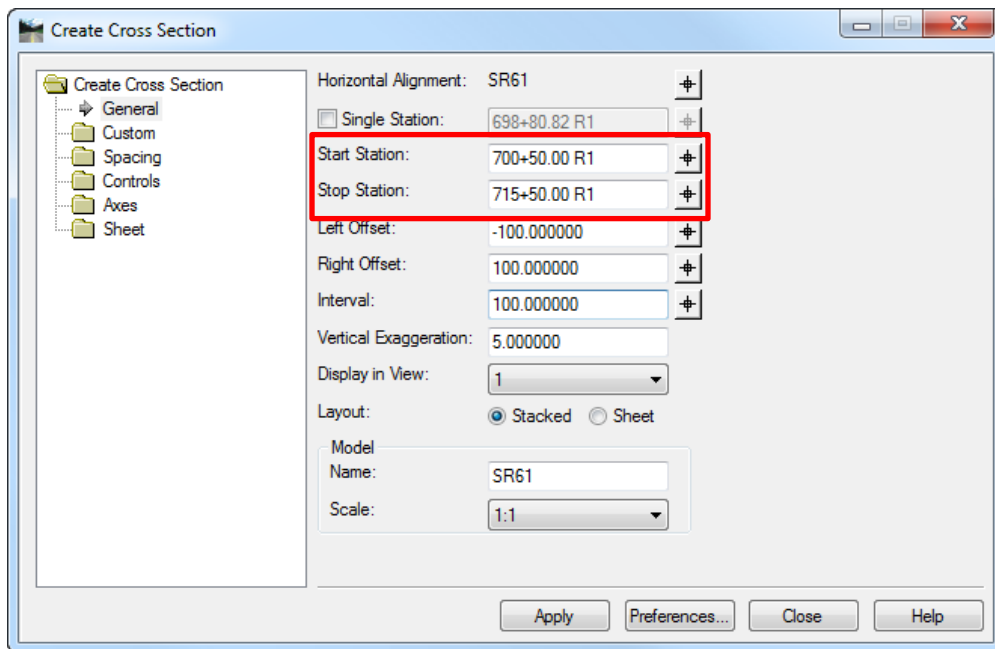
2. Use the MicroStation **Fit View** and then select **File > Save Settings**.
3. From the FDOT Plans Development Task Menu, select **Cross Sections > Create Cross Sections**.



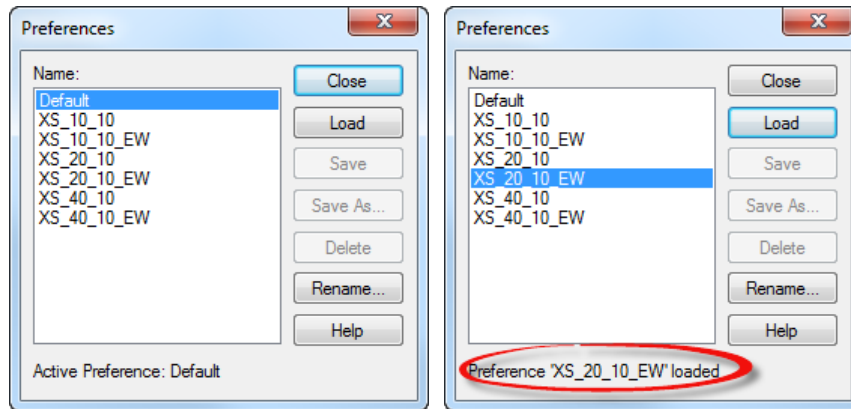
4. Following the prompt at the end of the cursor, locate the **SR 61 Alignment**.



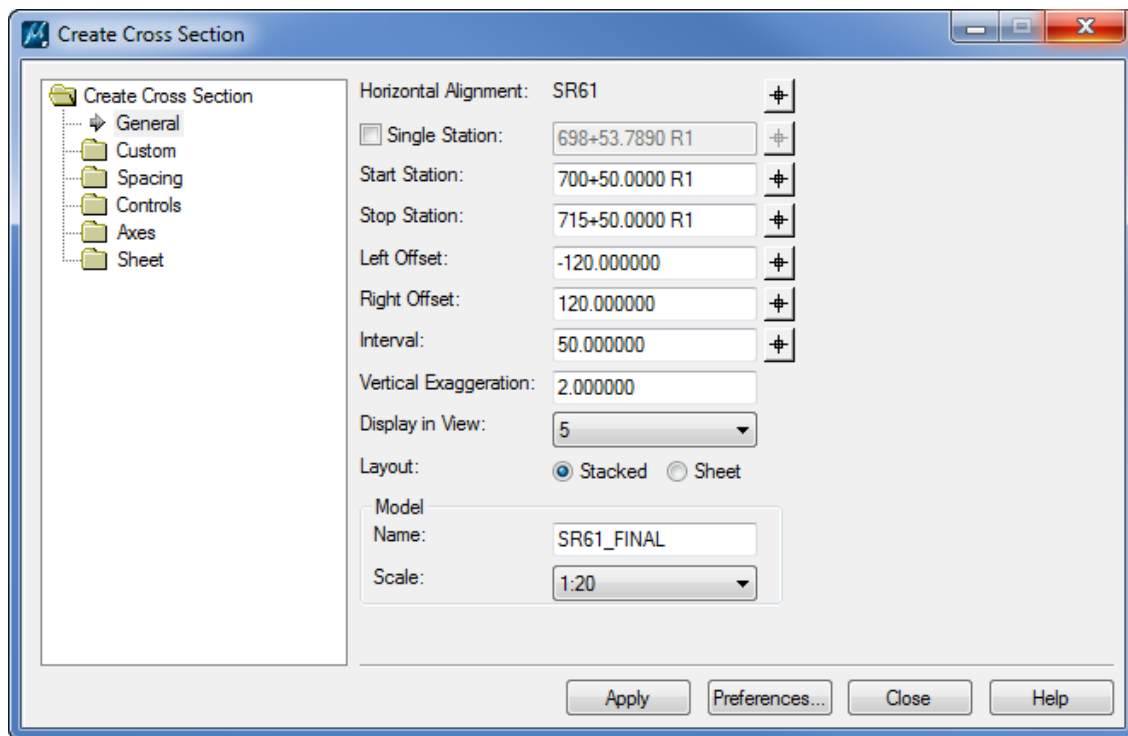
5. The Create Cross Section dialog displays.
 - a. Key in the *Start Station* to be **700+50.00** and the *Stop Station* as **715+50.00**.



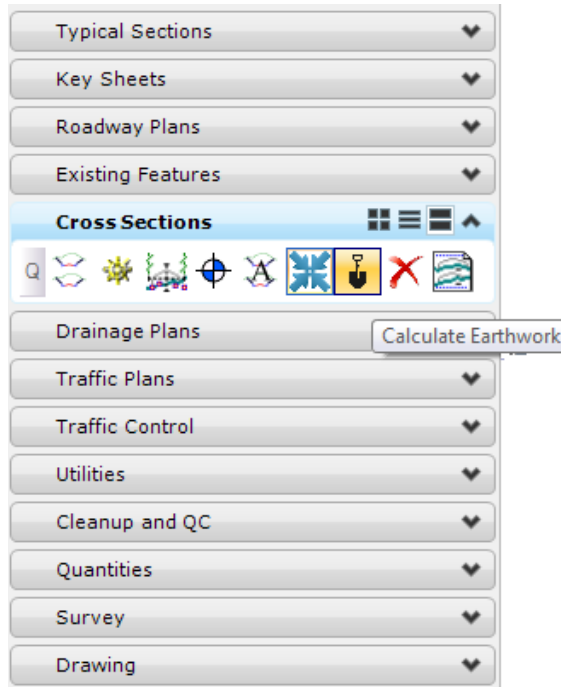
- b. Click on the **Preferences** button.
 - c. The Preferences dialog displays.
 - d. Select the *Preference Name XS_20_10_EW* from the list and click **Load**. Once loaded the dialog will display *Preference 'XS_20_10' loaded*. Click **Close**. All of those preset preferences will be loaded for 20' Scale Cross Sections with Earthwork.



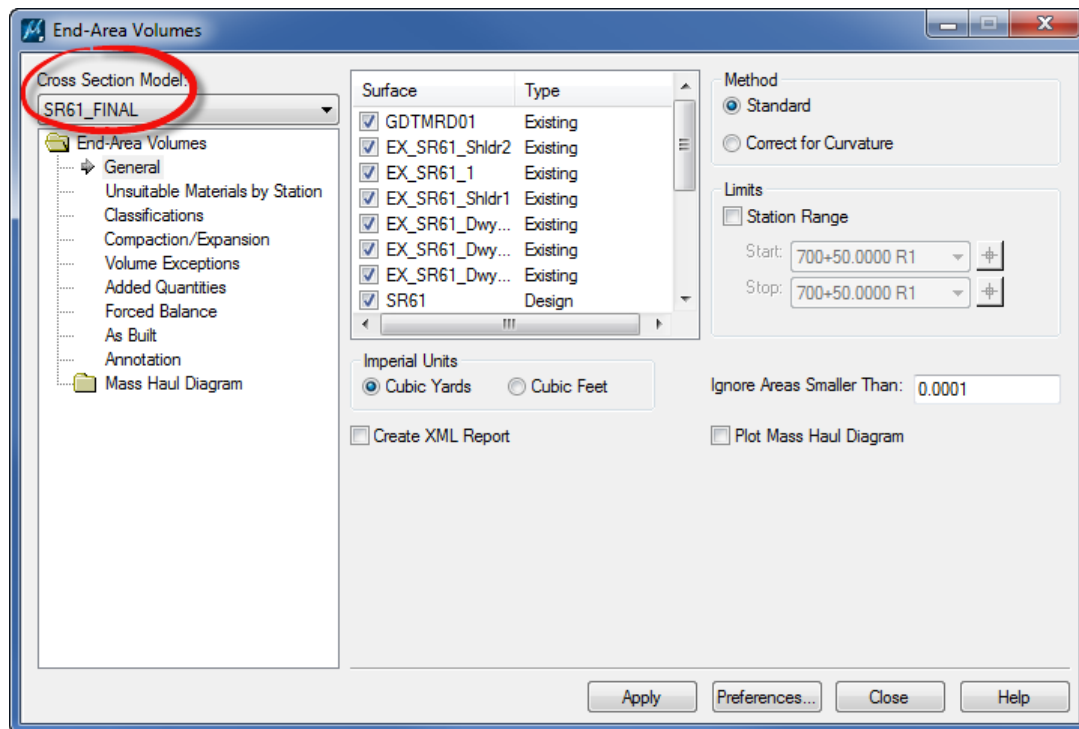
- e. From the Create Cross Section dialog change the *Display in View* to **5**.
- f. Change the *Model Name* to **SR61_FINAL**.



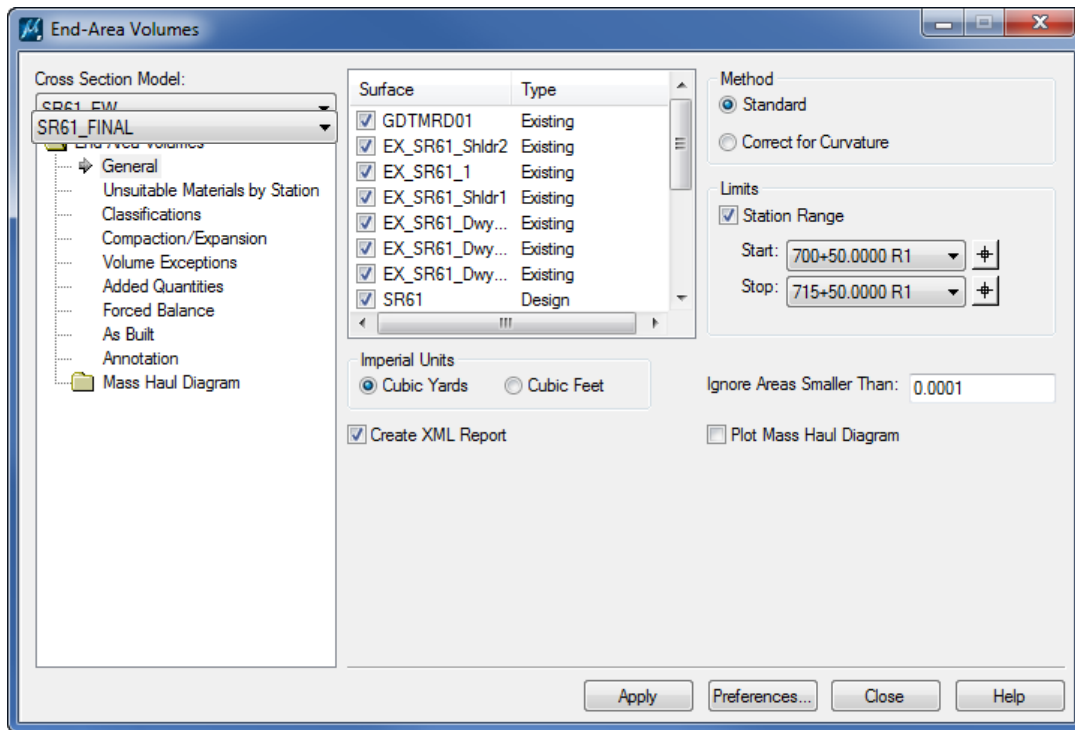
- g. Click **Apply**. *View 5* is opened and the Cross Sections are generated with the cross section cell and proposed features.
 - h. Click **Close** to exit the Create Cross Sections dialog.
6. From the FDOT Plans Development Task Menu, select **Cross Sections > Calculate Earthwork**.



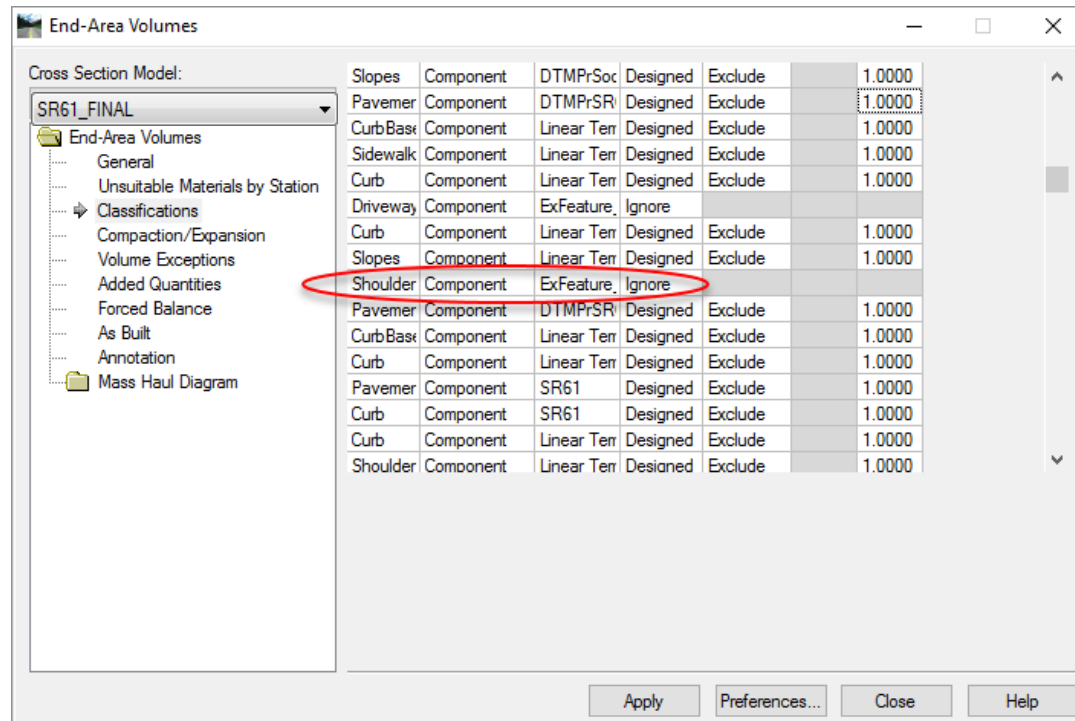
7. The End-Area Volumes dialog displays. Be sure the *Cross Section Model* is set to **SR61_FINAL**.



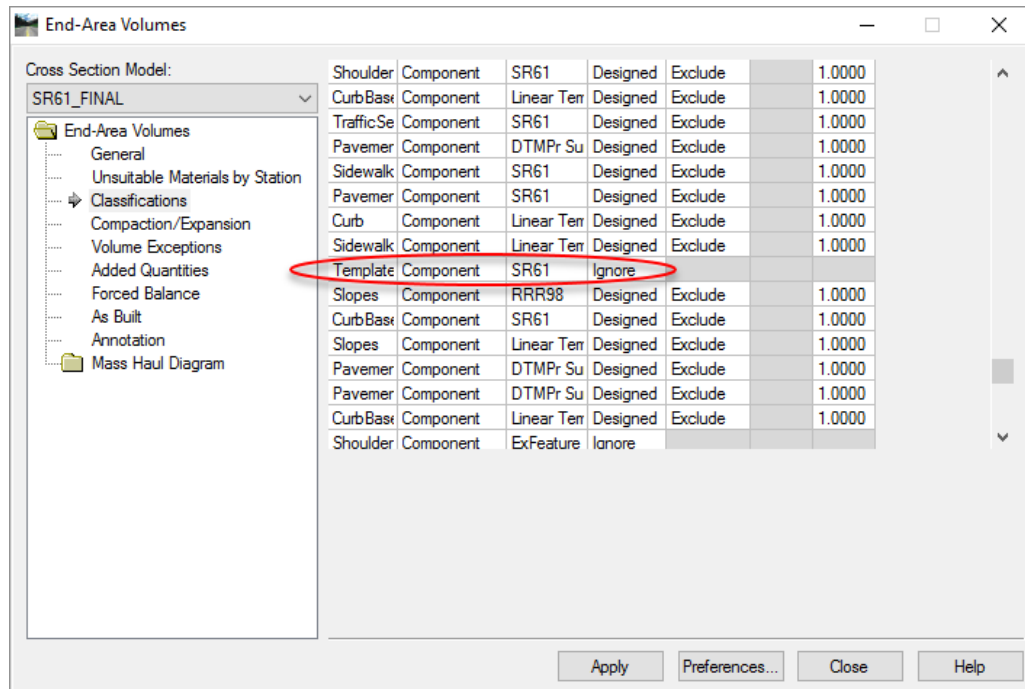
8. From the window on the left select the **General** tab.



- a. Toggle **On** the *Station Range*, select **700+50.00** for the *Start station* and **715+50.00** for the *Stop station*.
 - b. Toggle **On** the *Create XML Report*.
9. Select the **Classifications** tab.
- a. Set all of the *existing Object* (ex. PavementBase_ex) *Classification* to **Ignore**.

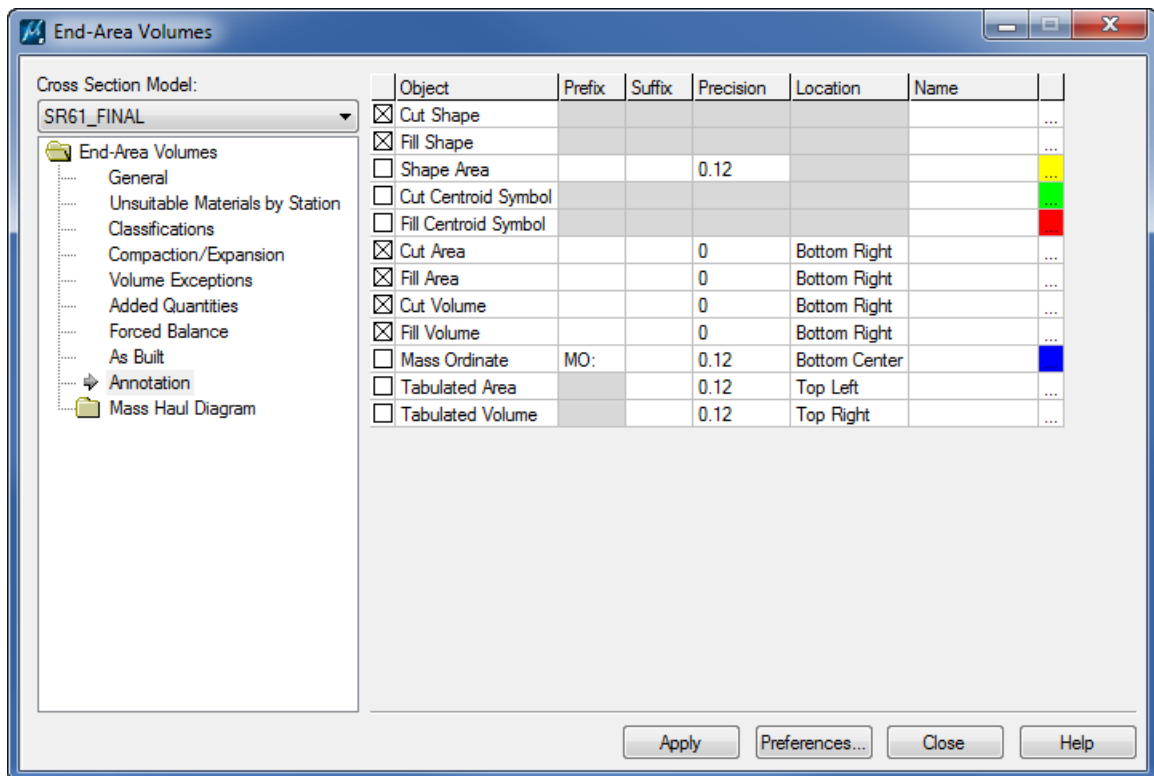


b. Set all of the *Template Miscellaneous Object Classification* to **Ignore**.

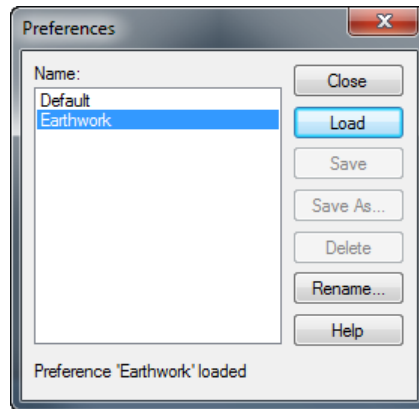


10. Select the **Annotation** tab.

a. Click the **Preferences** button.



b. The Preferences dialog displays. Highlight the *Name* **Earthwork** and click **Load**. The *Earthwork* is loaded as *Active Preference*. **Close** the Preferences dialog.



11. Click **Apply**. The *Earthwork Volumes* are calculated, a *Shape* is placed over the fill and cut areas in the Cross Sections, the *Earthwork Values* are placed on the right side of the Cross Sections, to display correctly in the Cross Sections sheet.

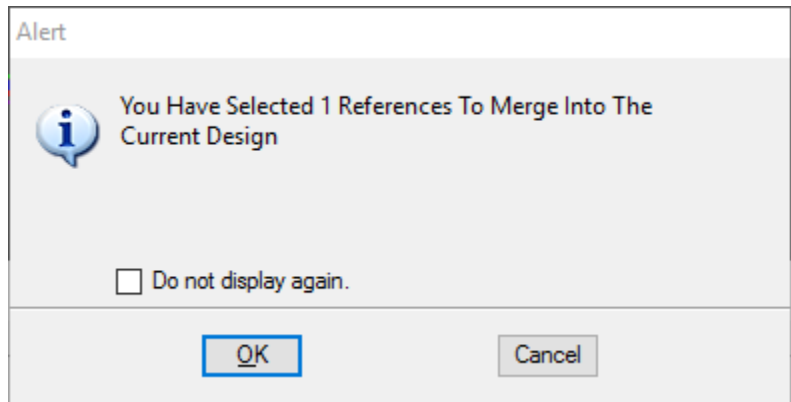
12. The *XML Report* also displays the calculated *End Area Values*.

- a. Click on the **Earthwork Quantities** to view the *Earthwork Report*.
- b. To save the *Earthwork Report*: Select **File > Save As** and navigate to the *C:\e\projects\22049555201\roadway* folder. Select the *File Type* as *xml*, type in the *Filename* **SR61_EW** and then click **Save**.

Baseline Station	Cut Shrink/Swell Factor	Station Cut Area	Station Cut Volume	Adjusted Station Cut	Fill Shrink/Swell Factor	Station Fill Area	Station Fill Volume	Adjusted Station Fill	Added Quantities	Mass Ordinate			
									Cut	Adjusted Cut	Fill	Adjusted Fill	
R1 70+050.0000	1.000000	230.4258	0	0	1.000000	35.0434	0	0	0	0	0	0	0
		Station Total:	0	0				0	0	0	0	0	0
R1 70+100.0000	1.000000	223.3876	420	420	1.000000	0.0000	32	32	0	0	0	0	388
		Station Total:	420	420				32	0	0	0	0	0
R1 70+150.0000	1.000000	154.6995	350	350	1.000000	0.0000	0	0	0	0	0	0	738
		Station Total:	350	350				0	0	0	0	0	0
R1 70+200.0000	1.000000	112.3469	247	247	1.000000	0.6379	1	1	0	0	0	0	985
		Station Total:	247	247				1	0	0	0	0	0
R1 70+250.0000	1.000000	82.6753	181	181	1.000000	3.5702	4	4	0	0	0	0	1161
		Station Total:	181	181				4	0	0	0	0	0
R1 70+300.0000	1.000000	95.2190	165	165	1.000000	3.9260	7	7	0	0	0	0	1319
		Station Total:	165	165				7	0	0	0	0	0
R1 70+350.0000	1.000000	158.9629	235	235	1.000000	0.6989	4	4	0	0	0	0	1550
		Station Total:	235	235				4	0	0	0	0	0
R1 70+400.0000	1.000000	219.1703	350	350	1.000000	0.0000	1	1	0	0	0	0	1900
		Station Total:	350	350				1	0	0	0	0	0
R1 70+450.0000	1.000000	241.2609	426	426	1.000000	0.0000	0	0	0	0	0	0	2326
		Station Total:	426	426				0	0	0	0	0	0
R1 70+500.0000	1.000000	243.5760	449	449	1.000000	0.0000	0	0	0	0	0	0	2775
		Station Total:	449	449				0	0	0	0	0	0
R1 70+550.0000	1.000000	146.1131	361	361	1.000000	0.0000	0	0	0	0	0	0	
		Station Total:	361	361				0	0	0	0	0	0

13. Click the **X** to close the Earthwork Quantities Report.

14. Click **Close** to close the *End-Area Volumes* dialog.
15. With *RDXSRD01.dgn* open, go to the **SR61_EX** Model and reference in the following file:
C:\e\projects\22049555201\roadway\RDXSRD01.dgn; model **SR61_FINAL**
16. Turn off all levels in the SR61_FINAL reference, except the TextLabel level.
17. Open the References dialog and select the *RDXSRD01.DGN*; Model **SR61_FINAL** reference. Right-click on the reference and select Merge Into Master and then Data Point in the drawing. On the Alert message that pops up, click **OK** to merge the reference into the current design.



Only the levels that are turned on in the reference file will be merged into the current design.

Exercise 7.8 Create Cross Section Sheets

In this exercise the user will cleanup cross section line work and layout the Cross Sections onto sheets.

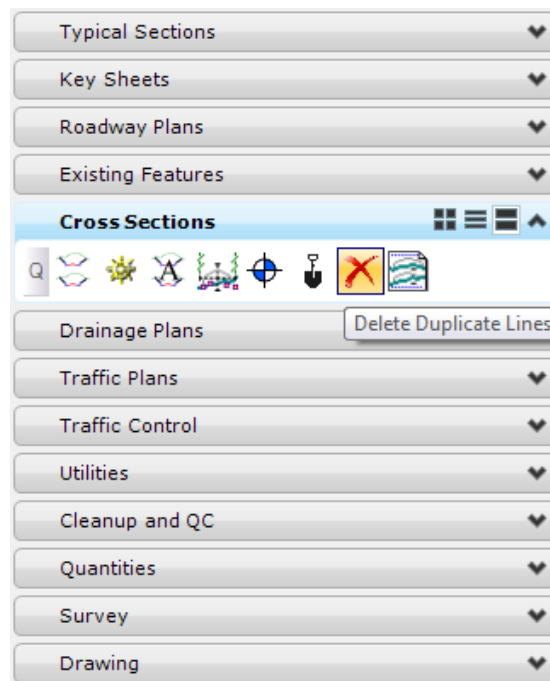
➤ **Laying out the Cross Section Sheets**

1. Because the existing features were created using the existing surface templates, there will be existing line work that is either duplicate or overlapping. Once the cross sections are created and finalized, to remove the duplicate or overlapping lines, open the **SR61_EX Model**.

Note This tool breaks any civil data connections the cross sections may have. To avoid losing information, make a copy of the cross section file before running the tool.

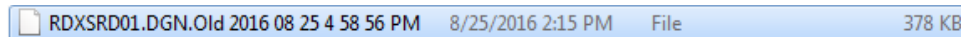
2. From the FDOT Plans Development Task Menu, select **Cross Sections > Delete Duplicate Lines**.

Note This tool will run through each cross section and remove the duplicate and overlapping elements.



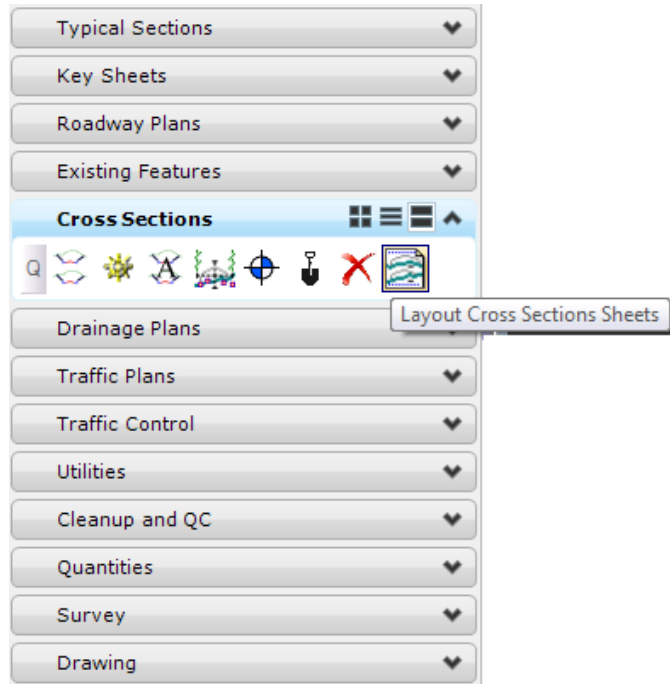
3. An *Attention!!* Message will appear stating that this tool will remove all Civil Data and asking if you would like to continue. Click **Yes**.

Note The application deletes the duplicate lines in the file. It will also make a backup of the existing cross section file and saves it in the active directory.

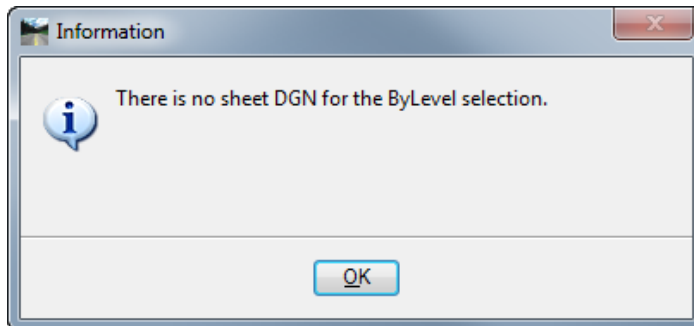


4. To create the cross section sheets, change the *Model* to **Rdxsrd_shg**.

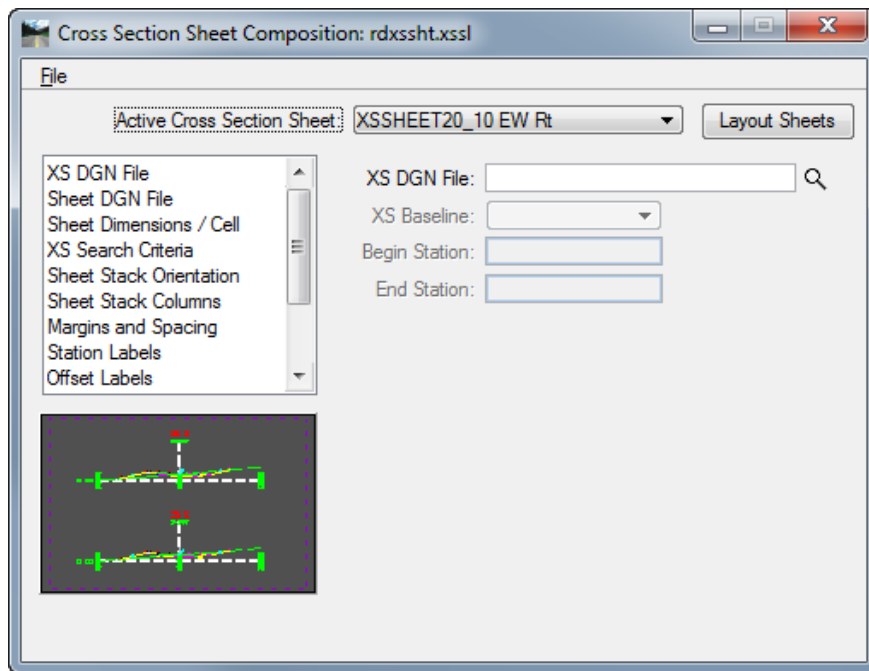
5. From the FDOT Plans Development Task Menu, select **Cross Sections > Layout Cross Section Sheets**.



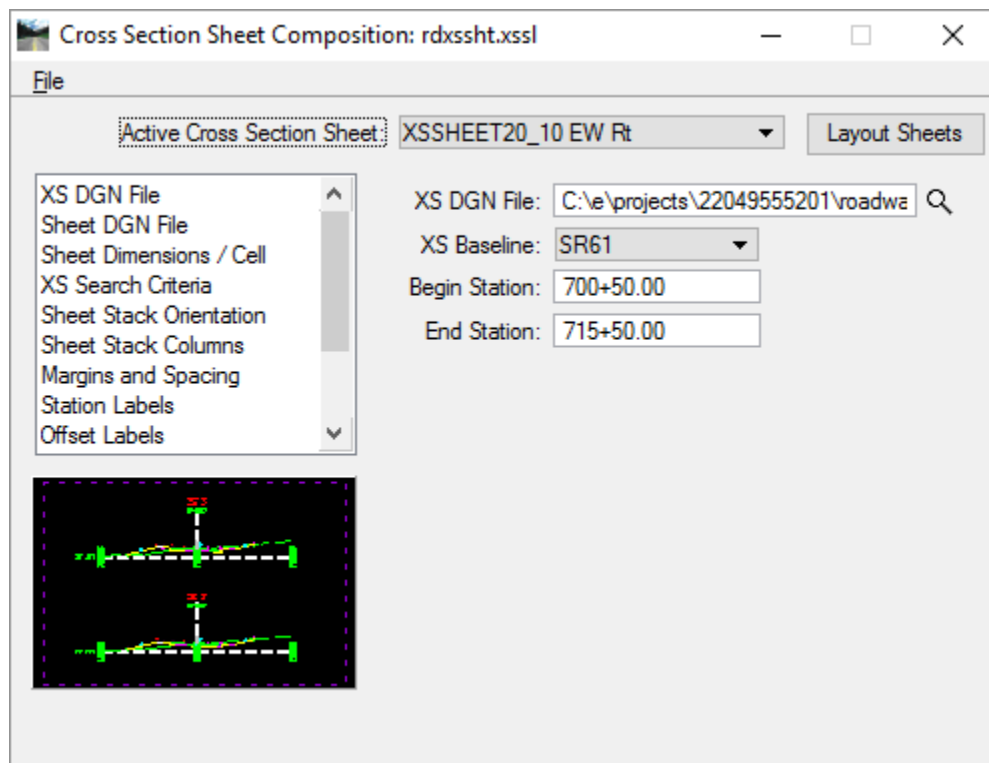
6. The following Information box will display. Click **OK** to dismiss the message.



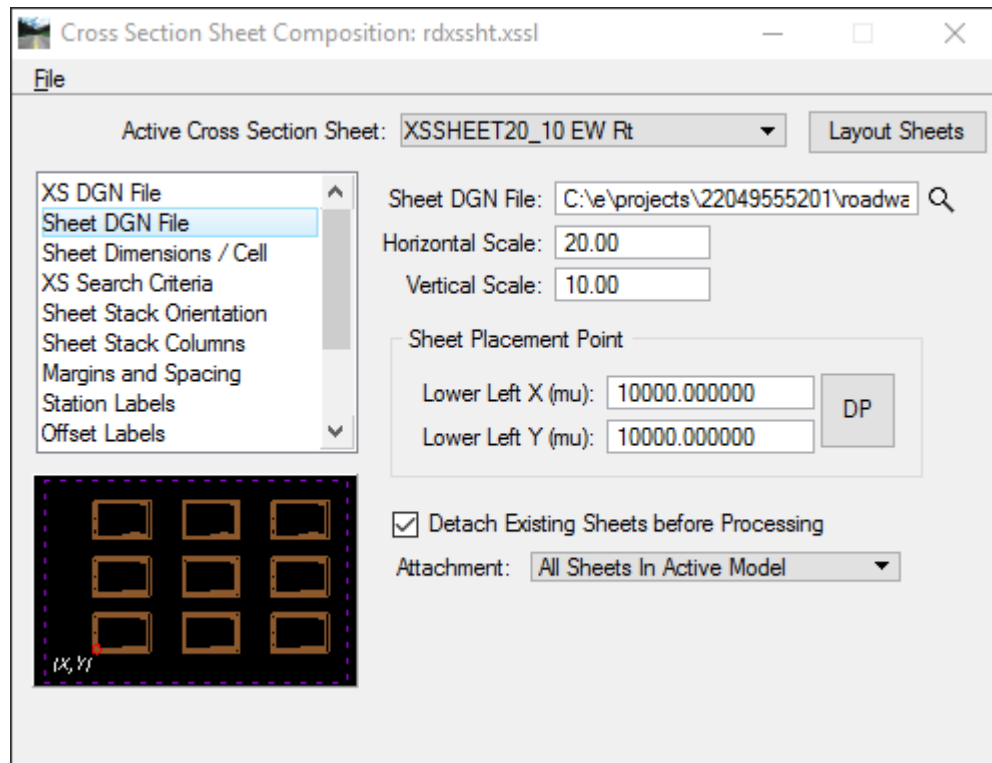
- The Cross Section Sheet Composition dialog displays. Set the *Active Cross Section Sheet* to **XSSHEET20_10EW Rt.**



- Select the **XS DGN File** tab, click the **Magnifying Glass** and browse to: `C:\e\projects\roadway\22049555201\RDXS RD01.dgn`. The *XS Baseline* and *Begin/End Stations* will automatically populate.



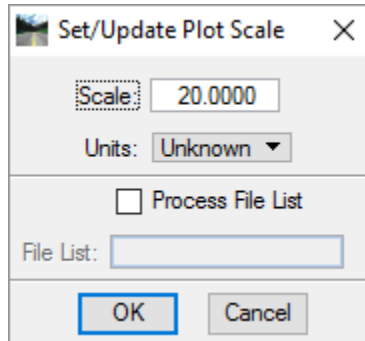
9. Select the **Sheet DGN File** tab, click the **Magnifying Glass** and browse to:
 C:\e\projects\22049555201\roadway\RDXS RD01.dgn.



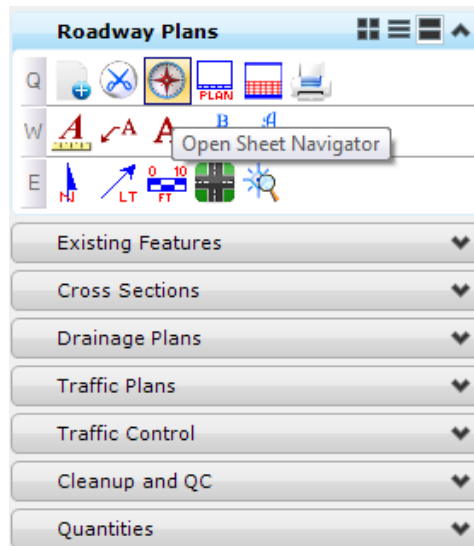
10. Check **On** Detach Existing Sheets before Processing.
11. Click **Layout Sheets**. The Cross Sections will attach as reference files and be laid out onto sheets.
12. Select the MicroStation **Fit View** to review the Cross Section sheets.
13. Turn **Off** the following *Levels* for all of the Cross Sections:
- Earthwork2_px
 - Earthwork3_px
 - XSCell, XSMisc_px
14. From MicroStation turn **Off** the *Data Fields* under *View Attributes* and select **File > Save Settings**.
15. **Close** the Cross Section Sheet Composition dialog. When prompted to *Save Settings*, click **No**.

➤ **Numbering the Cross Section Sheets**

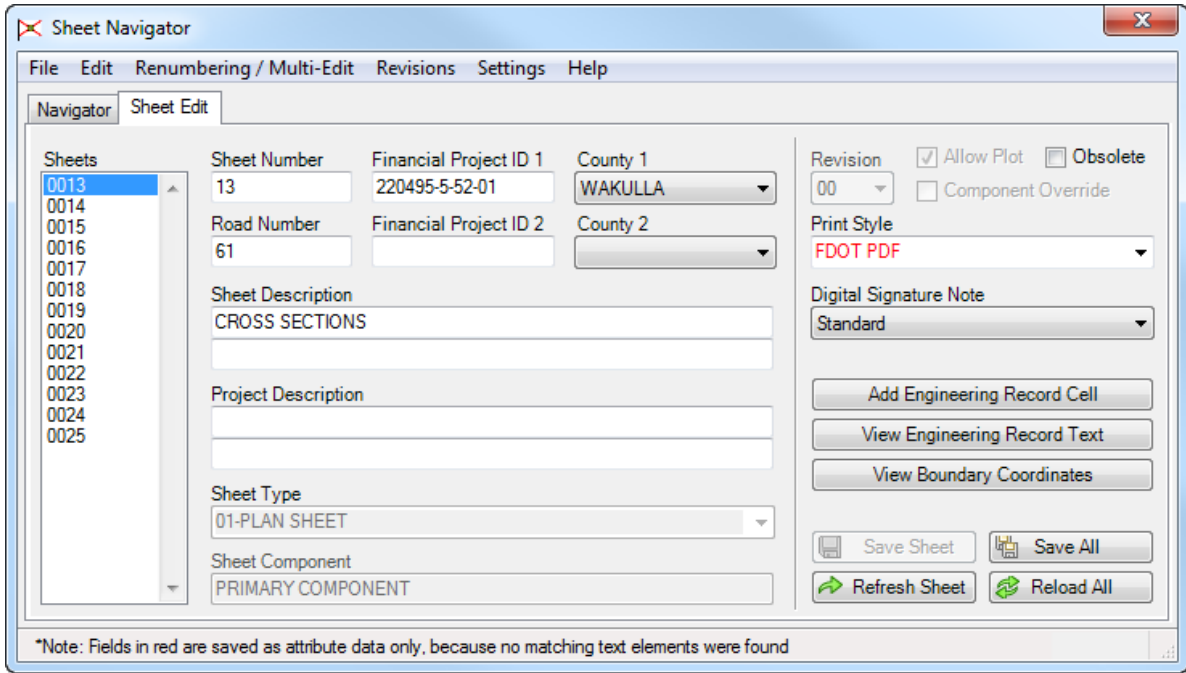
1. Set the Plot Scale of the file to **20.0**.



2. Number the sheets using Sheet Navigator. Start with *Sheet Number 13*.
3. From the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.



4. The Sheet Navigator dialog displays. Label the *Plan Sheets* as shown below. Click **Save** and then close Sheet Navigator.



8 STORMWATER POLLUTION PREVENTION PLAN

The Stormwater Pollution Prevention Plan (SWPPP) sheets document the designer's site evaluation and selection of control measures and other items to comply with the terms and conditions of the State of Florida Department of Environmental Protection Generic Permit for Stormwater Discharges from Large and Small Construction Activities (DEP Generic Permit).

The SWPPP includes several items:

- A Narrative Description (Section 320.2 of the *FDOT Design Manual (FDM)*)
- The Documents Referenced in the Narrative
- A Site Map (if necessary) (Section 320.3 of the FDM)
- The Contractor's Approved Erosion and Sediment Control Plan Required by Specification Section 104 (Section 320.4 of the FDM)
- Reports of Inspections Made During Construction (Section 320.5 of the FDM)

Additional guidance for developing a SWPPP may be found in the DEP SWPPP template, found on the DEP web page at: <http://www.dep.state.fl.us/water/stormwater/npdes/swppp.htm>

OBJECTIVES

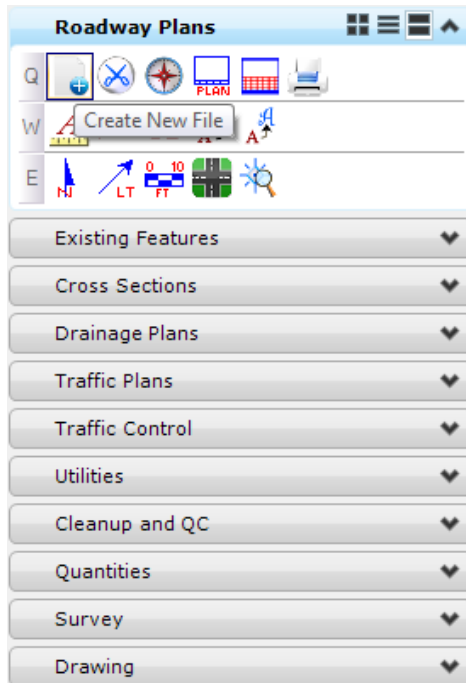
- Create SWPPP Notes Sheets
- Add a Stormwater Raster Map

EXERCISE OVERVIEW

- 8.1 Creating the SWPPP Notes Sheets
- 8.2 Placing a Raster Map
- 8.3 Creating the SWPP Plan

Exercise 8.1 *Creating the SWPPP Notes Sheets*

1. (Optional) Extract the 22049555201(8).zip file in the *Data Set* folder to the *c:\e\projects* folder.
2. Use the **FDOTSS4** icon, open MicroStation design file:
C:\e\Projects\22049555201\roadway\DSGNRD01.dgn
3. On the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



4. The Create File/Project dialog displays. Complete as shown below, note the File Group is set to Drainage Design Files.

Create File/Project

Project: C:\e\projects\22049555201 Project Settings

Workspace: FDOTSS4

Control File: ROADWAY.CTL

File Group: Drainage Design Files

File Type:

(BORDER/SHEET)	BDDMRD	BORDER SHEET REFERENCE - DRAINAGE MAP
(BORDER/SHEET)	LDPRRD	LATERAL DITCH PLAN AND PROFILE
(CROSS SECT)	DRXSRD	DRAINAGE STRUCTURE CROSS SECTIONS
(CROSS SECT)	LDXSRD	LATERAL DITCH CROSS SECTIONS,PATTERN LINE,SHAPE
(CROSS SECT)	PDXSRD	POND CROSS SECTIONS,PATTERN LINES,SHAPES
(DRAINAGE)	DRDTRD	DETAIL SHEET
(DRAINAGE)	DREXRD	STRUCTURES - EXISTING
(DRAINAGE)	DRFLRD	FLOOD DATA FORM
(DRAINAGE)	DRMPRD	MAP
(DRAINAGE)	DROMRD	OPTIONAL MATERIALS TABULATION
(DRAINAGE)	DRPRRD	STRUCTURES - PROPOSED
(PROP DESIGN)	PDPLRD	POND DESIGN
(PROP DESIGN)	SWPPRD	STORM WATER POLLUTION PREVENTION PLAN
(PROP DESIGN)	TEXTDR	TEXT LABELS AND MISCELLANEOUS DESCRIPTIONS
(PROP DESIGN)	WETLRD	WETLANDS DELINEATION FOR DRAINAGE
(SUMBOX/TABLE)	BRHYRD	BRIDGE HYDRAULICS RECOMMENDATION SHEET
(SUMBOX/TABLE)	BXCLRD	BOX CULVERT WINGWALL DESIGN AND SPECIAL DET.
(SUMBOX/TABLE)	SUMDRD	SUMMARY OF DRAINAGE STRUCTURES

Output File: SWPPRD01

Output Folder: drainage\ Browse

Seed File: fdotseed2d.dgn Browse

Seed Path: resources/seed/

Action: mdl | plotscale;plotscale set Apply Action

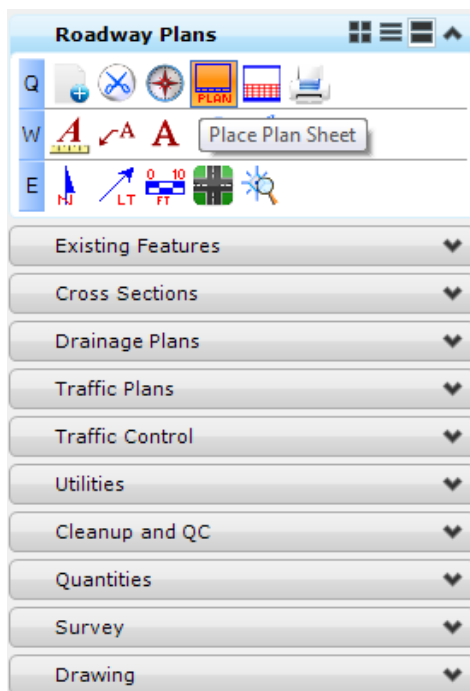
Create Open File

Active File for Open/Edit: SWPPRD01.DGN

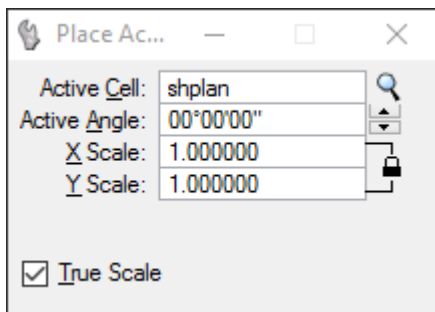
OK

- Click **Create** to create the file, *SWPPRD01.dgn*
- Click **Open File** to display *SWPPRD01.dgn*. Set/Update Plot Scale displays. Set the Scale to 1.0 and click **OK**.
- Click **OK** to close the Create File/Project dialog.

- On the FDOT Plans Development Task Menu, select **Roadway Plans > Place Plan Sheet**.



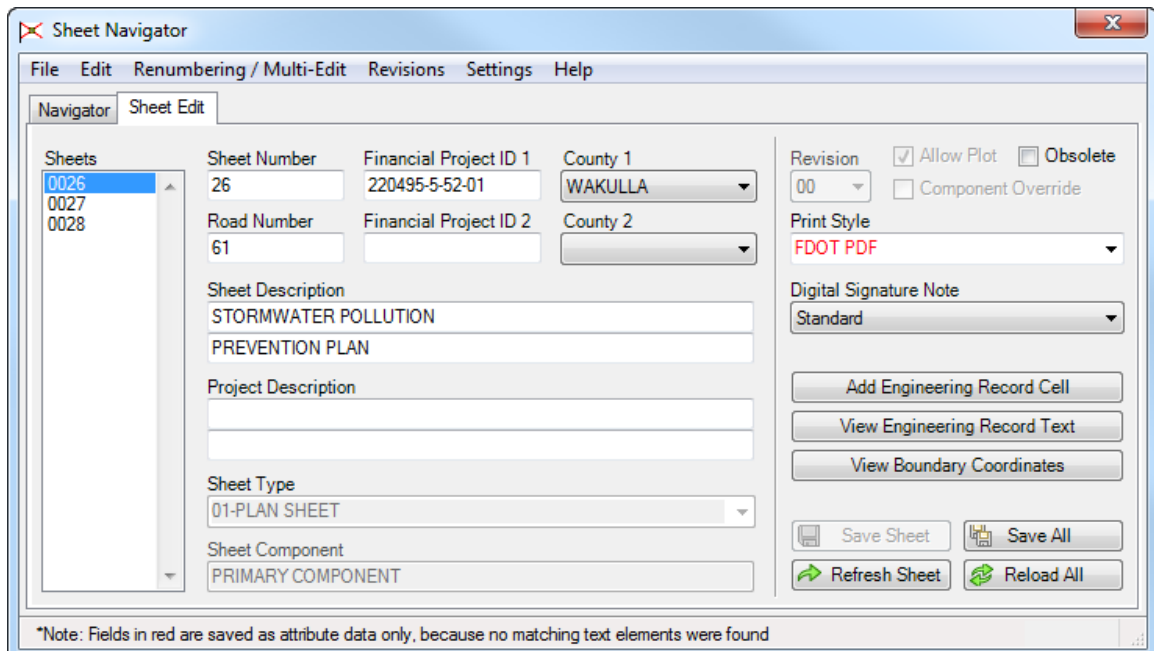
- The MicroStation Place Active Cell command launches with **SHPlan** set as the *Active Cell*. Set *Scale* of the cell to **1.0** and **data point** to place the cell in the file.



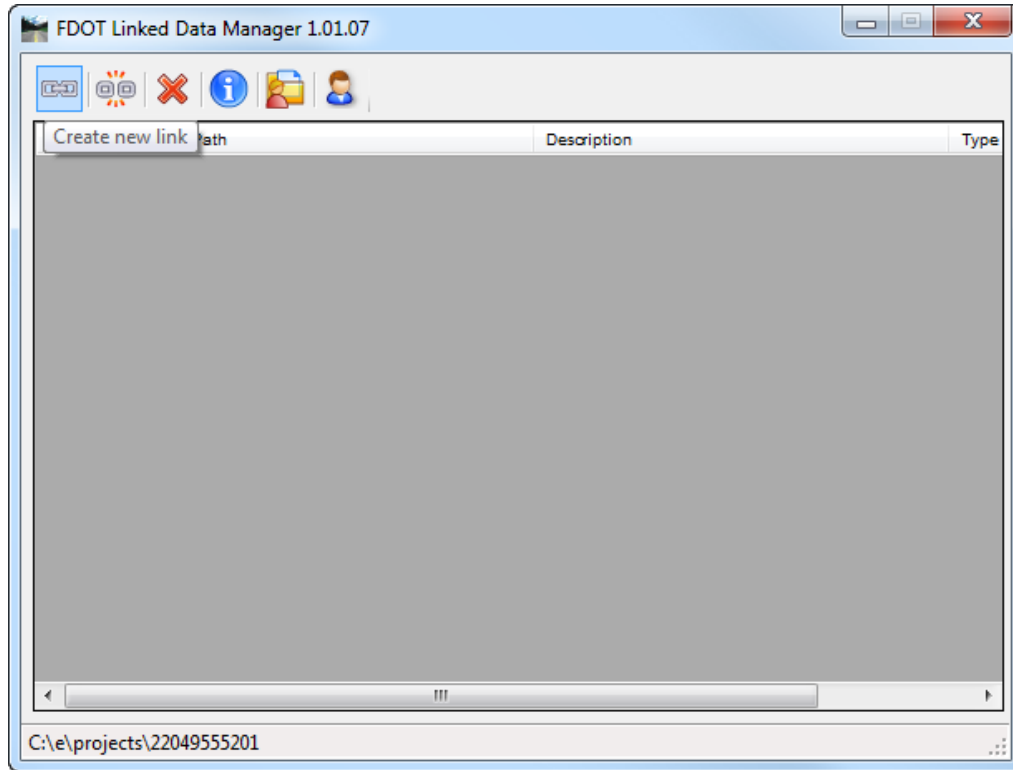
- Place 3 stacked *Plan Sheets* in the design file. Right-click when finished to exit the *Place Active Cell* command.



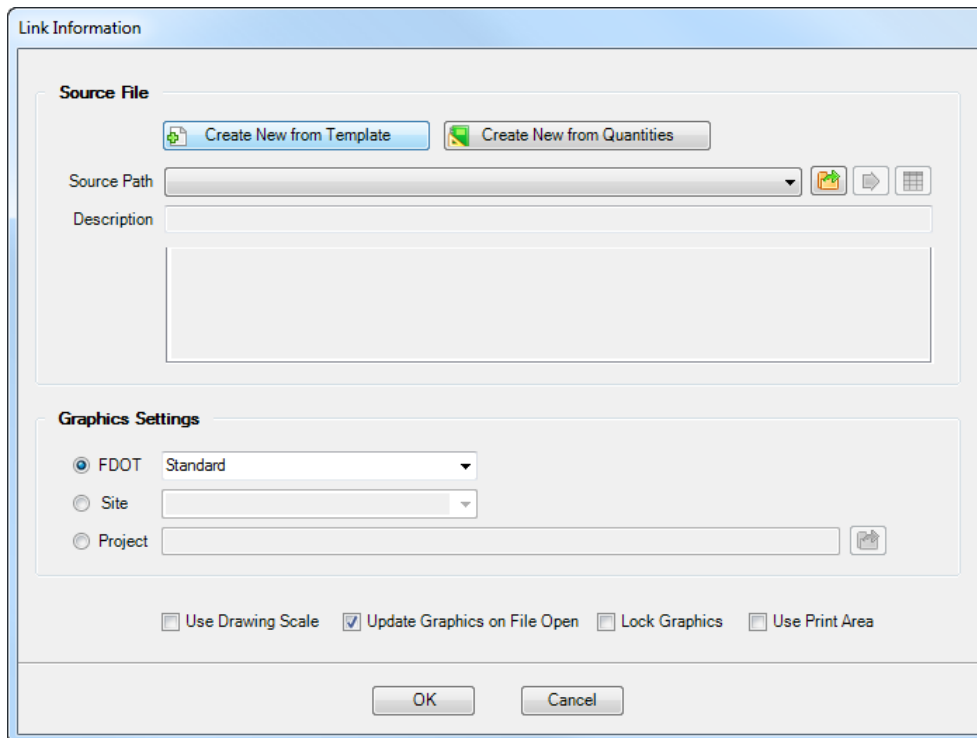
- From the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.
- The Sheet Navigator dialog displays. Label the *Plan Sheets* as shown. Number them from the bottom to the top with the bottom sheet as the lowest numbered sheet and the first SWPPP sheet. Click **Save** and then **close** Sheet Navigator.



10. From the FDOT Menu select **Actions > Linked Data Manager**.
11. The Linked Data Manager dialog displays. Select the **Create New Link** icon.

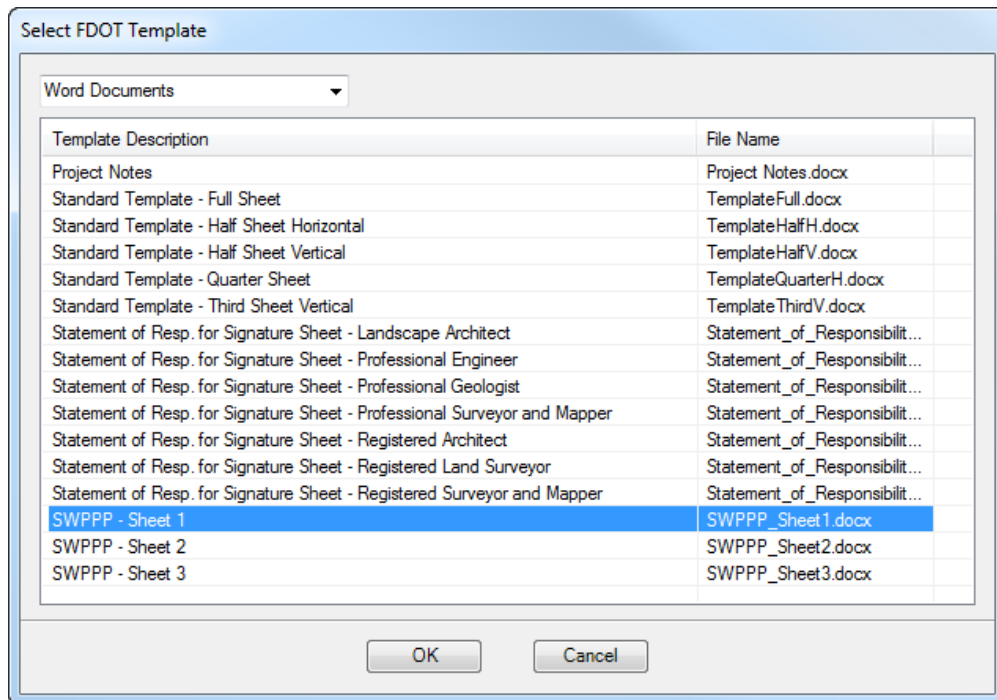


12. The Link Information dialog displays. Click on the **Create New from Template** button.



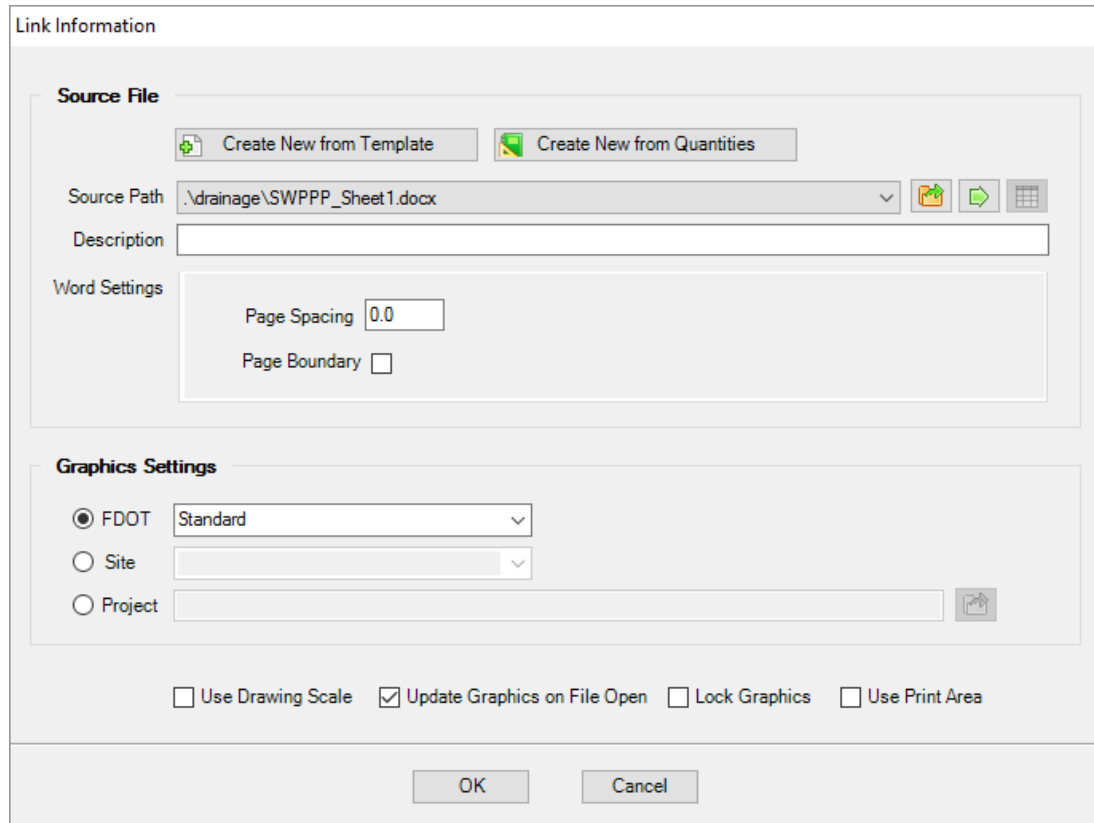
13. The Select FDOT Template dialog displays.

- a. Set the drop down to **Word Documents** and select the select the **SWPPP Notes – Sheet 1 template**. Click **OK**.

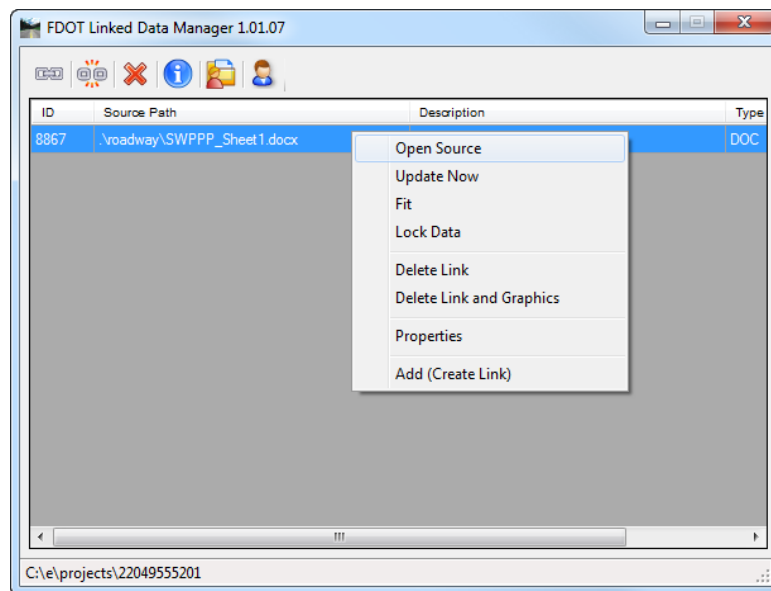


- b. The **Save File** window displays. Browse to the `c:\e\projects\22049555201\drainage` folder and **save** the file `SWPPP_Sheet1.docx`.

14. Fill out the Link Information dialog as shown below. Set the Page Spacing to 0.0 and uncheck the Page Boundary box. Click **OK**.



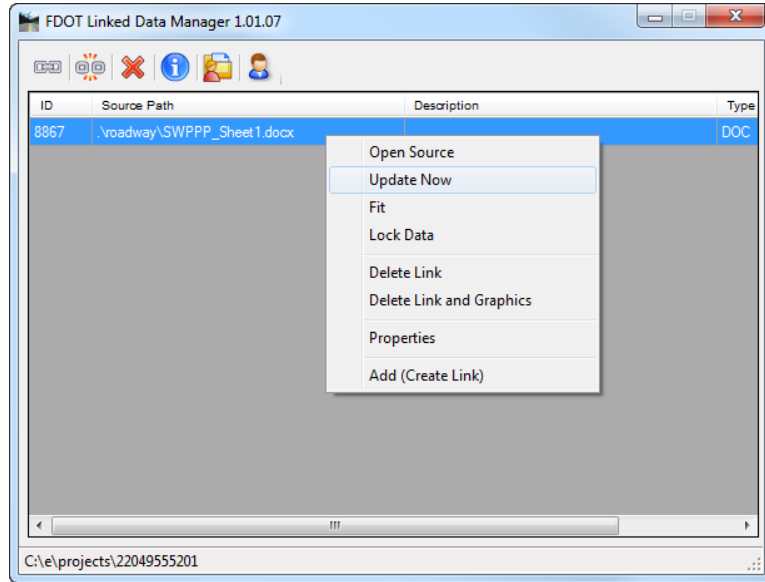
15. **Data point** to place the link at the top, left corner of the first sheet.
16. The *Notes* that are provided are an example of what should be included in a plan set. To edit the *SWPPP Notes*, go to the Linked Data Manager dialog, right-click on the link and select **Open Source**.



- a. The *SWPPP_sheet1.docx* file displays.

- b. The correct SWPPP information for sheet one can be found in the c:\e\projects\22049555201\roadway\SWPPP_SR61.docx file and input into the *sample SWPPP*.
- c. When finished editing the .docx file, **Save** the file and **Close** it.

17. From the Linked Data Manager dialog select the link again, right-click and select **Update Now**.



18. Follow steps 11 through 18 for the *second* and *third sheets*.

19. From MicroStation *Fit View* and select **File > Save Settings**.

Note The SWPPP notes are also available through Linked Data Manager as a Text Document Template. Follow the same steps as shown above, except use the template under the Text Notes option.

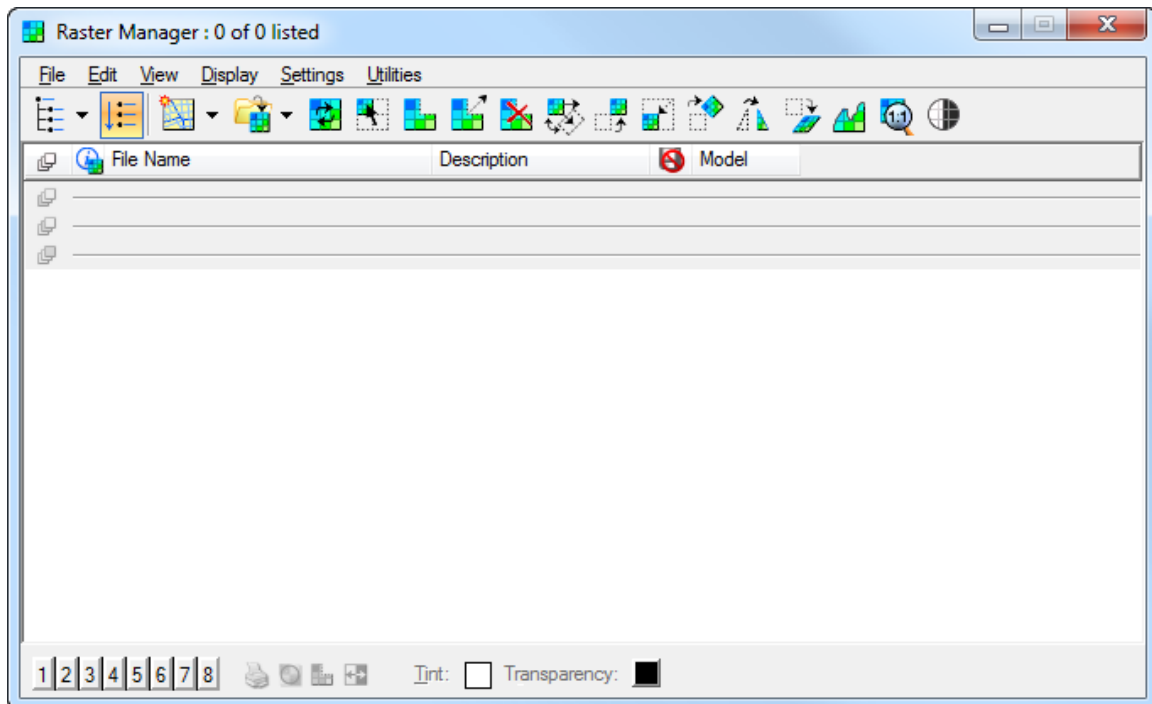
Exercise 8.2 *Placing a Raster Map*

This exercise will demonstrate how to place a Raster Map on the SWPPP plans. If an optional Drainage Map is included in the Construction Plans, then the drainage patterns will be shown and can be used. However, if there is no Drainage Map, a Topographic Map showing contour lines can be used. This map will supplement the Construction Plan sheets that show the other site map requirements. If this supplemental site map *is not* in aerial format, include it in the SWPPP sheets. If this supplemental site map *is* in aerial format, it cannot be placed in the Contract Plans Set and must be delivered to the resident engineer to have available on site.

1. Continuing in the *SWPPRD01.dgn* file, zoom into the blank area of the last sheet.
2. From the MicroStation Primary Tools, click the **Raster Manager** icon.

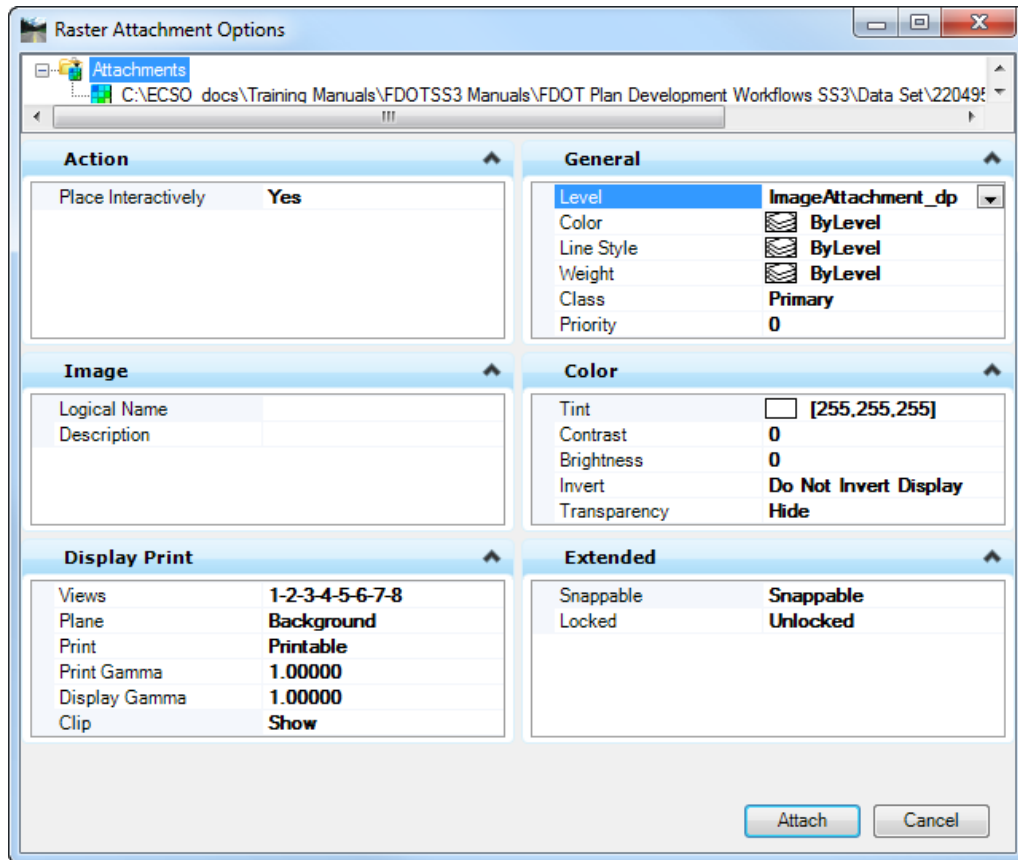


3. The Raster Manager dialog displays. Select **File > Attach > Raster**.



*The Attach Raster Reference displays. Navigate to C:\e\projects\roadway, select **Wakulla.tif** and click **Open**.*

4. The Raster Attachment Options dialog displays.
 - a. Under *Action*, set the *Place Interactively* option to **Yes**.
 - b. Under *General*, set the *Level* to **ImageAttachment_dp**
 - c. Click **Attach**.



5. **Data point** in the blank part of the last SWPPP sheet. A *clipping box* will display, stretch the box out as large as needed. **Data point** again to place the image.



6. The image will display in the MicroStation design file.

2.0 OTHER CONTROLS

2.0.1 WASTE DISPOSAL

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROPOSED METHODS TO PREVENT THE DISCHARGE OF SOLID MATERIALS, INCLUDING BUILDING MATERIALS, TO WATERS OF THE UNITED STATES. THE PROPOSED METHODS SHALL INCLUDE AT LEAST THE FOLLOWING, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

- 1. PROVIDING LITTER CONTROL AND COLLECTION WITHIN THE PROJECT DURING CONSTRUCTION ACTIVITIES.
- 1. DISPOSING OF ALL FERTILIZER OR OTHER CHEMICAL CONTAINERS ACCORDING TO EPA'S STANDARD PRACTICES AS DETAILED BY THE MANUFACTURER.
- 1. DISPOSING OF SOLID MATERIALS (INCLUDING BUILDING AND CONSTRUCTION MATERIALS OFF THE PROJECT SITE BUT NOT IN SURFACE WATERS, OR WETLANDS).

2.0.2 OFF-SITE VEHICLE TRACKING & DUST CONTROL

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

- 1. COVERING LOADED HAUL TRUCKS WITH TARP/AUTOLIN.
- 1. REMOVING EXCESS DIRT FROM ROADS DAILY.
- 1. STABILIZING CONSTRUCTION ENTRANCES ACCORDING TO USDA STANDARD 106.
- 1. USING ROADWAY SWEEPERS DURING DUST GENERATING ACTIVITIES SUCH AS EXCAVATION AND PILING OPERATIONS.

2.0.3 STATE AND LOCAL REGULATIONS FOR WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC TANK REGULATIONS

IN THE SECTION 104 EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROPOSED PROCEDURES TO COMPLY WITH APPLICABLE STATE AND LOCAL REGULATIONS FOR WASTE DISPOSAL, AND SANITARY SEWER OR SEPTIC SYSTEMS.

2.0.4 FERTILIZERS AND PESTICIDES

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROCEDURES FOR APPLYING FERTILIZERS AND PESTICIDES. THE PROPOSED PROCEDURES SHALL COMPLY WITH APPLICABLE SUBSECTIONS OF SECTION 215 OF THE REGULATION.

2.0.5 TOXIC SUBSTANCES

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE A LIST OF TOXIC SUBSTANCES THAT ARE LIKELY TO BE USED ON THE JOB AND PROVIDE A PLAN ADDRESSING THE CONTAMINATION, APPLICATION, MIGRATION, STORAGE, AND DISPOSAL OF THESE SUBSTANCES.

2.0.6 APPROVED STATE AND LOCAL PLANS AND PERMITS

1. FDOT RULE CHAPTER 62-23 F.A.C.

1. CITY OF WAKULLA'S ENVIRONMENTAL MANAGEMENT ORDINANCE NUMBER 90-0-014444

3.0 MAINTENANCE

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE A PLAN FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROLS THROUGHOUT CONSTRUCTION. THE MAINTENANCE PLAN SHALL AT A MINIMUM, COMPLY WITH THE FOLLOWING:

- 1. SILT FENCE: MAINTAIN PER SECTION 104. THE CONTRACTOR SHOULD ANTICIPATE REPLACING SILT FENCE ON 12 MONTH INTERVALS.
- 1. SEDIMENT BARRIERS: REMOVE SEDIMENT AS PER MANUFACTURER'S RECOMMENDATIONS OR WHEN WATER PONDS IN UNACCEPTABLE AMOUNTS OR AREAS.
- 1. PONDS ONE AND TWO: THE PONDS ARE TEMPORARY SEDIMENT BASINS UNTIL THE AREAS THAT DRAIN TO THEM ARE STABILIZED, SO UNTIL THEN, REMOVE SEDIMENT FROM THE POND WHEN IT BECOMES 1.5' DEEP AT ANY POINT.

4.0 INSPECTIONS


QUALIFIED PERSONNEL SHALL INSPECT THE FOLLOWING ITEMS AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 2.50 INCHES OR GREATER. TO COMPLY, THE CONTRACTOR SHALL INSTALL AND MAINTAIN RAIN GAUGES AND RECORD THE DAILY RAINFALL. WHERE SITES HAVE BEEN PERMANENTLY STABILIZED, INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH. THE CONTRACTOR SHALL ALSO INSPECT THAT CONTROLS INSTALLED IN THE FIELD ADHERE WITH THE LATEST STORMWATER POLLUTION PREVENTION PLAN.

- 1. POINTS OF DISCHARGE TO WATERS OF THE UNITED STATES.
- 1. POINTS OF DISCHARGE TO MUNICIPAL SEWERS AND SLOW URAIN SYSTEMS.
- 1. DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
- 1. AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
- 1. STRUCTURAL CONTROLS.
- 1. STORMWATER MANAGEMENT SYSTEMS.
- 1. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.

THE CONTRACTOR SHALL INITIATE REPAIRS WITHIN 24 HOURS OF INSPECTIONS THAT INDICATE ITEMS ARE NOT IN GOOD WORKING ORDER. IF INSPECTIONS INDICATE THAT THE INSTALLED STABILIZATION AND SEDIMENTATION MEASURES ARE NOT SUFFICIENT TO PREVENT EROSION, RETURN SEDIMENT, AND PREVENT DISCHARGING POLLUTANTS, THE CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES, AS APPROVED BY THE ENGINEER.

5.0 NON-STORMWATER DISCHARGES

IN THE SECTION 104 EROSION CONTROL PLAN, THE CONTRACTOR SHALL IDENTIFY ALL ANTICIPATED NON-STORMWATER DISCHARGES (EXCEPT FLOODS FROM FIRE FIGHTING ACTIVITIES). THE CONTRACTOR SHALL DESCRIBE THE PROPOSED MEASURES TO PREVENT POLLUTION OF THESE NON-STORMWATER DISCHARGES. IF THE CONTRACTOR ENCOUNTERS CONTAMINATED SOIL OR GROUNDWATER, CONTACT GAIN LETTERMAN, DISTRICT HAZARDOUS MATERIALS COORDINATOR AT (305) 638-8548.



REVISES		DATE		DESCRIPTION	
DATE	DESCRIPTION	DATE	DESCRIPTION		

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO. COUNTY FINANCIAL PROJECT ID

SR 61 WAKULLA 220492-0-02-01

STORMWATER POLLUTION PREVENTION PLAN

SHEET NO.
43

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE STORED AND RETAINED UNDER RULE 61D52-23.002, F.A.C.

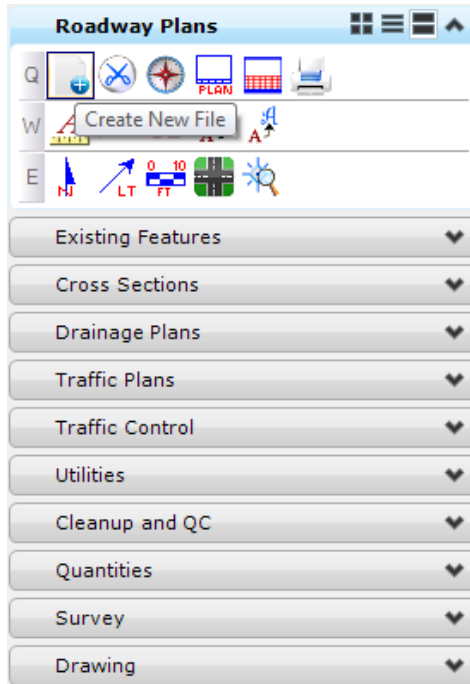
8-12

© 2016 FDOT

FDOT Plan Development Workflows

Exercise 8.3 *Creating the SWPP Plan*

1. On the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



2. The Create File/Project dialog displays. Complete as shown below.

Create File/Project

Project: C:\e\projects\22049555201 Project Settings

Workspace: FDOTSS4

Control File: ROADWAY.CTL

File Group: Drainage Design Files

File Type:

(BORDER/SHEET) BDDMRD BORDER SHEET REFERENCE - DRAINAGE MAP
 (BORDER/SHEET) LDPRRD LATERAL DITCH PLAN AND PROFILE
 (CROSS SECT) DRXSRD DRAINAGE STRUCTURE CROSS SECTIONS
 (CROSS SECT) LDXSRD LATERAL DITCH CROSS SECTIONS,PATTERN LINE,SHAPE
 (CROSS SECT) PDXSRD POND CROSS SECTIONS,PATTERN LINES,SHAPES
 (DRAINAGE) DRDTRD DETAIL SHEET
 (DRAINAGE) DREXRD STRUCTURES - EXISTING
 (DRAINAGE) DRFLRD FLOOD DATA FORM
 (DRAINAGE) DRMPRD MAP
 (DRAINAGE) DROMRD OPTIONAL MATERIALS TABULATION
 (DRAINAGE) DRPRRD STRUCTURES - PROPOSED
 (PROP DESIGN) PDPLRD POND DESIGN
 (PROP DESIGN) **SWPPRD STORM WATER POLLUTION PREVENTION PLAN**
 (PROP DESIGN) TEXTDR TEXT LABELS AND MISCELLANEOUS DESCRIPTIONS
 (PROP DESIGN) WETLRD WETLANDS DELINEATION FOR DRAINAGE
 (SUMBOX/TABLE) BRHYRD BRIDGE HYDRAULICS RECOMMENDATION SHEET
 (SUMBOX/TABLE) BXCLRD BOX CULVERT WINGWALL DESIGN AND SPECIAL DET.
 (SUMBOX/TABLE) SUMDRD SUMMARY OF DRAINAGE STRUCTURES

Output File: SWPPRD02

Output Folder: drainage\ Browse

Seed File: fdotseed2d.dgn Browse

Seed Path: resources/seed/

Action: mdl | plotscale;plotscale set Apply Action

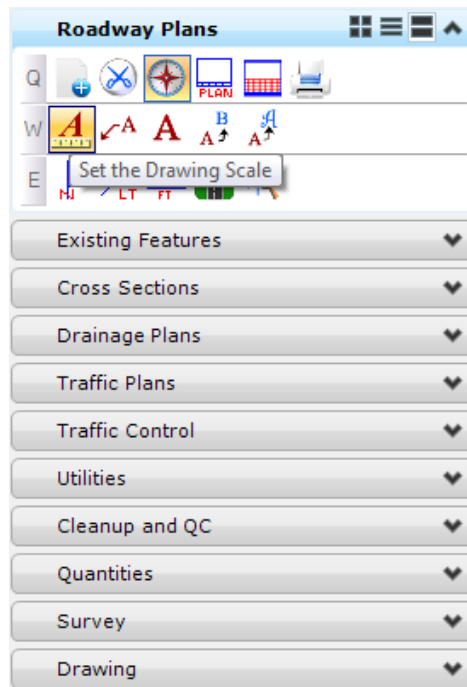
Create Open File

Active File for Open/Edit: SWPPRD01.DGN

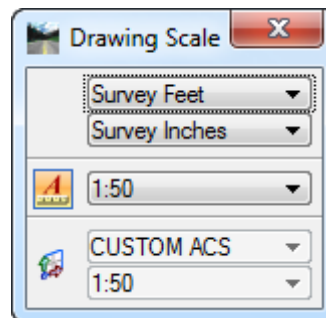
OK

- Click **Create** to create the file, *SWPPRD02.dgn*
- Click **Open File** to display *SWPPRD02.dgn*. Set/Update Plot Scale displays. Use the *Default* settings and click **OK**.
- Click **OK** to close the Create File/Project dialog.

- On the FDOT Plans Development Task Menu, select **Roadway Plans > Set the Drawing Scale**.



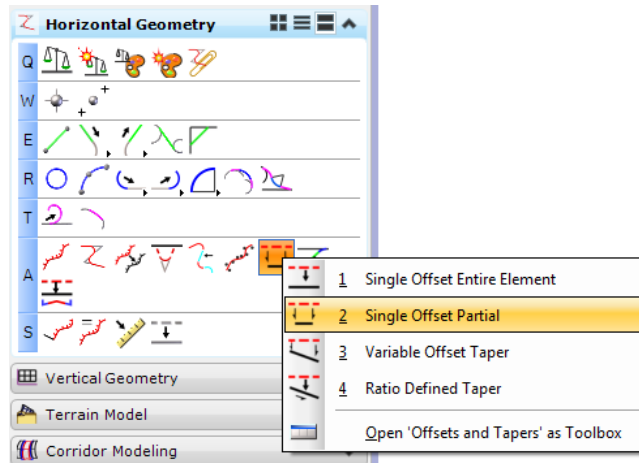
- The Drawing Scale dialog displays. Toggle **on** the **Annotation Scale** button and set the *Scale* value to **1:50**.



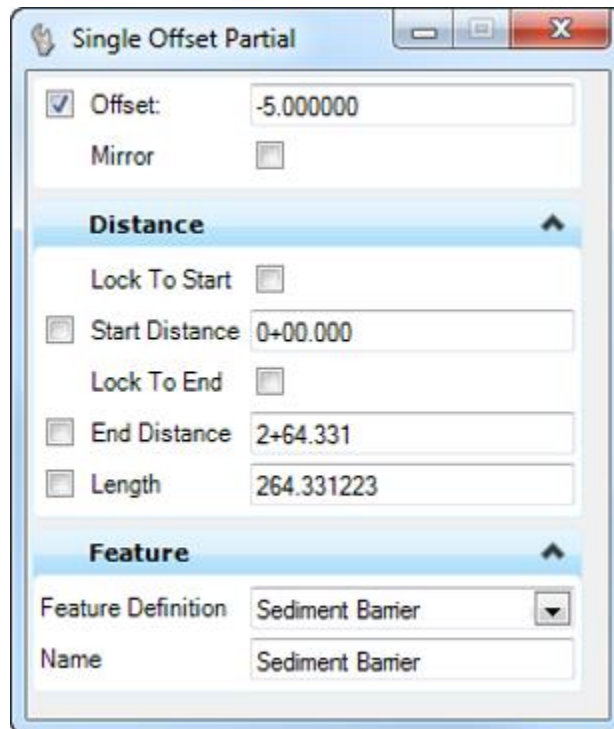
- In the *SWPPRD02.dgn* file, **reference** in the roadway design file:
 C:\e\projects\22049555201\roadway\DSGNRD01.dgn.
 C:\e\projects\22049555201\rwmap\RWDTRD01.dgn.
- Turn **Off** all *Levels* in the referenced design files *except*:

- TrafSeparator ○ PavtAsphalt
- SidewalkFront ○ CurbFace
- SidewalkBack ○ CurbBack
- ShldrPaved ○ CLConst_dp
- RWLine_ep ○ BaselineSurvey
- RWLine

7. On the Civil Tools Task Menu, select **Horizontal Geometry > Single Offset Partial** tool.

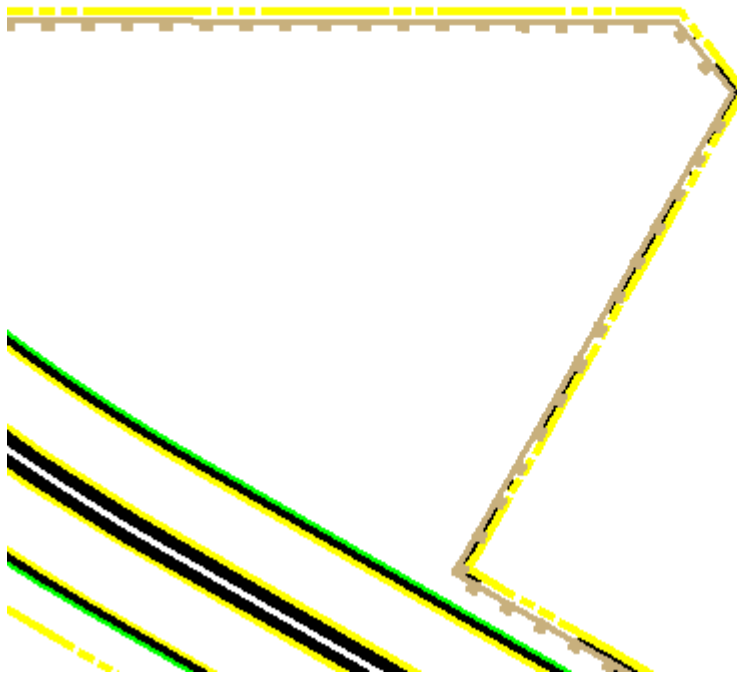


8. The Single Offset Partial dialog displays. Create the Stormwater Plan using the *Feature Definition Sediment Barrier*. (**Plan(2D) > Erosion Control > Sediment Barrier**)

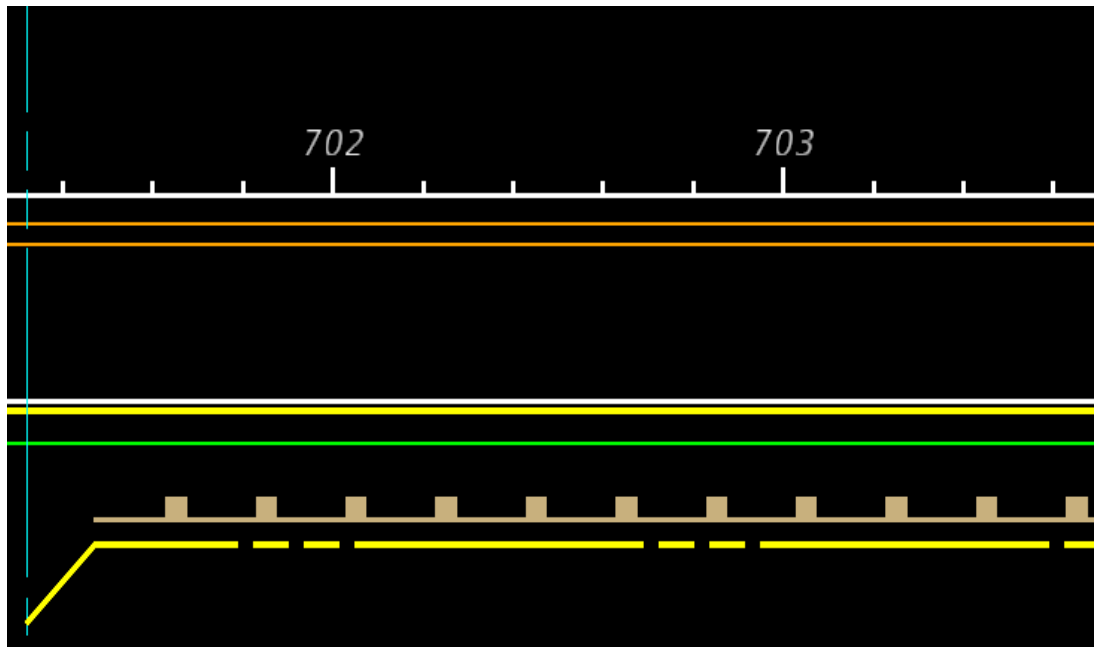


- a. Select the **Proposed R/W Line** to the right of the *CL SR61 alignment*.
- b. Set the *Offset* to **-5.00** and snap to the end of the Proposed R/W line around **Station 701+40.00**.
- c. Snap to the other end of the R/W line for the end.
- d. Set *Mirror* to **No** and **data point** to place the line.

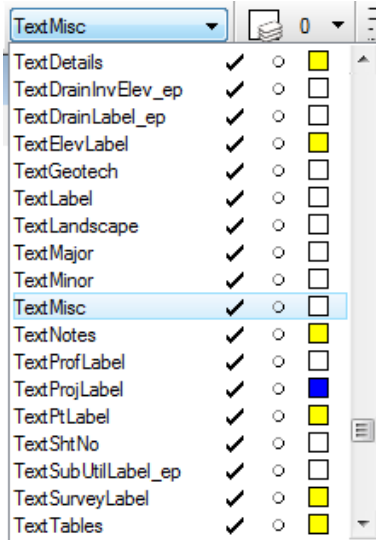
9. Continue to place the **Sediment Barriers** next to the R/W Line all the way around the proposed pond.



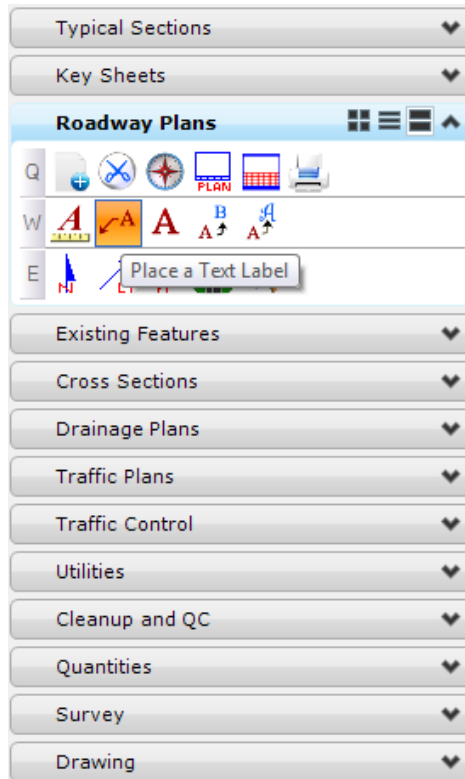
10. **Rotate** the view to be parallel with the road.



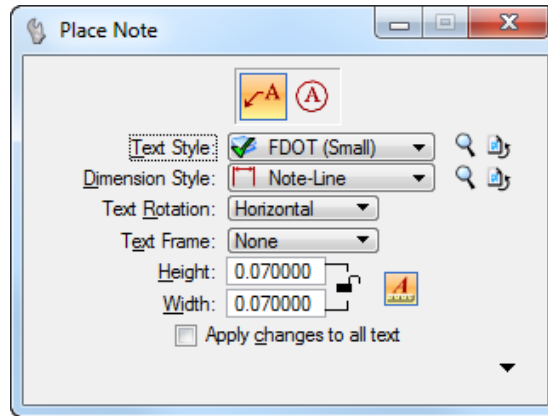
11. Set the *Level* to **TextMisc**.



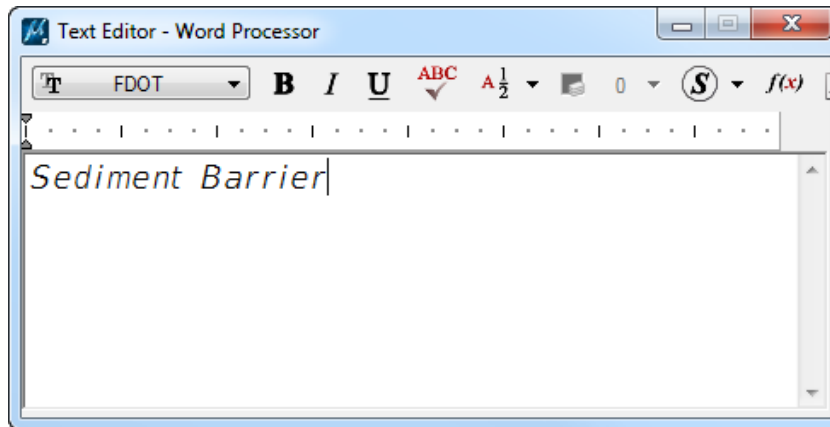
12. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place a Text Label**.



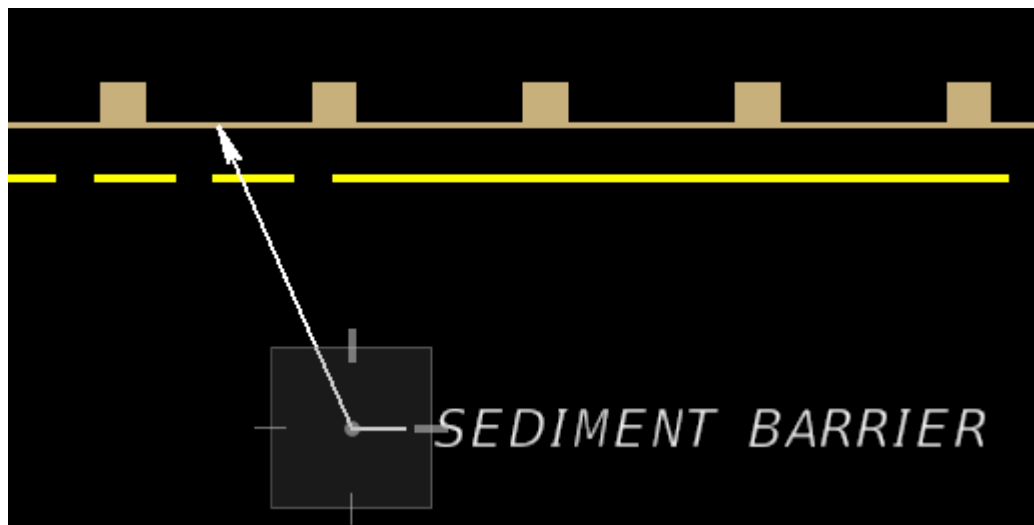
13. The *Place Note* dialog displays. Set the *Note Parameters* as shown below.



14. In the Text Editor, type in information describing the traffic control element to be labeled.



15. **Data point** on the element where the *Label* will point to and **data point** again to place the *Label*.



[THIS PAGE INTENTIONALLY LEFT BLANK.]

9 TRAFFIC CONTROL PLAN

A Traffic Control Plan will accompany all plans for a Construction project. The Traffic Control Plan is the final document that summarizes the considerations and investigations made in the development of a comprehensive plan for maintaining traffic through a work zone.

The Traffic Control Plan is used to describe the actions to be taken by the contractor to minimize traffic impacts while conveying traffic safety through a work zone. The Traffic Control Plan may include, but are not limited to, General Notes, Phase Notes, Phase Typical Sections, Phase Plan-Profile, Special Details, and Temporary Cross Sections.

OBJECTIVES

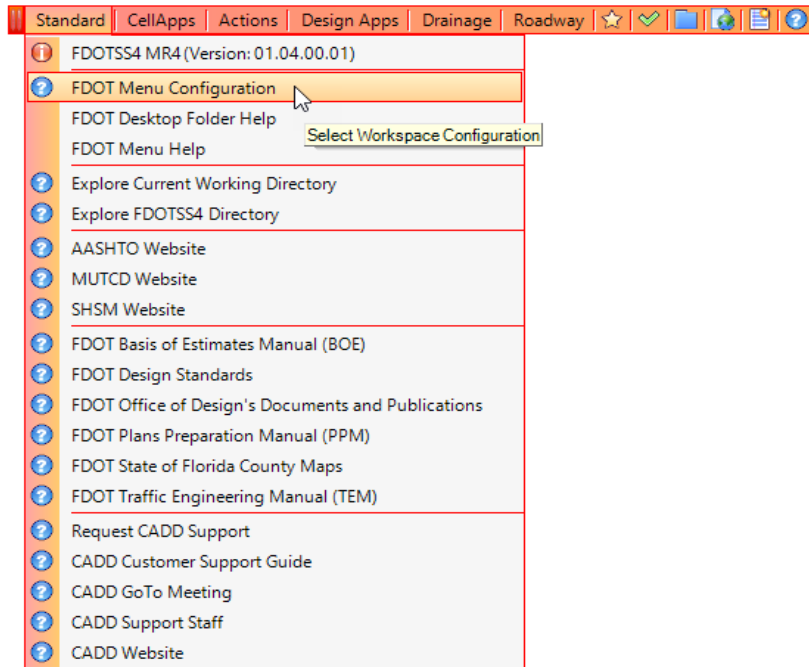
- Create Traffic Control General Notes Sheet
- Create Traffic Control Typical Section Sheet
- Create Traffic Maintenance Plan
- Layout Traffic Control Sheets

EXERCISE OVERVIEW

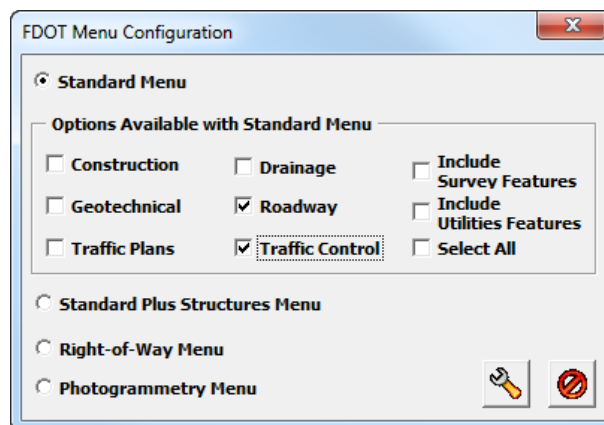
- 9.1 Loading the Traffic Control Menu and Features
- 9.2 Creating the Traffic Control General Notes
- 9.3 Creating the Traffic Control Typical Section
- 9.4 Importing the Traffic Control Alignment
- 9.5 Creating the Temporary Roadway
- 9.6 Delineating the Temporary Pavement and Work Zone
- 9.7 Place Temporary Signage
- 9.8 Label the Traffic Control Plans
- 9.9 Layout Maintenance of Traffic Sheets


Exercise 9.1 Loading the Traffic Control Menu and Features

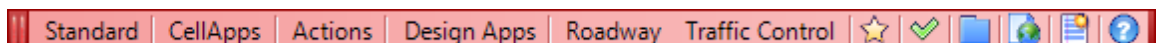
1. (Optional) Extract the 22049555201(9).zip file in the *Data Set* folder to the *c:\e\projects* folder.
2. Use the **FDOTSS4** icon open MicroStation design file:
 C:\E\Projects\22049555201\roadway\DSGNRD01.dgn.
3. On the FDOT Menu go to Standard > FDOT Menu Configuration.



4. The FDOT Menu Configuration dialog opens. Make sure the *Roadway* and *Traffic Control* options are toggled **On**.

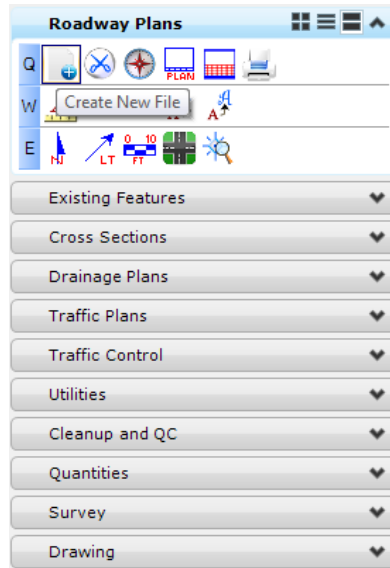


5. Click the **Configure** icon . MicroStation will close and reopen with the Traffic Control Menu and features loaded.

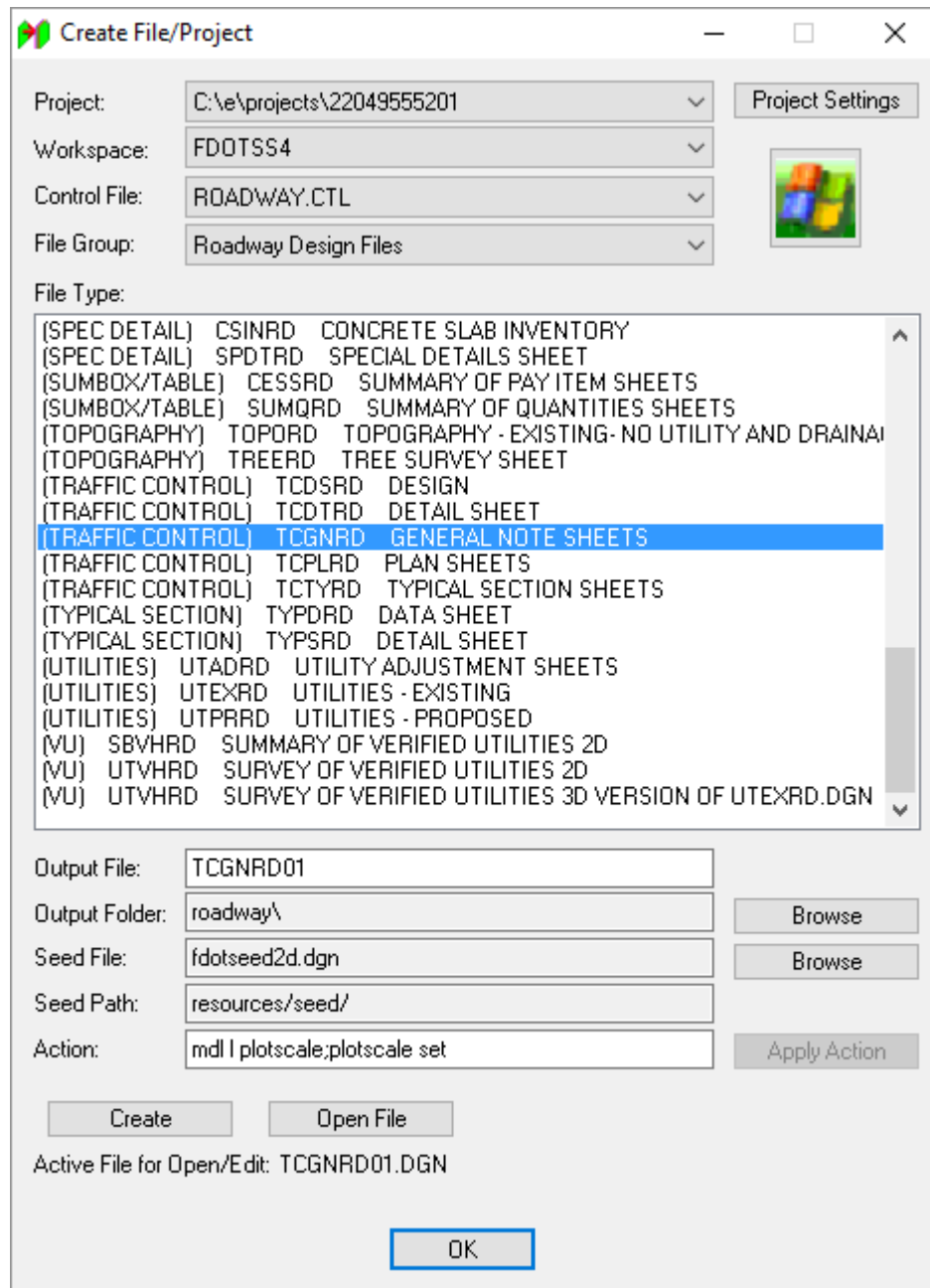


Exercise 9.2 *Creating the Traffic Control General Notes*

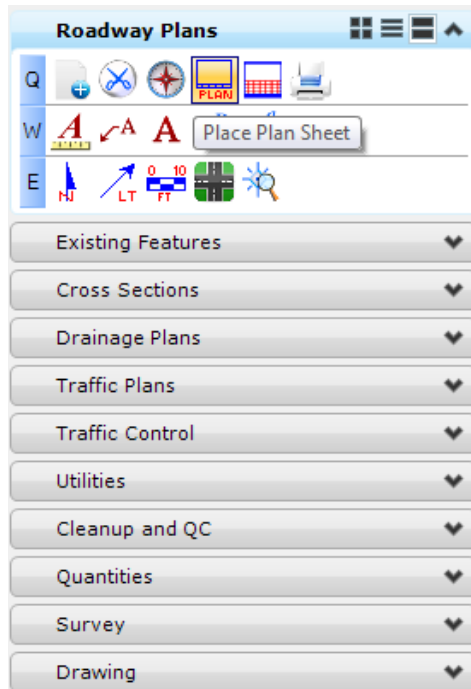
1. Continuing in the FDOT SS4 workspace, on the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



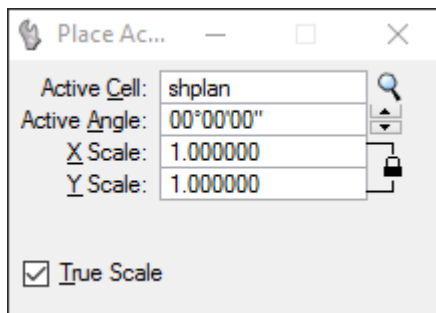
2. Complete the Create File/Project dialog as shown below.



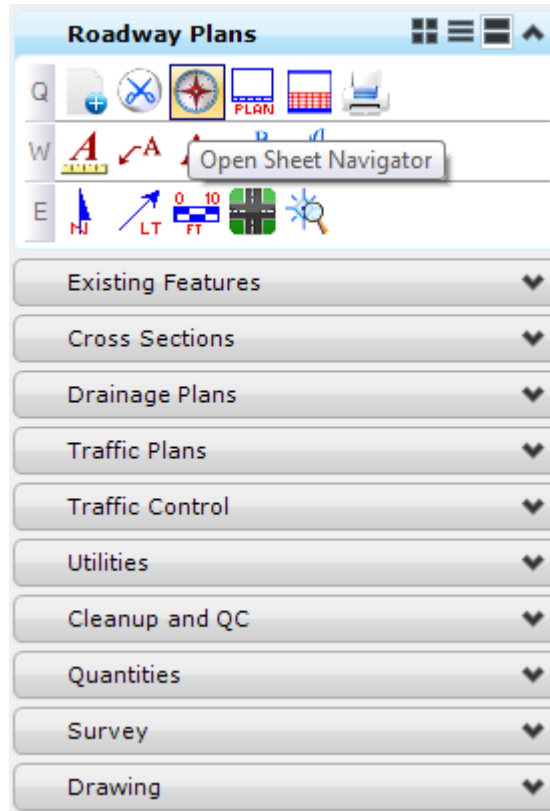
- a. Click **Create** to create the file, *TCGNRD01.dgn*.
 - b. Click **Open File** to open the newly created *TCGNRD01.dgn*. Set/Update Plot Scale displays. Use the *Default* settings and click **OK**.
 - c. Click **OK** to close the Create File/Project dialog.
3. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place Plan Sheet**.



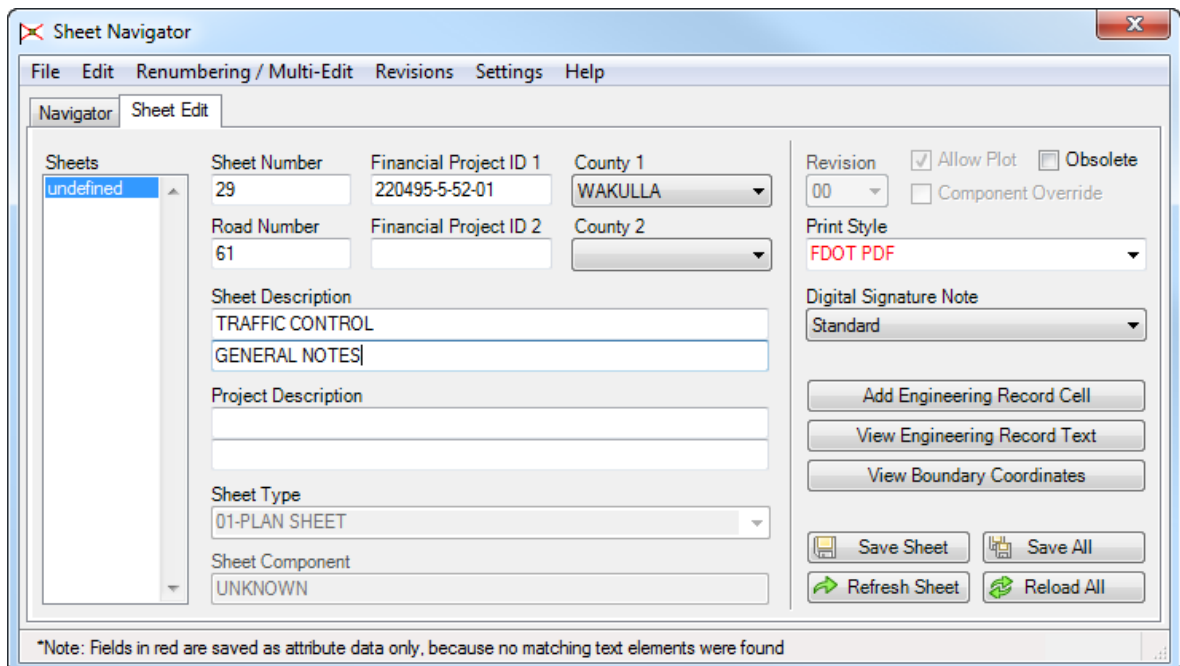
4. The MicroStation Place Active Cell command launches with **SHPlan** set as the *Active Cell*. Set *Scale* of the cell to **1.0**, **data point** to place the cell in the file and **right-click** to exit the Place Active Cell command.



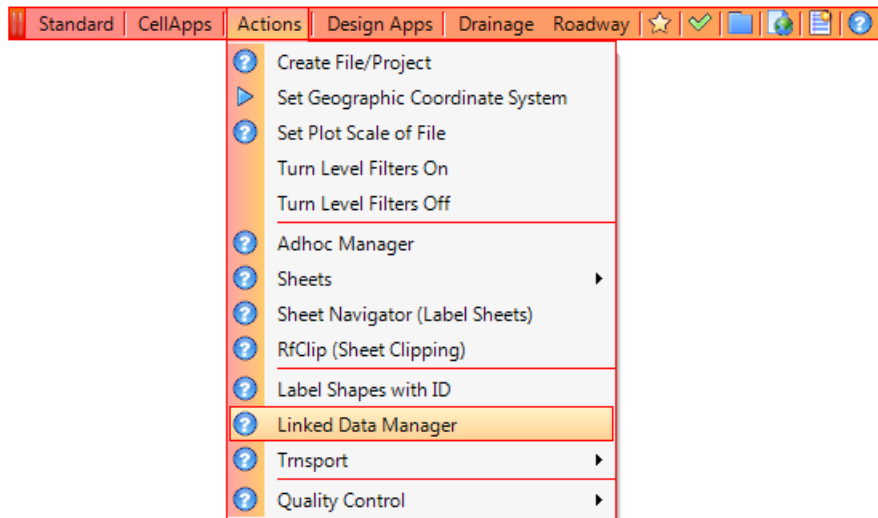
- From the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.



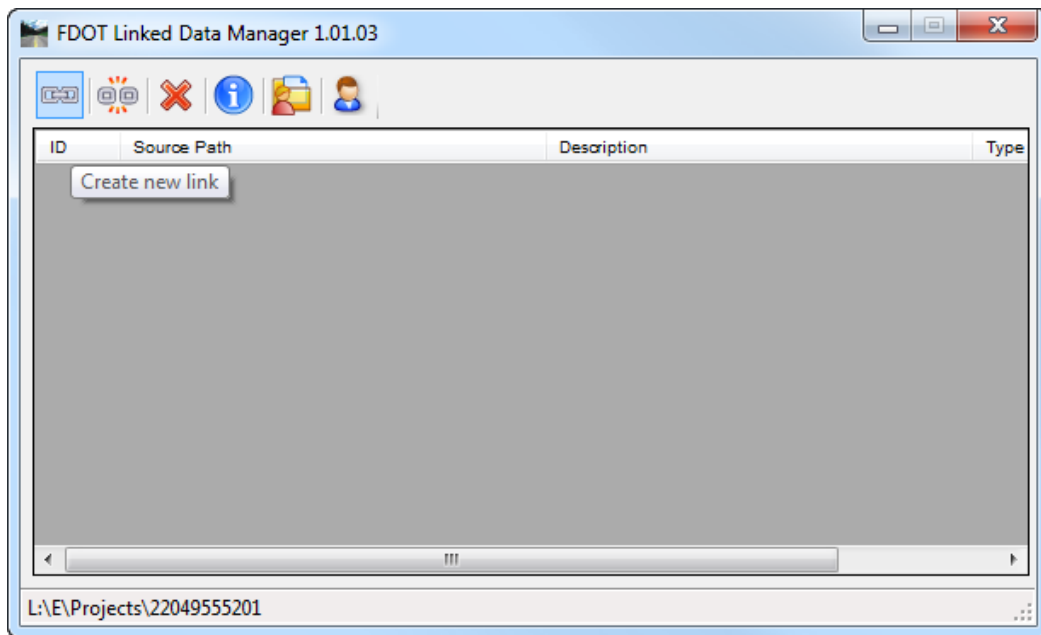
- The Sheet Navigator dialog displays. Populate by entering the *Sheet Number*, *Financial Project ID*, *County*, *Road Number*, *Print Style* and *Digital Signature Note*, as shown below and then click **Save Sheet**. All of the information entered will be saved to the sheet.



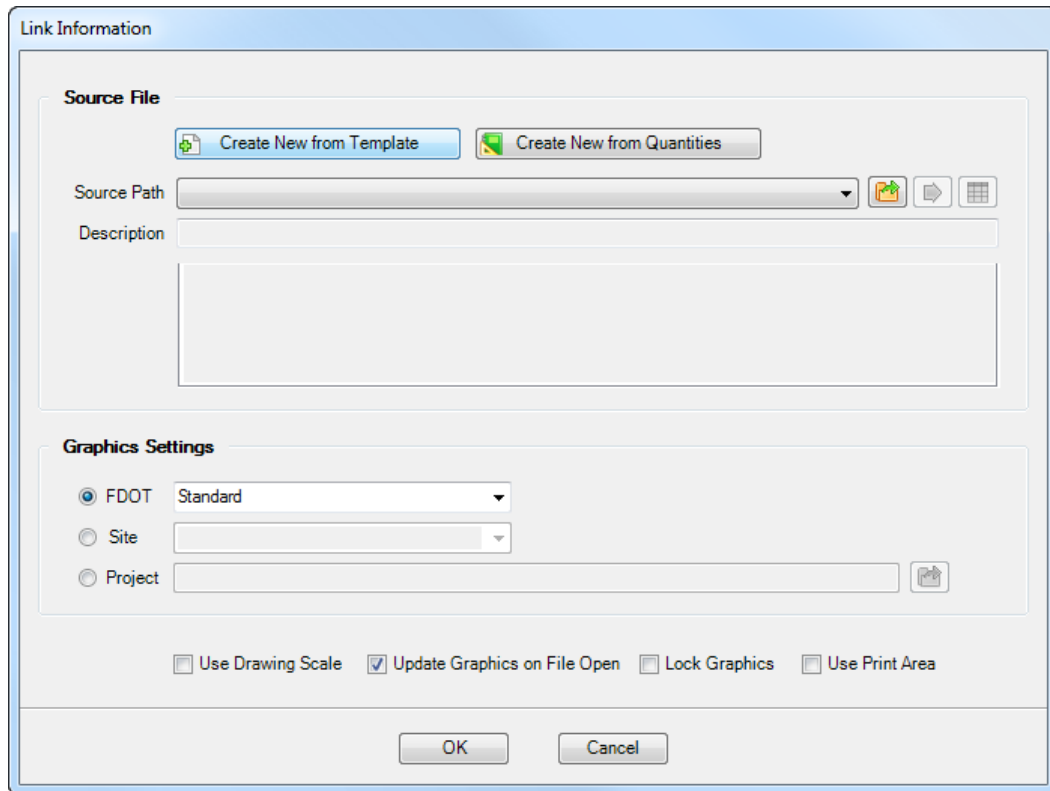
- From the FDOT Menu select **Actions > Linked Data Manager**.



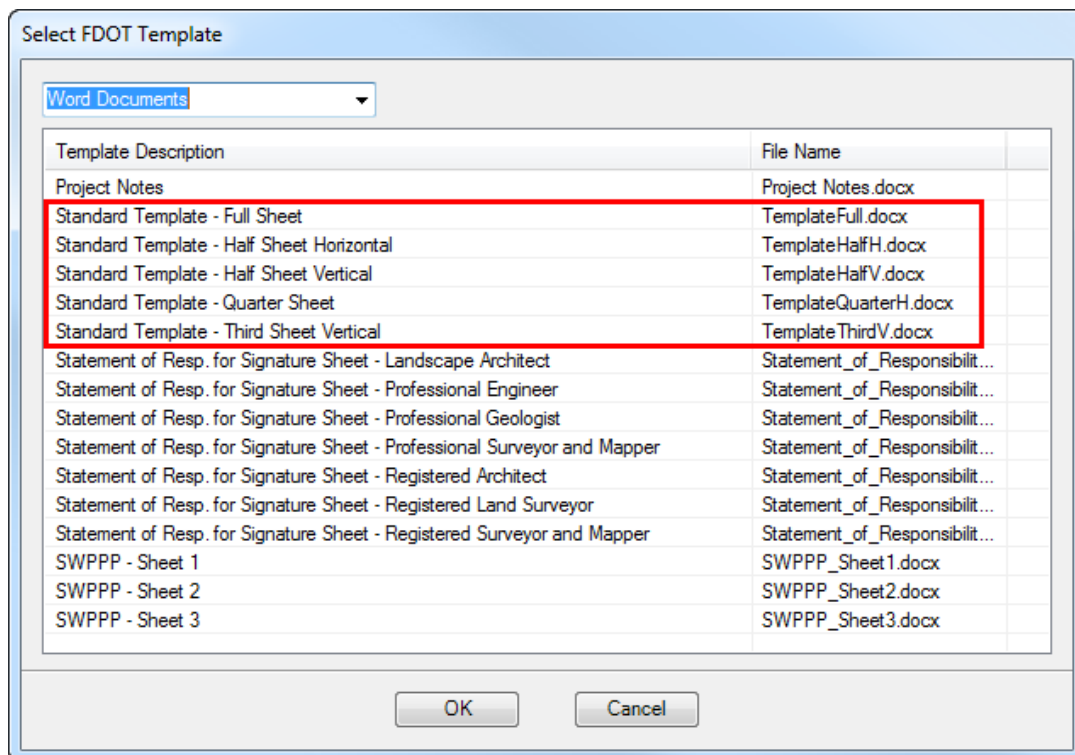
- The FDOT Linked Data Manager dialog displays. Select the **Create New Link** icon.



- The Link Information dialog displays. Click on the **Create New from Template** button.

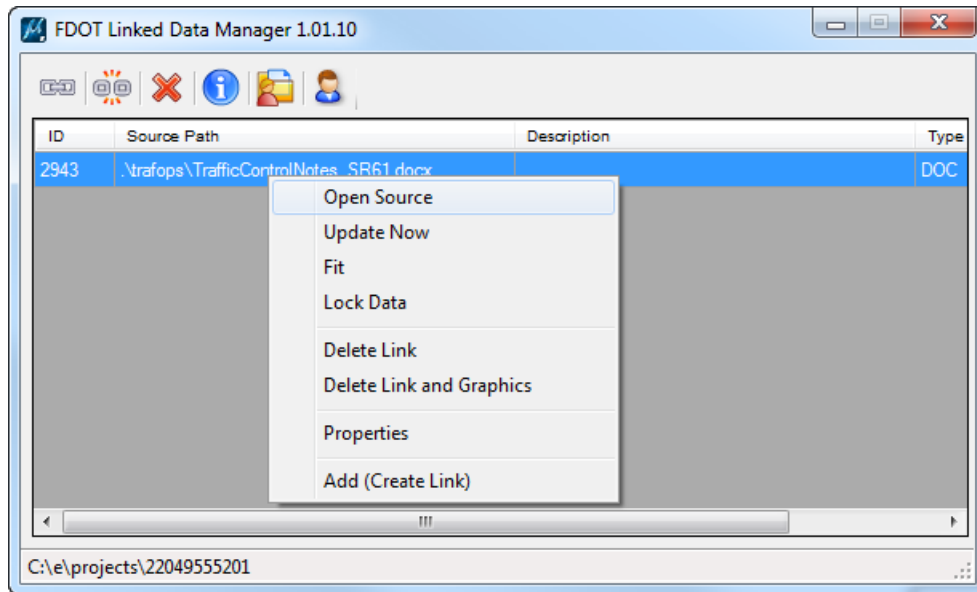


10. The Select FDOT Template dialog displays. Set the drop down to **Word Documents** and select one of the **Standard Template – “Size” Templates**. Click **OK**.



11. From the Save File dialog browse to the *c:\e\projects\22049555201\roadway* project folder, type in the filename **TrafficControlNotes_SR61.docx** and **Save** the file.

12. Toggle **On** the *Drawing Scale* check box under the *Graphics Settings* and click **OK**.
13. With the *Notes Template* attached to cursor place the link at the top, left corner of the *Plan Sheet*. The Link is created and listed in the Linked Data Manager dialog.
14. To edit the **Temporary Traffic Control Notes**:
 - a. Go to the Linked Data Manager dialog, **right-click** on the link and select **Open Source**.

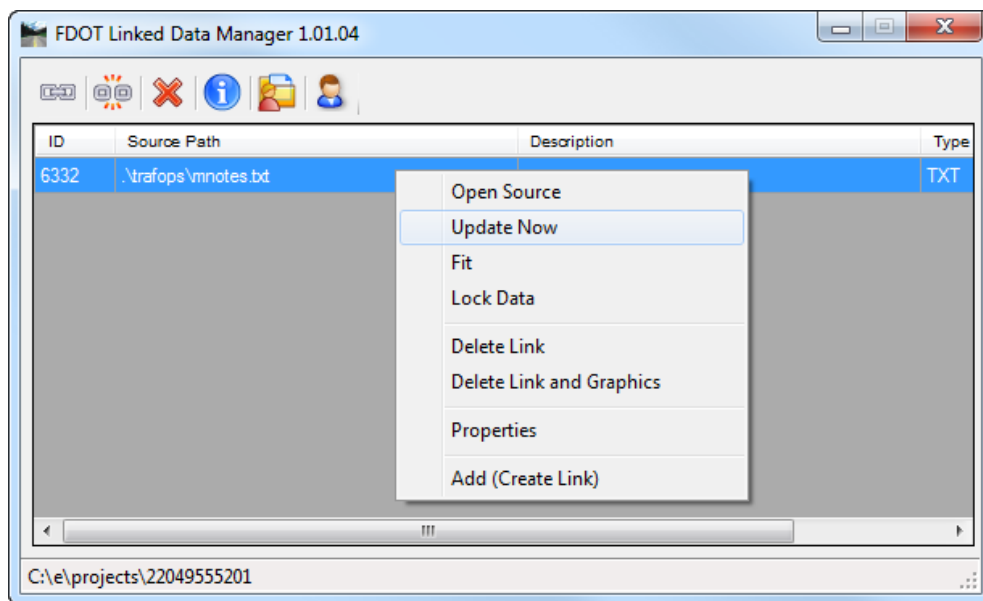


- b. The *Word Document* opens. **Remove** the *sheet size* information and **add** *details* pertinent to the project.

Note In the trafops folder is a TCNotes.docx that contains some traffic control notes.

- c. **Save** the file and **close** it.

15. From the Linked Data Manager dialog, select the link again, **right-click** and select **Update Now**.

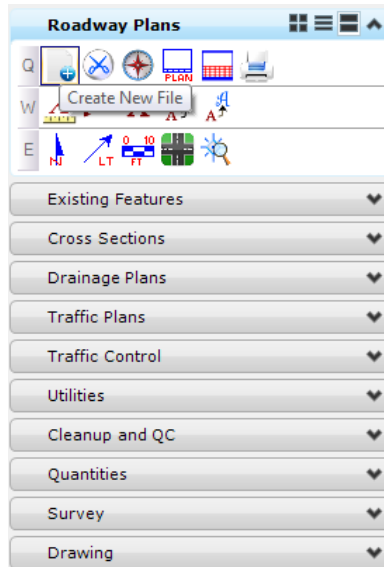


Note The notes will be updated in the MicroStation file to reflect the changes.

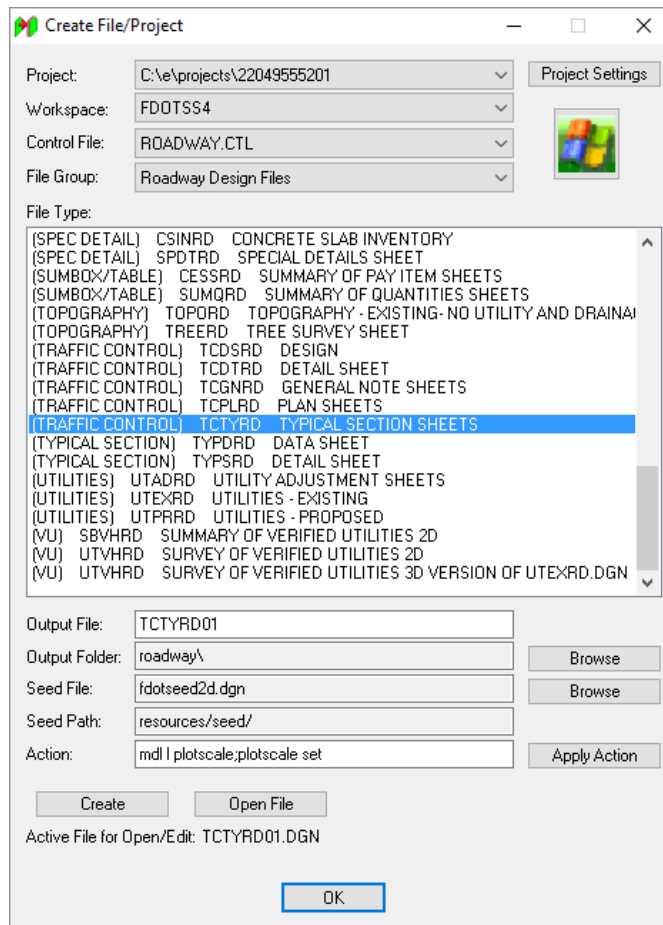
16. Go to the MicroStation View Attributes dialog and turn **Off** the *Data Fields*.
17. Use MicroStation **Fit View** and then select **File > Save Settings**.

Exercise 9.3 Creating the Traffic Control Typical Section

1. On the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.

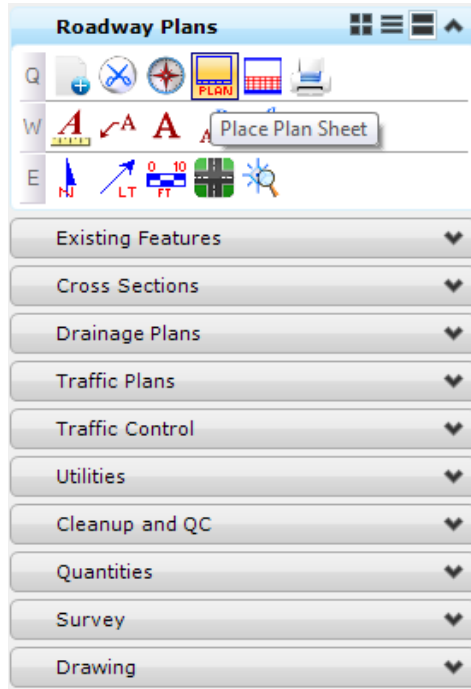


2. Complete the Create File/Project dialog as shown below.

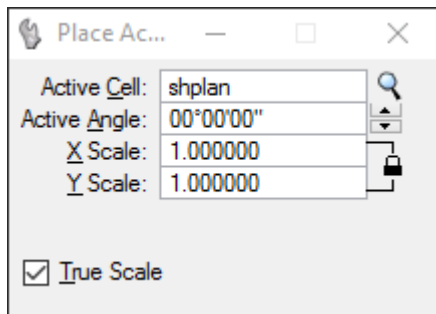


3. Click **Create** to create the file, *TCTYRD01.dgn*.

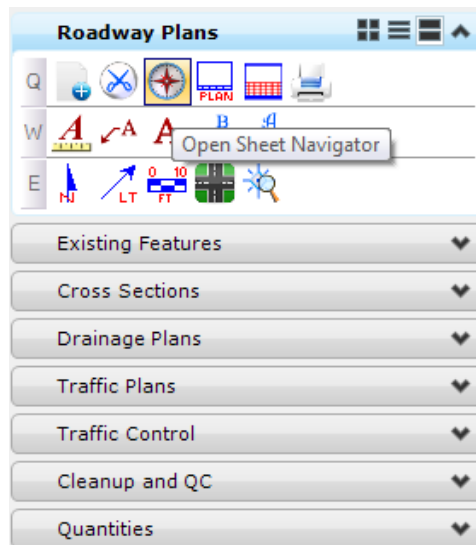
4. Click **Open File** to open the newly created *TCTYRD01.dgn*. Set/Update Plot Scale displays. Use the *Default* settings and click **OK**.
5. Click **OK** to close the Create File/Project dialog.
6. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place Plan Sheet**.



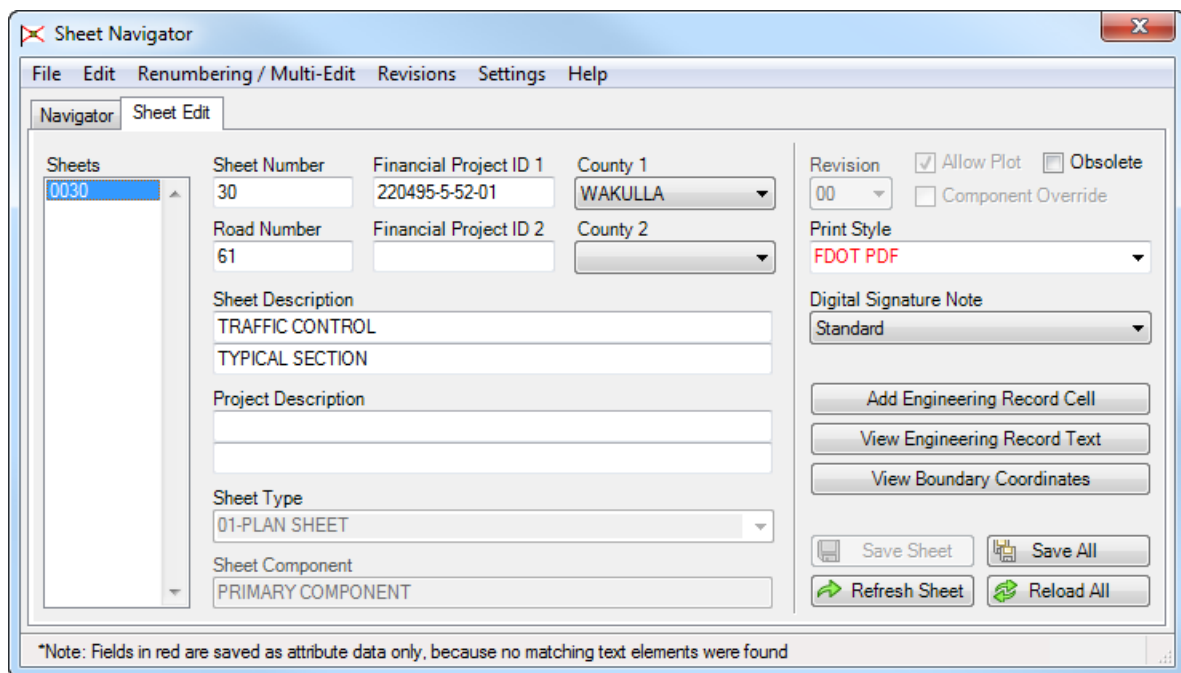
7. The MicroStation Place Active Cell command launches with **SHPlan** set as the *Active Cell*. Set *Scale* of the cell to **1.0, data point** to place the cell in the file and **right-click** to exit the Place Active Cell command.



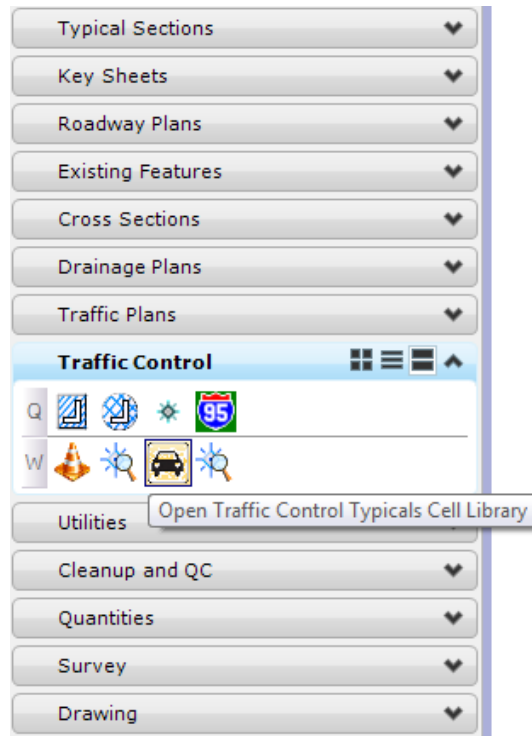
8. From the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.



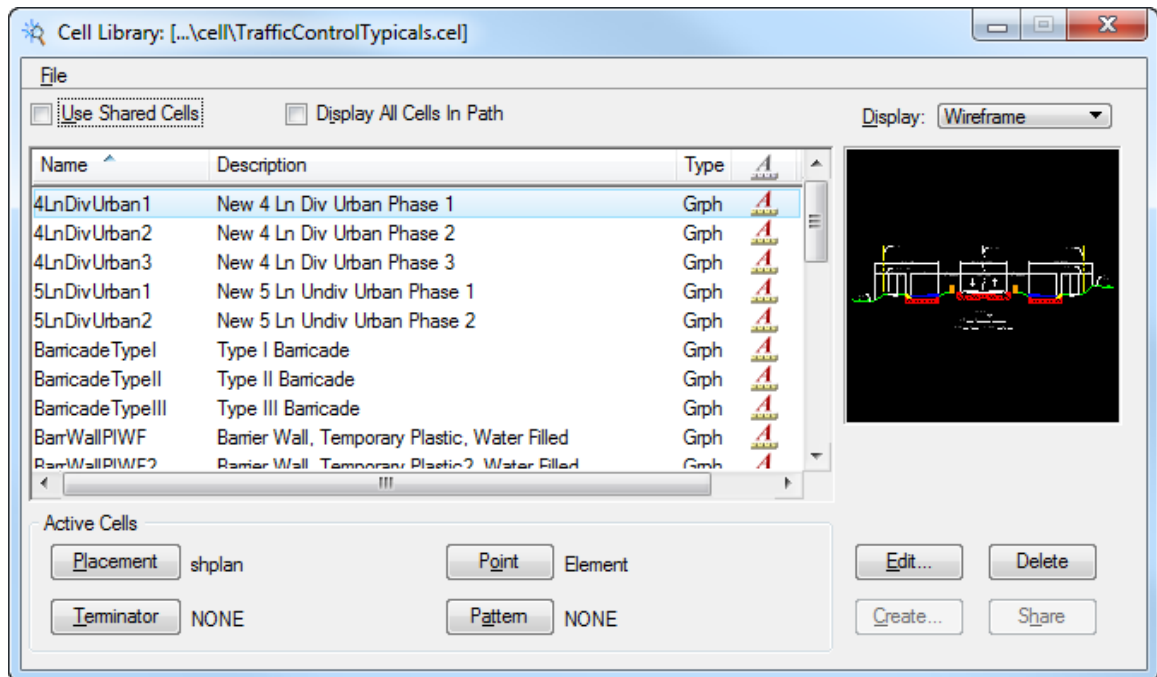
9. The Sheet Navigator dialog displays. Populate by entering the *Sheet Number*, *Financial Project ID*, *County*, *Road Number*, *Print Style*, and *Digital Signature Note*, as shown below and then click **Save Sheet**. All of the information entered will be saved to the sheet.



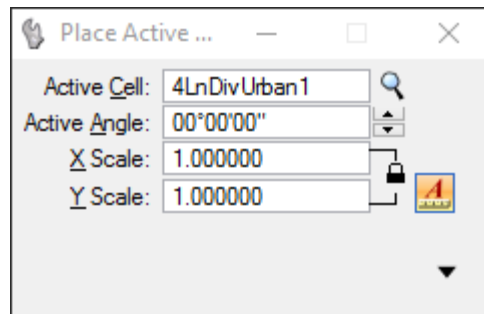
10. From the FDOT Plans Development Task Menu, select **Traffic Plans > Open Traffic Control Plans Cell Library**.




11. The MicroStation Cell Library dialog displays with the *TrafficControlTypicals.cel* library attached.



- a. Scroll down and double click on the **4LnDivUrban1** cell.
- b. The MicroStation Place Active Cell command displays with **4LnDivUrban1** set as the *Active Cell*. Set *scale* of the cell to **1.0** with *Annotation Scale* toggled **On**.



- c. **Data point** to place the cell in the sheet and the **reset** to exit the Place Cell command.

12. From the FDOT Plans Development Task Menu, select **Roadway Plans > Edit Text** .

13. The Text Editor dialog displays. Update any necessary text.

14. Edit the *Road* and *Station* information as shown below:

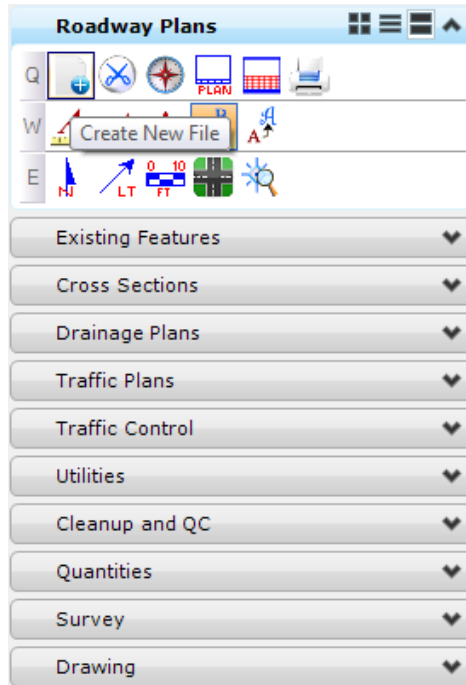
PHASE I
SR 61 (US 319) (CRAWFORDVILLE HWY.)
STA 700+00.00 TO STA. 715+50.00

15. Go to the MicroStation View Attributes dialog and turn **Off** the *Data Fields*.

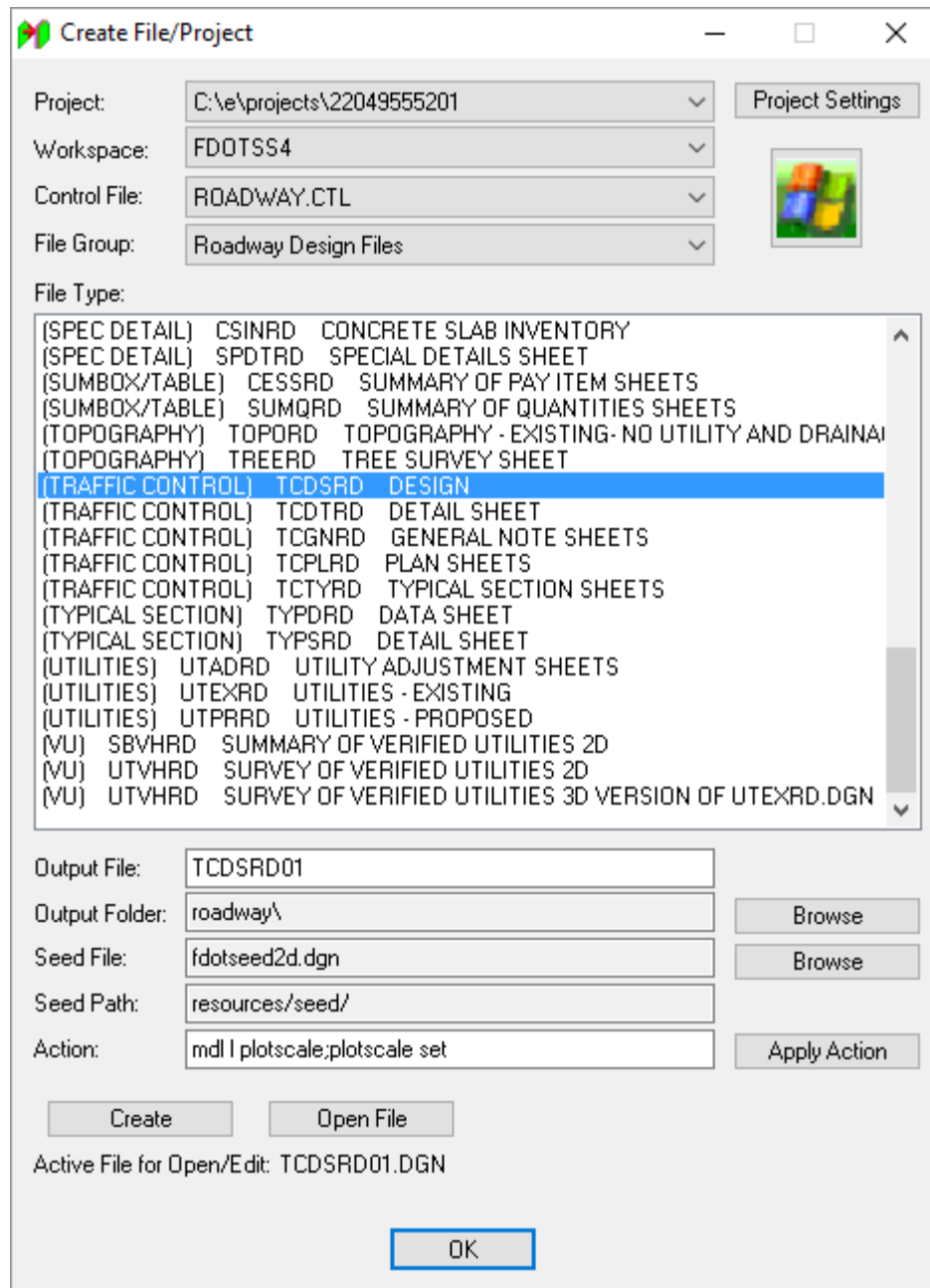
16. Use MicroStation **Fit View** and then select **File > Save Settings**.

Exercise 9.4 *Importing the Traffic Control Alignment*

1. Continuing in the FDOT SS4 *workspace*, on the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.

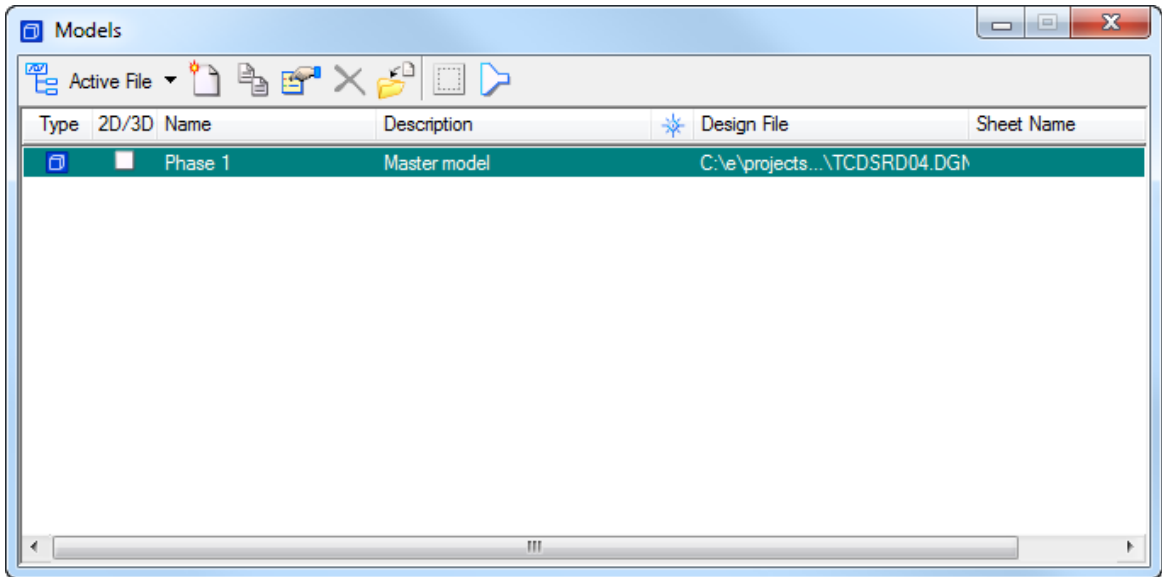


2. Complete the Create File/Project dialog as shown below.

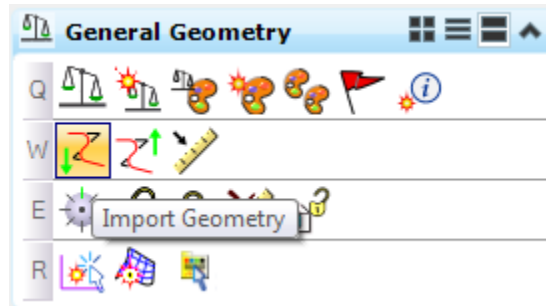


- a. Click **Create** to create the file, *TCDSRD01.dgn*.
 - b. Click **Open File** to open the newly created *TCDSRD01.dgn*. Set/Update Plot Scale displays. Use the *Default* settings and click **OK**.
 - c. Click **OK** to close the Create File/Project dialog.
3. In MicroStation go to **File > Models**. The Models dialog displays.

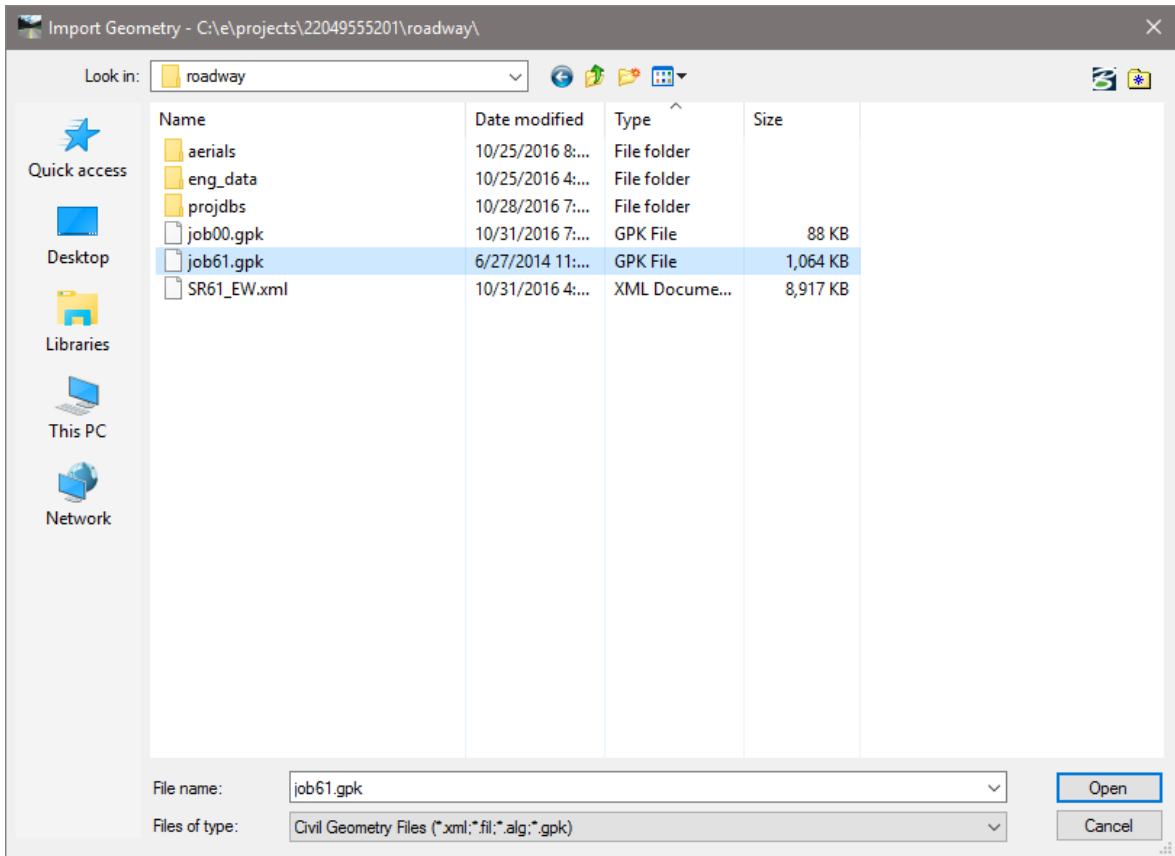
- Right-click on the *Default* model and select **Rename**. Change the *Model Name* to **Phase 1**.



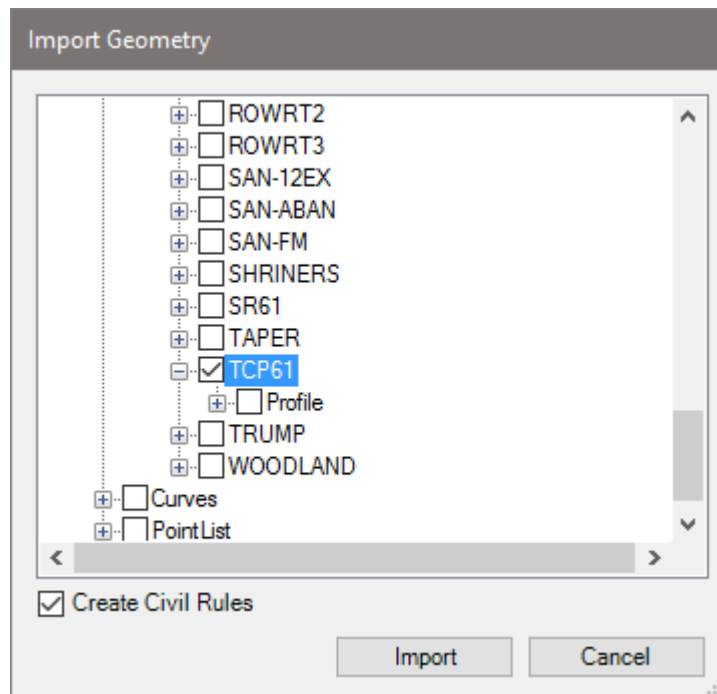
- Under the Civil Tools Tasks, select **General Geometry > Import Geometry**.



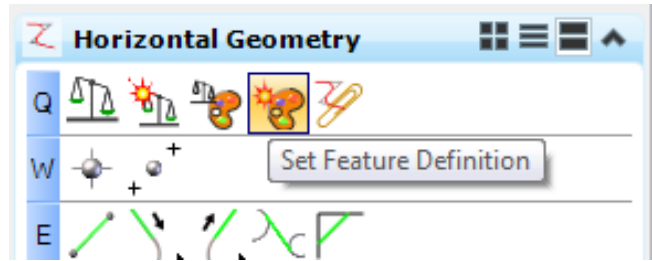
- Navigate to the *Roadway* folder and select the *job61.gpk* file to import.



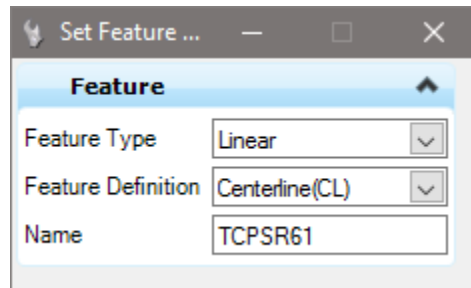
- From the *Import Geometry* dialog, navigate to the *Alignment > No Feature* and check **TCP61**. Uncheck the **Profile** box and then click **Import**.



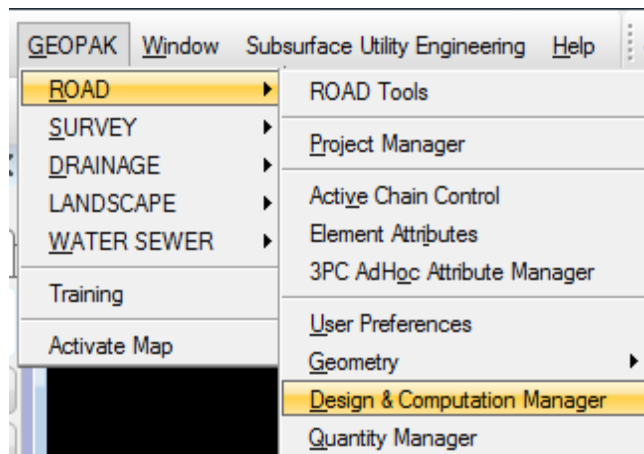
8. Use MicroStation **Fit View** to verify the alignment imported.
9. Go to the Horizontal Geometry Task and select the **Set Feature Definition** tool.



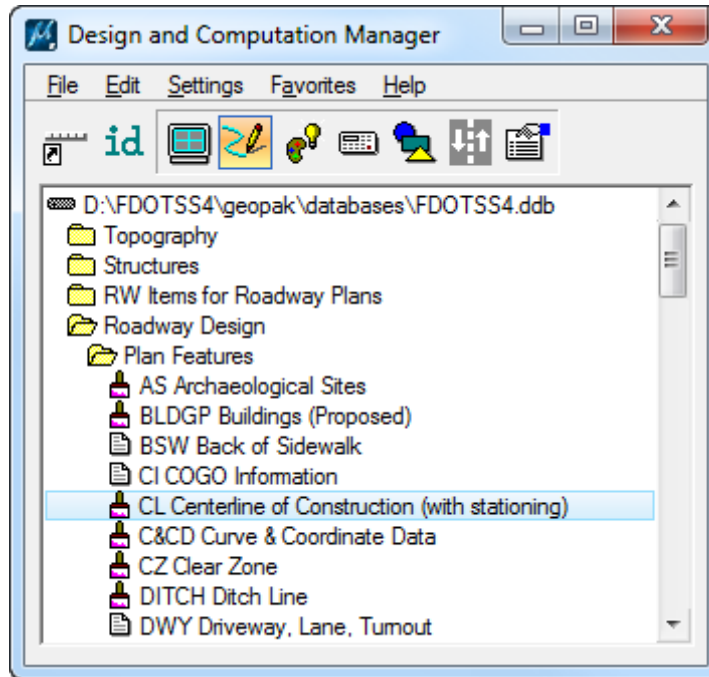
10. Set the *Feature Definition* to **Centerline(CL)** and change the *Name* to **TCPSR61**.



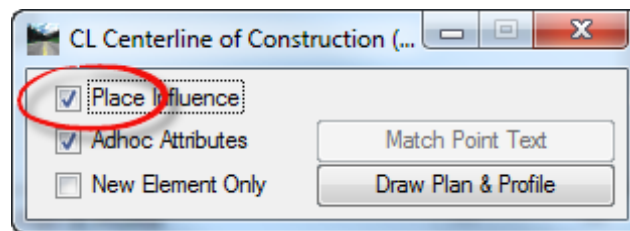
11. From the MicroStation design file, select the **TCPSR61** line, right-click to **Reset** and set the **Centerline(CL)** feature on the line.
12. In MicroStation, select **GEOPAK > ROAD > Design & Computation Manager**.



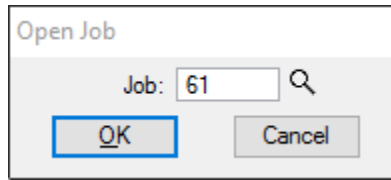
13. The Design and Computation Manager dialog displays.



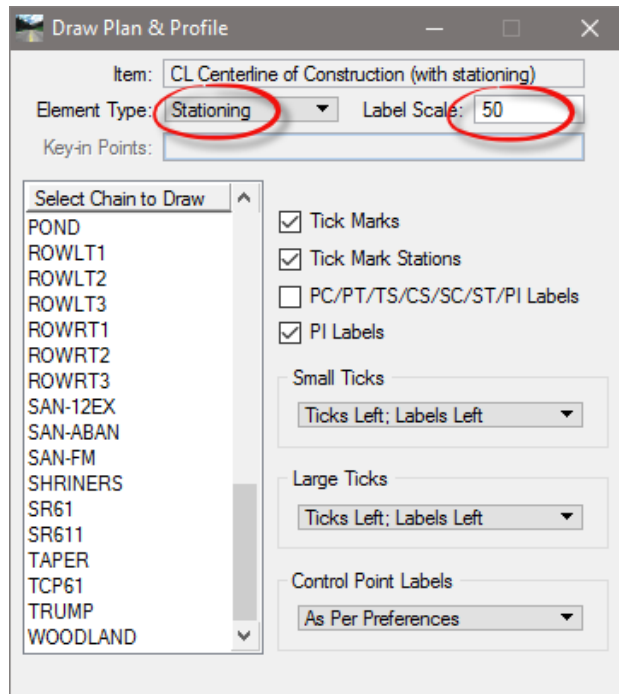
- a. Navigate to the *Roadway Design* > *Plan Features* folder and select **CL Centerline of Construction (with stationing)**.
- b. On the CL Centerline of Construction dialog, check the **Place Influence** box and click the **Draw Plan & Profile** button.



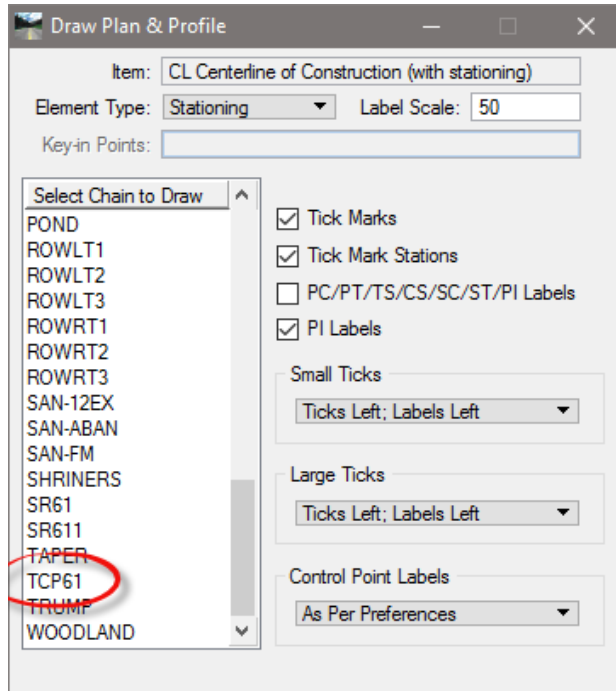
- c. The Open Job dialog displays. Select the job61.gpk file and click **OK**.



- d. The Draw Plan & Profile dialog displays. Change the *Element Type* to **Stationing** and key in **50** for the *Label Scale*.



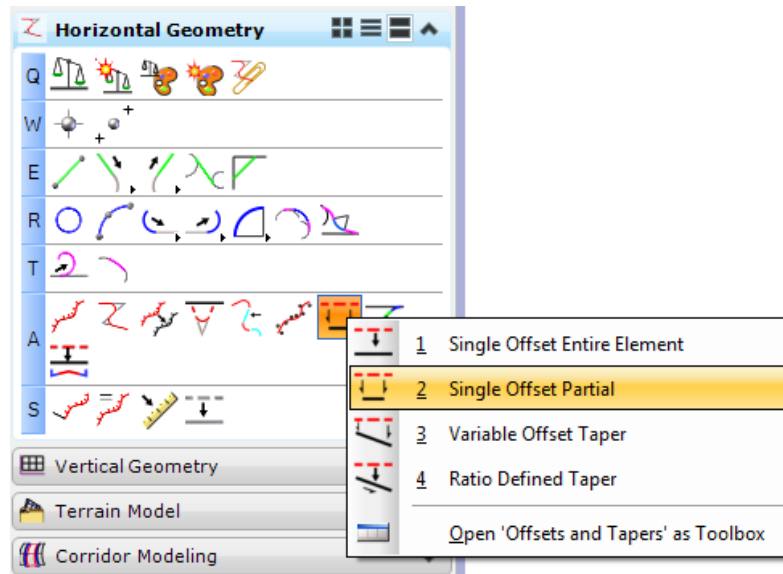
- e. In the *Select Chain to Draw List* box, select on **TCP61** and **close** the Draw Plan & Profile dialog.



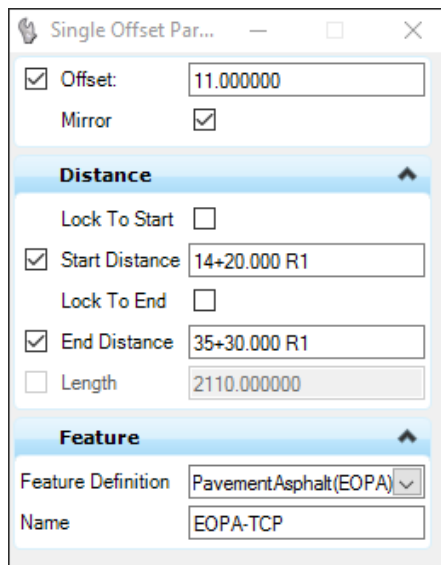
- f. **Close** the CL Centerline of Construction and the Design & Computation Manager dialogs.
- g. Use the MicroStation **Fit View** to see the results.

Exercise 9.5 Creating the Temporary Roadway

- Continuing in the TCDSRD01.dgn file, on the Civil Tools Task Menu, select Horizontal Geometry > Single Offset Partial tool.

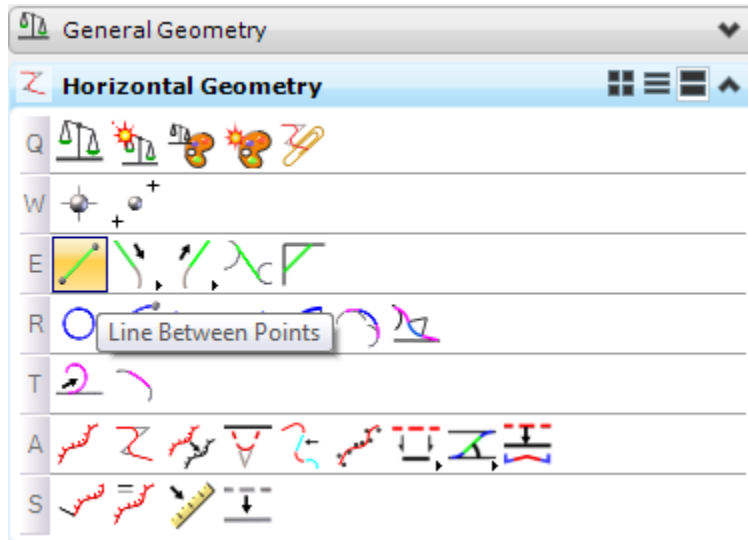


- Create the temporary road using the *Feature Definition PavementAsphalt(EOPA)*.

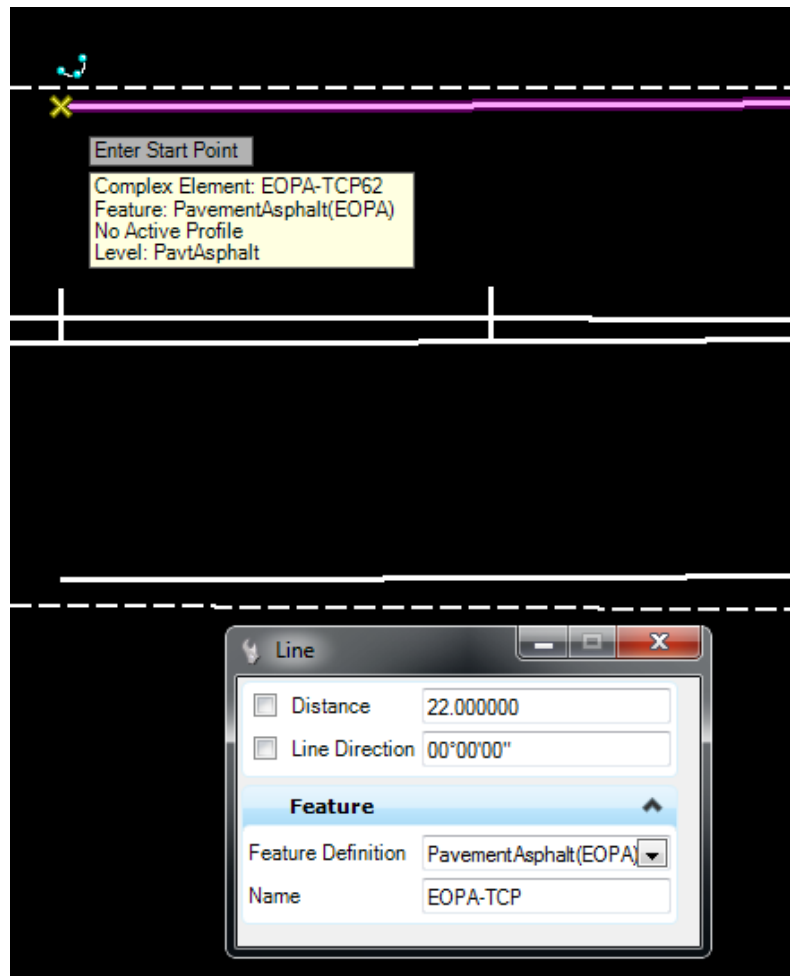


- Select the **TCPSR61 Alignment**.
- Set the *Offset* to **11.00**.
- Press your right arrow key and type Sta. **14+20.00** for the *Start Point*.
- Data point** to accept that *Start Point* and *Offset*.
- Type Sta. **35+30.00** for the *End Point*.
- Set *Mirror* to **Yes**.
- Enter the **EOPA-TCP** for the *Name*.
- Data point** to place the line work.

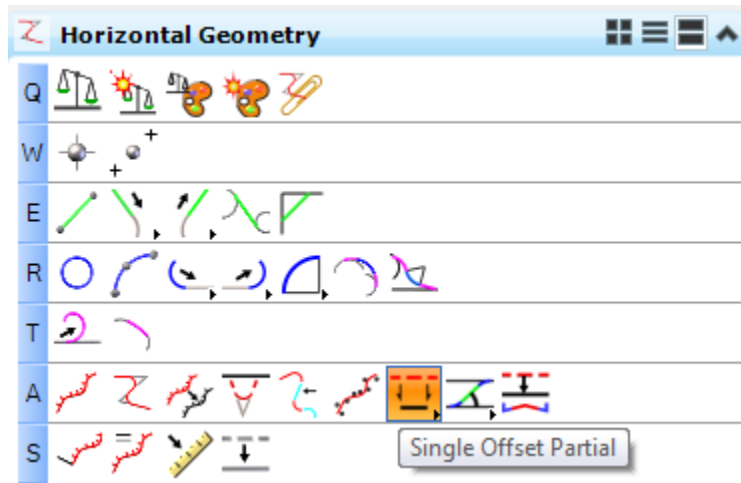
- On the Civil Tools Task Menu, select **Horizontal Geometry > Line Between Points** tool to close the end of the temporary roadway.



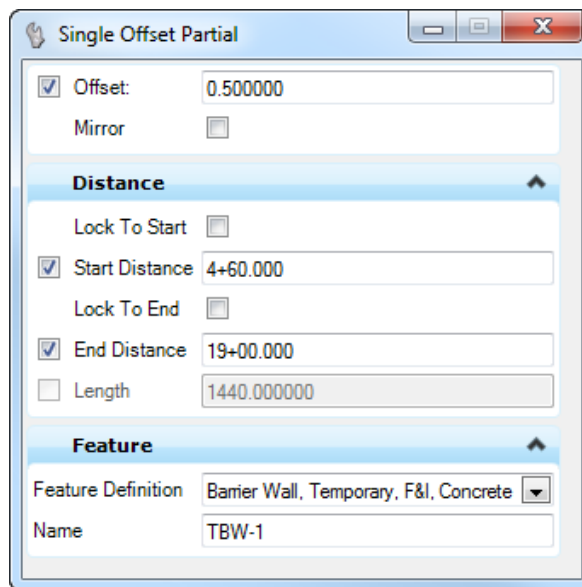
- Make sure the *Feature Definition* is set to **PavementAsphalt(EOPA)**. Do this for both ends.



5. On the Civil Tools Task Menu, select **Horizontal Geometry > Single Offset Partial**.

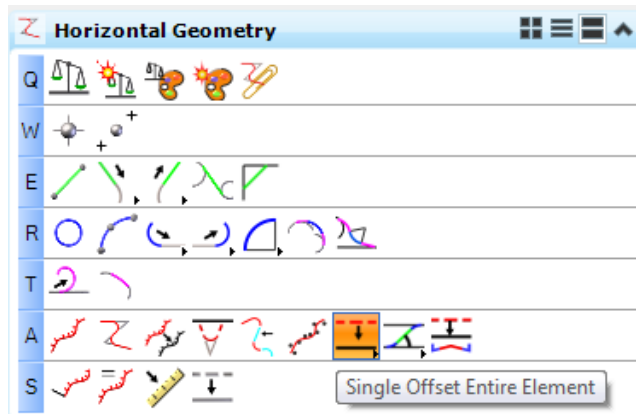


6. Create the temporary barrier wall using the *Feature Definition* **Barrier Wall, Temporary, F&I, Concrete** under the *Maintenance of Traffic* folder.

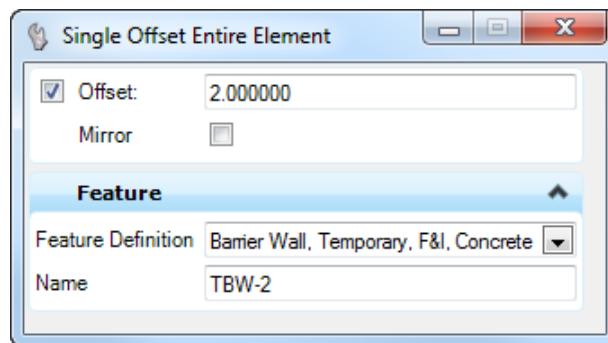


- a. Enter the **TBW1** for the *Name*.
- b. Following the prompt at the end of the cursor, select the **EOP** line to the right of the *TCP SR 61* roadway.
- c. Set the *Offset* to **0.5**.
- d. Press your right arrow key and type Sta. **4+60.00** for the *Start Point*.
- e. **Data point** to accept that *Starting Point* and *Offset*.
- f. Type Sta. **19+00.00** for the *End Point*.
- g. Set *Mirror* to **No**.
- h. **Data point** to place the line work.

7. On the Civil Tools Task Menu, select **Horizontal Geometry > Single Offset Entire Element**.



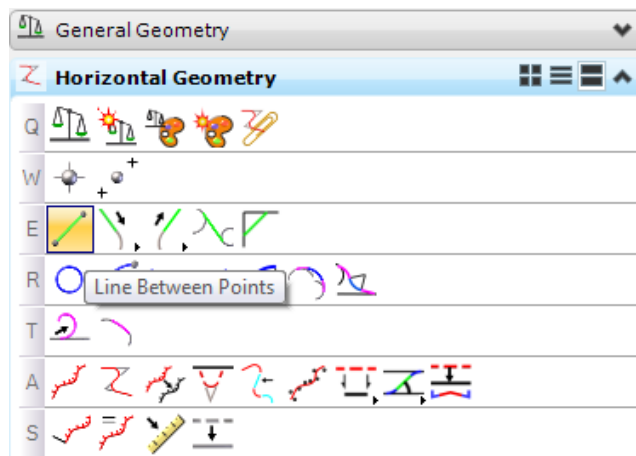
8. Create another temporary barrier wall line using the feature **Barrier Wall, Temporary, F&I, Concrete** under the *Maintenance of Traffic* folder.



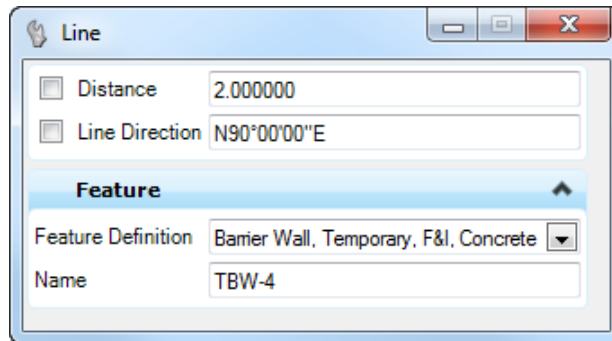
- a. Enter the **TBW2** for the *Name*.
- b. Following the prompt at the end of the cursor, select the **TBW1** line.
- c. Set the *Offset* to **2.0**.
- d. Toggle **Off Mirror**.

Data point to accept the *Offset* and *Mirror*. The line is place in the design file.

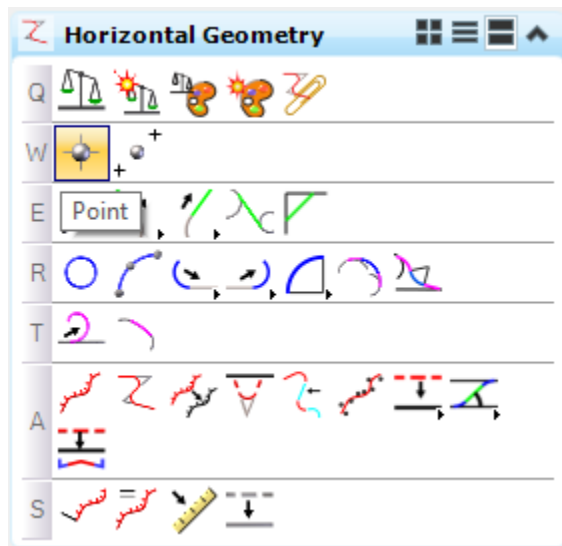
9. On the Civil Tools Task Menu, select **Horizontal Geometry > Line Between Points** tool to close the end of the temporary barrier wall. Do this for both ends.



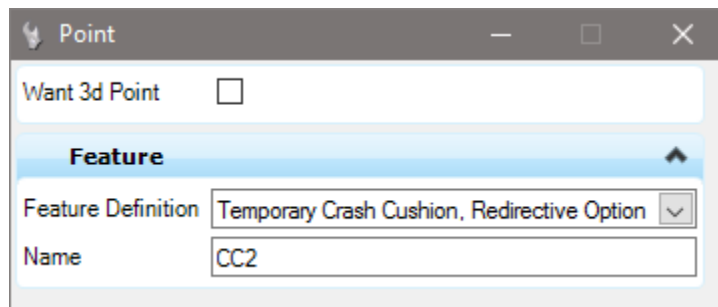
10. Make sure the *Feature Definition* is set to **Barrier Wall, Temporary, F&I, Concrete** and enter the name **TBW3** and **TBW4** for both lines placed.



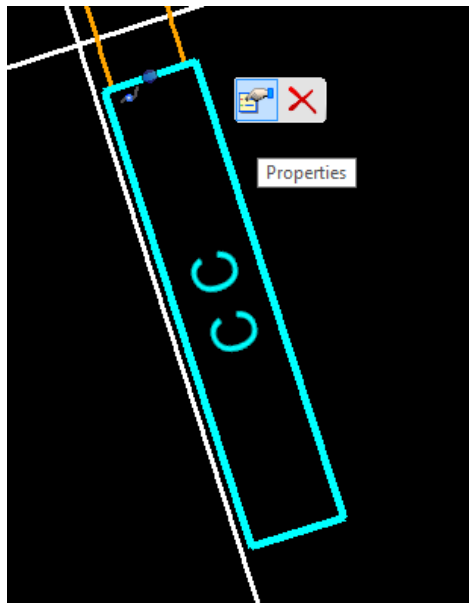
11. On the Civil Tools Task Menu, select **Horizontal Geometry > Point** tool to place a temporary crash cushion at the end of the temporary barrier wall. Snap the crash Do this for both ends.



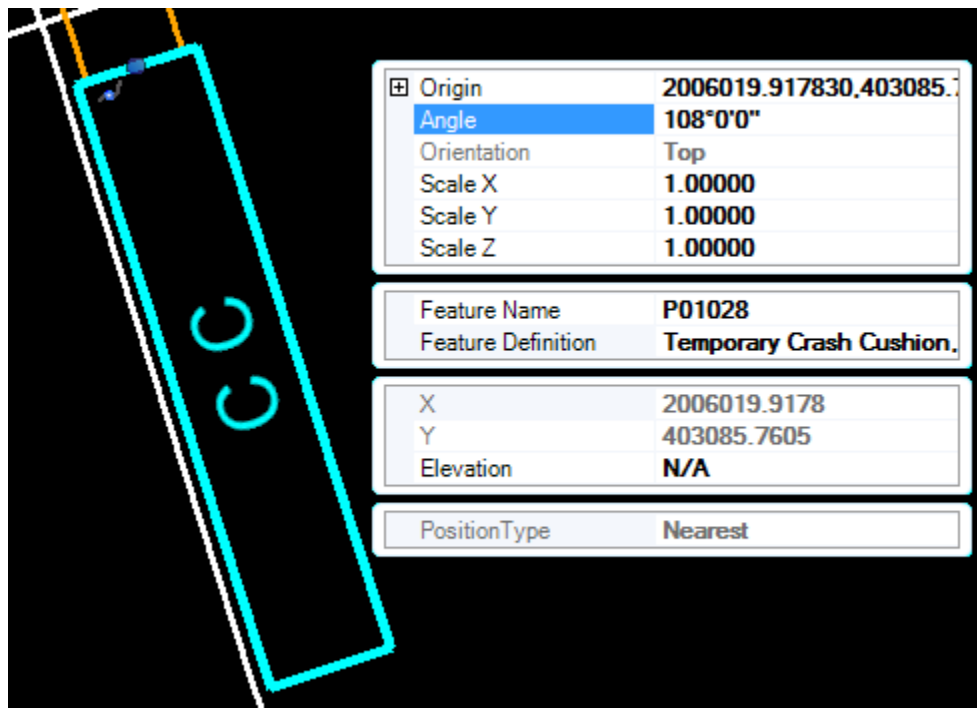
12. Make sure the *Feature Definition* is set to **Temporary Crash Cushion, Redirective Option** under the *Maintenance of Traffic > Temporary Roadway Features* folder. Enter the Name **CC1** and **CC2** for both points placed.



- Once the Point is placed, select the **Crash Cushion** cell and hover over it until the *Context* menu opens. Select the **Properties** icon.



- In the Properties dialog, changed the *Angle* to **108°** for *CC1* and **280°** for *CC2*.



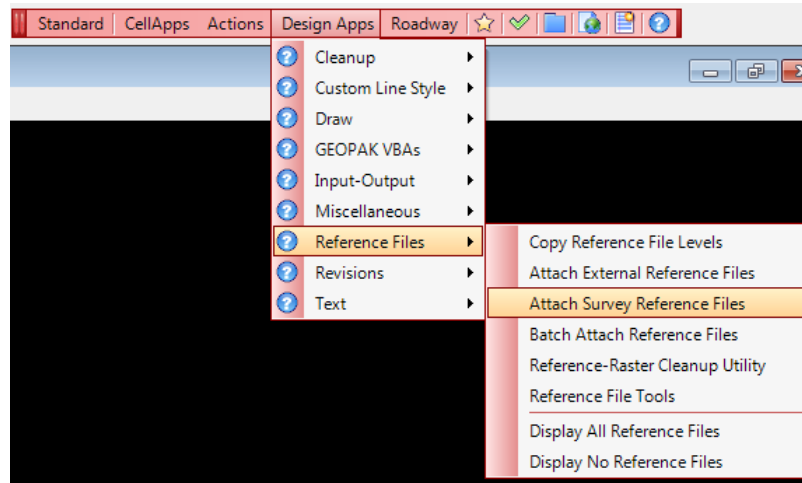
Exercise 9.6 Delineating the Temporary Pavement and Work Zones

1. Continuing in the *TCDSRD01.dgn* file, reference in the *Survey* design file:

a. **Reference** in: C:\e\projects\22049555201\survey\TOPORD01.dgn

<OR>

b. Navigate the FDOT SS4 Menu and select **Design Apps > Reference Files > Attach Survey Reference Files**.



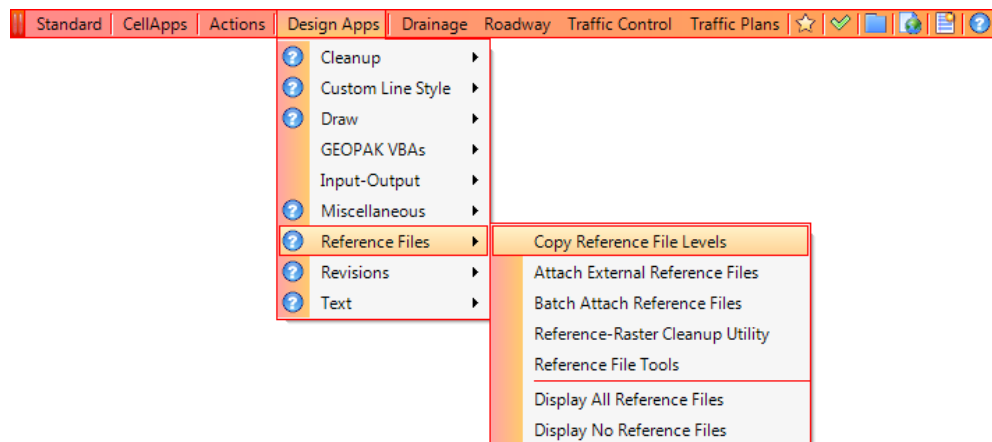
c. The *SURVRD01.dgn* file located within the project directory will be referenced 4 times with different logical names and filters set for each type of file.

- o *SURVRD01.dgn*, logical *TOPO* (Existing Roadway)
- o *SURVRD01.dgn*, logical *GDTM* (Existing Terrain)
- o *SURVRD01.dgn*, logical *DREX* (Existing Drainage)
- o *SURVRD01.dgn*, logical *UTEX* (Existing Utilities)

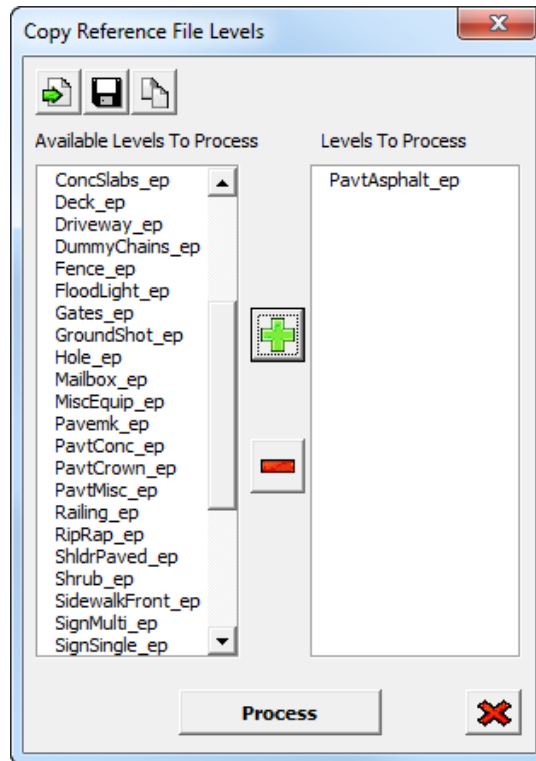
2. Turn **Off** the *Display* for the existing terrain, *GDTM*, existing drainage, *DREX*, and the existing utilities, *UTEX*.

3. Turn **Off** all *Levels* in the Traffic Control design file except:
TempBarrier and PavtAsphalt

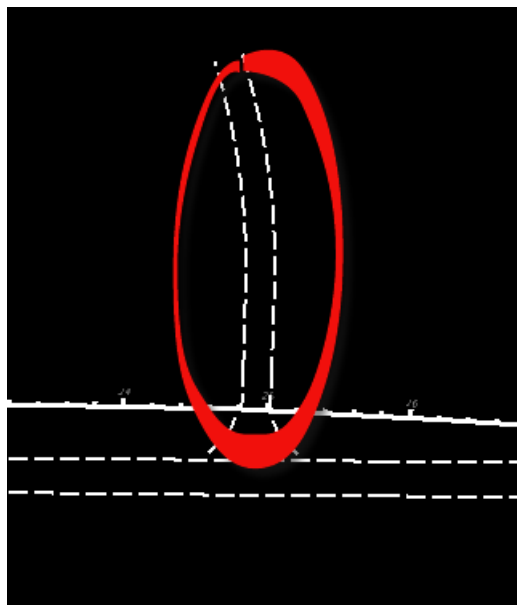
4. On the FDOT SS4 Menu select **DesignApps > Reference Files > Copy Reference File Levels**.



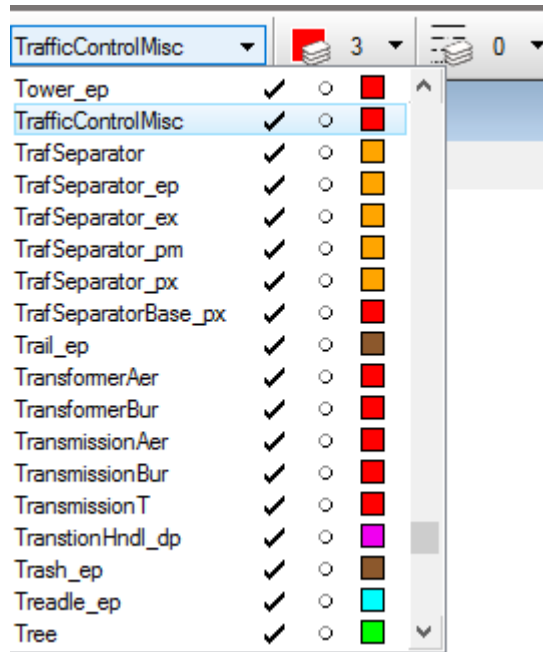
5. Use the *Copy Reference File Levels* tool to import the **PavtAsphalt_ep** level from the *Survey* file (*TOPORD01.dgn* or *SURVRD01.dgn*).



6. Select the **PavtAsphalt_ep** level in the *Available Levels to Process* list and click the **green plus** icon to move to the *Levels to Process* list.
7. Click the **Process** button. The **PavtAsphalt_ep** level will be merged in the active file.
8. Turn **Off** the *Survey* reference file.
9. **Delete** the existing side road line work.

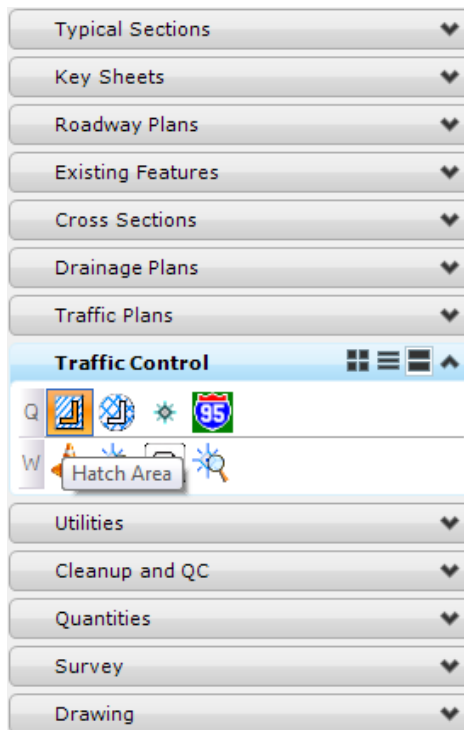


10. Set the *Level* to **TrafficControlMisc**.

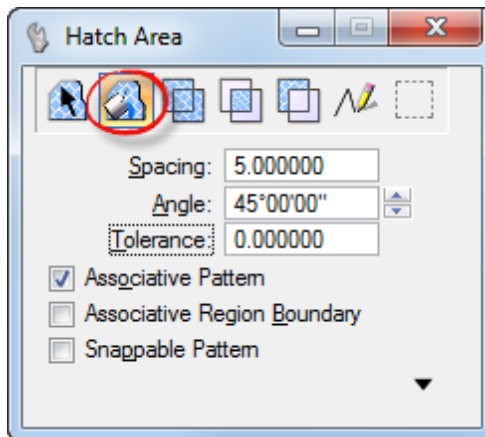


➤ **The temporary pavement will be delineated with a hatch.**

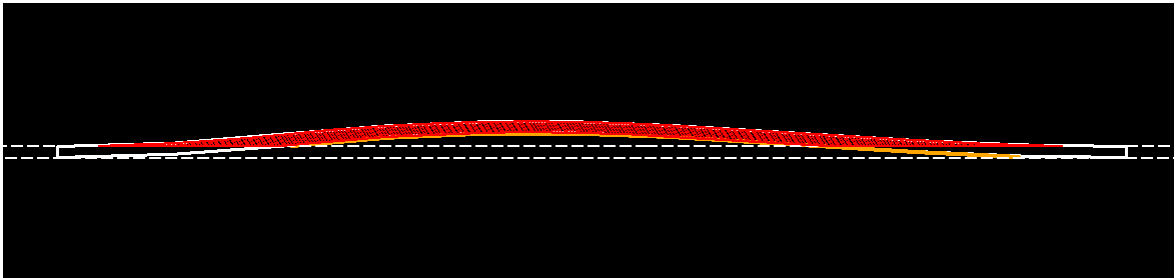
1. From the FDOT Plans Development Task Menu, select **Traffic Control > Hatch Area**.



- The Hatch Area dialog displays.



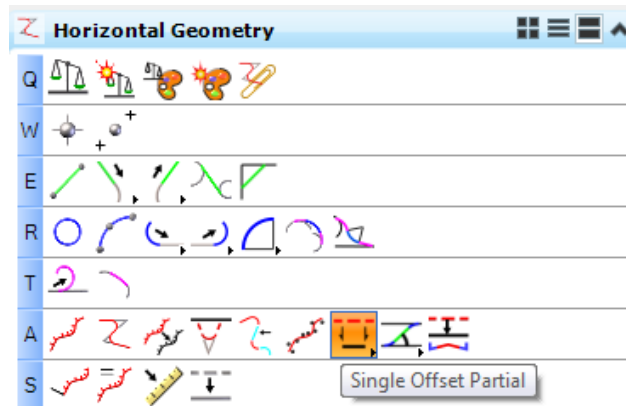
- Select the **Flood** option
- Set the *Spacing* to **5.0**.
- Set the *Angle* to **45 degrees**.
- Toggle **On Associative Pattern**.
- Data point** in the *area* that is outside of the existing roadway and inside the temporary roadway. The hatch is drawn in the shape.



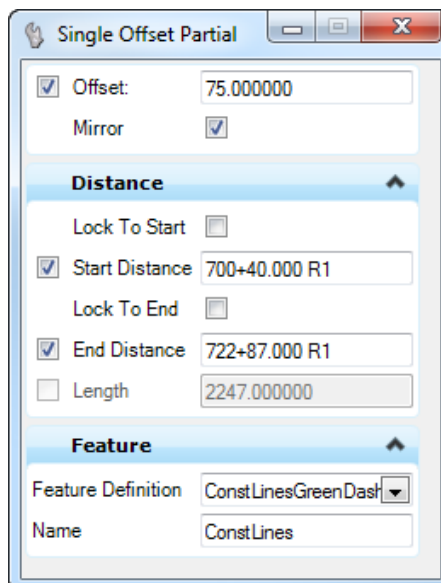
- Delete** all of the elements on the **PavtAsphalt_ep Level**.
- Continuing in the *TCDSRD01.dgn* file, **reference** in the following design files:
 - C:\e\projects\22049555201\roadway\ALGNRD01.dgn; *Model ALGNRD_50*
 - C:\e\projects\22049555201\roadway\DSGNRD01.dgn

➤ **The Work Zone will be delineated with a cross hatch.**

1. On the Civil Tools Task Menu, select **Horizontal Geometry > Single Offset Partial**.

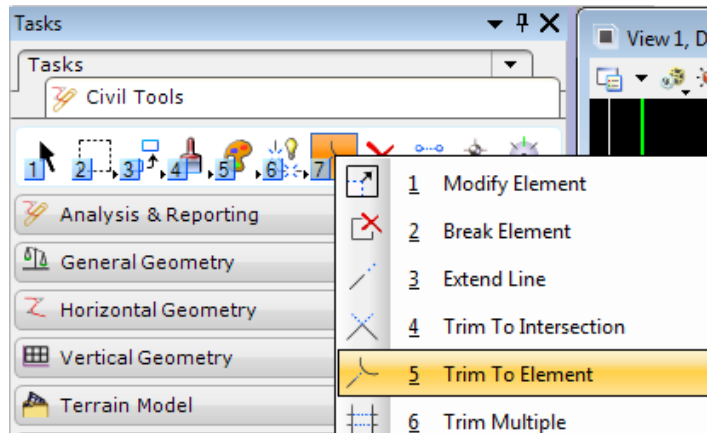


2. Single Offset Partial dialog displays.

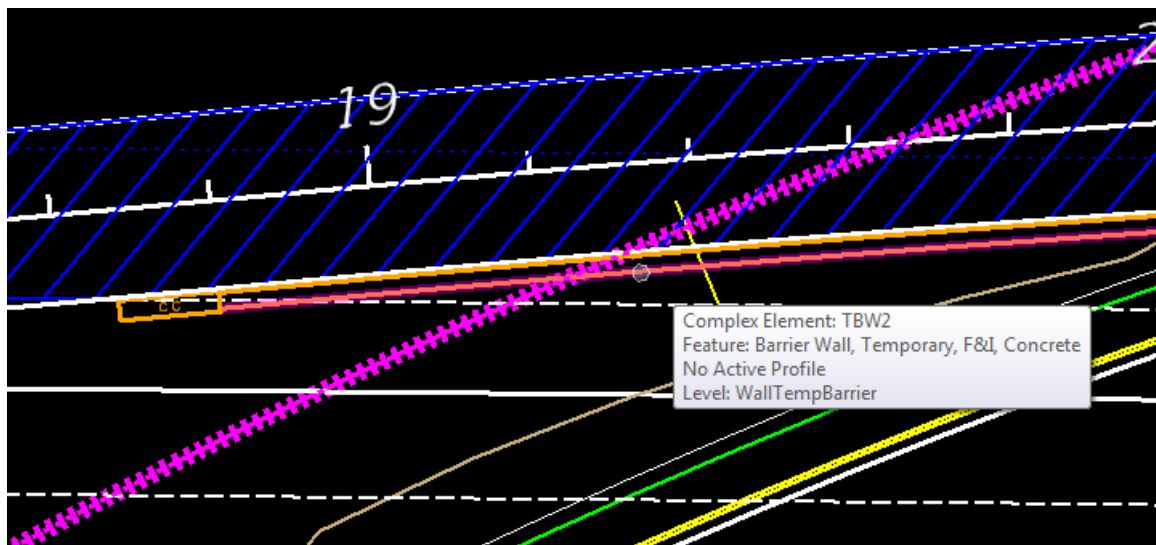


3. Set the *Feature Definition* to **ConstLinesGreenDash**
4. Select the Proposed **SR 61 Alignment**.
5. Set the *Offset* to **75.00**.
6. Press your right arrow key and type Sta. **700+40.00** for the *Start Point*.
7. **Data point** to accept that *Starting Point* and *Offset*.
8. Type Sta. **722+87.00** for the *End Point*.
9. Set *Mirror* to **Yes**.
10. **Data point** to place the line work.

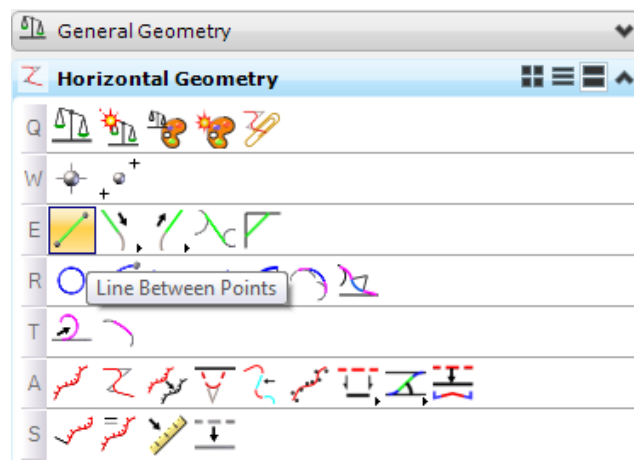
11. Use MicroStation **Trim to Element** tool.



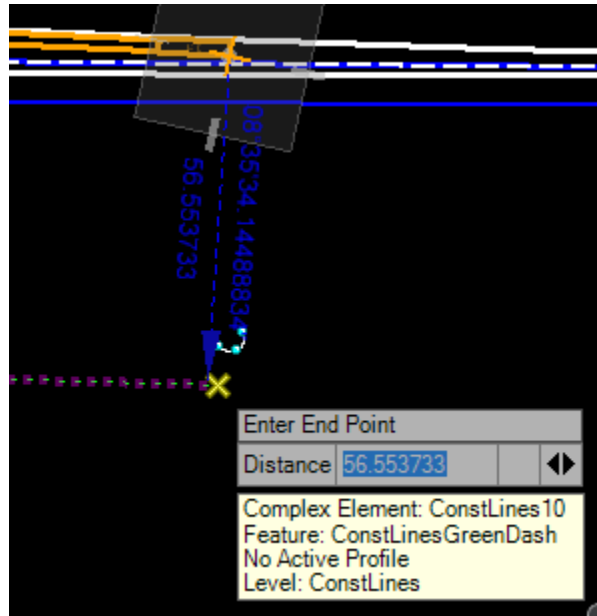
12. Trim the **Construction Line** on the left side of the roadway to the *Temporary Barrier Wall*.



13. On the Civil Tools Task Menu, select **Horizontal Geometry** > **Line Between Points**.



14. Make sure the *Feature Definition* is set to **ConstLinesGreenDash**, draw a line from the end of Temporary Barrier Wall to the other construction line at Sta. 722+87.00.

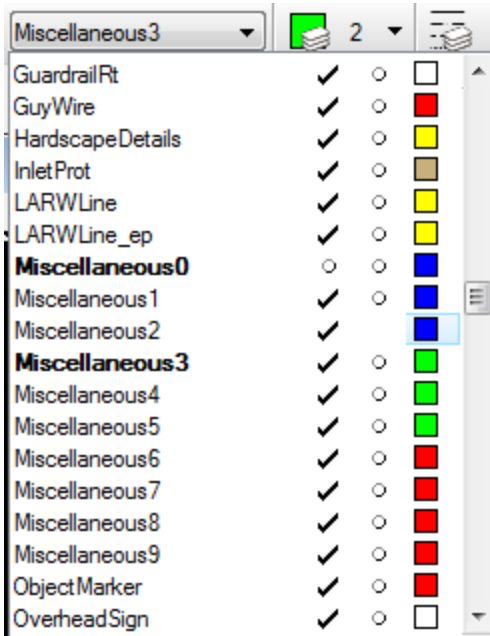


15. Draw a line at the other end of the roadway to connect the construction lines.

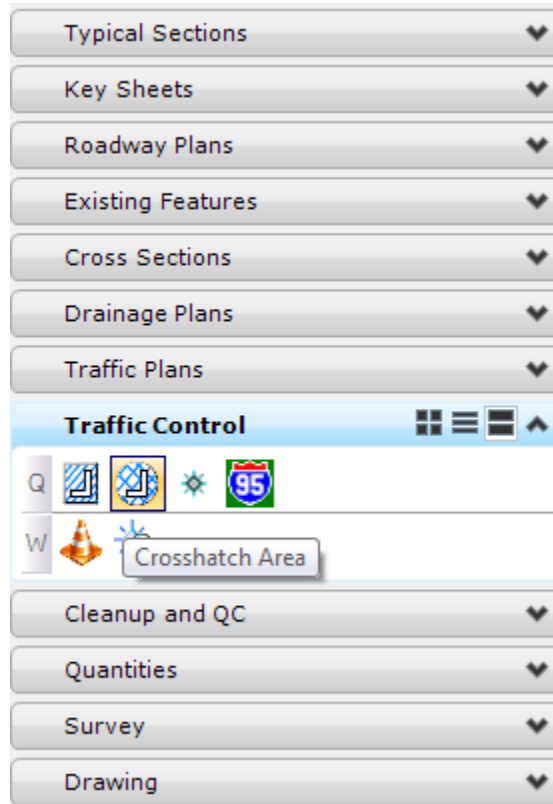


16. Turn **Off** the reference files *DSGNRD01.dgn* and *ALGNRD01.dgn*.

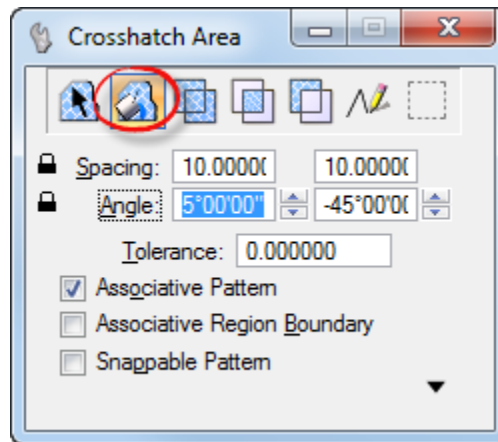
17. Set the *Level* to **Miscellaneous3**.



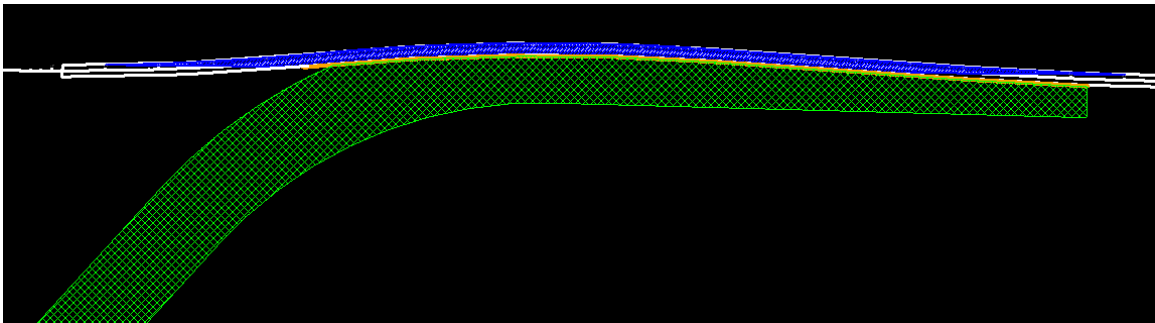
18. From the FDOT Plans Development Task Menu, select **Traffic Control > Crosshatch Area**.



19. The Crosshatch Area dialog displays.

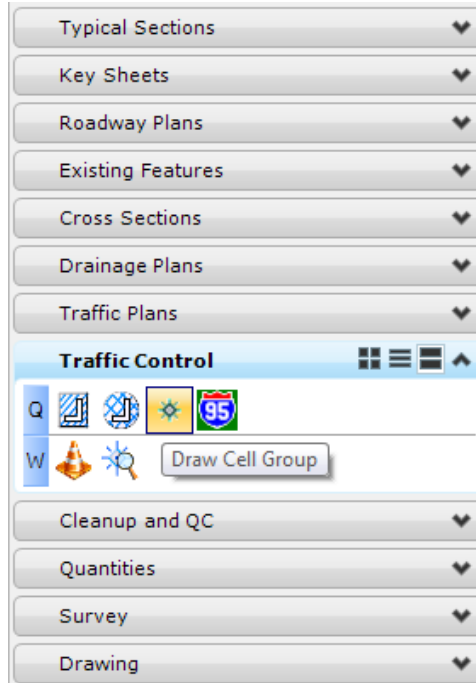


- a. Select the **Flood** Option.
- b. Set the *Spacing* to **10.0**.
- c. Set the *Angle* to **45 degrees**.
- d. Toggle **On** *Associative Pattern*.
- e. **Data point** inside the shape created with the construction lines. The crosshatch is placed inside the shape.

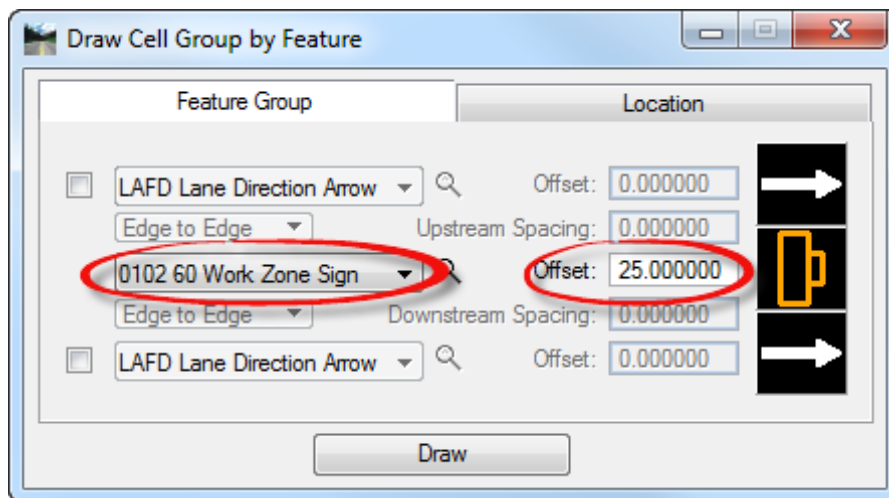


Exercise 9.7 *Place Temporary Signage*

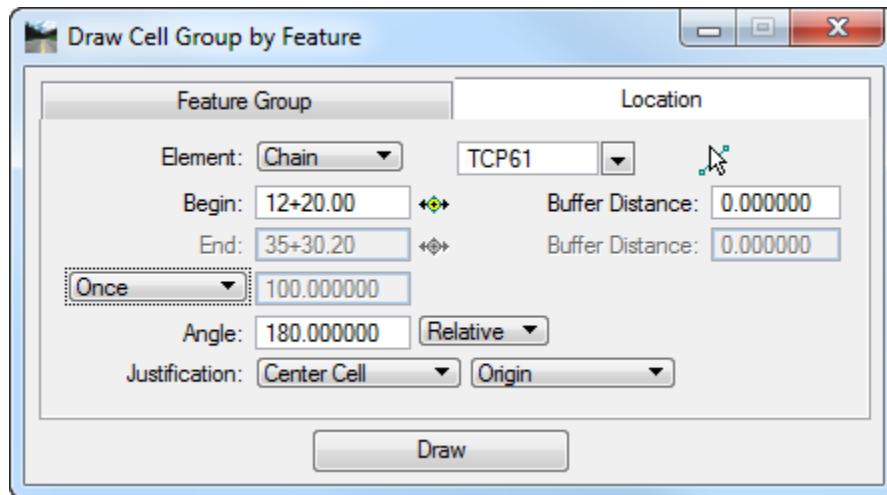
1. Continuing in the *TCDSRD01.dgn* file, turn all of the *Levels* back **On**.
2. Turn **On** the referenced file *TOPORD01.dgn*.
3. From the FDOT Plans Development Task Menu, select **Traffic Control > Draw Cell Group**.



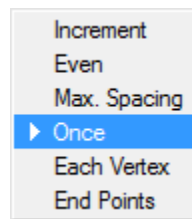
4. The Draw Cell Group by Feature dialog displays. On the *Feature Group* tab, set the middle cell/toggle to **0102 60 Work Zone Sign** and the *Offset* to **25.00**.



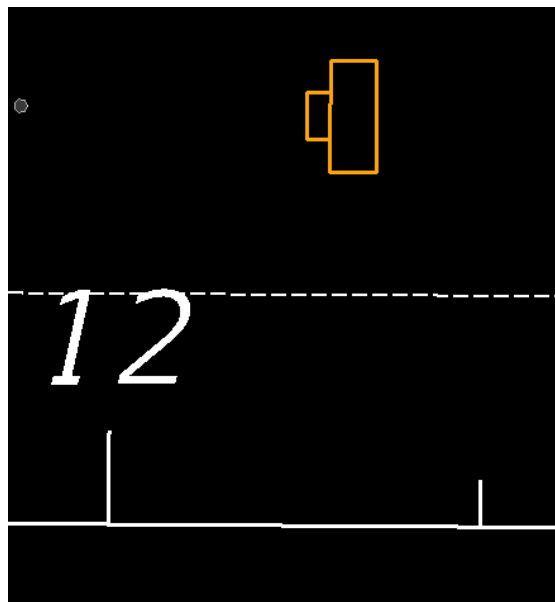
- Go to the *Location* tab.



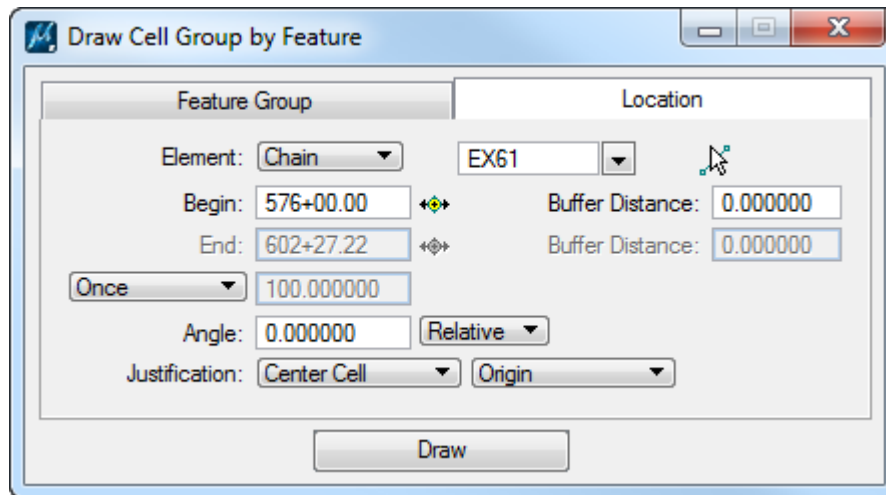
- Set the *Element* to **Chain**. Select the chain **TCP61**.
- Set the *Draw* option to **Once**.



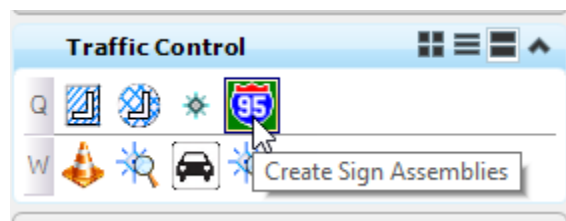
- Set the *Begin Station* to **12+20.00**.
- Set the *Angle* to **180.00, Relative**.
- Set the *Justification* to **Center Cell, Origin**.
- Click **Draw** and **data point** in the design file to place the work zone sign for the cell.



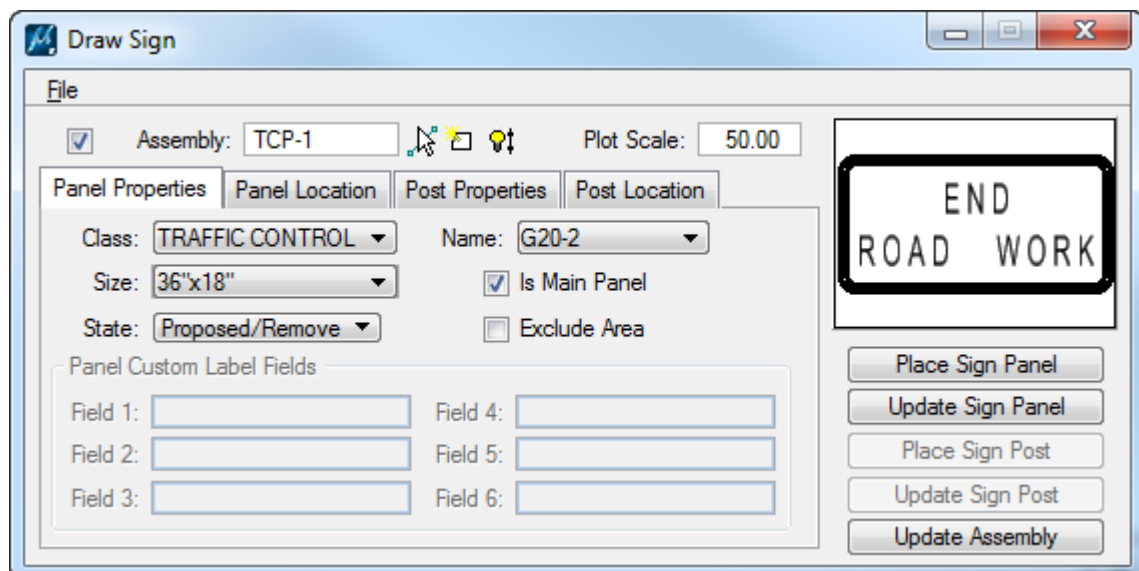
12. Place another *Work Zone* sign at the other end of the temporary roadway except use the settings below:



13. From the FDOT Plans Development Task Menu, select **Traffic Control > Create Sign Assemblies**.

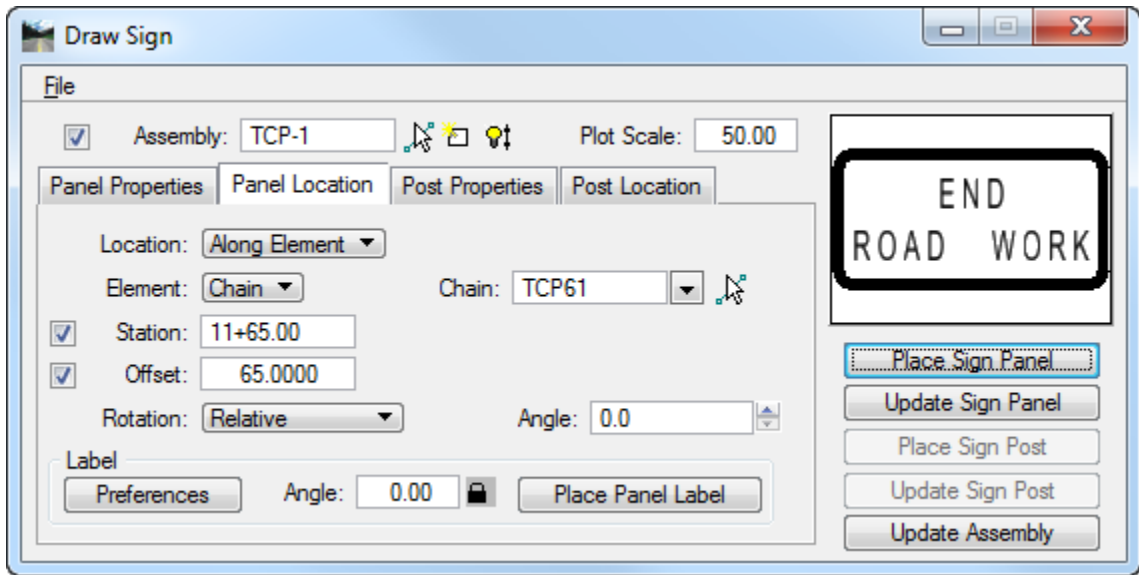


14. The Draw Sign program opens. Toggle **On Assembly** checkbox, type in the **TCP-1** for the assembly name and type in **50.0** for the *Plot Scale*.

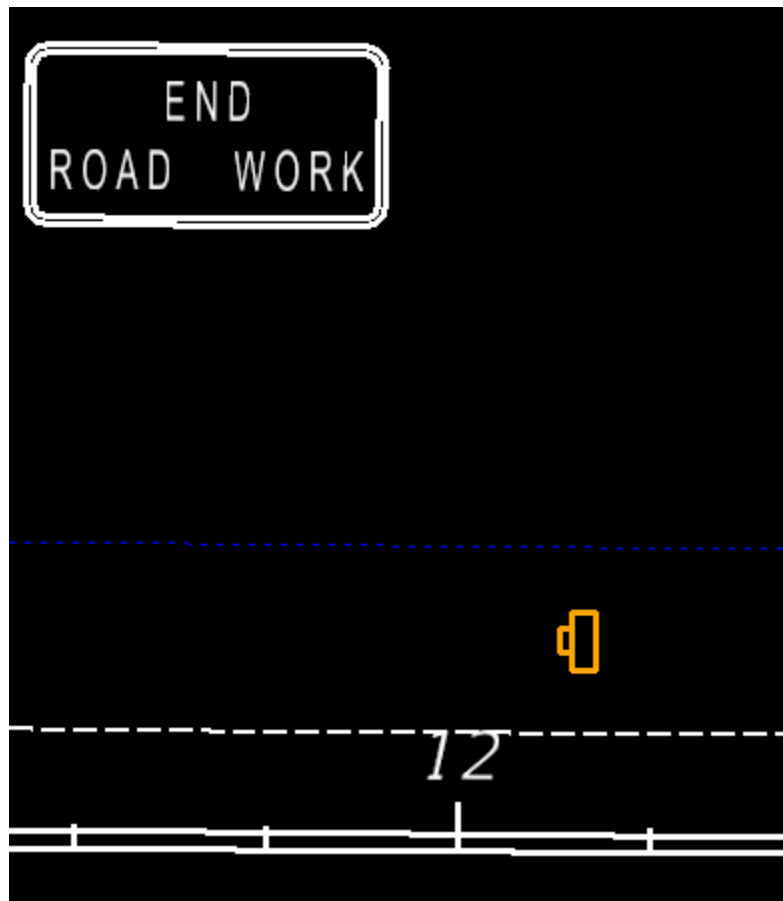


On the *Panel Properties* tab, set the *Class* to **Traffic Control Signs**, the *Sign Name* to **G20-2** and the *State* to **Proposed/Remove**. The *End Road Work* sign will appear in the preview window.

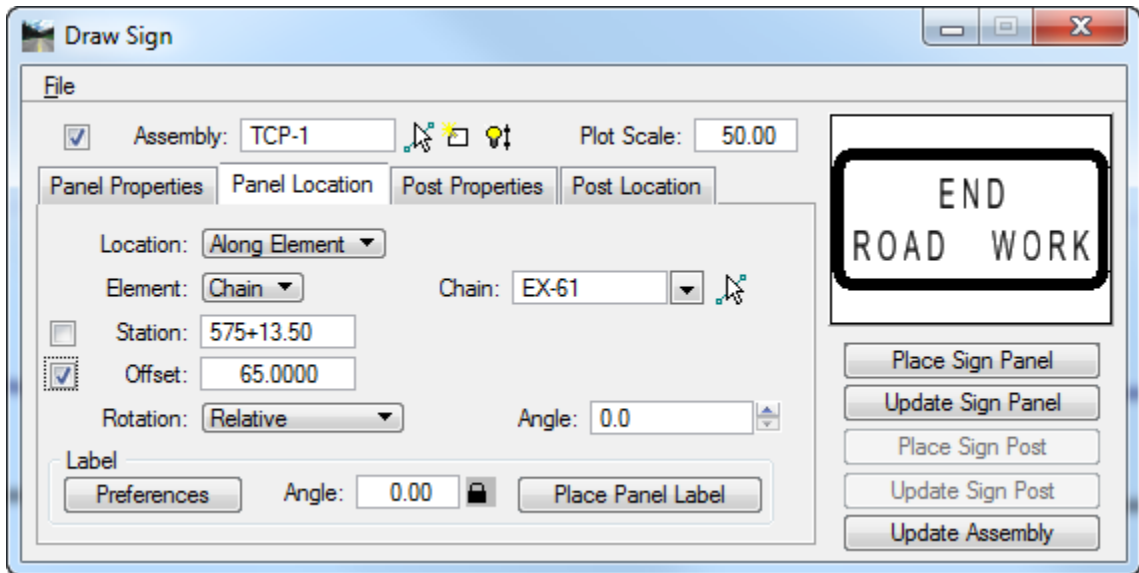
Go to the *Panel Location* tab. Use the settings shown below:



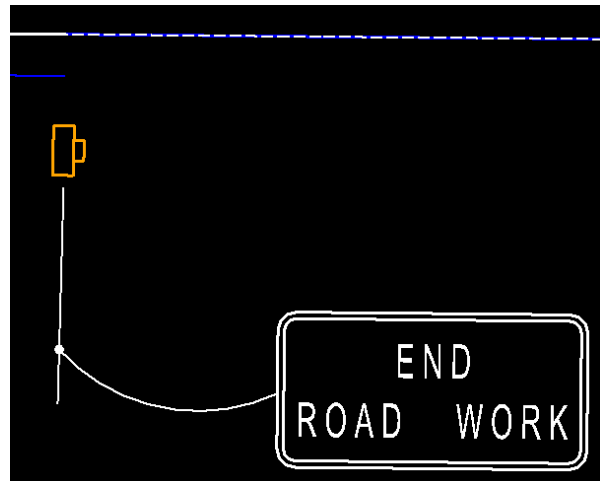
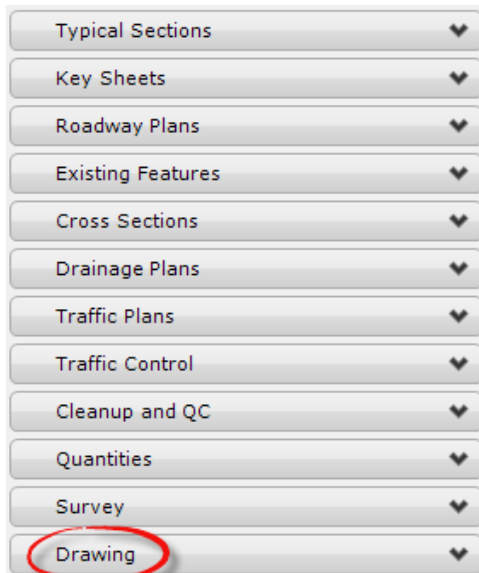
Click on the **Place Sign Panel** button. The **G20-2** or “**End Road Work**” Sign will appear on the cursor. **Data point** to place the sign in the desired location.



- Place another **End Road Work** sign at the other end of the temporary roadway using the settings below.



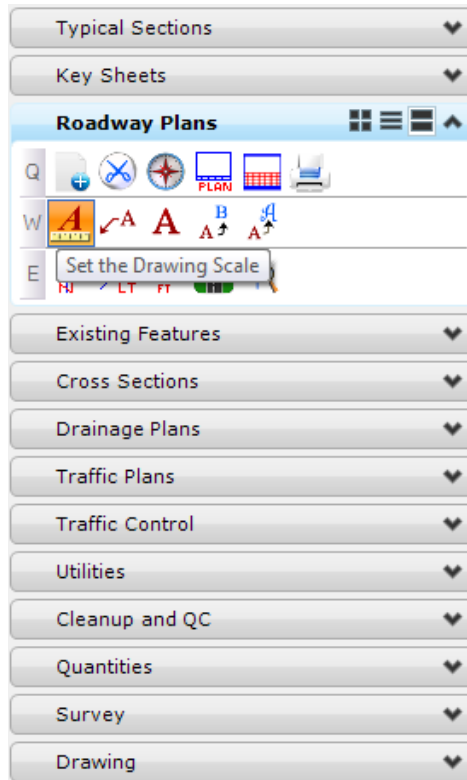
- From the FDOT Plans Development Task Menu, use the **Drawing** tools to show the placement of the *End Road Work* Sign.



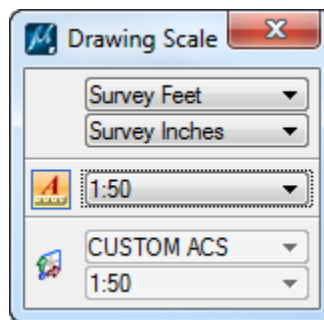
Exercise 9.8 *Label the Traffic Control Plans*

All temporary traffic control items should be labeled. Using the tools shown in this training manual label the traffic control plans as instructed.

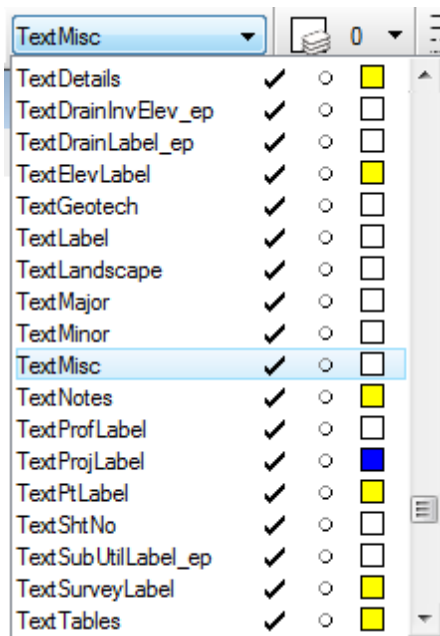
1. Continuing in the *TCDSRD01.dgn* file, from the FDOT Plans Development Task Menu, select **Roadway Plans > Set the Drawing Scale**.



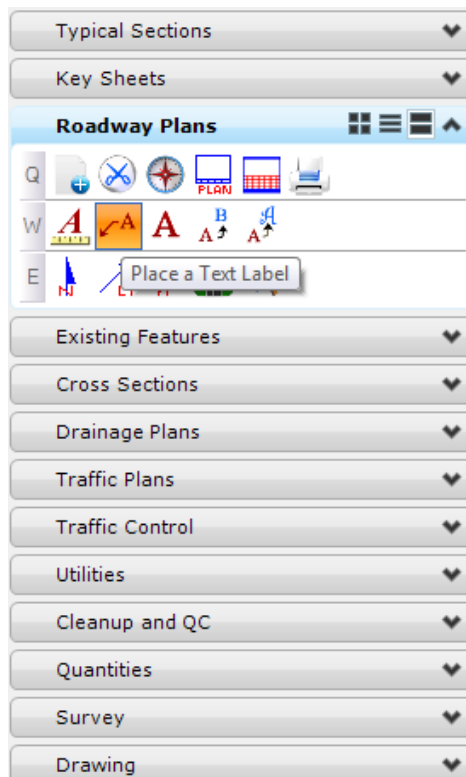
2. The *Drawing Scale* dialog displays. Toggle **On** the *Annotation Scale* button and set the *Scale* to **1:50**.



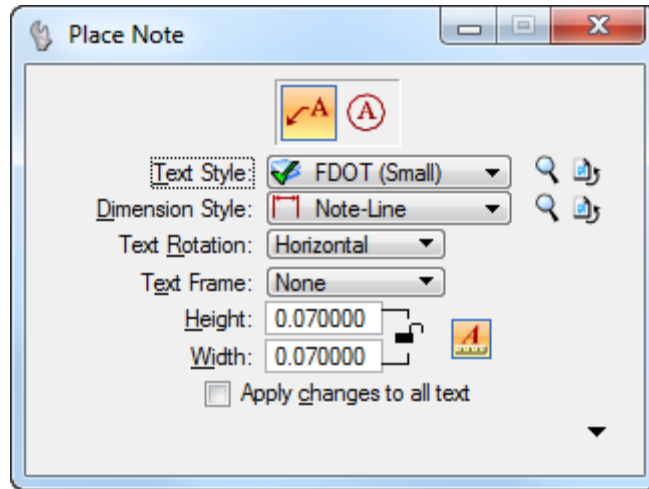
- Set the *Level* to **TextMisc**.



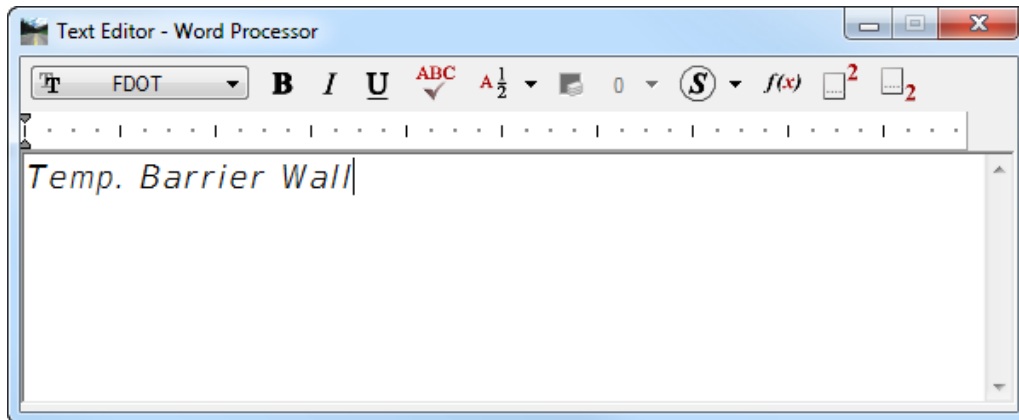
- From the FDOT Plans Development Task Menu, select **Roadway Plans > Place a Text Label**.



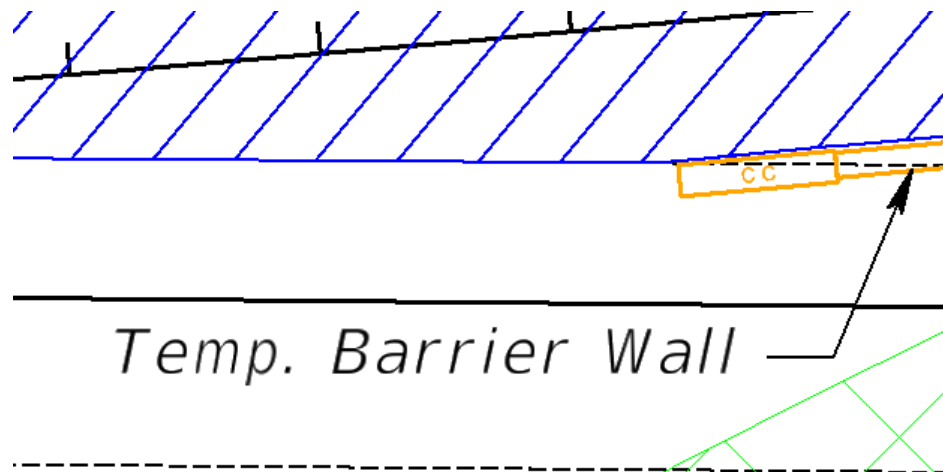
- The Place Note dialog displays. Set the *Note Parameters* as shown below.



- In the Text Editor, type in information describing the *traffic control element* to be labeled.



- Data point on the element where the *Label* will point to and data point again to place the *Label*.



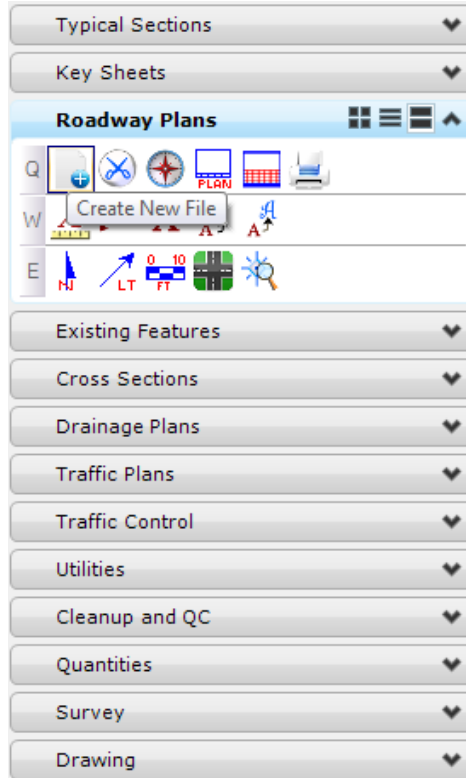
- Do this for the *Barrier Wall* and *Crash Cushion*.

Exercise 9.9 *Layout Maintenance of Traffic Sheets*

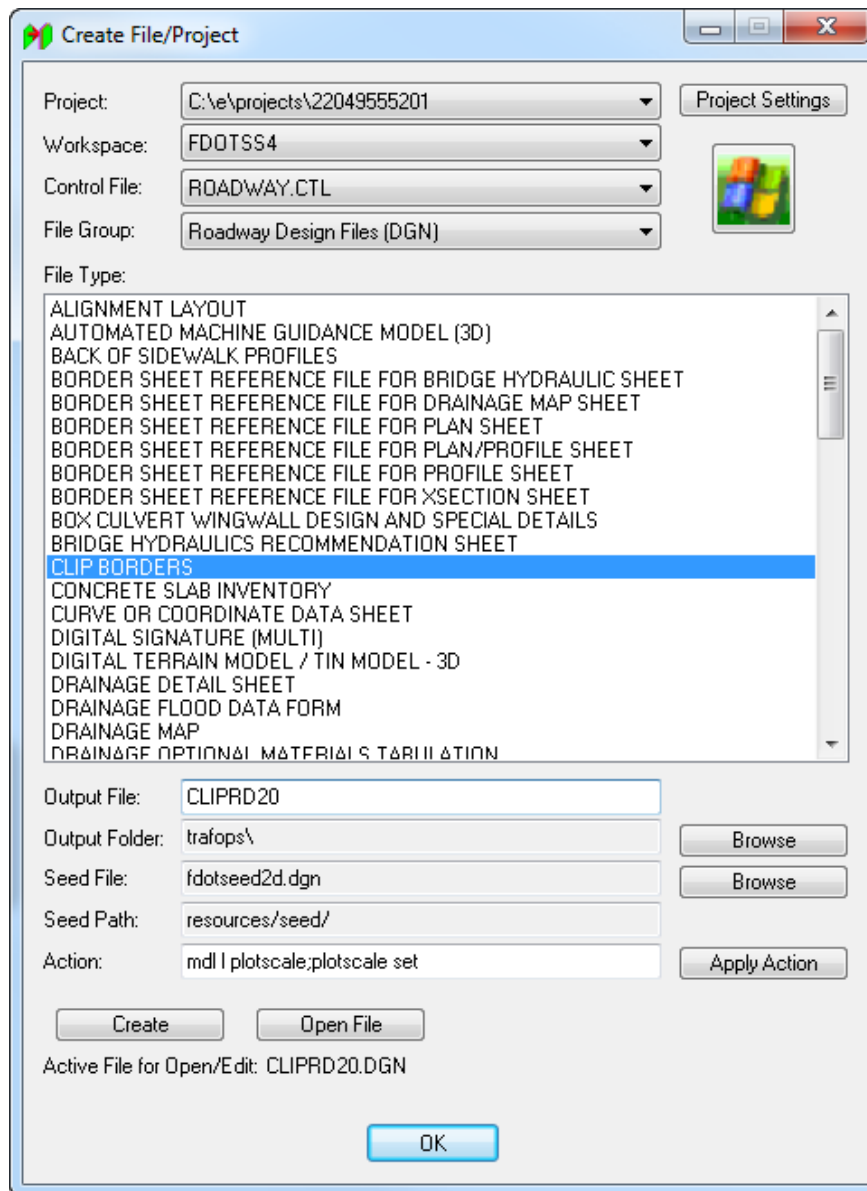
In this exercise the design file will be created for the clip borders, the clip borders will be generated, and the traffic control sheets will be created.

Note To create the traffic control sheets using live nesting see Exercise 4.4.

1. Continuing in the *TCDSRD01.dgn* file, on the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.



The Create File/Project dialog displays. Complete the Create File/Project dialog as shown below.



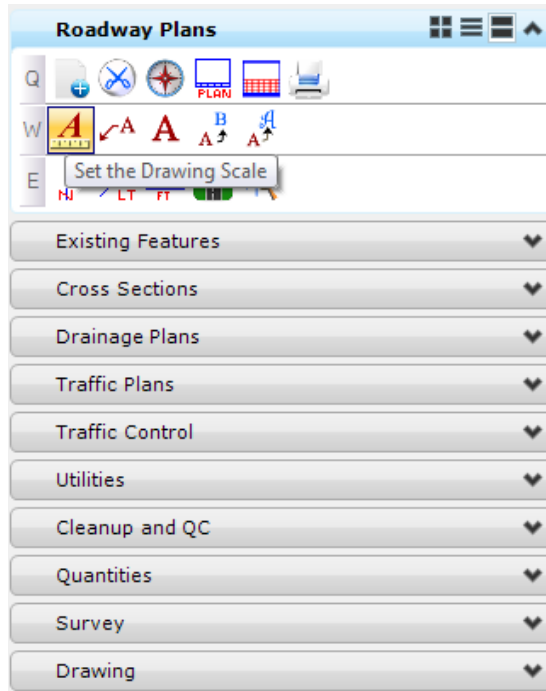
- a. Click **Create** to create the file, *CLIPRD20.dgn*, make sure the *Output Folder* is set to **trafops**.
- b. Click **Open File** to open the newly created *CLIPRD20.dgn*. Set/Update Plot Scale displays. Use the **Default** settings and click **OK**.
- c. Click **OK** to close the Create File/Project dialog.

2. Reference in the following design files:

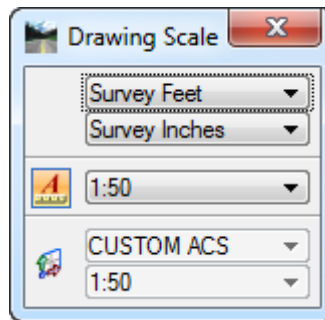
Note Make sure the option for the Raster References is turned OFF.

- o C:\e\projects\22049555201\roadway\ALGNRD01.dgn; model ALGNRD_50
- o C:\e\projects\22049555201\roadway\DSGNRD01.dgn
- o C:\e\projects\22049555201\rwmap\RWDTRD01.dgn
- o C:\e\projects\22049555201\survey\TOPORD01.dgn logical TOPORD00
- o C:\e\projects\22049555201\roadway\TCDSRD01.dgn; model Phase 1

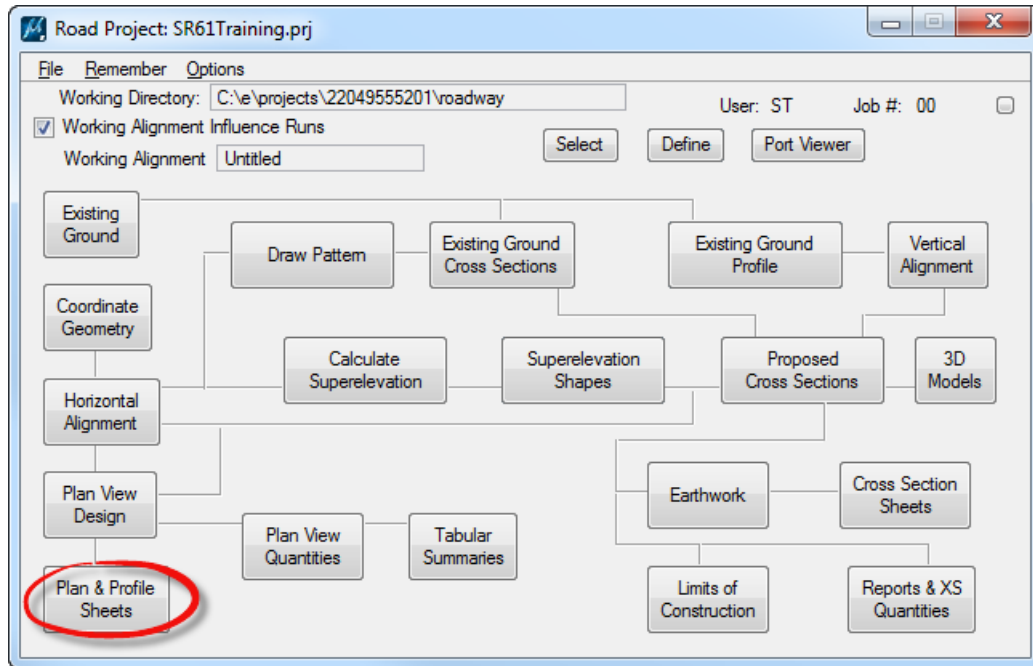
- 3. **Fit View** in MicroStation.
- 4. From the FDOT Plans Development Task Menu, select the **Roadway Plans > Set the Drawing Scale**.



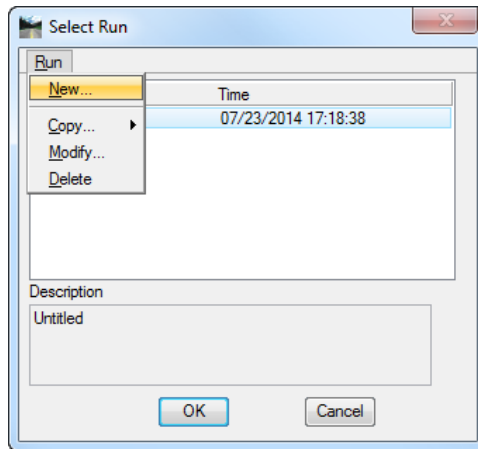
- 5. The Drawing Scale dialog displays. Toggle **On** the *Annotation Scale* button and set the *Scale* value to **1:50**.



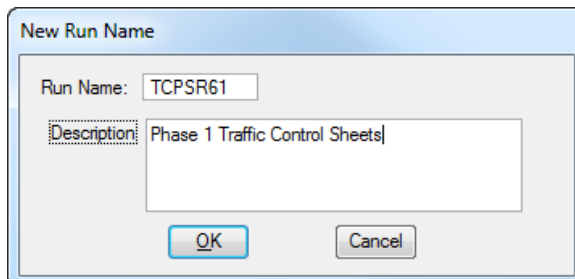
6. From the Road Project dialog, click the **Plan & Profile Sheets** button.



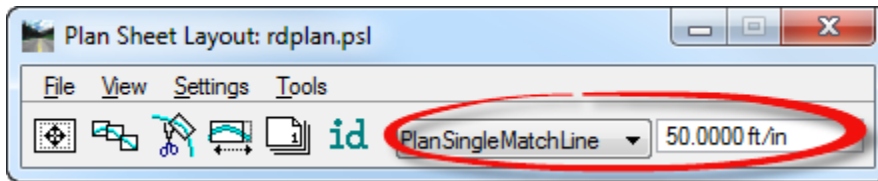
7. The Select Run dialog displays. Select **Run > New** to create a *New Run*.



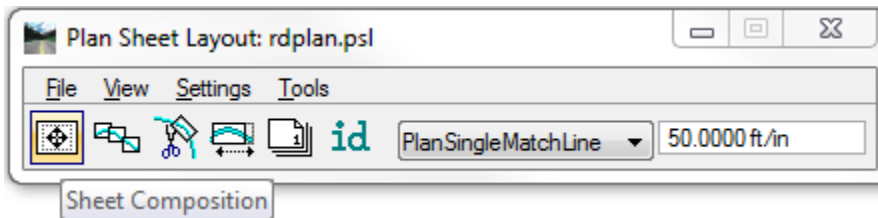
- a. The New Run Name dialog displays. Enter **TCPSR61** for the *Run Name*.
- b. Add a *Description* for the run as shown below. Click **OK** to close *New Run Name* dialog.



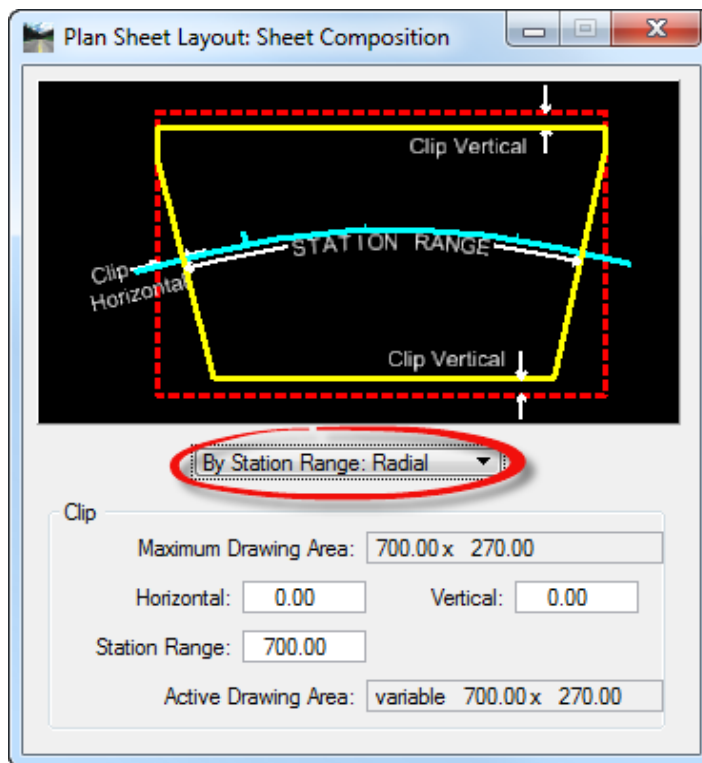
- c. From the **Select Run** dialog highlight **TCPSR61** from the list and click **OK**.
- 8. The **Plan Sheet Layout** dialog displays.
 - a. Set the *Sheet* to **PlanSingleMatchLine** and the *Scale* to **50.00 ft/in**.



- b. Click the **Sheet Composition** button.

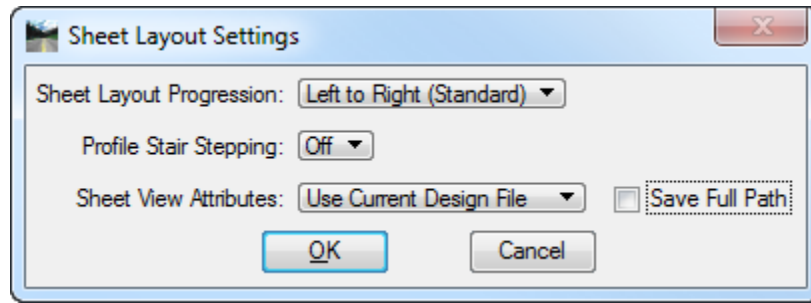


- c. The **Plan Sheet Layout: Sheet Composition** dialog displays. Set to **By Station Range: Radial** and close the **Plan Sheet Layout: Sheet Composition** dialog.

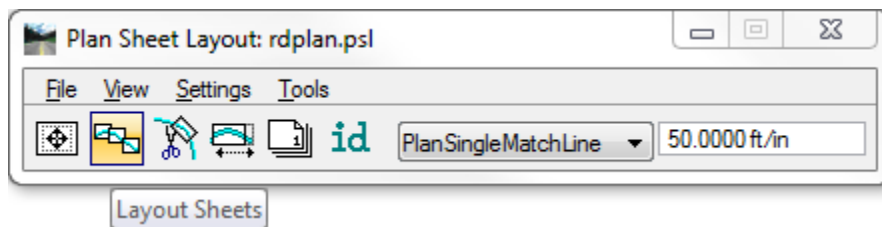


- d. From the **Plan Sheet Layout** dialog select **Settings > Sheet Layout**.

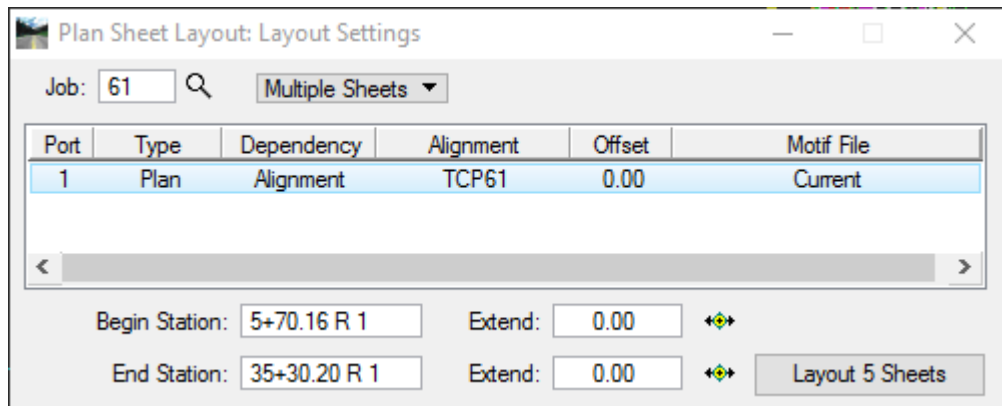
- e. The Sheet Layout Settings dialog displays. Set the *Sheet Layout options* as shown below and click **OK** to close Sheet Layout Settings dialog.



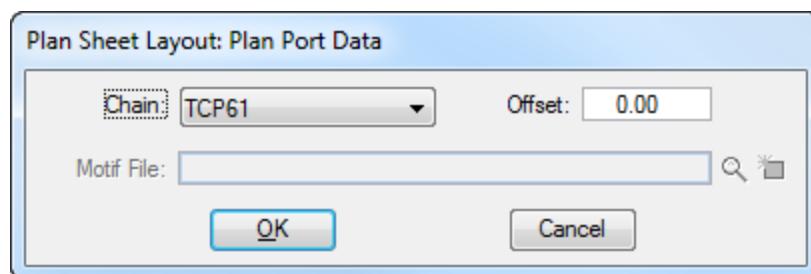
- f. From the Plan Sheet Layout dialog click the **Layout Sheets** button.



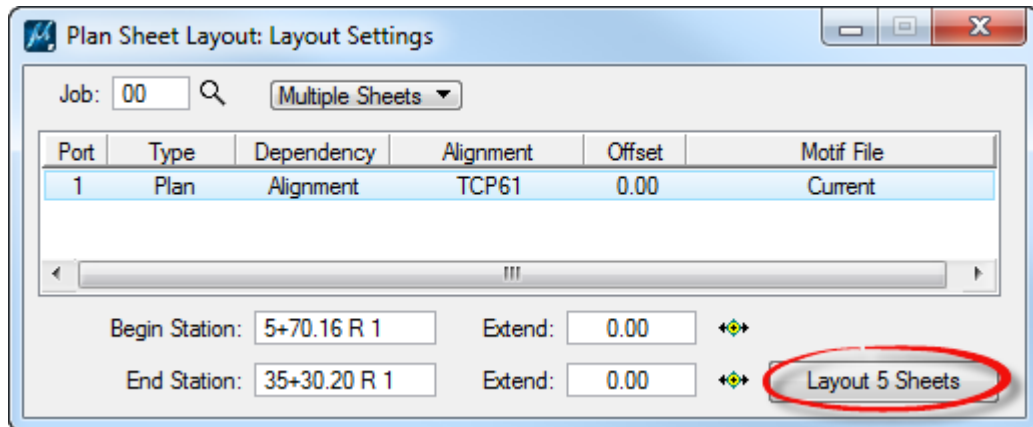
- g. The Plan Sheet Layout: Layout Settings dialog displays: Be sure that *Job 61* is selected.



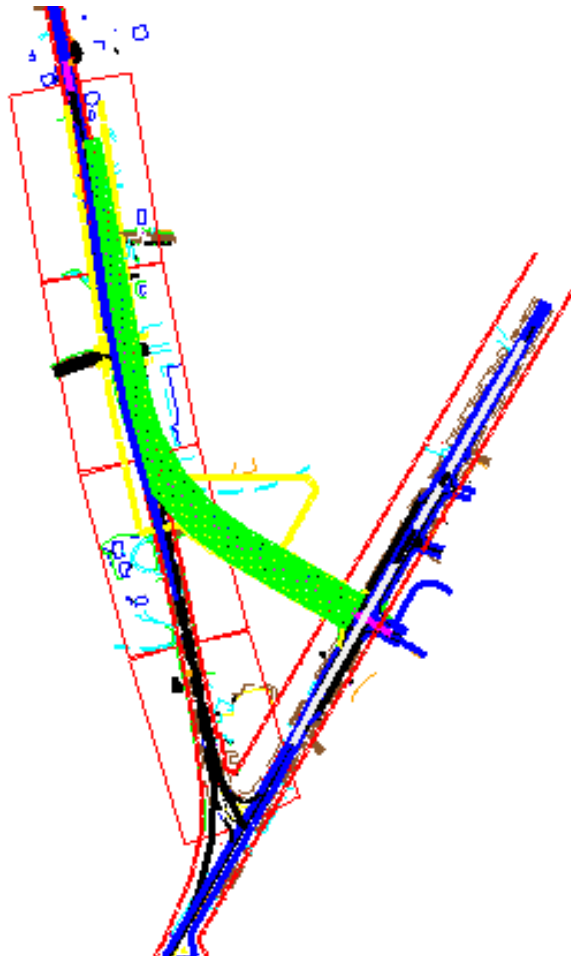
- h. Highlight **Port 1** and double click to open Plan Sheet Layout: Plan Port Data dialog. Verify that the *Chain* is set to **TCP61** and click **OK** to close Plan Sheet Layout: Plan Port Data dialog.



- i. From the Plan Sheet Layout: Layout Settings dialog, click on the **Layout 5 Sheets** button.



- j. The *clip borders* will be laid out for the Traffic Control Plan in the *CLIPRD20* design file.



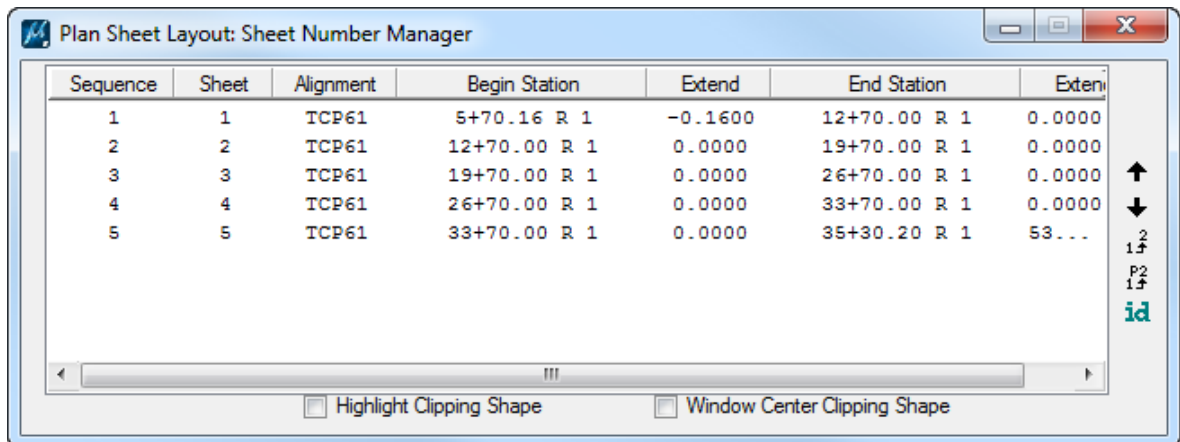
9. Continuing in MicroStation turn **Off** the following *Levels*:

<u>File Name</u>	<u>Levels</u>
CLIPRD20	ClipBorder_dp
DSGNRD01	*_pm Default TmpDrpHndlStg3_dp PavtAsphalt_ep ConstLines CorrHndlStg3_dp
RWDTRD01	TextMisc TextMinor TextLabel TextCurveData LeaderLine_dp BoundaryLineImp PropertyLine_ep Default
TOPORD01	TextMisc PavtCrown_ep Pavemk_ep GroundShot_ep DummyChains_ep

10. Use MicroStation **Fit View** and then select **File > Save Settings**.

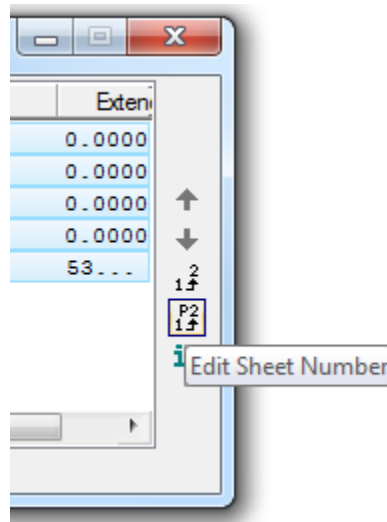
11. From the Plan Sheet Layout dialog, go to **Tools > Sheet Number Manager**.

a. The Plan Sheet Layout: Sheet Number Manager dialog displays.

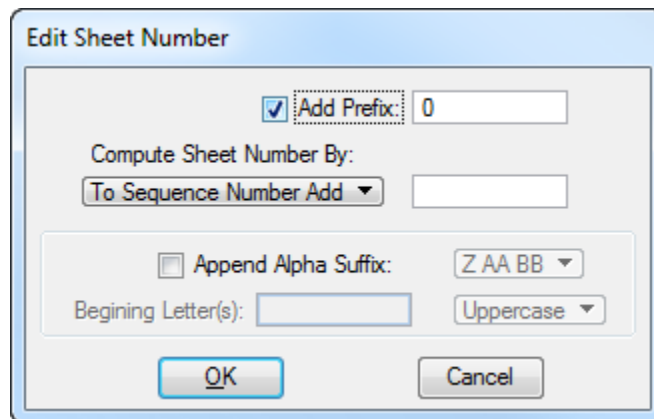


b. Select all of the *sheets* in the dialog.

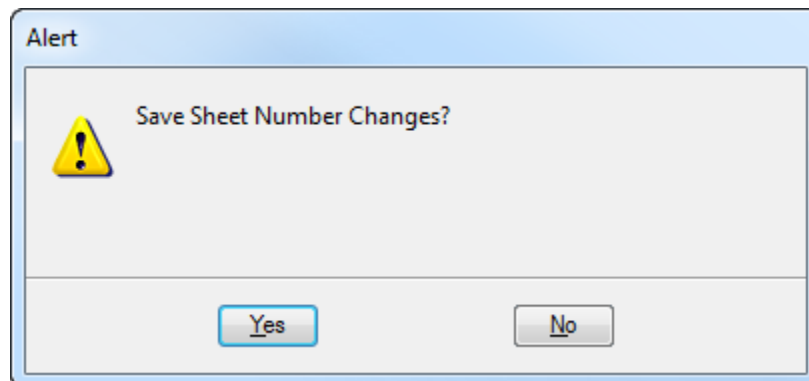
- c. On the right side of the dialog select the **Edit Sheet Number** icon.



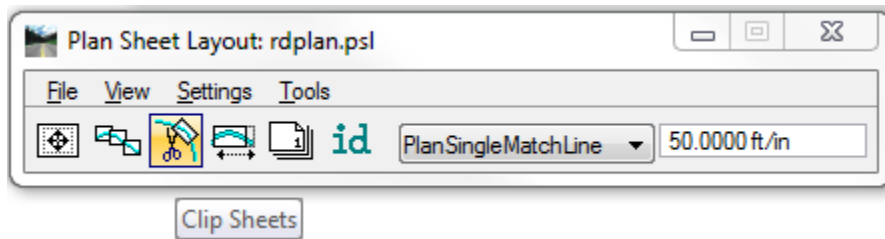
- 12. The Edit Sheet Number dialog displays. Toggle **On Add Prefix**, and enter a **0** in the field and click **OK**.



- a. Close the Plan Sheet Layout: Sheet Number Manager dialog. An Alert message will appear. Click **Yes** to *Save the Sheet Number Changes*.

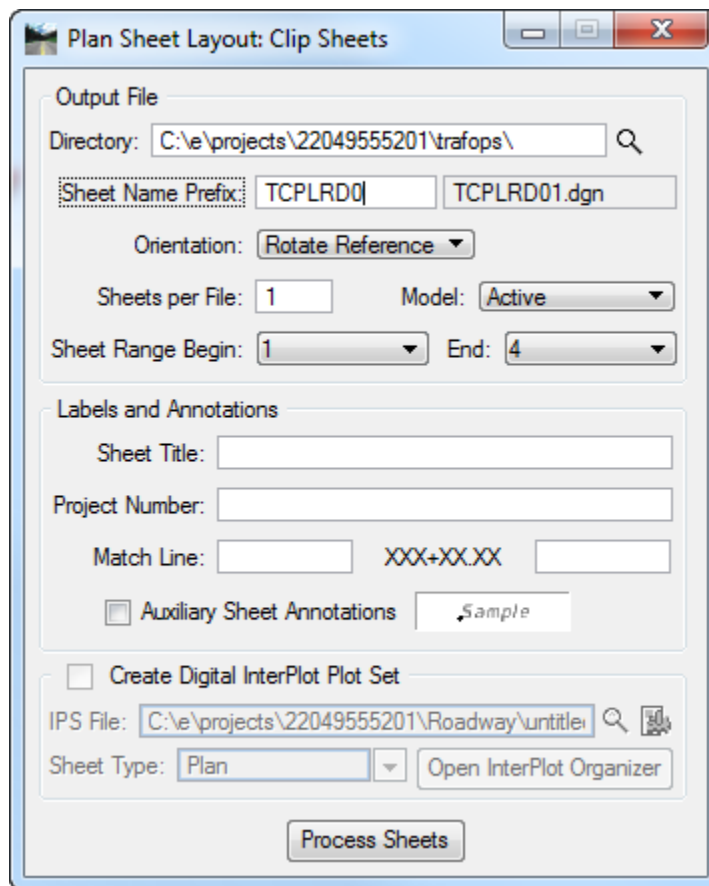


13. From the Plan Sheet Layout dialog, click the **Clip Sheets** button.



14. The Plan Sheet Layout: Clip Sheets dialog displays. Under the *Output File* section:

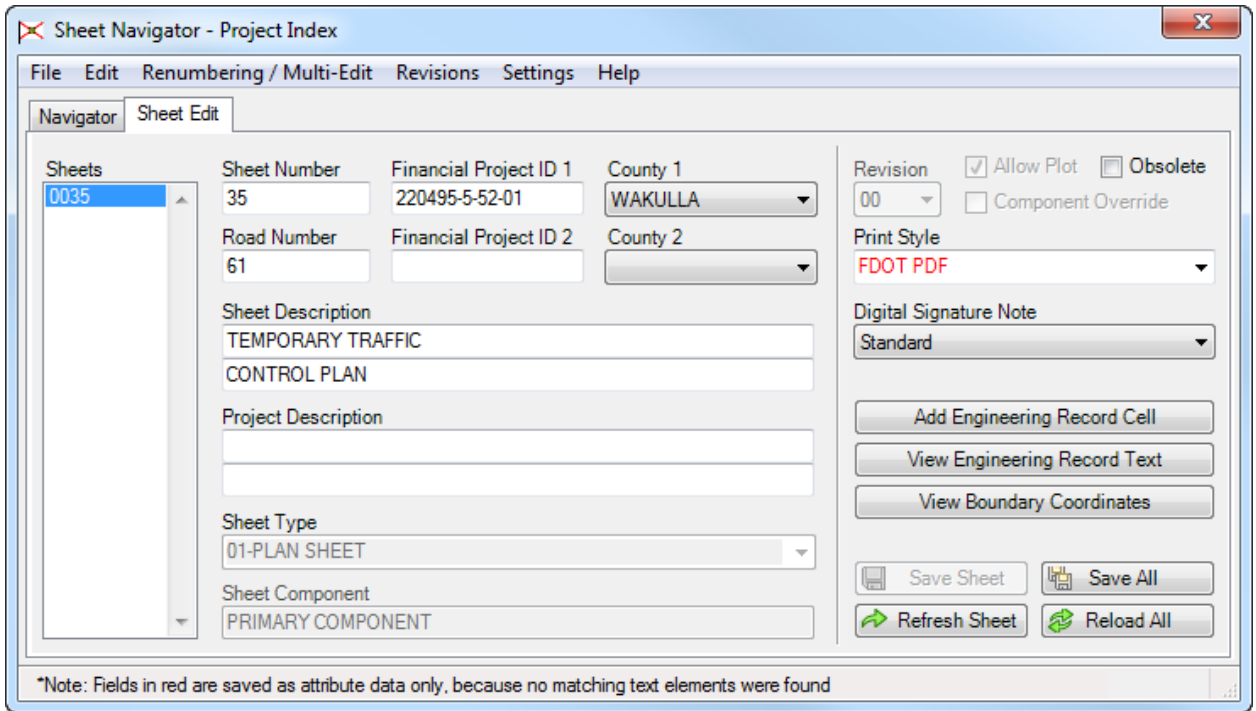
- a. Set the *Directory* to *c:\e\projects\22049555201\trafops*.
- b. Set the *Sheet Name Prefix* to **TCPLRD**.
- c. Set the *Orientation* to **Rotate Reference**.
- d. Complete all other settings as shown below.



- e. Click the **Process Sheets** button. All sheets are created with all references attached.
- f. Once all the sheets are created, **Close** the *Plan Sheet Layout: Clip Sheets* dialog.

15. **Close** Plan Sheet Layout dialog. Click **Yes** to save the *Plan Sheet Project Manager Settings*.

16. In MicroStation, open **TCPLRD01.dgn** in the *Trafops* folder and review the file.
17. Set the Plot Scale of each file to **50.0**.
18. Use Sheet Navigator to *label* and *number* each **sheet 31-35** as shown below.



19. From MicroStation turn **Off Data Fields**, **Fit View** and **Save Settings** in each file.
20. Close MicroStation.

[THIS PAGE INTENTIONALLY LEFT BLANK.]

10 UTILITY ADJUSTMENT SHEETS

The designer is to make reasonable efforts to accommodate all existing utilities and any utilities to be constructed during the project. The designer is also responsible for identifying needed utility work (such as the removal, relocation, de-energizing, deactivation, or adjustment of utilities) and obtaining the agreements or orders to schedule this work. Consequently, coordination between the Department and the Utility Agency/Owner (UAO) is to be accomplished throughout the design process. All requirements for the utility information, can be found in *Part 2, Chapter 221* of the *FDOT Design Manual (FDM)*.

OBJECTIVES

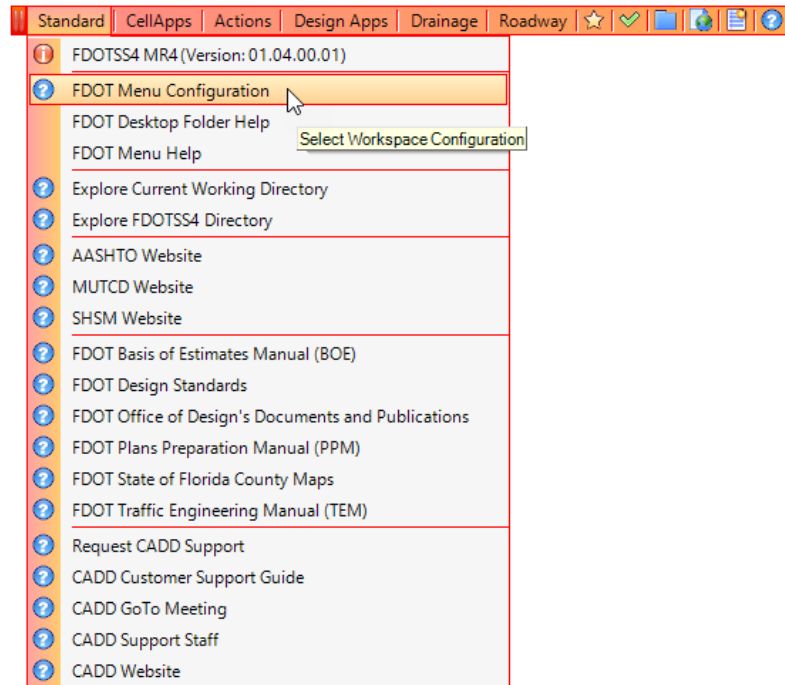
- Layout Utilities using Civil Features
- Layout Utilities using SUE Features Label Proposed and Existing Utilities
- Create Clip Boundaries for Utility Adjustment Sheets
- Create Utility Adjustment Sheets

EXERCISE OVERVIEW

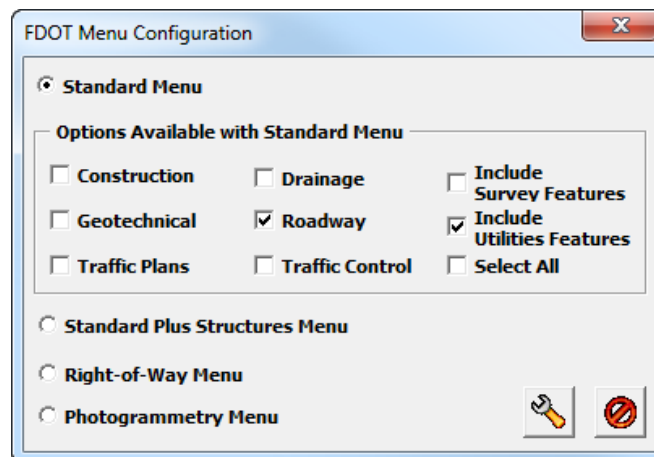
- 10.1 Loading the Utility Features
- 10.2 Laying Out Existing/Proposed Utilities Using Civil Features
- 10.3 Laying Out Existing Utilities Using SUE Features
- 10.4 Laying Out Proposed Utilities Using SUE Features
- 10.5 Creating Clip Boundaries for Utility Sheets
- 10.6 Labeling Utility Adjustment Plans
- 10.7 Generating Utility Adjustment Sheets


Exercise 10.1 Loading the Utility Features

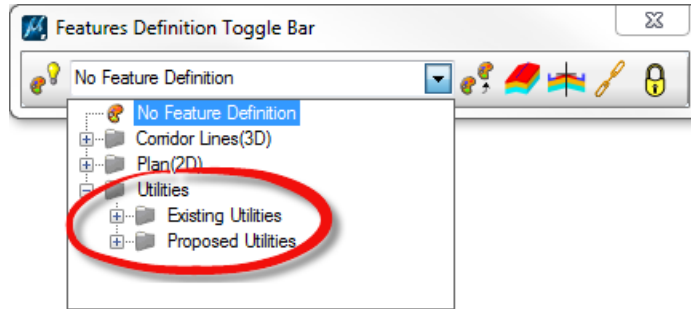
1. (Optional) Extract the *22049555201(10).zip* file in the *Data Set* folder to the *c:\e\projects* folder.
2. Use the **FDOTSS4** icon open MicroStation design file:
C:\e\Projects\22049555201\roadway\DSGNRD01.dgn.
3. On the FDOT Menu select **Standard > FDOT Menu Configuration**.



4. The FDOT Menu Configuration dialog displays. Make sure the *Roadway* and *Include Utilities Features* options are toggled **On**.



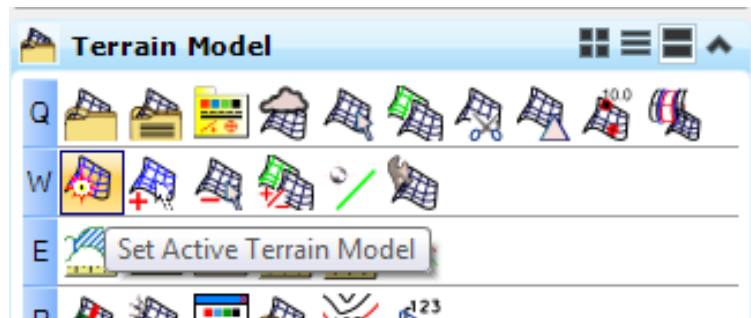
5. Click the **Configure** icon . MicroStation will close and reopen with the *Utility Features* loaded.



Exercise 10.2 *Laying Out Existing/Proposed Utilities Using Civil Features*

1. Use the FDOTSS4 icon, open MicroStation design file
C:\e\projects\22049555201\utils\UTEXRD01.dgn.
2. In MicroStation, select **File > Save As...** Save the utility as *UTEXRD02.dgn*.
3. Continuing in the *UTEXRD02.dgn* file, **Reference** in the *Existing Terrain* file,
C:\e\projects\22049555201\survey\GDTMRD02.dgn.

From the Menu Tasks select Civil Tools > Terrain Model > Set Active Terrain Model.



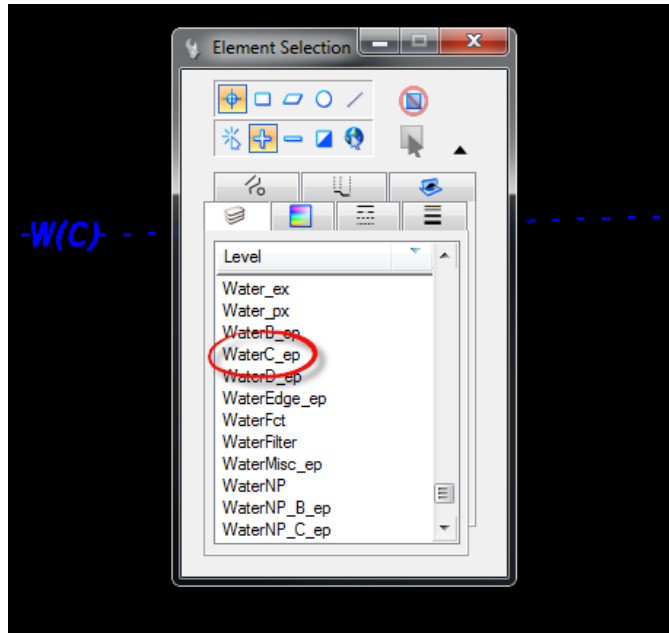
*At the cursor prompt, select the **Terrain Boundary** green line from the attached GDTMRD02 Reference file
<OR> select from the list on the dialog.*



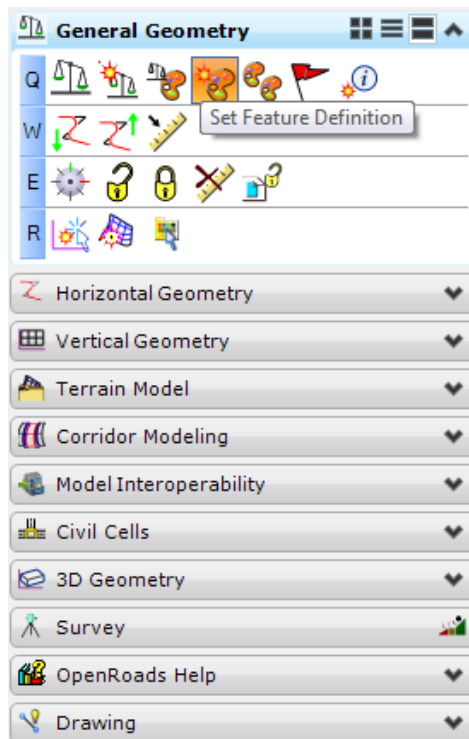
*Set the Active Level to **WaterC_ep**.*

Use the MicroStation **Create Complex Chain**, set Method to **Manual** and chain together the **WaterC_ep** lines in the active file.

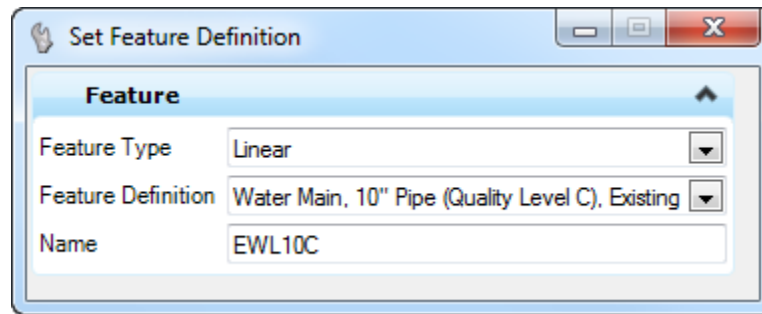
Create a Selection Set of the **WaterC_ep** elements.



- From the Civil Tools Task Menu, select the **General Geometry > Set Feature Definition** tool.



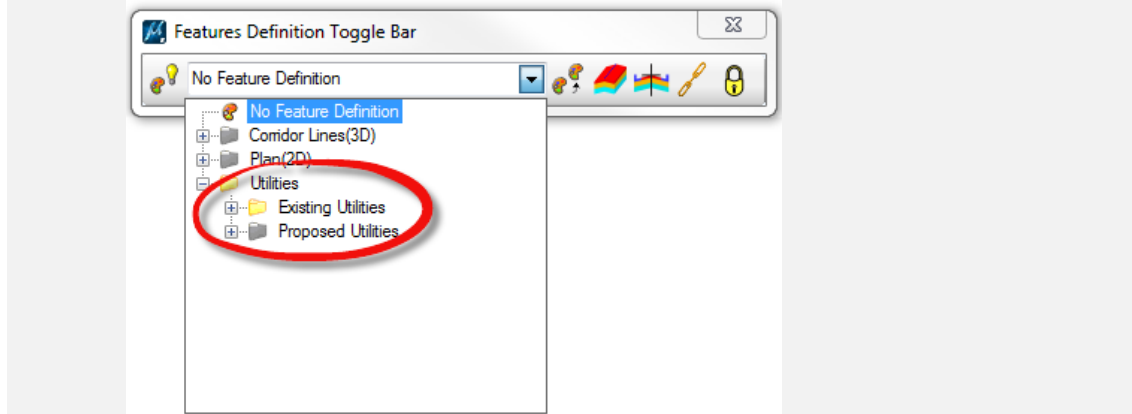
The Set Feature Definition dialog displays.



- a. Set the *Feature Type* to **Linear**.

Set the *Feature Definition* to **Water Main 10" Pipe (Quality Level C), Existing**.

Note Existing and Proposed Utility features are located in the Utilities folder in the Feature List.

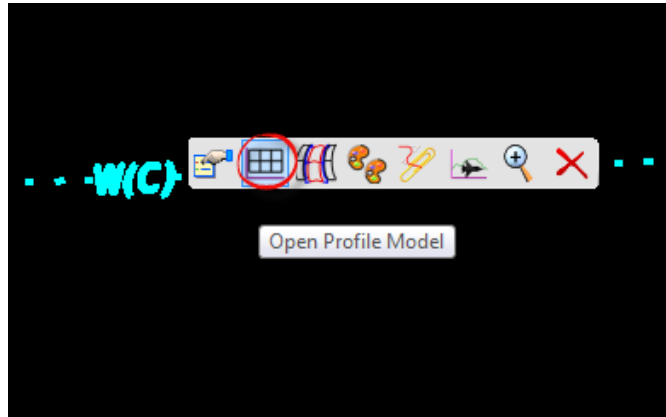


Data point in the view to *Apply Feature Definitions* to elements.

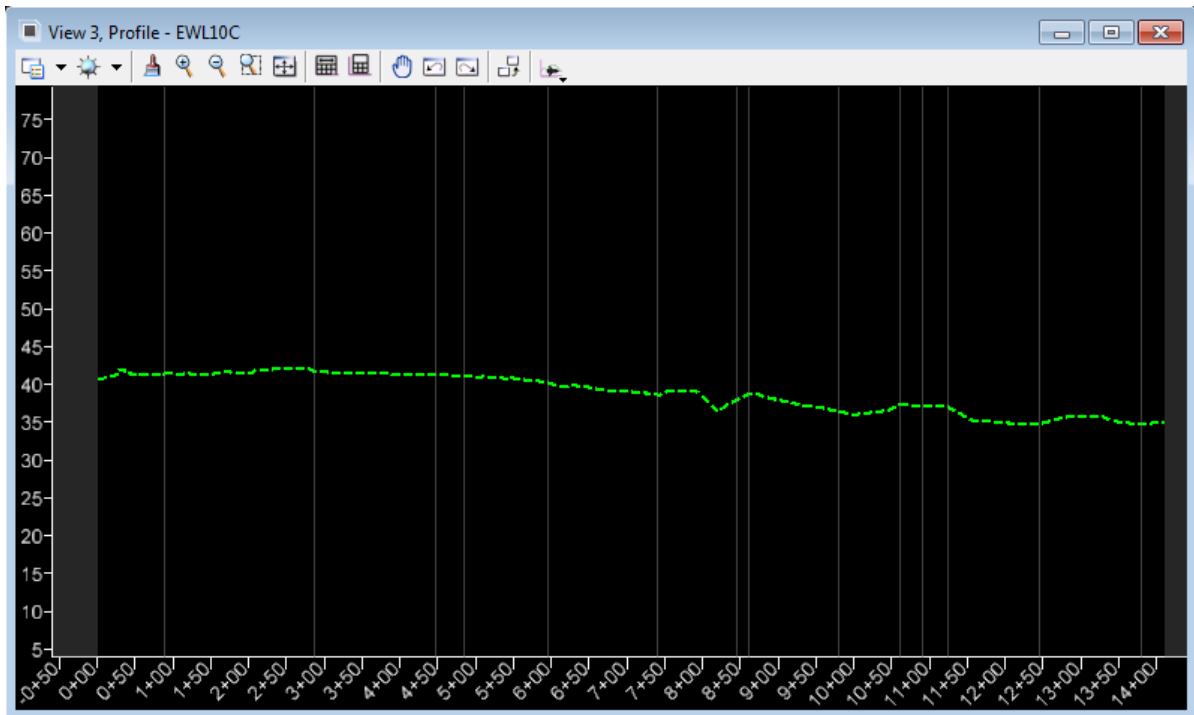
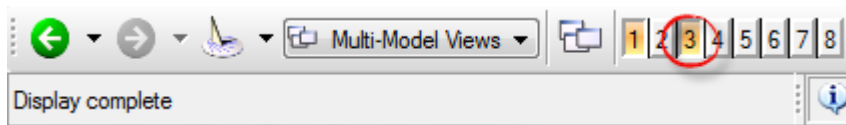
Use *MicroStation Element Selection* to identify the new Feature and hover over the element to verify the new Feature Definition.



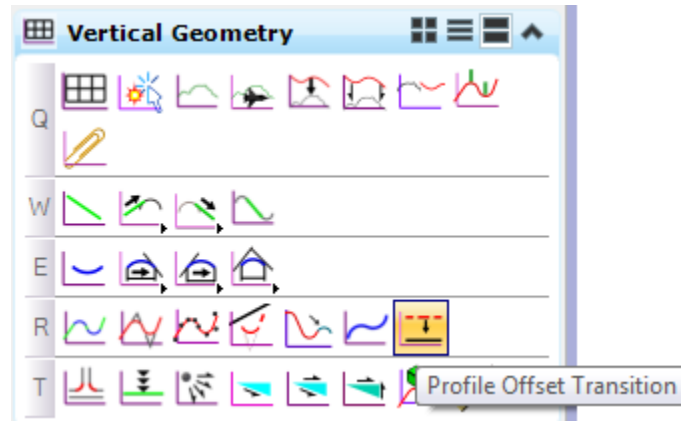
Select the **water line** and hover over it to display the **Context Menu**. Select **Open Profile Model**.



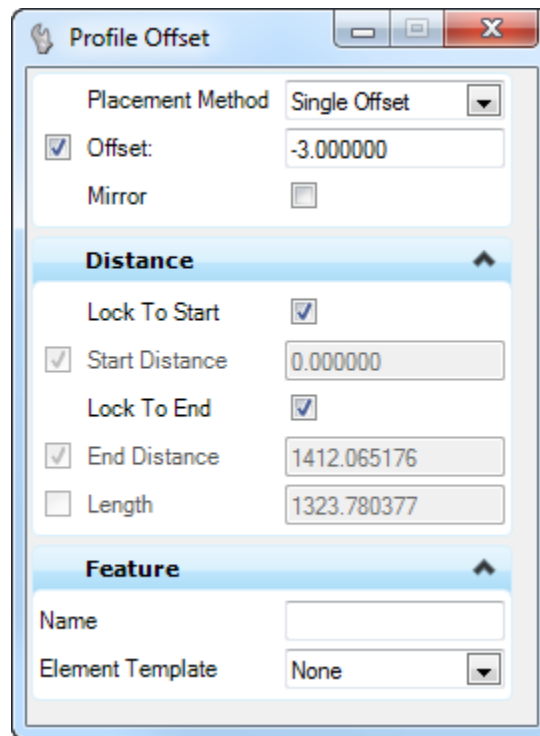
At the cursor prompt, select **View 3** to open and draw the profile.



5. To *offset* the Utility Profile line **3 feet below** the existing Terrain surface, on the Civil Tools Task Menu, select the **Vertical Geometry > Profile Offset Transition** tool.

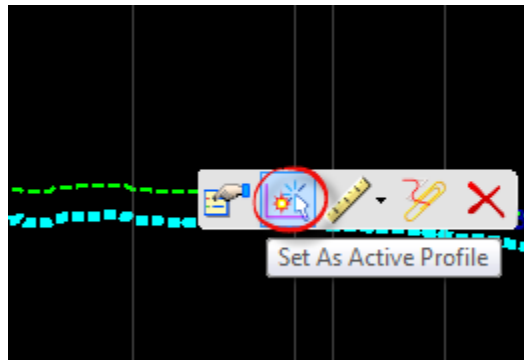


The Profile Offset dialog displays.

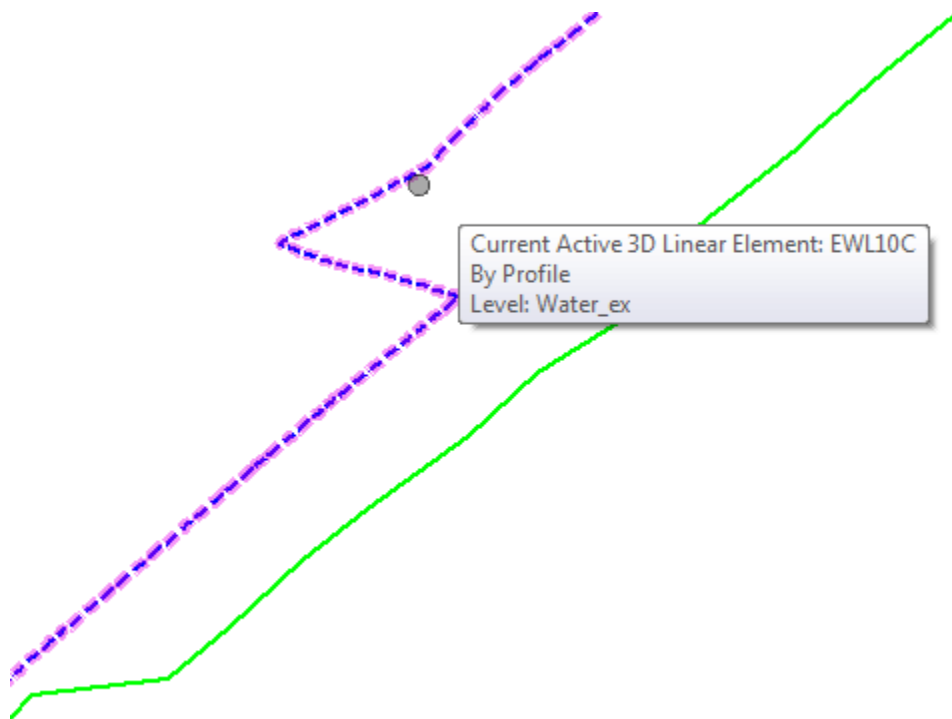


- Set the *Placement Method* to **Single Offset**.
- Following the prompt on the cursor, select the *water profile* line in **View 3**.
- Enter **-3.0** for the *Offset* value.
- Press the → key and press **Alt** to lock the profile to the *Start Point*.
- Data point** to accept the *Offset* and *Start Point*.
- Press **Alt** to lock the Profile to the *End Point* and **data point** to accept the *End Point*.
- Set *Mirror* to **No**.
- Data point** to place the profile line the view.

Select the **water profile** line in **View 3** and hover over it to display the **Context Menu**. Select **Set As Active Profile**.



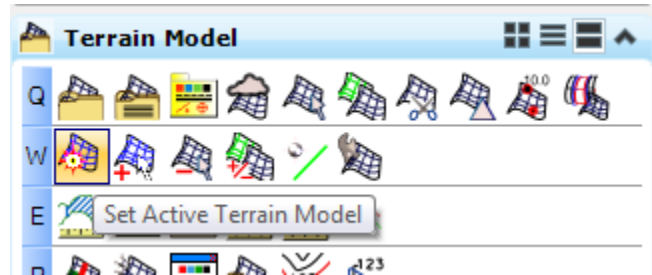
Press the **F2** key to open the **3D View** and view the **3D water line**.



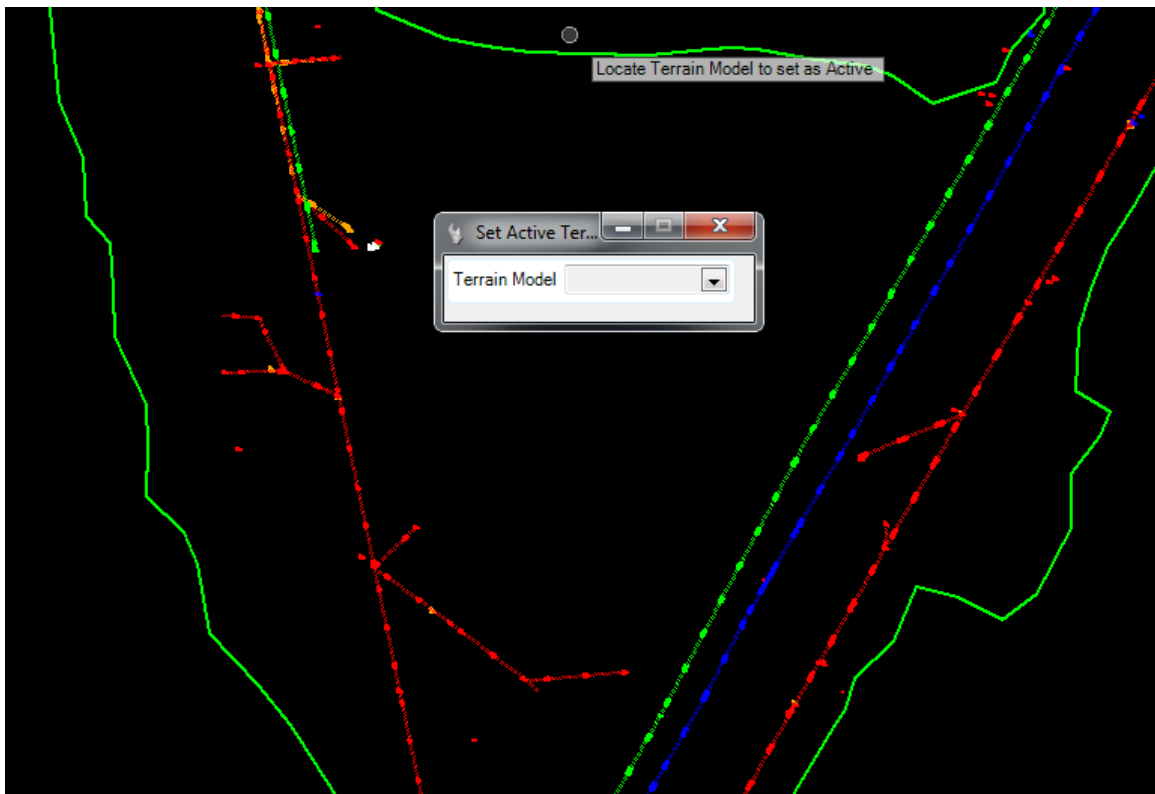
Repeat steps 7-18 to incorporate all of the **Underground Utilities** in the file.

Exercise 10.3 *Laying Out Existing Utilities Using SUE Features*

1. Use the **FDOTSS4** icon, open MicroStation design file
C:\e\projects\22049555201\utils\UTEXRD01.dgn.
2. In MicroStation, select **File > Save As...** Save the utility as *UTEXRD03.dgn.*
3. Continuing in the *UTEXRD03.dgn* file, **reference** in the *Existing Terrain* file,
C:\e\projects\22049555201\survey\GDTMRD02.dgn.
4. Select the Menu Tasks to **Civil Tools > Terrain Model > Set Active Terrain Model.**



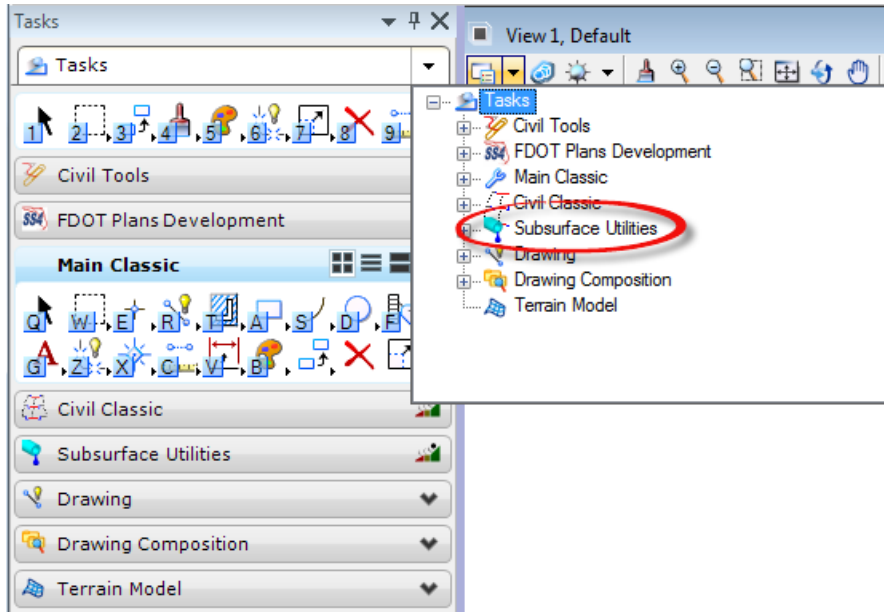
At the cursor prompt, select the **Terrain Boundary** green line from the attached GDTMRD02 Reference file
 <OR> select from the list on the dialog.



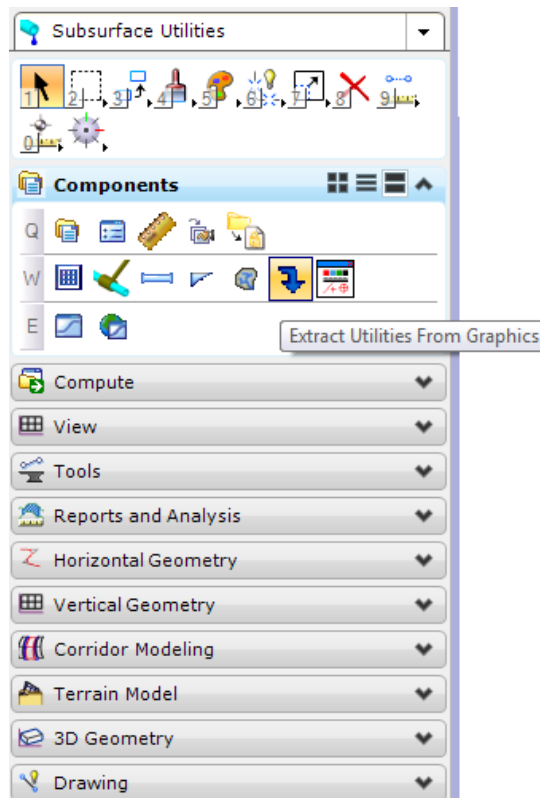
5. Set the *Active Level* to **WaterC_ep.**
6. Use the MicroStation **Create Complex Chain**, set *Method* to **Manual** and chain together the **WaterC_ep** lines in the active file.

Note It is not necessary in order to use the SUE tools but makes selecting the utility lines easier. Instead of having multiple small lines to select there will be one or two chains.

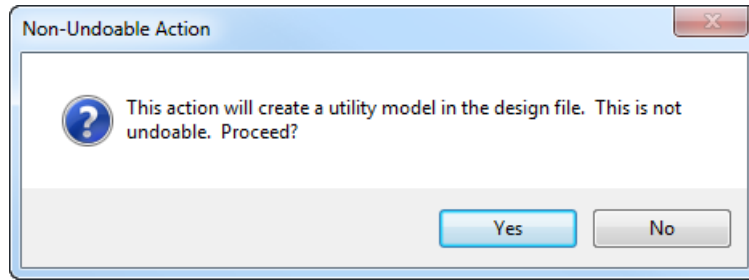
From the Tasks Menu select Subsurface Utilities.



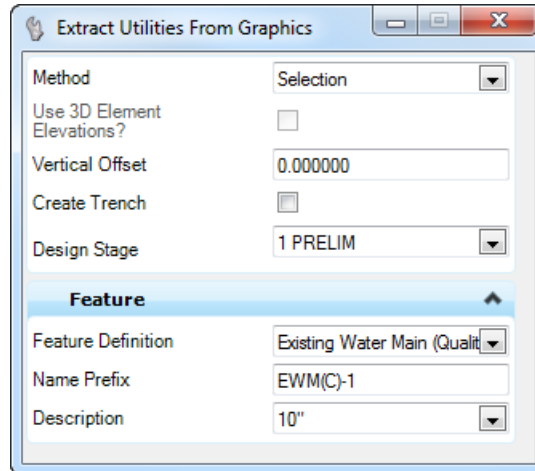
7. On the Subsurface Utilities Task Menu, select **Components > Extract Utilities From Graphics**.



An Action message will display. Click Yes to Proceed and create a subsurface utility model.

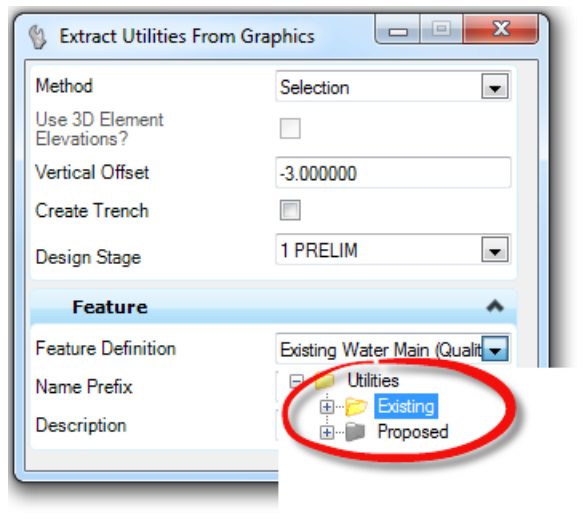


The *Extract Utilities From Graphics* dialog opens.



Set the *Feature Definition* to **Existing Water Main (Quality Level C)**.

Note Existing and Proposed Utility features are located the Utilities folder in the Feature List for SUE. These features are different from the civil utility features. They have much more intelligence attached to them.



Set the *Name Prefix* to **EWM(C)-1**.
Set the *Description* or the size of the pipe to **10"**.

- a. Following the prompts on the cursor, set the *Method* to **Selection** and **data point** to accept.

Next locate or select the *water lines* to be extracted and right-click when finished.

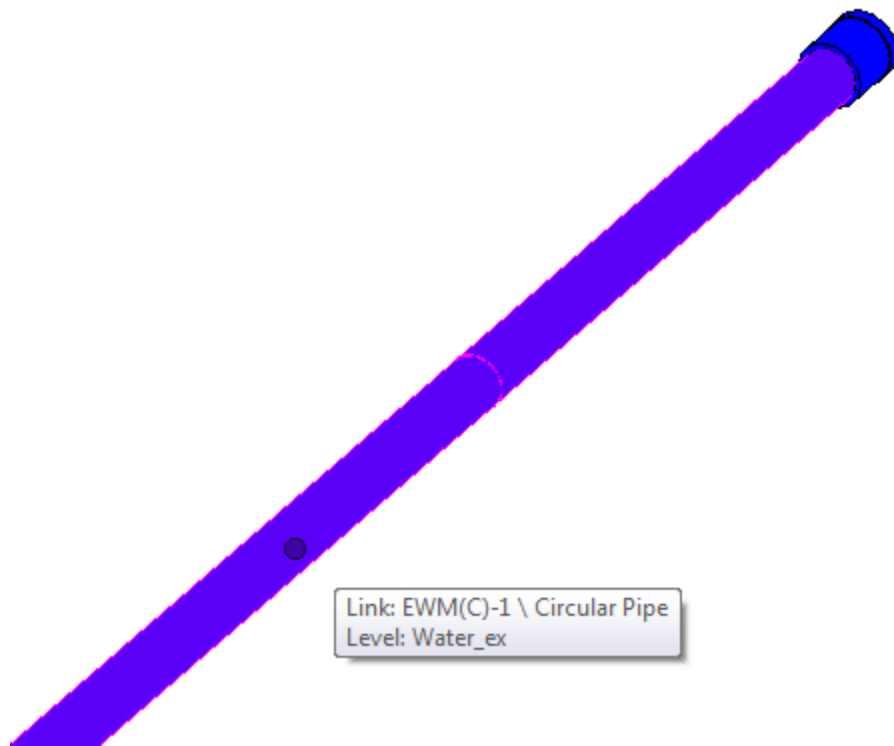
Note Multiple lines can be selected at the same time. They do not have to be connected.

Following the next prompt, select the *Existing Surface* or right-click and the *Active Terrain Model* will be used.

Enter a value of **-3.0** for the *Offset*. This is a standard depth of cover value.

Set *Create Trench* to **No** and **data point** to accept and the extraction to process.

A *3D Model* of the pipes will be created and the *3D View* will be *referenced* to the 2D view. Press the **F2** key to review the *2D and 3D Views* side by side.

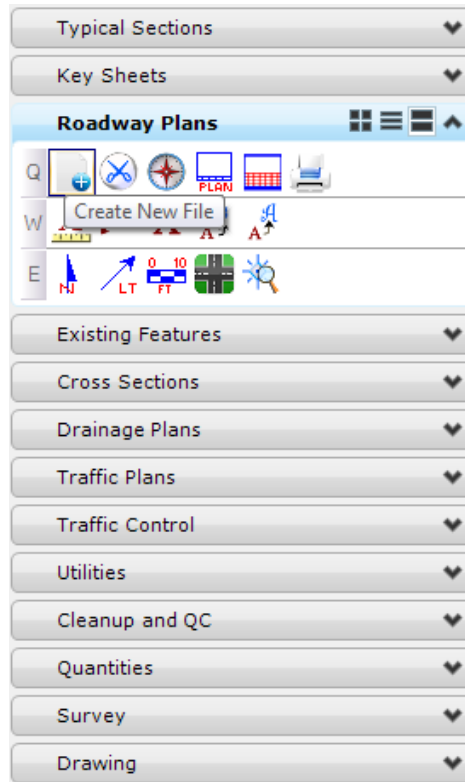


- 8. **Repeat** steps 6-11 and extract all of the *Underground Utilities* using the following information.

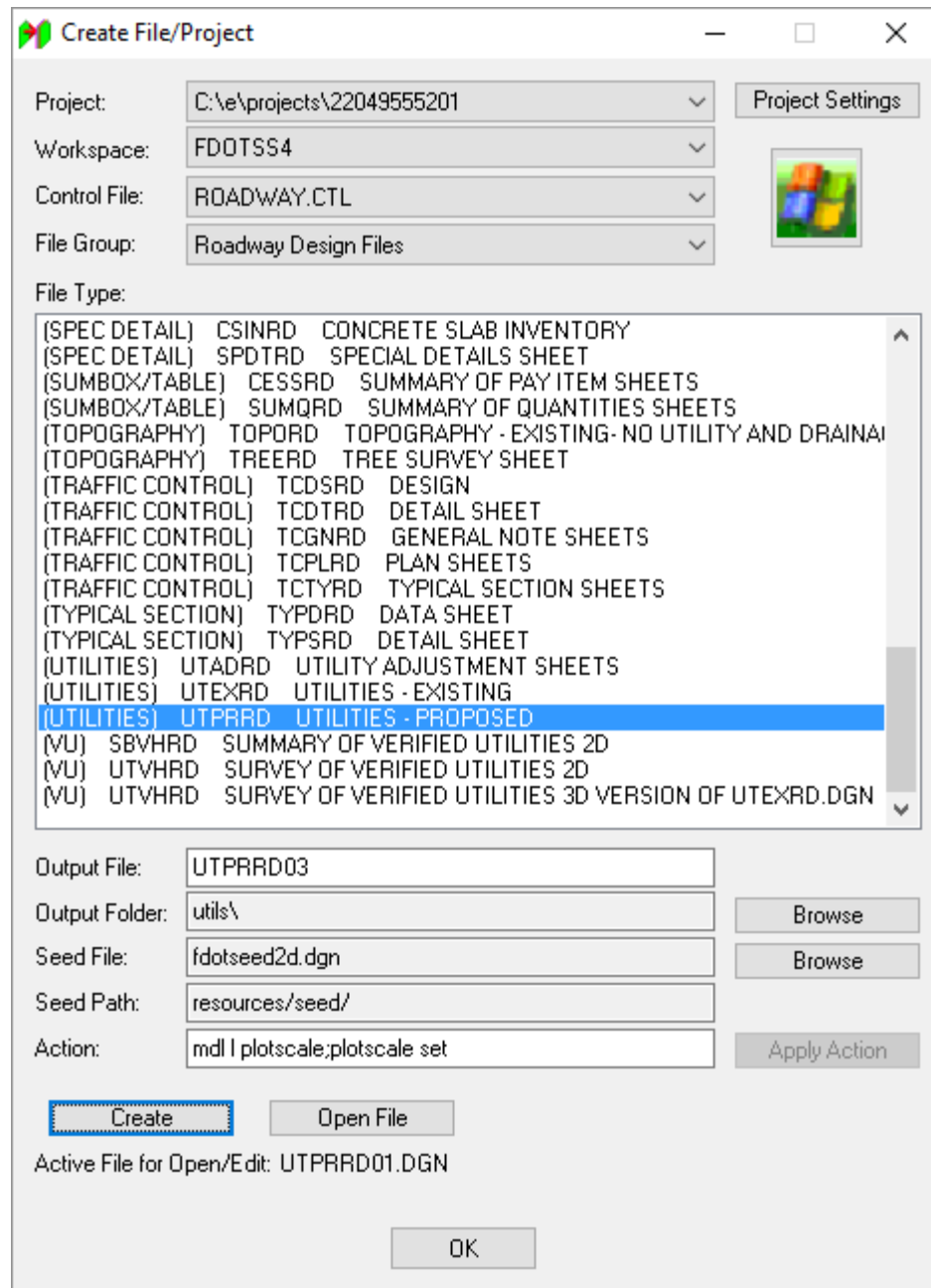
Utility Type	Pipe Size	Depth of Cover
Buried Electric (Quality Level D)	2.5"	-3.0 ft.
Sanitary Sewer (Quality Level B)	18"	-4.0 ft.
Force Main (Quality Level C)	15"	-4.0 ft.

Exercise 10.4 *Laying Out Proposed Utilities Using SUE Features*

1. Use the FDOTSS4 icon, open MicroStation design file
C:\e\Projects\22049555201\roadway\DSGNRD01.dgn.
2. On the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File.**

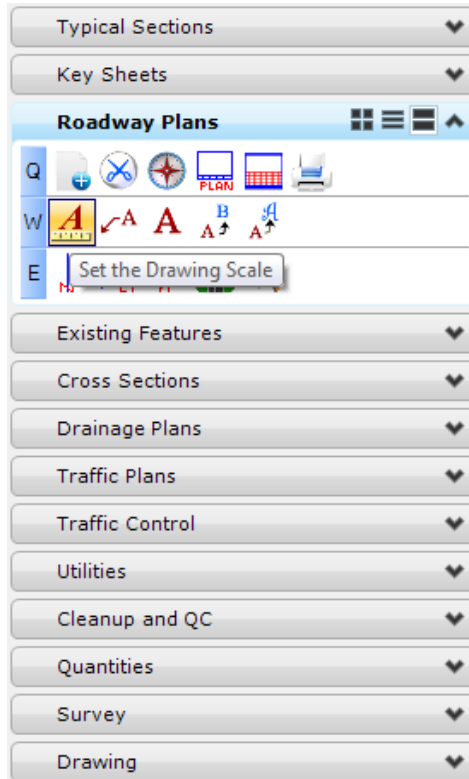


3. The Create File/Project dialog displays. Complete as shown below.

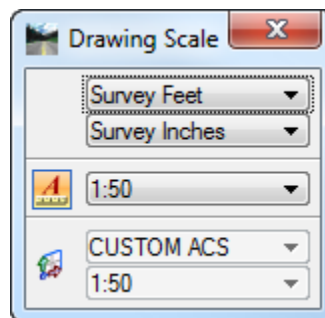


4. Make sure the *Output File* name is **UTPRRD03**.
5. For the *Output Folder* click **Browse** and select the **utils** folder.
6. Click **Create** to create the file, **UTPRRD03.dgn**.
7. Click **Open File** to display the newly created *UTPRRD03.dgn*. *Set/Update Plot Scale* displays. Use the **Default** settings and click **OK**.
8. Click **OK** and the Create File/Project dialog closes.

9. From the FDOT Plans Development Task Menu, select **Roadway Plans > Set the Drawing Scale**.



10. The Drawing Scale dialog displays. Toggle **On** the *Annotation Scale* button and set the *Scale* value to **1:50**.



11. **Reference** in the following design files:

C:\e\projects\22049555201\roadway\ALGNRD01.dgn; model ALGNRD_50

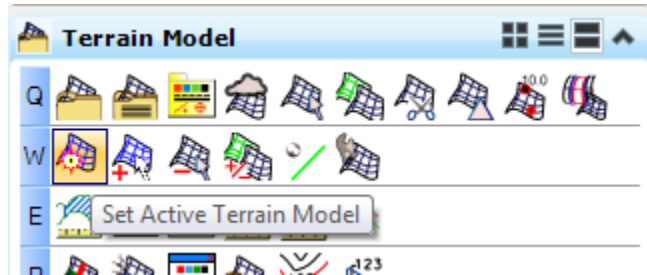
C:\e\projects\22049555201\roadway\DSGNRD01.dgn

C:\e\projects\22049555201\survey\GDTMRD02.dgn

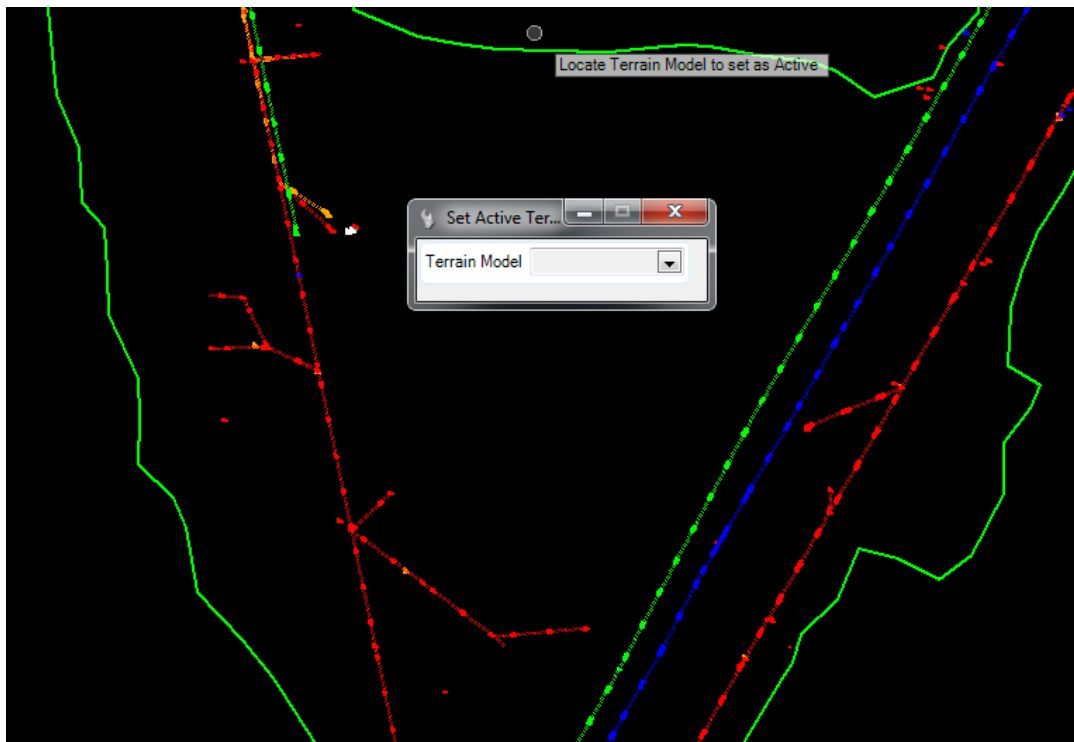
C:\e\projects\22049555201\utils\UTEXRD03.dgn

Select the *Tasks* list and set the *Menu Tasks* to *Civil Tools*.

12. On the Civil Tools Task Menu, select **Terrain Model > Set Active Terrain Model**.

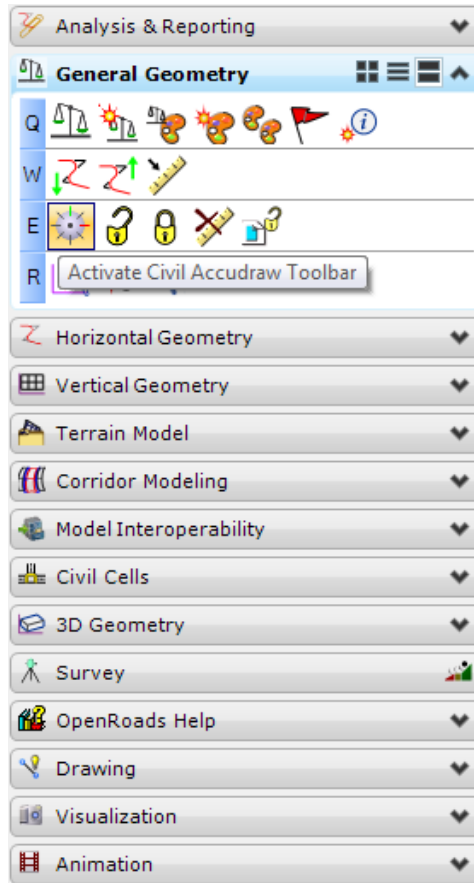


*At the cursor prompt, select the **Terrain Boundary** green line from the attached GDTMRD02 Reference file <OR> pick it from the list on the dialog.*



13. Press the **F8** key to disable **Accudraw**.

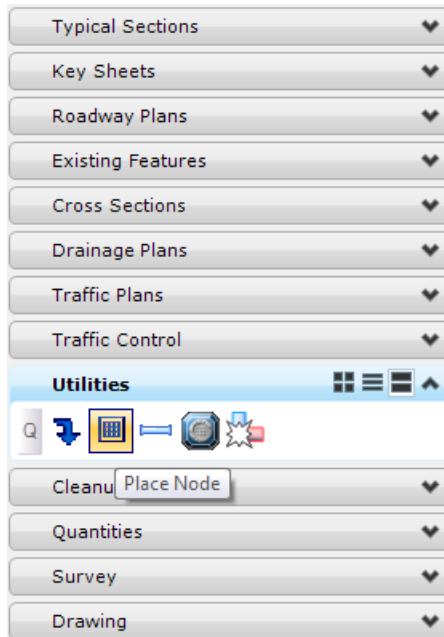
14. On the Civil Tools Task Menu, select **General Geometry > Activate Civil Accudraw Toolbar**.



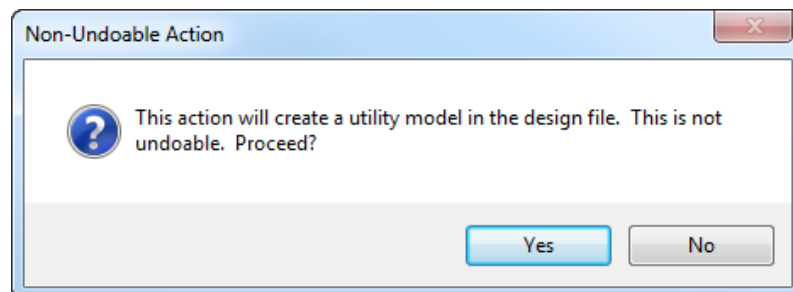
15. The Civil Accudraw toolbar opens. Set Civil Accudraw to use **Station-Offset**.



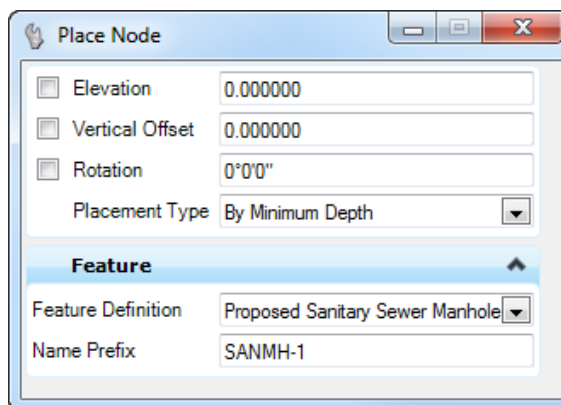
16. On the FDOT Plans Development Task Menu, select **Utilities > Place Node**.



17. A Non-Undoable Action message displays. Click **Yes** to Proceed and create a subsurface utility model.

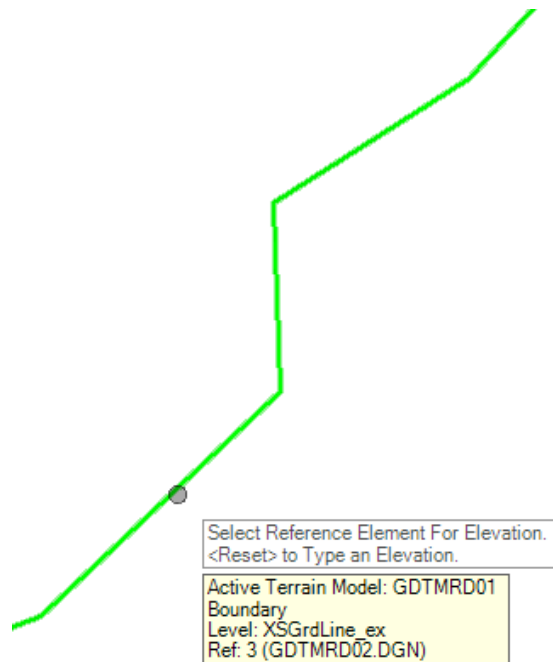


18. The Place Node dialog opens.



- a. Set the *Feature Definition* to **Proposed Sanitary Sewer Manhole**.
- b. Type in the *Name Prefix* **SANMH-1**.

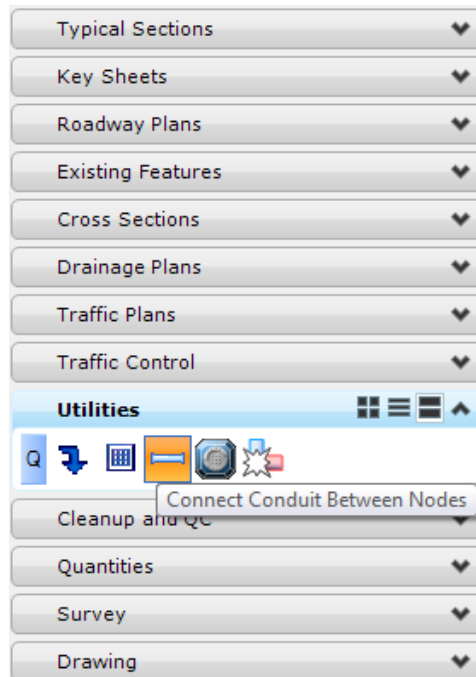
- c. Following the prompts on the cursor, select a *Reference Element For Elevation*.
Select any **3D line** in the 3D or 2D view.



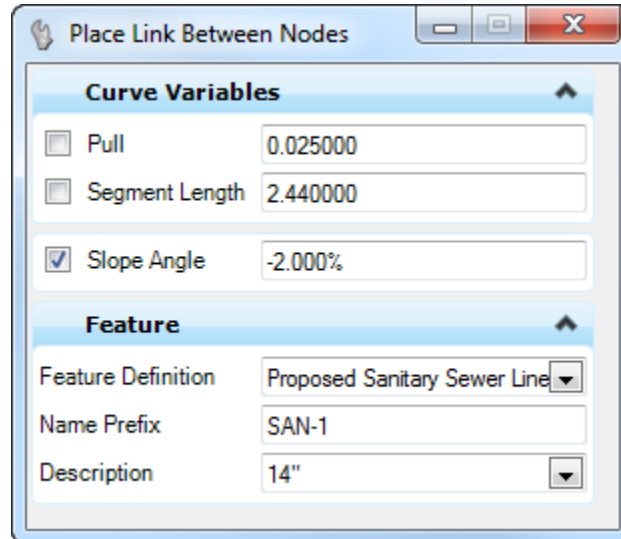
- d. Set the *Placement Type* to **By Minimum Depth** and data point in the 2D view.
- e. Enter **-4.0** for *Offset*, then tab to the *Station* field and type in the letter '**o**' and then select the **BL 98** as the AccuDraw *Reference Element*.
- f. Tab to the *Station* field and type in **34+00.00**.
- g. Tab to the *Offset* field and type in **-75.0**.
- h. **Data point** to place the node.
- i. Set the *Rotation* to **60°** and **data point** to accept. The 2D and 3D manhole are placed.
- j. Follow those same steps and place manholes at the following locations:

Manhole	Station	Offset	Vertical Offset
SANMH-2	36+00.00	-80.0	-4
SANMH-3	37+60.00	-75.0	-4
SANMH-4	37+60.00	-114.0	0

19. On the FDOT Plans Development Task Menu, select **Utilities > Connect Conduit Between Nodes**.



20. The Place Link Between Nodes dialog displays.

A screenshot of the 'Place Link Between Nodes' dialog box. The dialog has a title bar with a hand icon, the text 'Place Link Between Nodes', and standard window controls (minimize, maximize, close). The dialog is divided into two sections: 'Curve Variables' and 'Feature'.
Curve Variables:

- Pull: 0.025000
- Segment Length: 2.440000
- Slope Angle: -2.000%

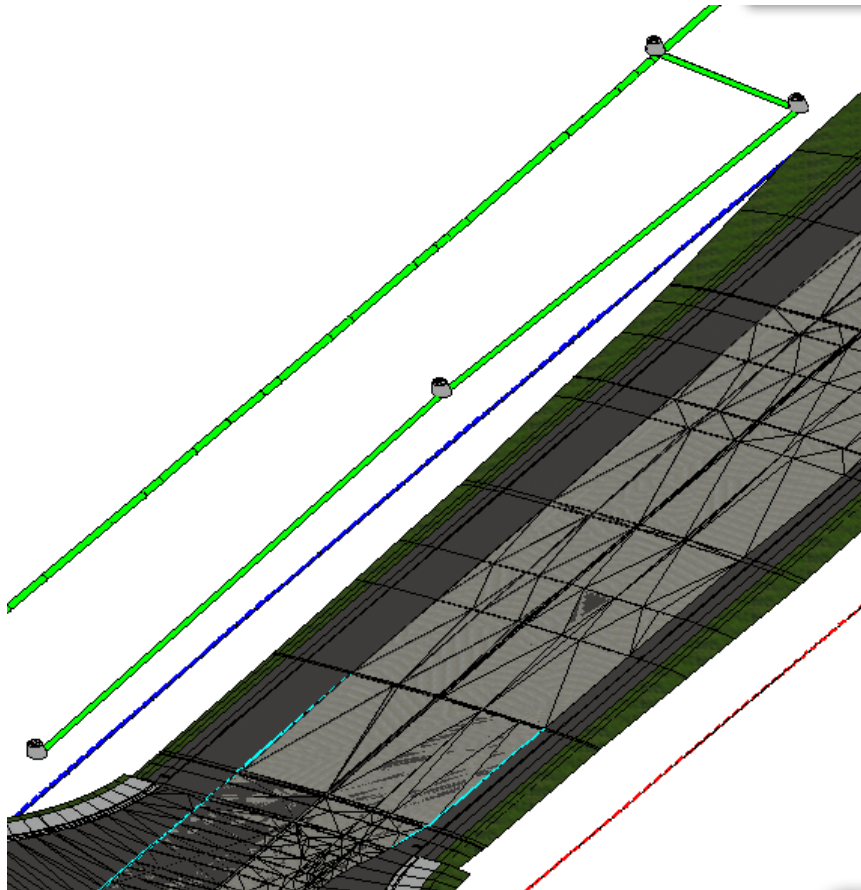
Feature:

- Feature Definition: Proposed Sanitary Sewer Line (dropdown)
- Name Prefix: SAN-1
- Description: 14" (dropdown)

- Set the *Slope Angle* to **-2.0%**.
- Set the *Feature Definition* to **Proposed Sanitary Sewer Line**.
- Set the *Name Prefix* to **SAN-1**.
- Set the *Description* to **14"**.
- Then following the prompt select the *Start Node* which will be Manhole **SANMH-1**.

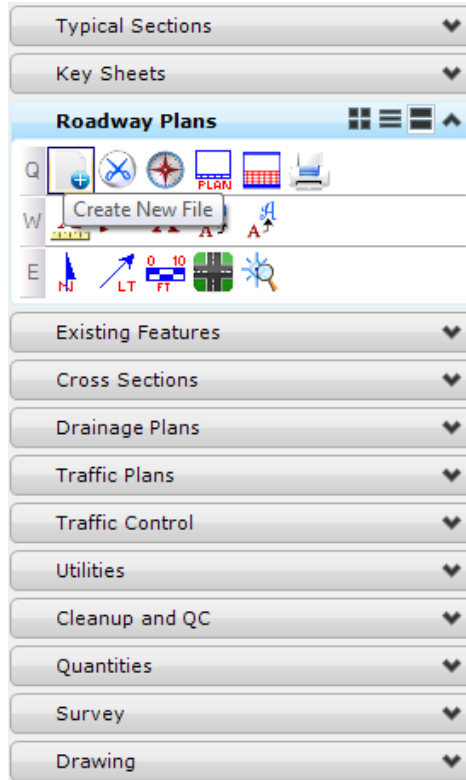
- f. Then *Select the next node to make a connection*. Connect **SANMH-1** to **SANMH-2** together and so on.

Note The nodes must be placed before the conduit can be placed.



Exercise 10.5 *Creating Clip Boundaries for Utility Sheets*

1. Use the FDOTSS4 icon, open MicroStation design file
C:\e\Projects\22049555201\roadway\DSGNRD01.dgn.
2. On the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File.**



3. The Create File/Project dialog displays. Complete as shown below.

Create File/Project

Project: C:\e\projects\22049555201 Project Settings

Workspace: FDOTSS4

Control File: ROADWAY.CTL

File Group: Roadway Design Files

File Type:

(BORDER/SHEET)	BDBRRD	BORDER SHEET REFERENCE - BRIDGE HYDRAULI
(BORDER/SHEET)	BDDMRD	BORDER SHEET REFERENCE - DRAINAGE MAP
(BORDER/SHEET)	BDPLRD	BORDER SHEET REFERENCE - PLAN
(BORDER/SHEET)	BDPPRD	BORDER SHEET REFERENCE - PLAN AND PROFILE
(BORDER/SHEET)	BDPRRD	BORDER SHEET REFERENCE - PROFILE
(BORDER/SHEET)	BDXSRD	BORDER SHEET REFERENCE - CROSS SECTION
(BORDER/SHEET)	GNNTRD	PROJECT NOTES
(BORDER/SHEET)	PLANRD	PLAN SHEET
(BORDER/SHEET)	PLAYRD	PROJECT LAYOUT SHEETS
(BORDER/SHEET)	PLPRRD	PLAN AND PROFILE SHEETS
(BORDER/SHEET)	PRDSRD	PROJECT PROFILE LAYOUT
(BORDER/SHEET)	PROFRD	PROFILE SHEETS
(BORDER/SHEET)	TMSSRD	TRAFFIC MONITORING SITE PLAN SHEET
(CLIPPING)	CLIPRD	CLIP BORDERS
(CLIPPING)	MTPLRD	MOTIF FILE FOR PLAN SHEETS
(CLIPPING)	MTPRRD	MOTIF FILE FOR PROFILE SHEETS
(CROSS SECT)	RDXSRD	ROADWAY CROSS SECTIONS, PATTERN LINES AND S
(EXISTING DTM)	GDTMRD	DIGITAL TERRAIN MODEL TIN MODEL 3D
(FEATURES)	GKLNDR	GEOPAK LINES FOR EXISTING FEATURES
(KEY)	KEYSRD	KEY SHEET

Output File: CLIPRD30

Output Folder: utils\ Browse

Seed File: fdotseed2d.dgn Browse

Seed Path: resources/seed/

Action: mdl | plotscale;plotscale set Apply Action

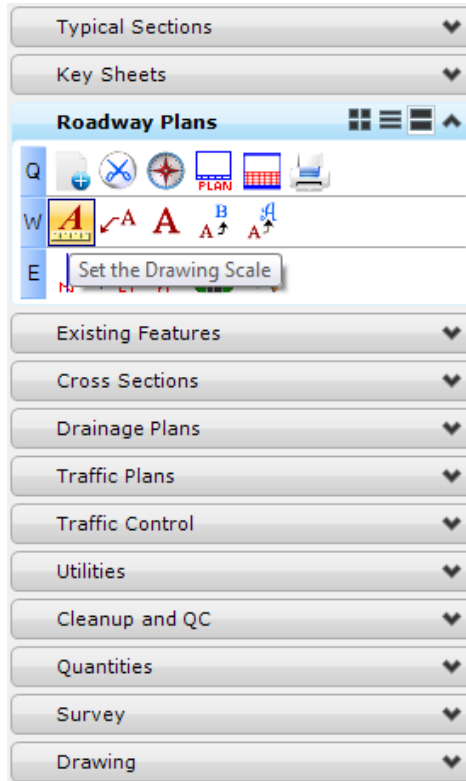
Create Open File

Active File for Open/Edit: CLIPRD01.DGN

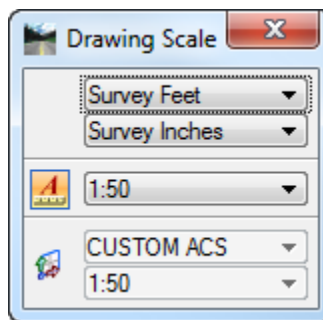
OK

4. Enter the *Output File* name is **CLIPRD30**.
5. For the *Output Folder* click **Browse** and select the **utils** folder.
6. Click **Create** to create the file, **CLIPRD30.dgn**.
7. Click **Open File** to display the newly created *CLIPRD30.dgn*. *Set/Update Plot Scale* displays. Use the **Default** settings and click **OK**.
8. Click **OK** and the Create File/Project dialog closes.

9. From the FDOT Plans Development Task Menu, select **Roadway Plans > Set the Drawing Scale**.



10. The Drawing Scale dialog displays. Toggle **On** the *Annotation Scale* button and set the *Scale* value to **1:50**.



11. **Reference** in the following design files:

C:\e\projects\22049555201\roadway\ALGNRD01.dgn; model ALGNRD_50
 C:\e\projects\22049555201\rwmap\RWDTRD01.dgn
 C:\e\projects\22049555201\utils\UTEXRD03.dgn
 C:\e\projects\22049555201\utils\UTPRRD03.dgn

12. With the reference files below give each the corresponding **Logical Name**.

Note This is one way to “gray out” or screen the TOPO and Proposed design, making the Utilities stand out when plotted.

C:\e\projects\22049555201\roadway\DSGNRD01.dgn; Logical Name: *topord00*

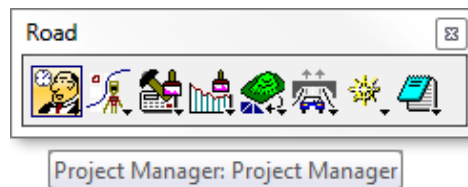
C:\e\projects\22049555201\drainage\DREXR01.dgn; Logical Name: *drexrd00*

C:\e\projects\22049555201\drainage\DRPRRD01.dgn; Logical Name: *drexrd01*

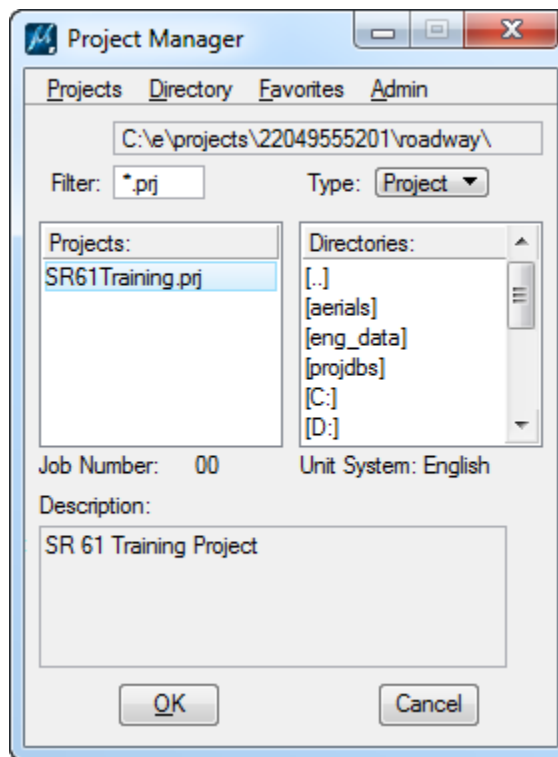
C:\e\projects\22049555201\survey\TOPORD01.dgn; Logical Name: *topord01*

13. From the GEOPAK Road toolbox, select the **Project Manager** icon.

Note To open this toolbox go to **GEOPAK > ROAD > Road Tools**.

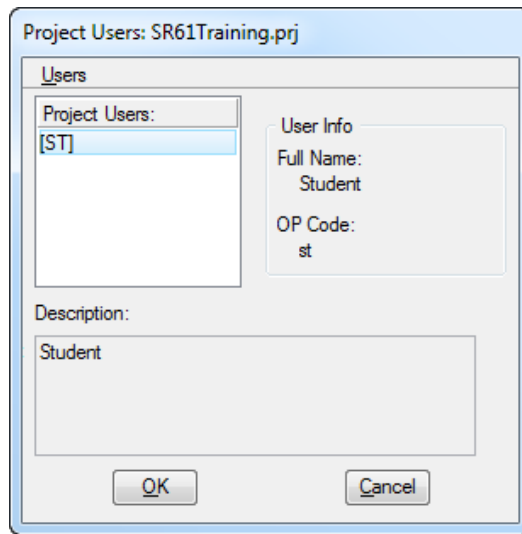


14. The Project Manager dialog displays.

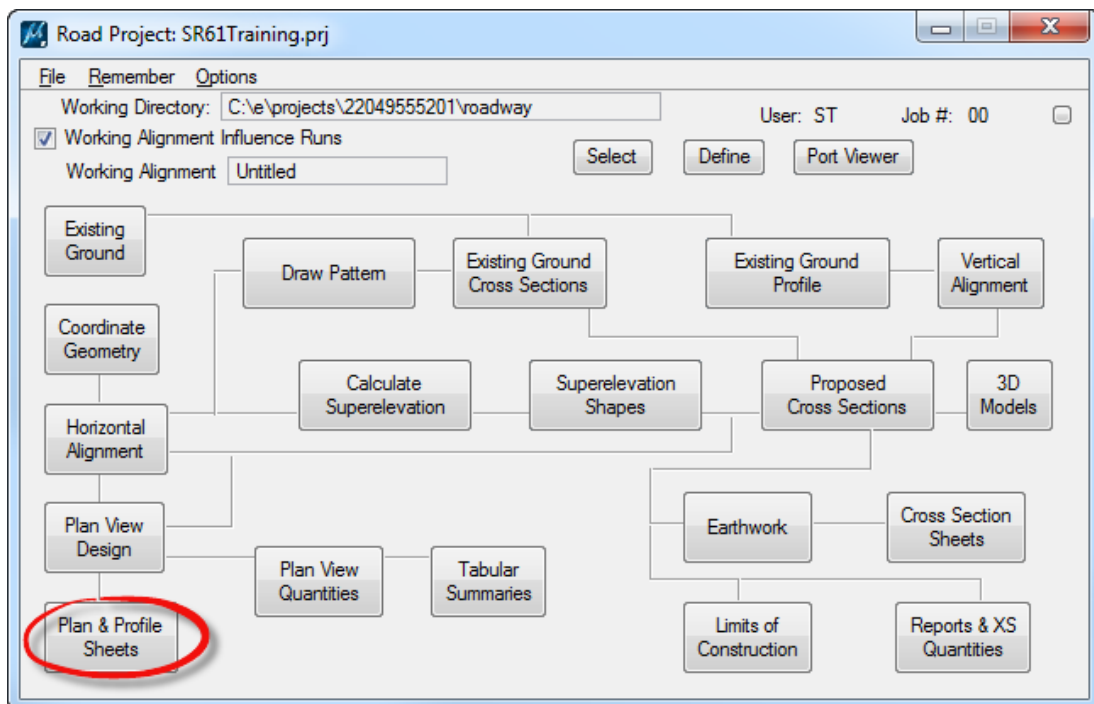


15. Select the *Projects* **SR61Training.prj** file and click **OK**.

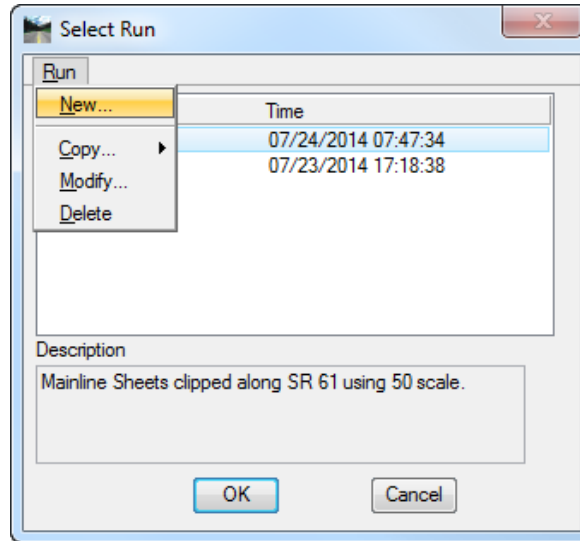
16. The Project Users dialog displays. Select the *Project User* to **ST <OR> Student** and click **OK**.



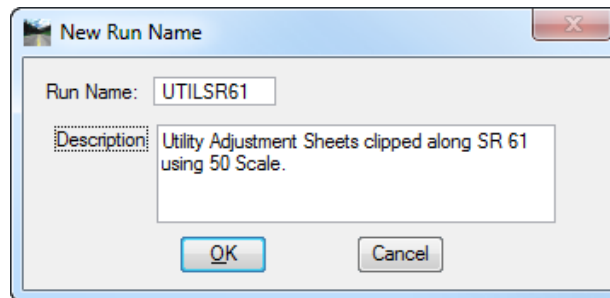
17. The Road Project dialog displays. Click **Plan & Profile Sheets**.



18. The Select Run dialog displays. Select **Run > New** to create a *New Run*.

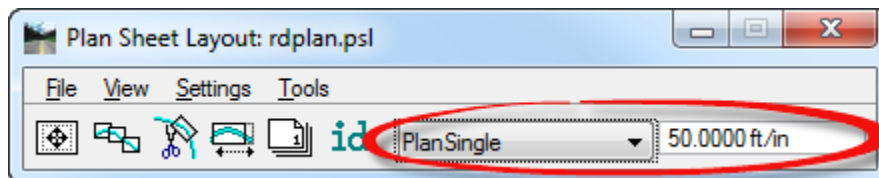


19. The New Run Name dialog displays. Enter **UTILSR61** for the *Run Name*. Add a *Description* for the run like as shown below. Click **OK** to close New Run Name dialog.

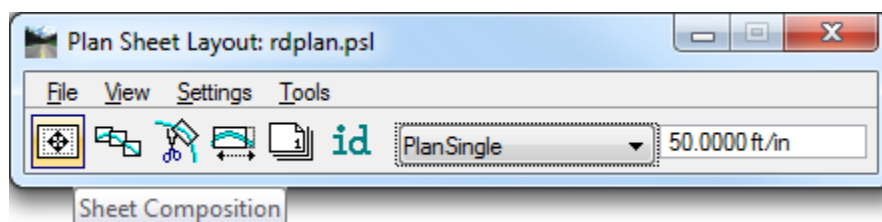


20. From the Select Run dialog, highlight **UTILSR61** and click **OK**.

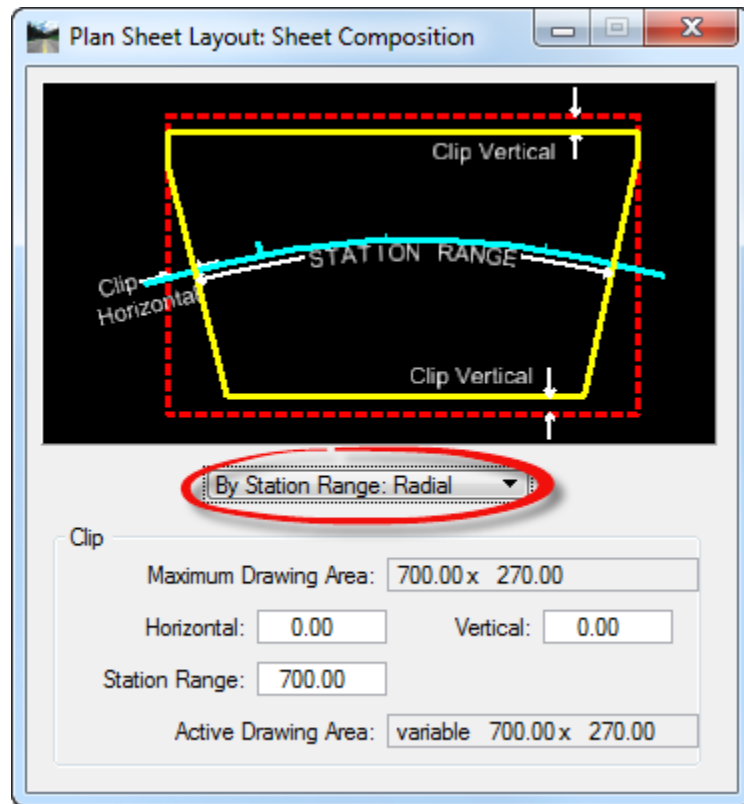
21. The Plan Sheet Layout dialog displays. Set the *Sheet* to **PlanSingle** and the *Scale* to **50.00 ft/in**.



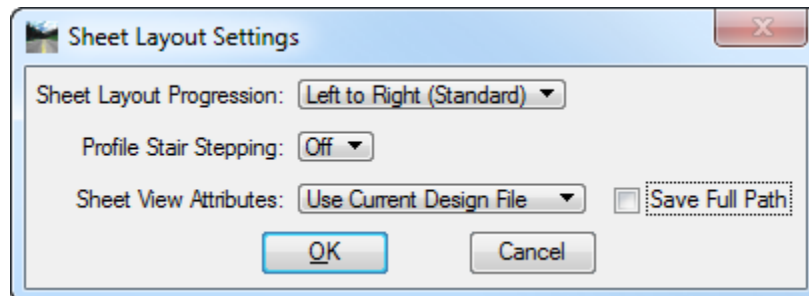
a. Click the **Sheet Composition** button.



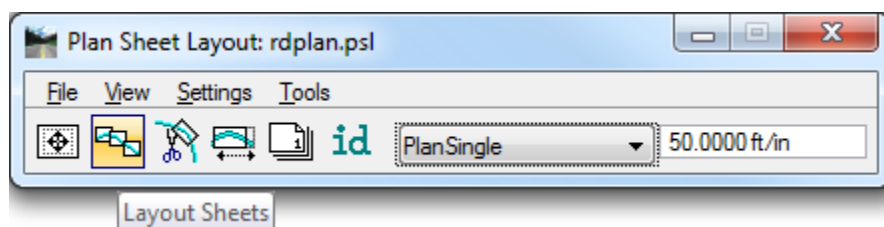
- b. The Plan Sheet Layout: Sheet Composition dialog displays. Set to **By Station Range: Radial** and close the Plan Sheet Layout: Sheet Composition dialog.



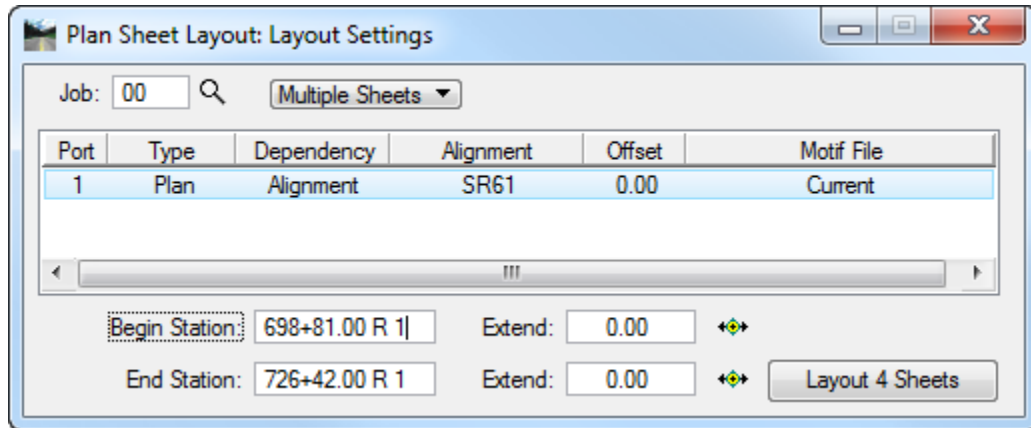
- c. Select **Settings > Sheet Layout**.
- d. The Sheet Layout Settings dialog displays. Set the *Sheet Layout* options as shown below. Click **OK** to close Sheet Layout Settings dialog.



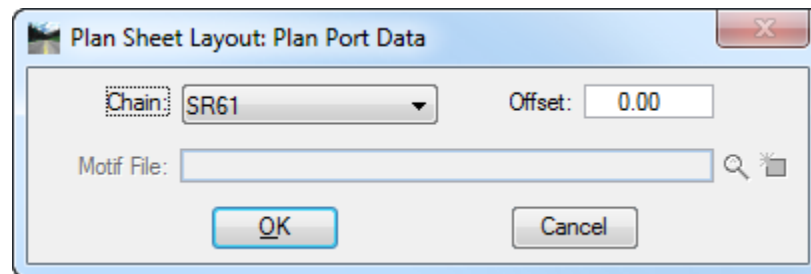
- e. Click the **Layout Sheets** button.



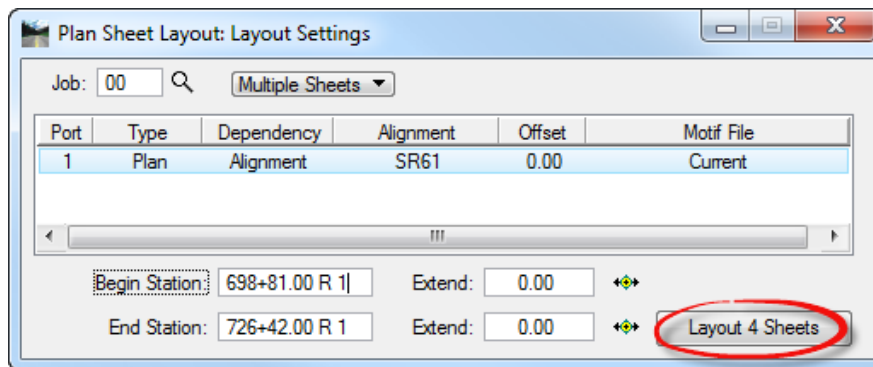
- f. The Plan Sheet Layout: Layout Settings dialog displays. Be sure that **Job 00** is selected.



- g. Highlight **Port 1** and double click to display the Plan Sheet Layout: Plan Port Data dialog. Verify that the *Chain* is set to **SR61** and click **OK** to close.



- h. From the Plan Sheet Layout: Layout Settings dialog, click on the **Layout 4 Sheets** button.



- i. The *Clip Borders* will be laid out for the Plan and Profile in the *CLIPRD10* design file.
- j. Close Plan Sheet Layout: Layout Settings dialog.
- k. Close Plan Sheet Layout dialog.

22. In MicroStation, open the Level Display dialog and turn **Off** the following *Levels*:

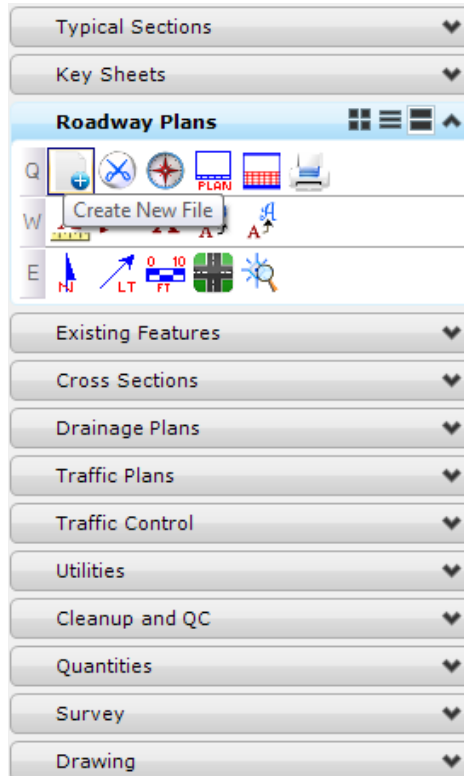
<u>File Name:</u>	<u>Levels:</u>
CLIPRD10	ClipBorder_dp
ALGNRD01	CurveDataLabel_dp
DREXRD01	TextNotes TextMisc
DSGNRD01	*_pm TmpDrpHndlStg3_dp ShldrUnpaved PavtCrown PavtAsphalt_ep Pavemk_ep CorrHndlStg3_dp ConstLines Scratch1_dp Scratch2_dp
DRPRRD01	TextLabel ScratchEle2_dp DrainDivides00 CLConst_dp
RWDTRD01	TextMisc TextMinor TextLabel TextCurveData LeaderLine_dp BoundaryLineImp PropertyLine_ep
TOPORD01	TextMisc PavtCrown_ep Pavemk_ep GroundShot_ep DummyChains_ep

23. In MicroStation, **Fit View** and select **File > Save Settings**.

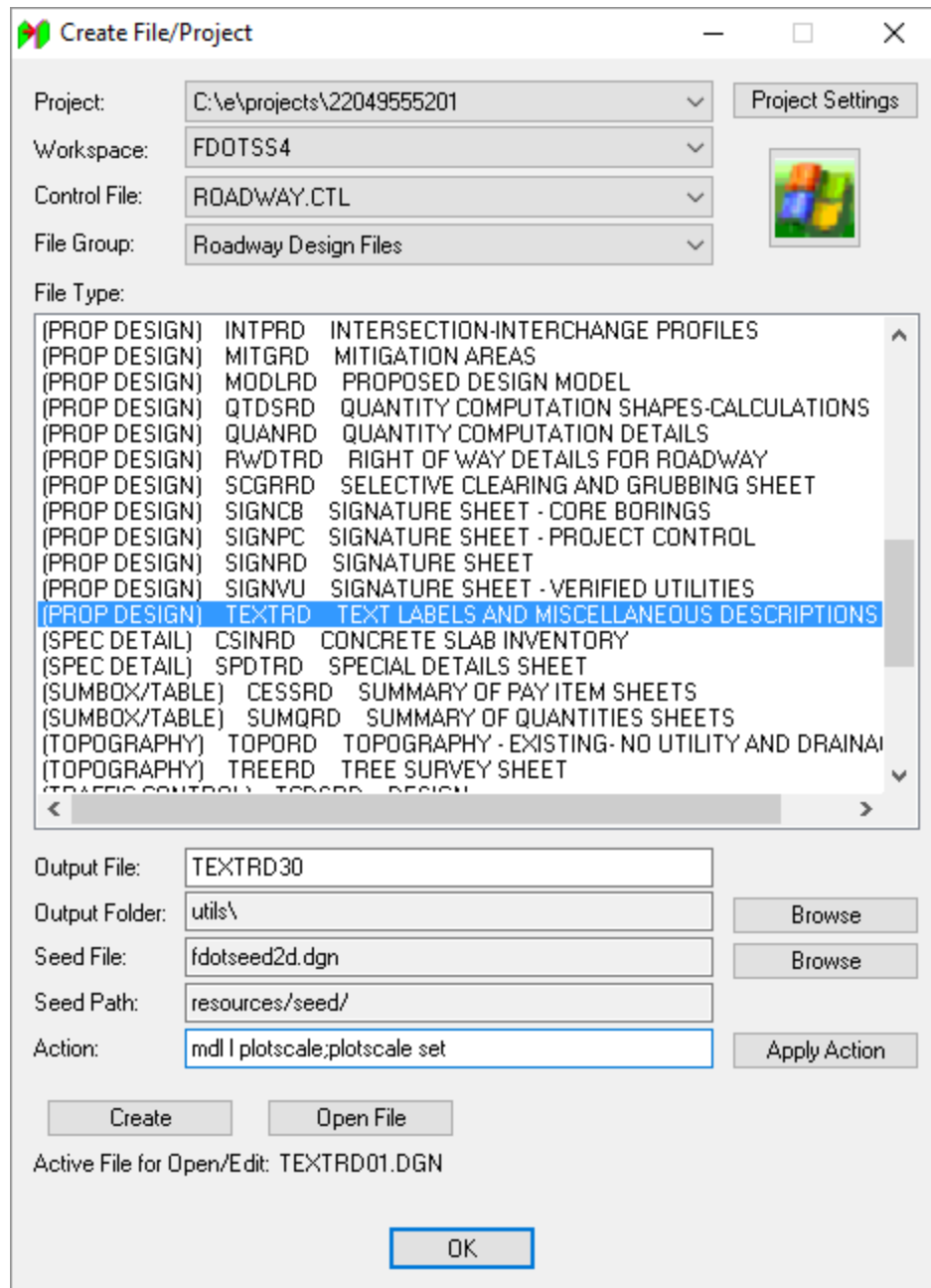
Exercise 10.6 Labeling Utility Adjustment Plans

All utilities that are to be modified or are proposed should be labeled. Using the tools shown in this training manual label the utilities as instructed.

1. Continuing in the *CLIPRD30.dgn* file, from the FDOT Plans Development Task Menu, select **Roadway Plans > Create New File**.

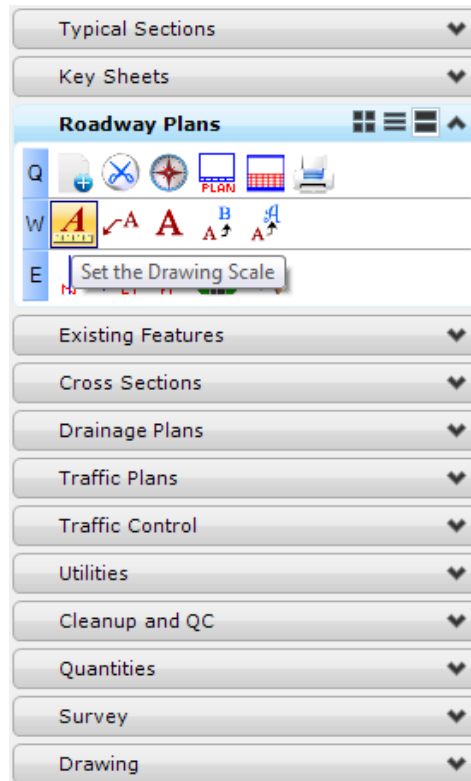


- The Create File/Project dialog displays. Complete as shown below.

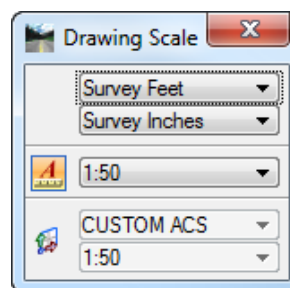


- For the *Output Folder* click **Browse** and select the **utils** folder.
- Enter the *Output File* name as **TEXTRD30**.
- Click **Create** to create the file, *TEXTRD30.dgn*.
- Click **Open File** to display the newly created *TEXTRD30.dgn*. *Set/Update Plot Scale* displays. Use the **Default** settings and click **OK**.
- Click **OK** and the Create File/Project dialog closes.

8. From the FDOT Plans Development Task Menu, select **Roadway Plans > Set the Drawing Scale**.



9. The Drawing Scale dialog displays. Toggle **On** the *Annotation Scale* button and set the *Scale* to **1:50**.



10. Reference in the following files:

C:\e\projects\22049555201\roadway\ALGNRD01.dgn; Model ALGNRD_50

C:\e\projects\22049555201\roadway\DSGNRD01.dgn

C:\e\projects\22049555201\rwmap\RWDTRD01.dgn

C:\e\projects\22049555201\utils\UTEXRD03.dgn

C:\e\projects\22049555201\utils\UTPRRD03.dgn

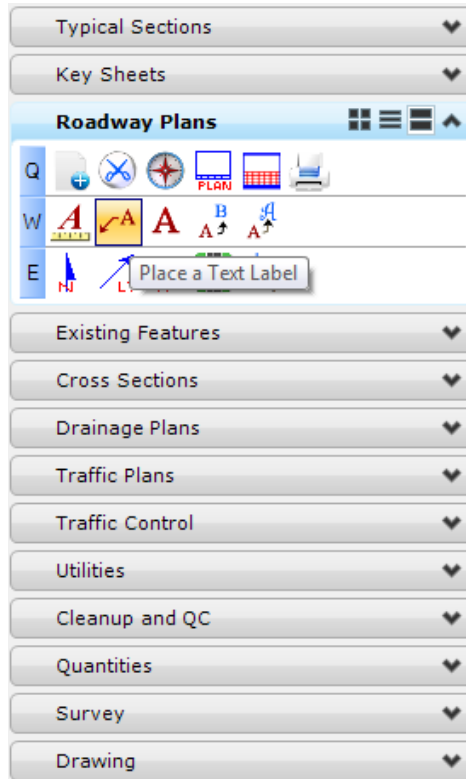
C:\e\projects\22049555201\utils\CLIPRD30.dgn

C:\e\projects\22049555201\drainage\DREXRD01.dgn

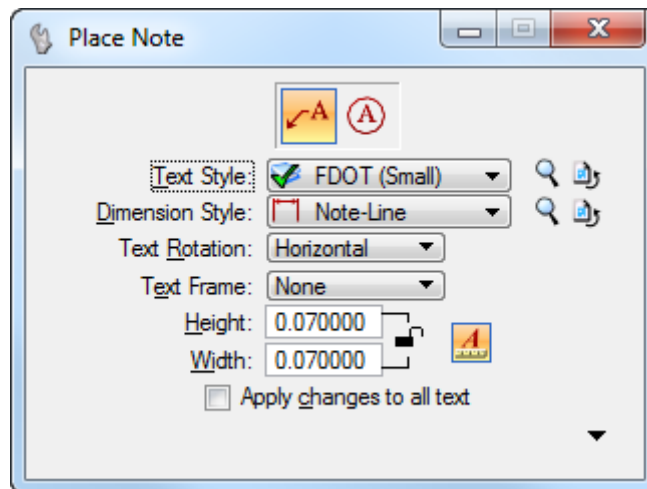
C:\e\projects\22049555201\drainage\DRPRRD01.dgn

C:\e\projects\22049555201\survey\TOPORD01.dgn

11. **Rotate** the *View* so that the text will display correctly on the sheets.
12. From the FDOT Plans Development Task Menu, select **Roadway Plans > Place a Text Label**.

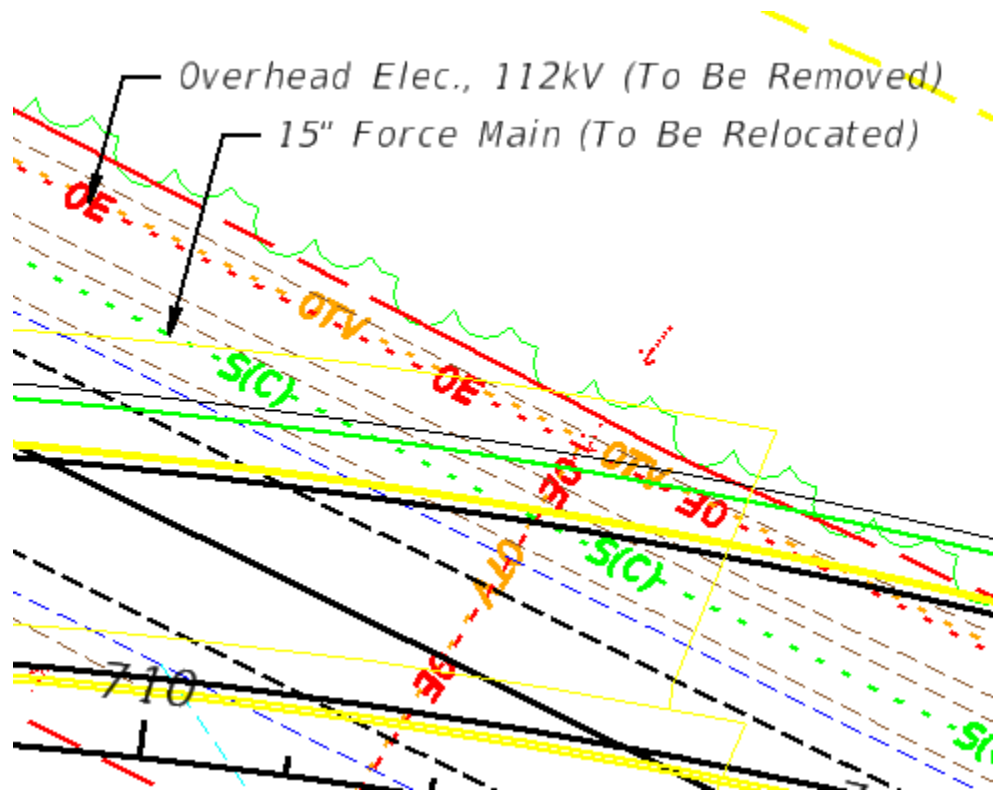


13. The Place Note dialog displays. Set the *Note Parameters* as shown below.



14. In the Text Editor, type in information describing the Utility to be labeled.

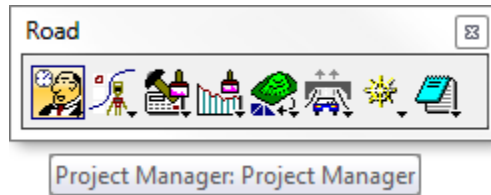
- 15. **Data point** on the Utility line where the label will *point to* and **data point** again to place the *Label*.



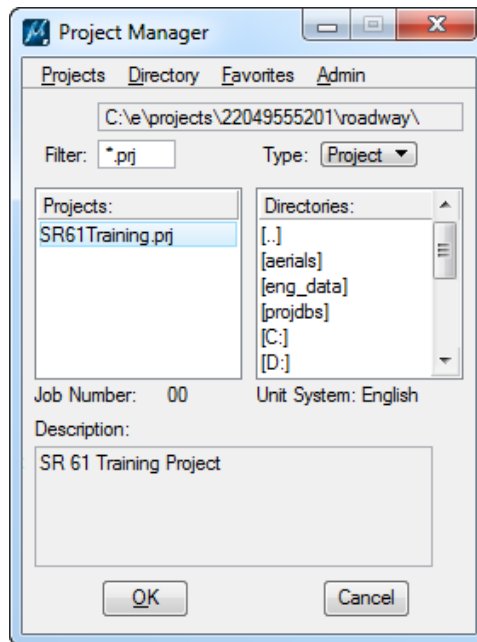
Exercise 10.7 *Generating Utility Adjustment Sheets*

1. Using the FDOTSS4 icon, open the *CLIPRD30.dgn* file.
2. **Reference** in the following design file: C:\e\projects\22049555201\utils\TEXTRD30.dgn.
3. From the GEOPAK Road toolbox, select the **Project Manager** icon.

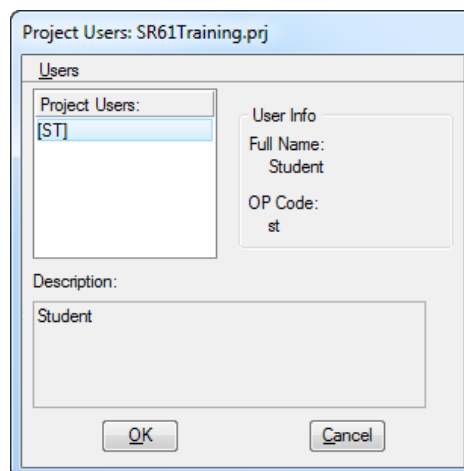
Note To open this toolbox go to **GEOPAK > ROAD > Road Tools**.



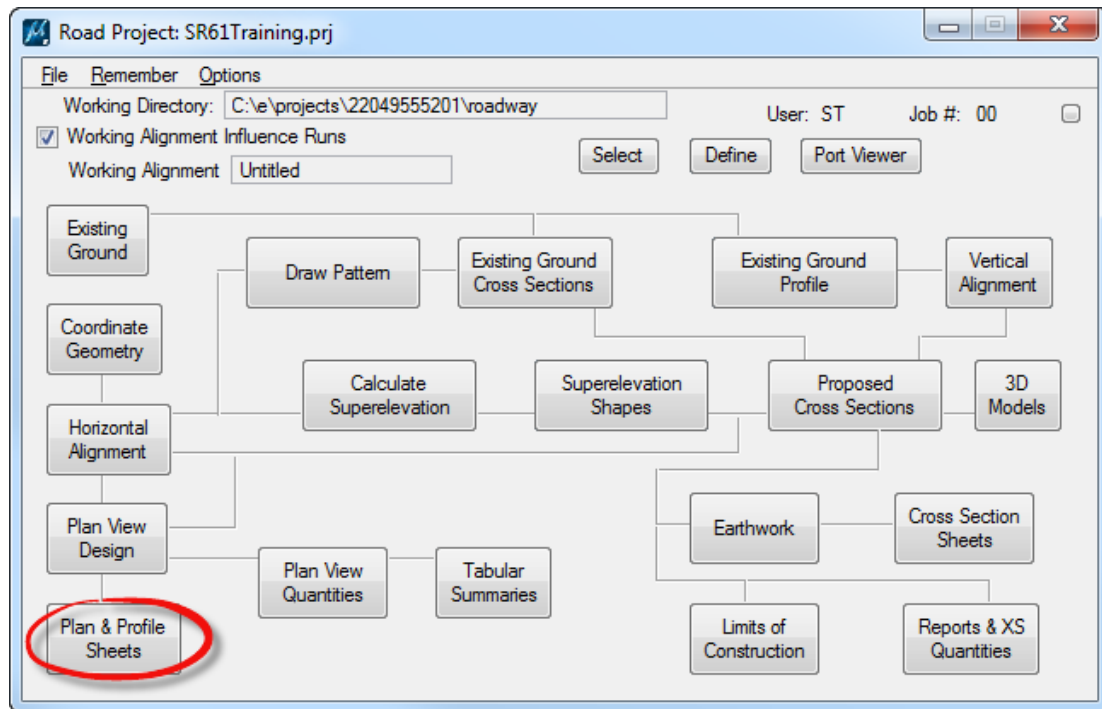
4. The Project Manager dialog displays. Select the *Projects SR61Training.prj* file and click **OK**.



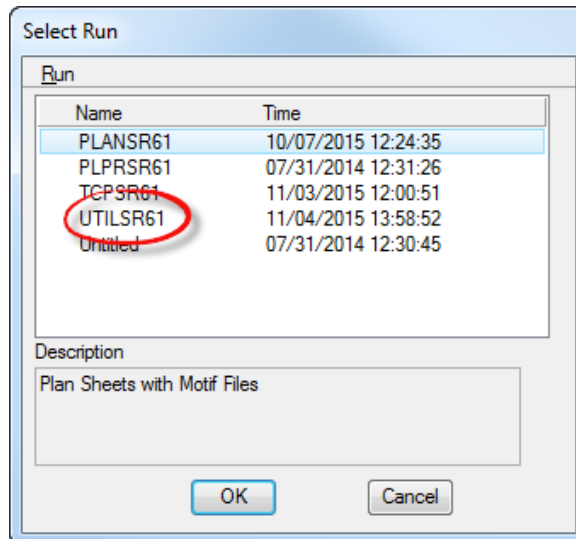
5. The Project Users dialog displays. Select the *User ST <OR> student* user and click **OK**.



6. The Road Project dialog displays. Click **Plan & Profile Sheets**.

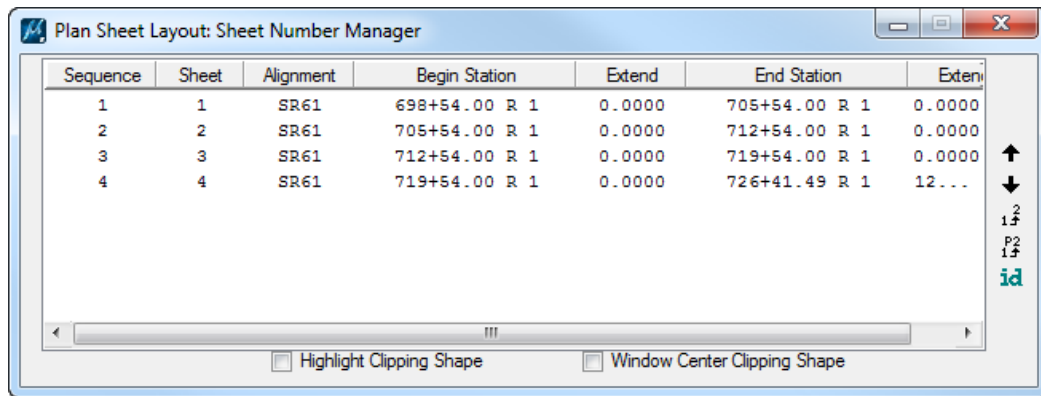


7. The Select Run dialog displays. Highlight the **UTILSR61** run and click **OK**.

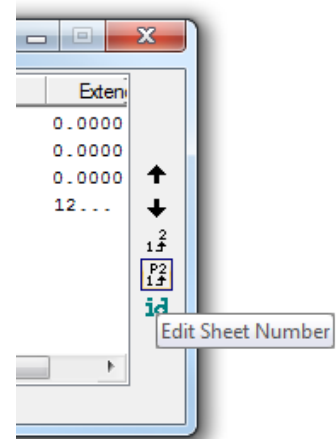


8. The Plan Sheet Layout dialog displays. Go to **Tools > Sheet Number Manager**.

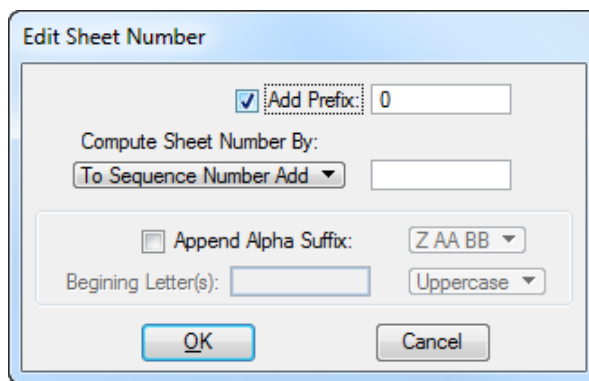
9. The Plan Sheet Layout: Sheet Number Manager dialog displays.



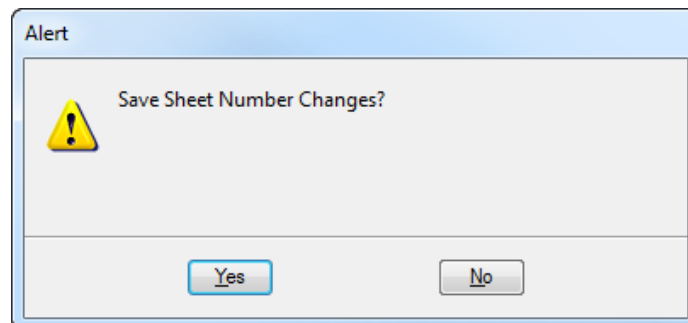
- a. Select all of the sheets in the dialog and select the **Edit Sheet Number** icon on the right side of the dialog.



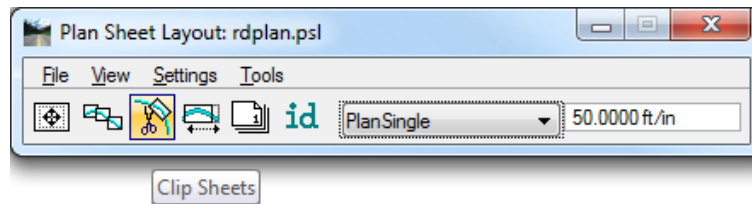
- b. The Edit Sheet Number dialog displays. Toggle **On: Add Prefix**, enter a **0** in the field and click **OK** to close the Edit Sheet Number dialog.



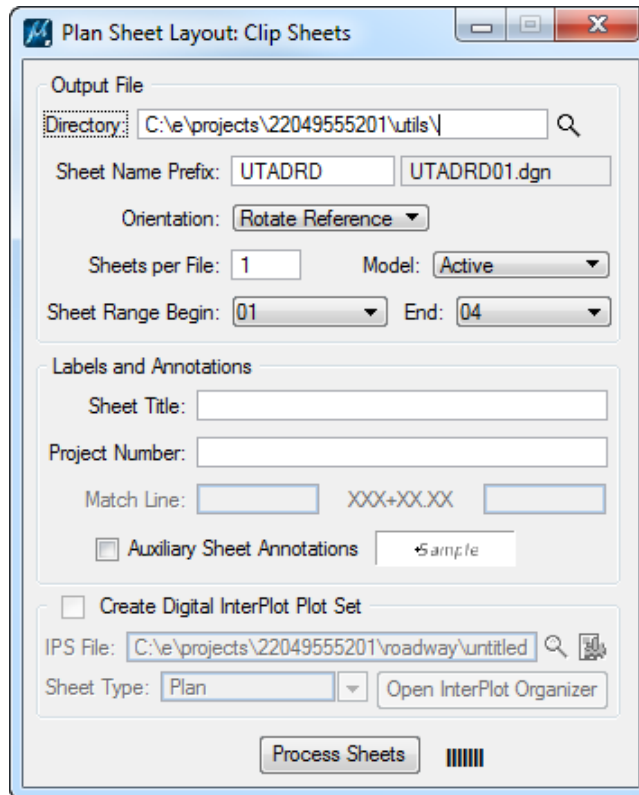
- c. Close the Plan Sheet Layout: Sheet Number Manager dialog. An Alert message will display. Click **Yes** to *Save the Sheet Number Changes*.



10. From the Plan Sheet Layout dialog, click the **Clip Sheets** button.

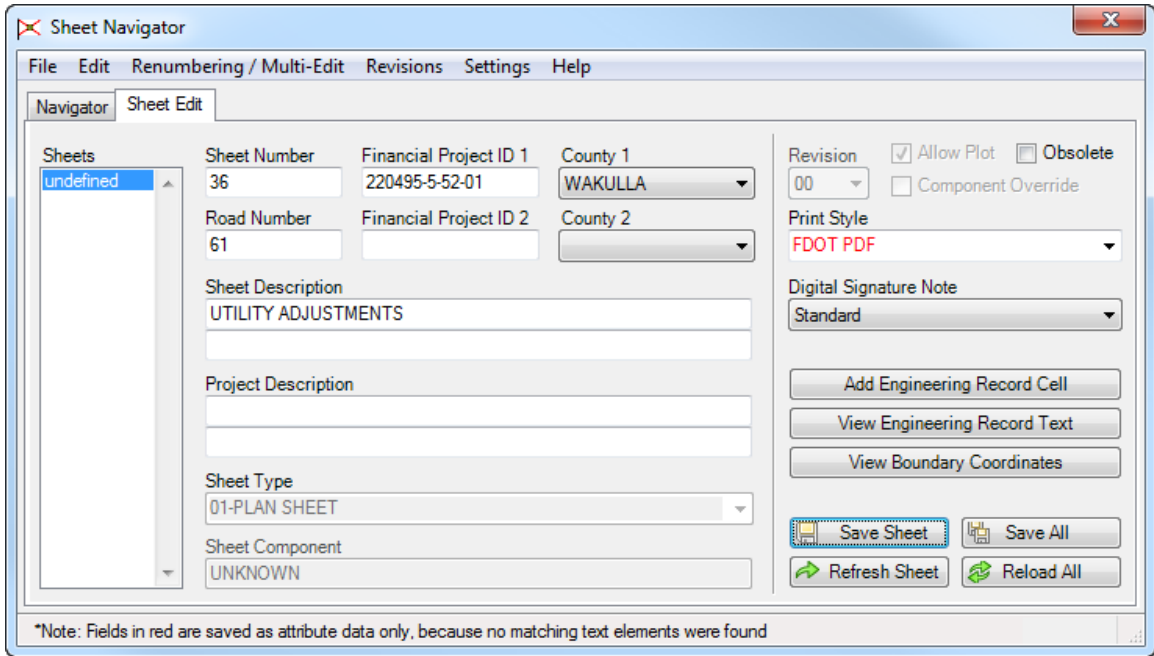


11. Plan Sheet Layout: Clip Sheets displays.



- a. Under the *Output File* section, set the *Directory* to **C:\e\projects\22049555201\utils**
 - b. Set the *Sheet Name Prefix* to **UTADRD**.
 - c. Set the *Orientation* to **Rotate Reference**.
 - d. Set the all other settings as shown above.
 - e. Click **Process Sheets**. All of the sheets are created with all of the references attached.
 - f. Once all the sheets are created close the Plan Sheet Layout: Clip Sheets dialog.
12. Close Plan Sheet Layout dialog. Click **Yes** to save the *Plan Sheet Project Manager Settings*.
13. In MicroStation, open *UTADRD01.dgn* from the *\utils* folder and review the file.
14. Set the Plot Scale of the file to **50.0**.

15. Use Sheet Navigator to number the *utility adjustment sheets* as shown below.



[THIS PAGE INTENTIONALLY LEFT BLANK.]

11 NUMBERING AND PRINTING THE PLAN SET

OBJECTIVES

The Project Plan Set has to be numbered and printed for submittals. This chapter will show the tools used to correctly plot and number the plan set once it is complete.

- Create Project Index
- Number Files
- Create PSET
- Print Project Plans

EXERCISE OVERVIEW

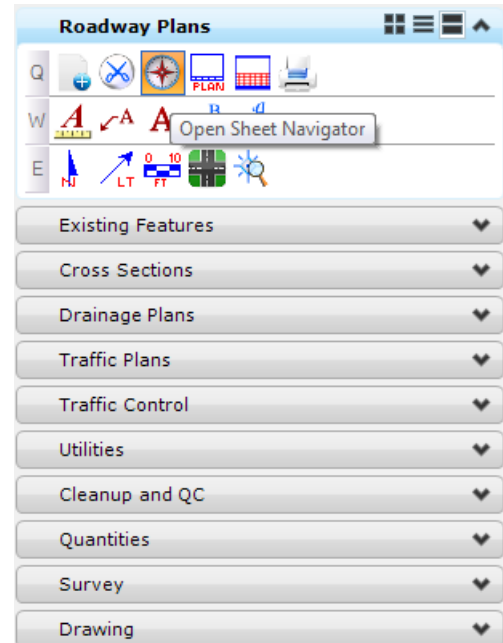
- 11.1 Creating the Project Index
- 11.2 Number and Label the Sheets Using Sheet Navigator
- 11.3 Recreate the Key Sheet Index
- 11.4 Create a PSET of the Project
- 11.5 Print the Complete Project

Exercise 11.1 Creating the Project Index

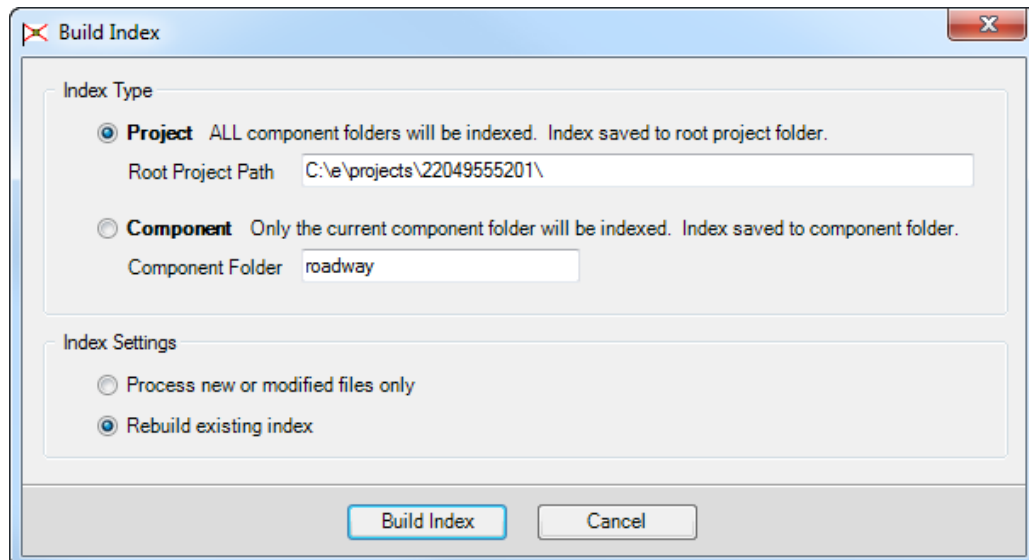
1. (Optional) Extract the 22049555201(11).zip file in the Data Set folder to the c:\e\projects folder.
2. Use the **FDOTSS4** icon open MicroStation design file:

C:\e\Projects\22049555201\roadway\DSGNRD01.dgn.

3. On the FDOT Plans Development Task Menu, select **Roadway Plans > Open Sheet Navigator**.

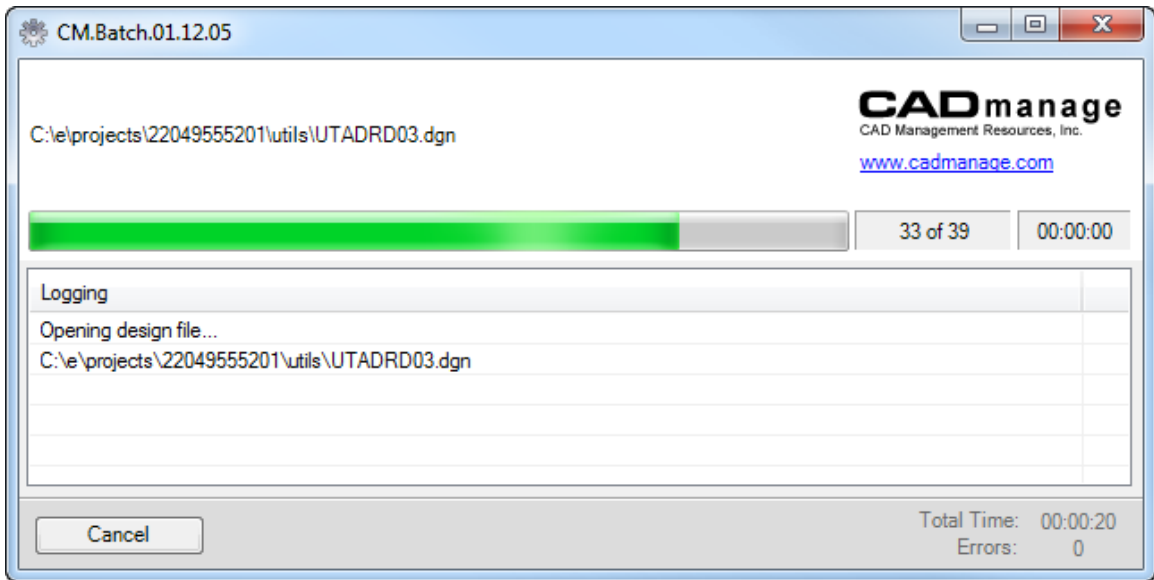


4. The Sheet Navigator dialog displays. At the top of the dialog, select **File > New**.
5. The Build Index dialog displays.

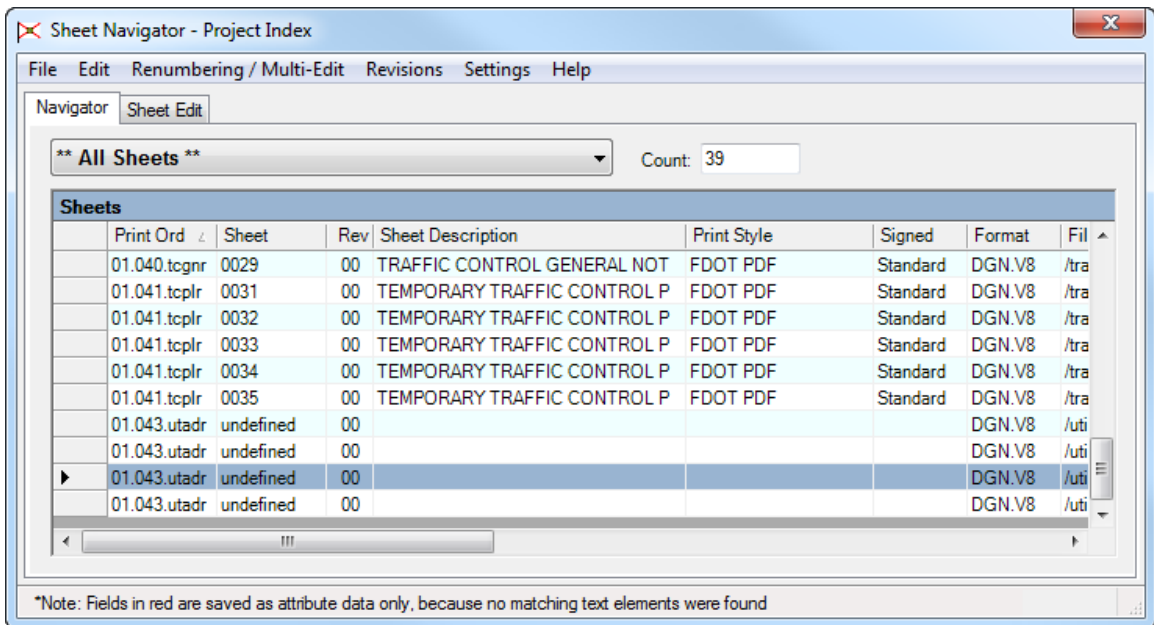


- a. Under *Index Type*, select the **Project** option.
- b. Under *Index Settings*, select the **Rebuild existing index** option.
- c. Click **Build Index**.

- MicroStation will close and Sheet Navigator will process all of the files in the Project folder. The *Project Index file* (sheetinfo.xml) will be created and saved in the root project folder.

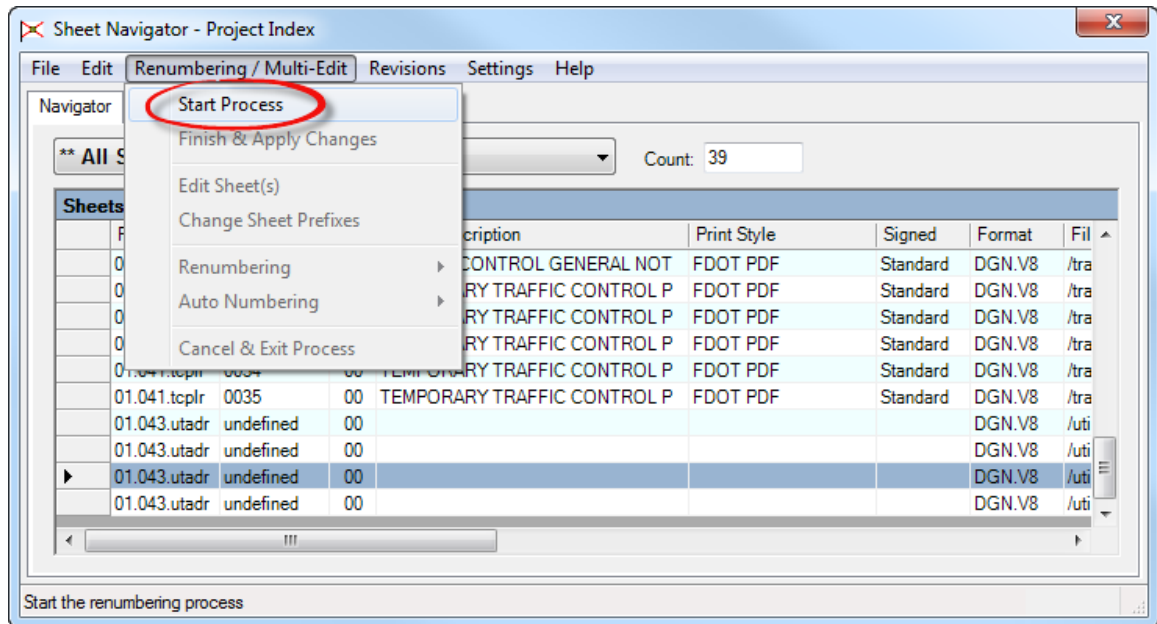


- Once the *sheetinfo.xml* is created, MicroStation will reopen with Sheet Navigator open and the *Project Index* loaded.

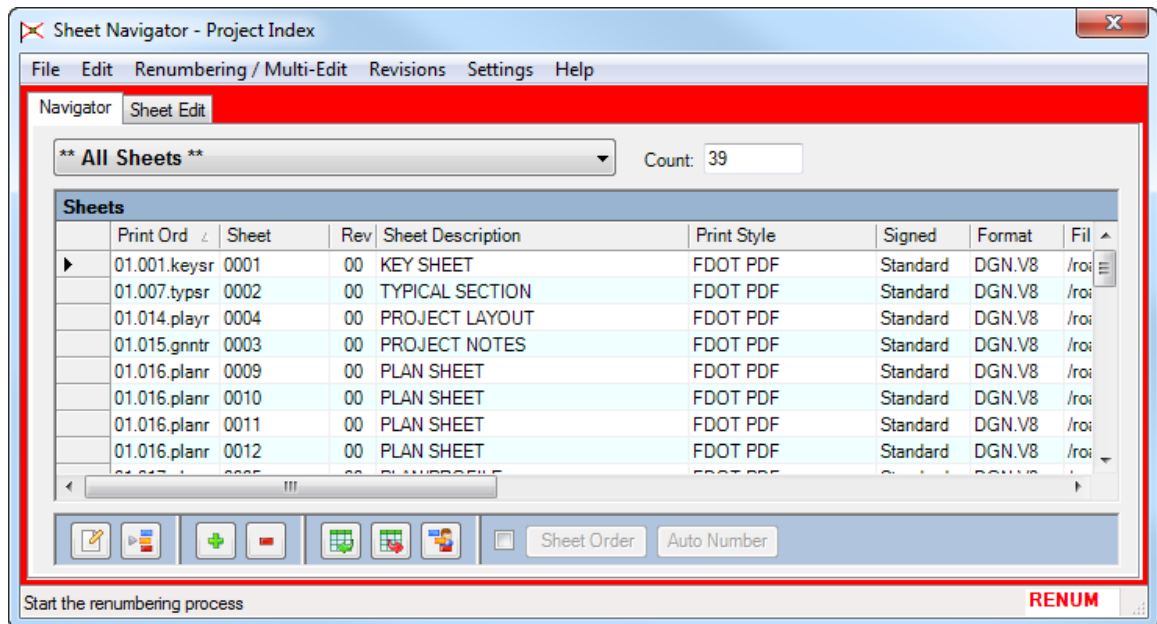


Exercise 11.2 Number and Label Sheets Using Sheet Navigator

- Continuing in Sheet Navigator, go to **Renumbering/Multi-Edit > Start Process**. This mode has to be activated to *number*, *renumber*, or *label sheets* in the *Project Index*.



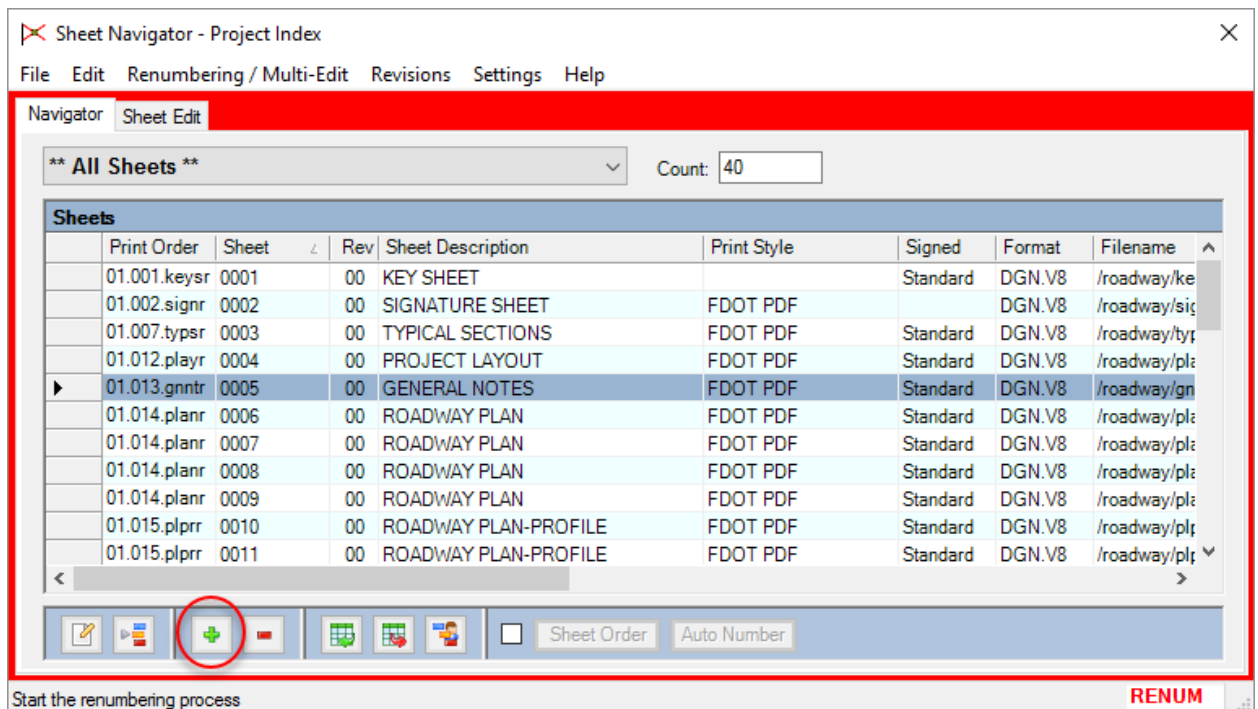
Note The Renumbering/Multi-Edit Mode is indicated by a red border and the RENUM text in the lower-right of the status bar.



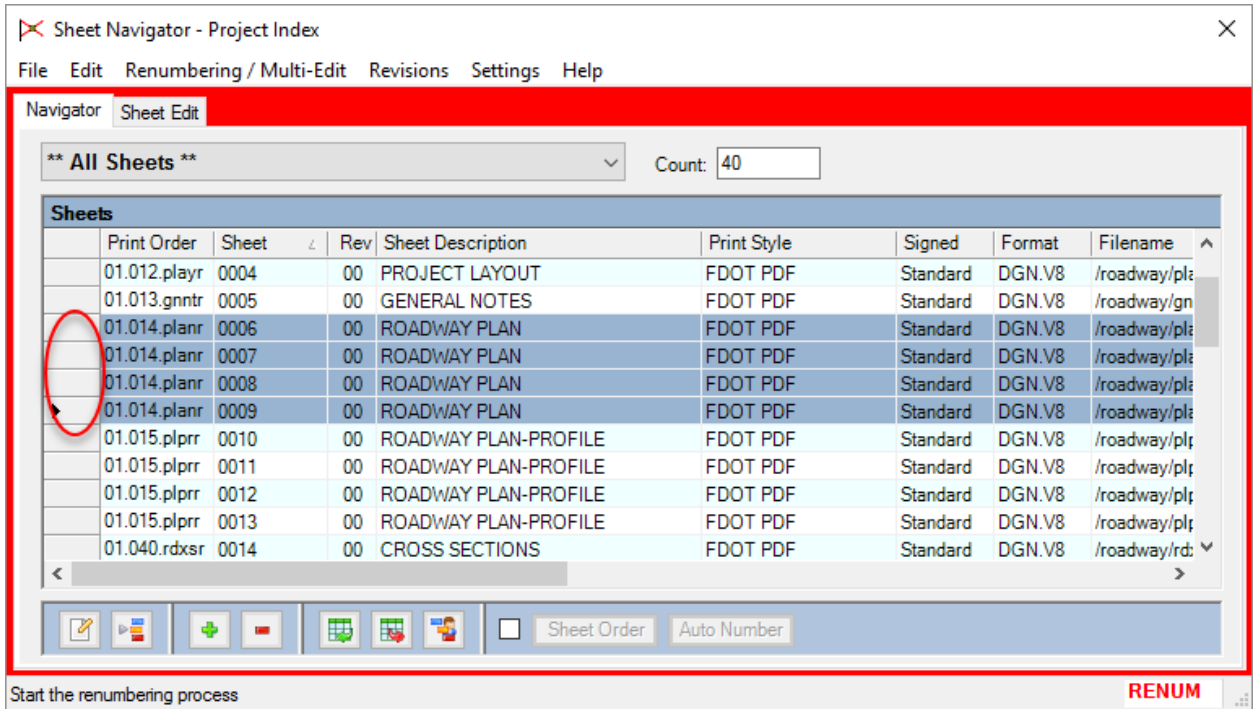
2. The following edits need to be made to the *sheets numbers*. Follow the steps below.

Sheet	Current Sheet Number	New Sheet Number
General Notes Sheet	3	5
Plan Sheets	9-12	6-9
Plan/Profile Sheets	5-8	10-13
Cross Sections	13-26	14-27
SWPPP	26-28	28-30
Traffic Control Typical Section	29	31
Traffic Control General Notes	30	32
Temporary Traffic Control Plan	31-35	33-37
Utility Adjustment Sheets	36-39	38-41

In the *Sheet Navigator* dialog, select the **General Notes Sheet** and click on the “green plus” icon to increase the sheet number to 5.

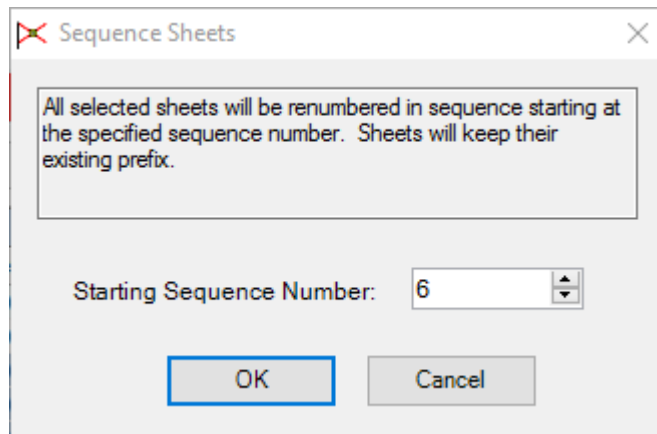


Highlight the **Roadway Plan** sheets in the *Sheet Navigator* dialog by selecting the column to the left of the Print Order column.



Select the menu option **Renumbering/Multi-Edit > Renumbering > Sequence Selected Sheets**.

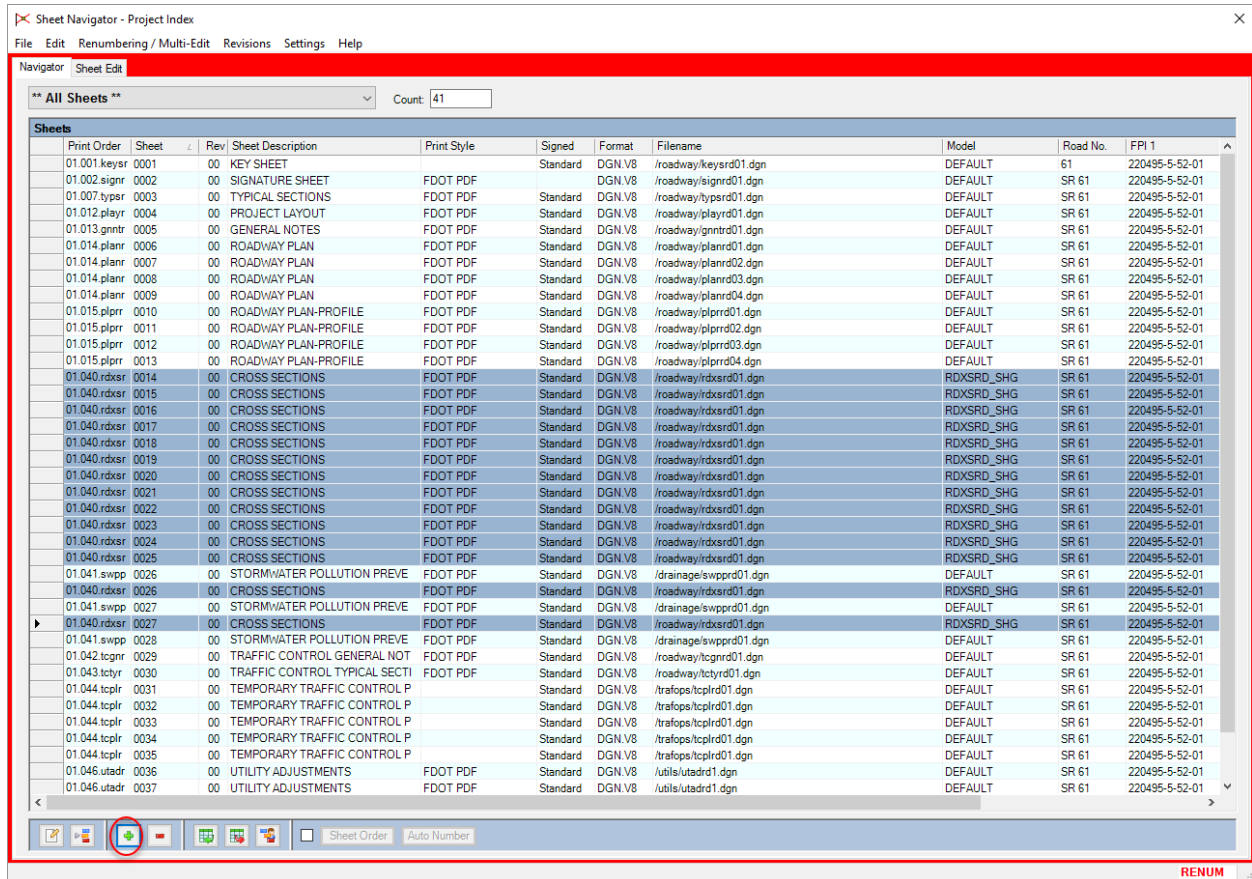
- The Sequence Sheets dialog displays. In the *Starting Sequence Number* box type in **6** and click **OK**.



The sheets will be renumbered in the *Sheet Navigator* dialog.

Do the same for the Plan/Profile Sheets but start the sequence number at **10**.

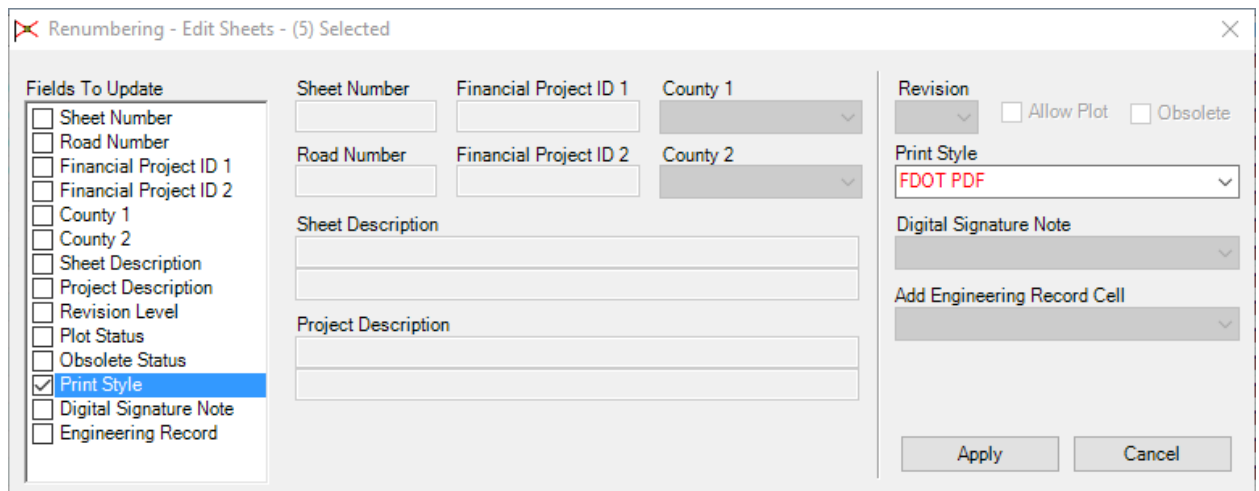
- Highlight the **Cross Section** sheets and click one the “**green plus**” icon to increase the *sheet numbers* by one.



5. Renumber the remaining sheets, starting with the **SWPPP** sheets, 28-41.
6. Next the Temporary Traffic Control Plan sheets need to have a Print Style set. Highlight the **Temporary Traffic Control Plan Sheets** in the Sheet Navigator dialog by selecting the column to the left of the Print Order column.

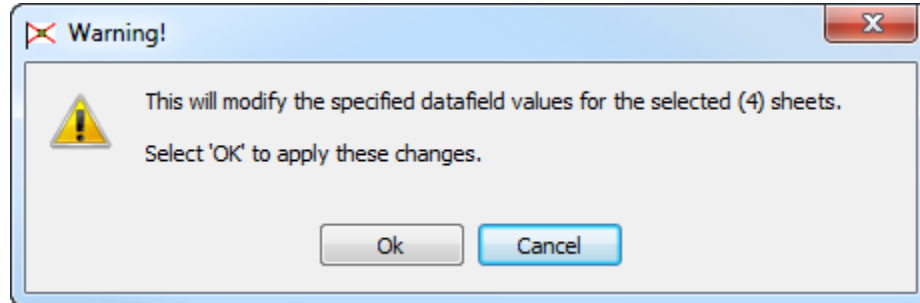
Select the menu option **Renumbering/Multi-Edit > Edit Sheet(s)**.

7. The Renumbering - Edit Sheets dialog displays. In the *Fields to Update List* toggle **On Print Style**.



Enter the information as shown and then click **Apply**.

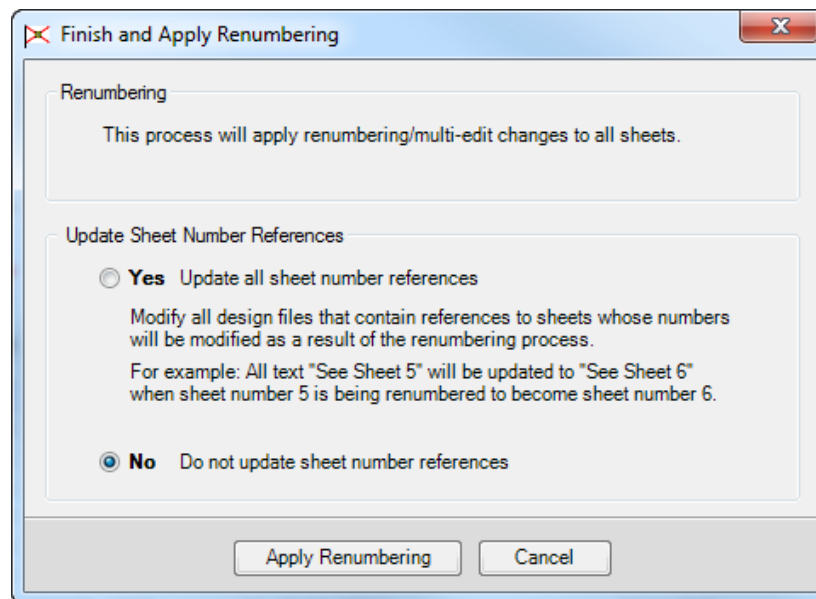
A Warning message will display. Click **OK** to modify the data field values for the selected sheets.



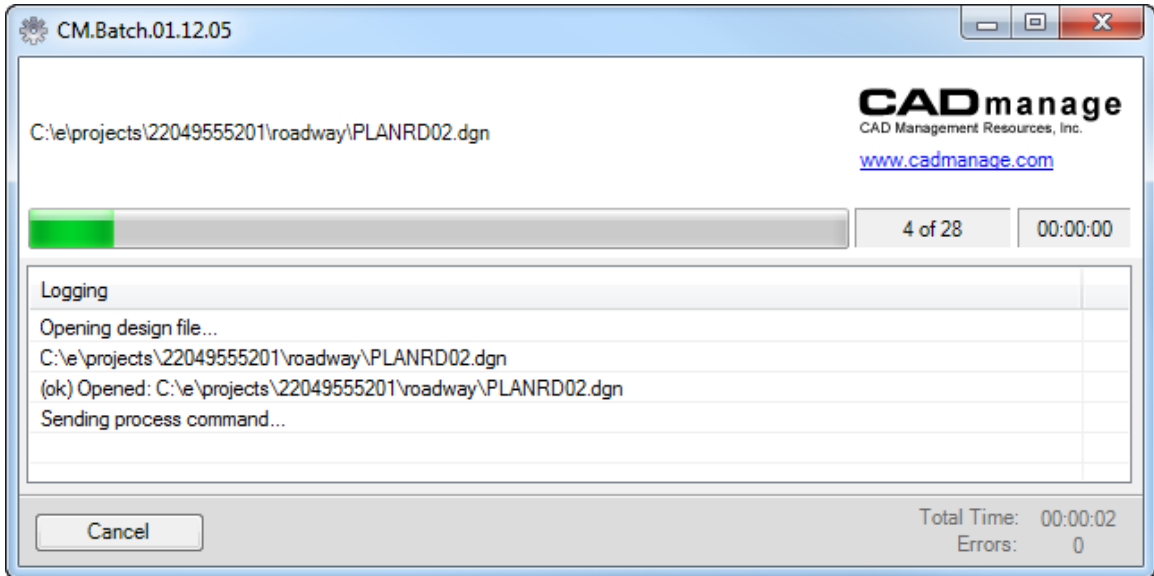
8. The Sheet Navigator dialog will be updated with the information for those sheets.

The project is now numbered correctly. For these changes to be implemented in the actual files, select the menu option **Renumbering/Multi-Edit > Finish & Apply Changes**.

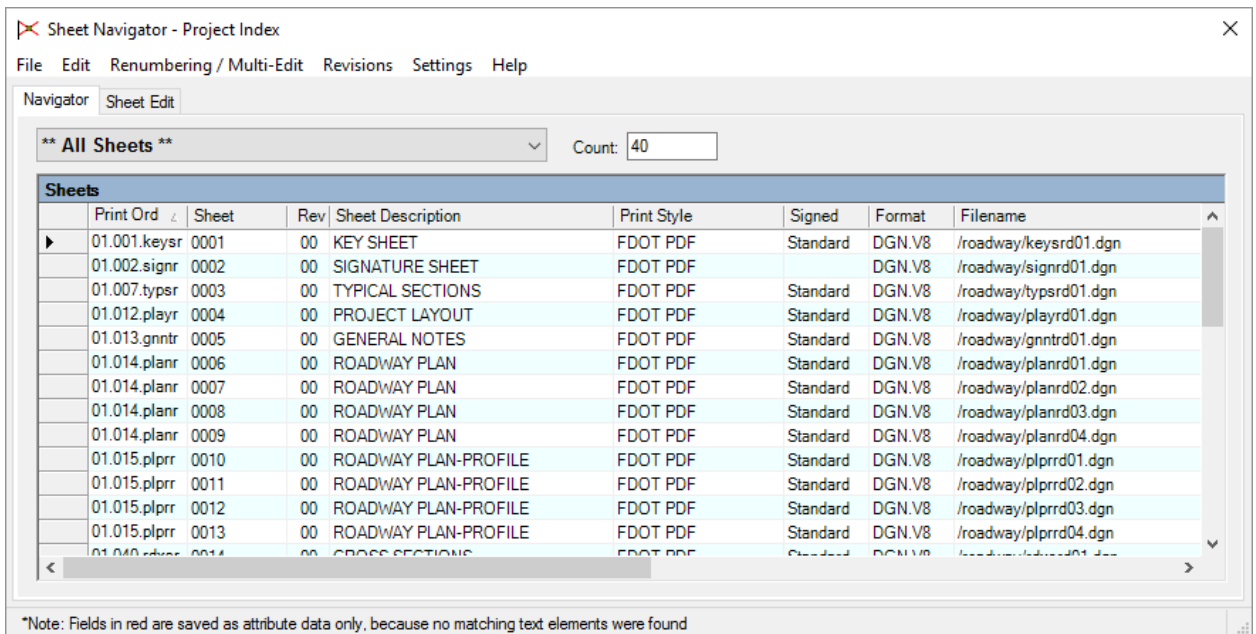
9. The Finish and Apply Renumbering dialog displays. Under *Update Sheet Number References* select **No** and click **Apply Renumbering**.



10. MicroStation will close and Sheet Navigator will process all of the files that have been renumbered. The *Project Index* file (*sheetinfo.xml*) will be updated and saved.



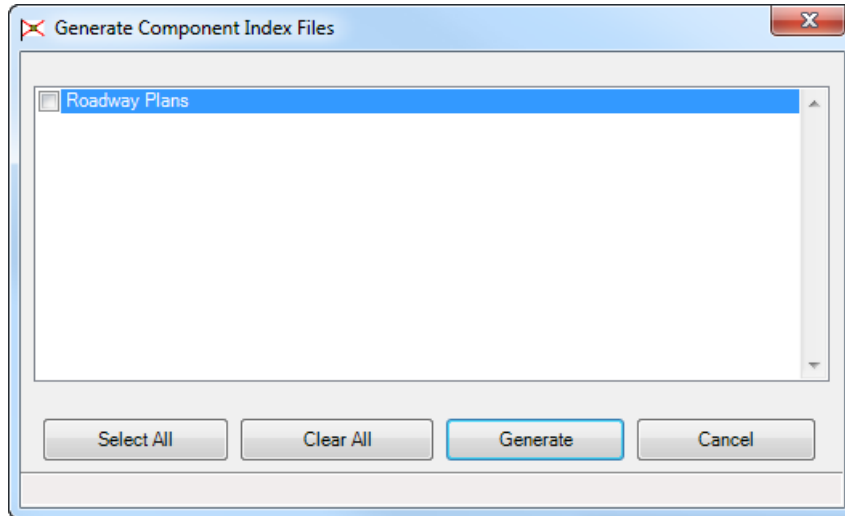
11. Once the *sheetinfo.xml* is finished updating MicroStation will reopen with Sheet Navigator open and the *Project Index* loaded.



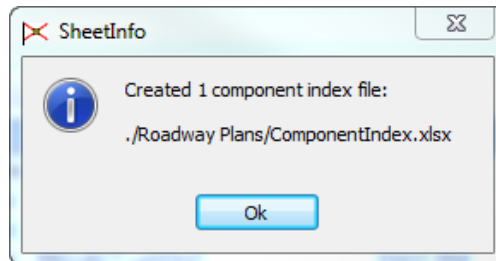
Check the *Project Index* and make sure the sheets are all correct.

Exercise 11.3 *Recreate the Key Sheet Index*

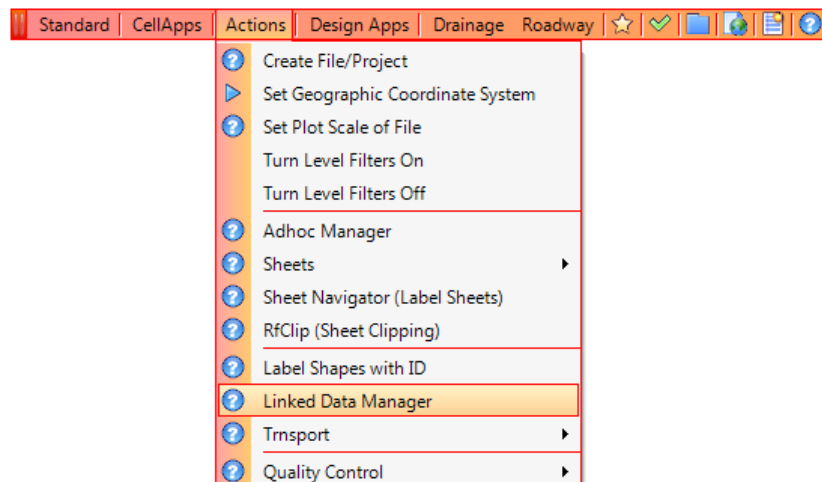
1. Continuing in Sheet Navigator, select the menu option **File > Generate Component Index Files**.
2. The Generate Component Index Files dialog displays. Toggle **On** the *Roadway Plans* option and click **Generate**.



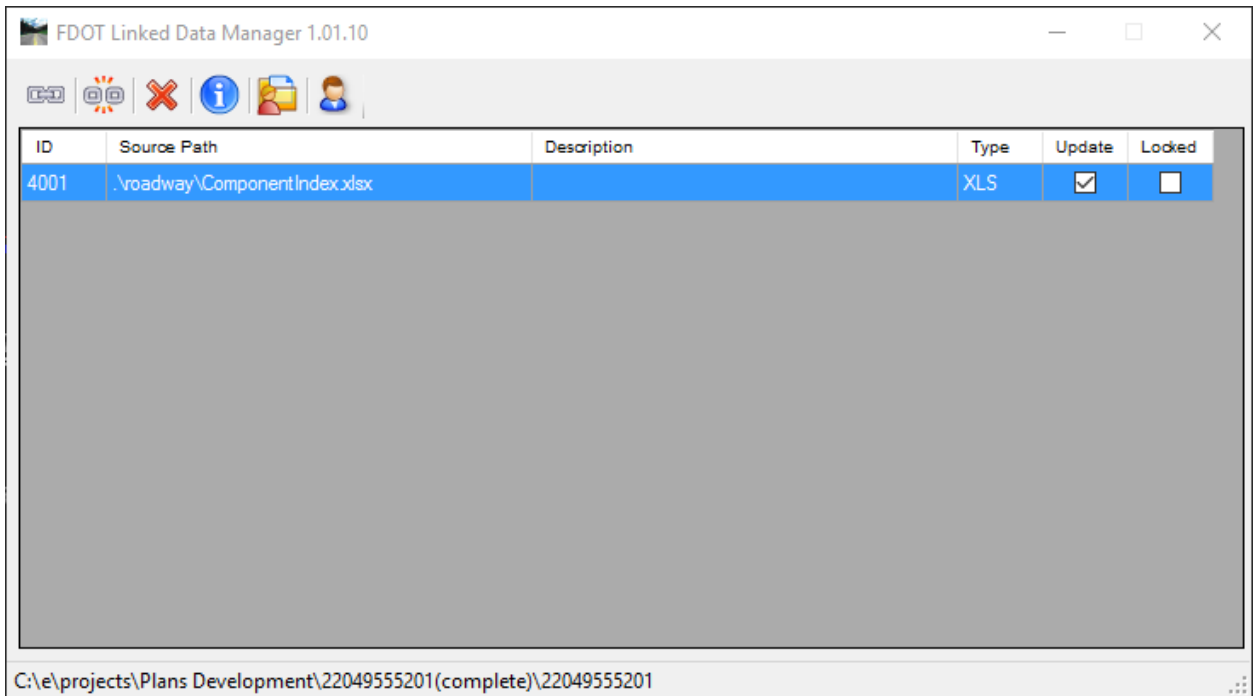
3. The SheetInfo dialog displays stating that 1 component index file was created. Click **Ok**.



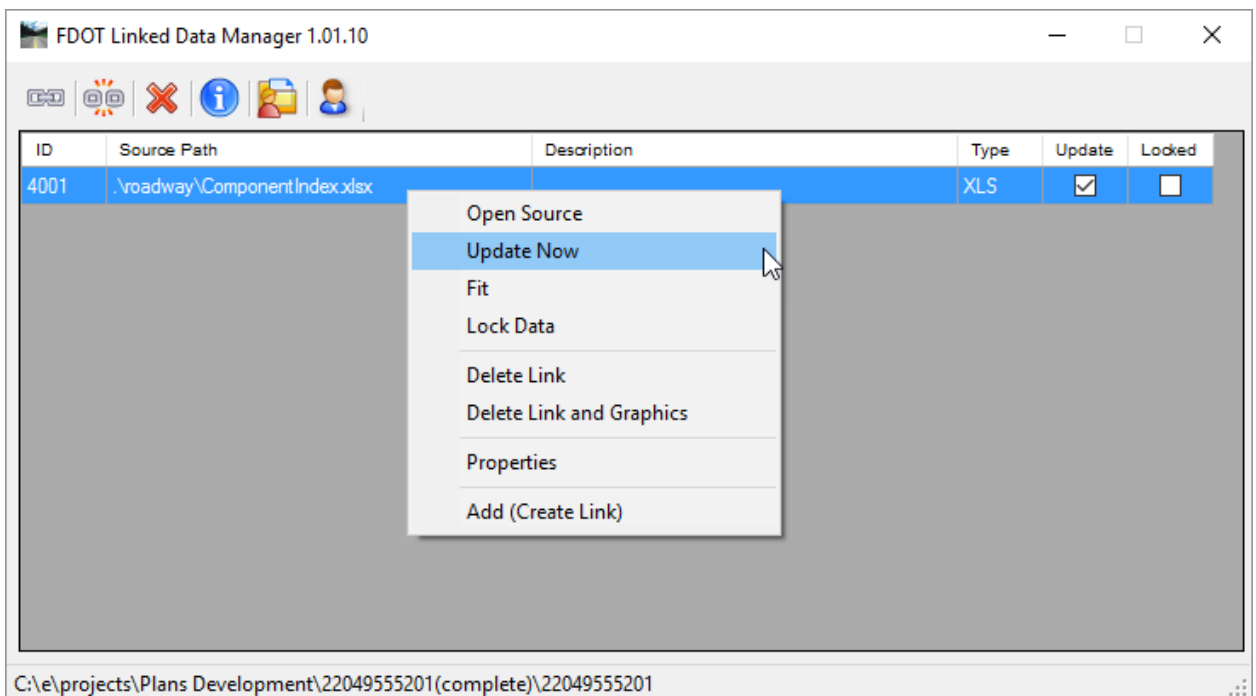
4. In MicroStation select **File > Open** and navigate to open:
C:\e\projects\22049555201\roadway\keysrd01.dgn.
5. From the FDOTSS4 Menu select **Actions > Linked Data Manager**.



6. The FDOT Linked Data Manager dialog displays.



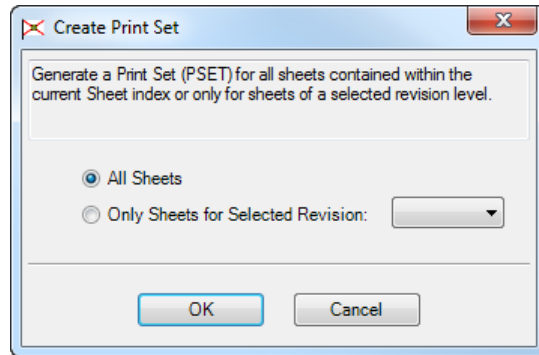
7. On the Linked Data Manager dialog, highlight the **ComponentIndex.xlsx** link, right-click on the link and select **Update Now**.



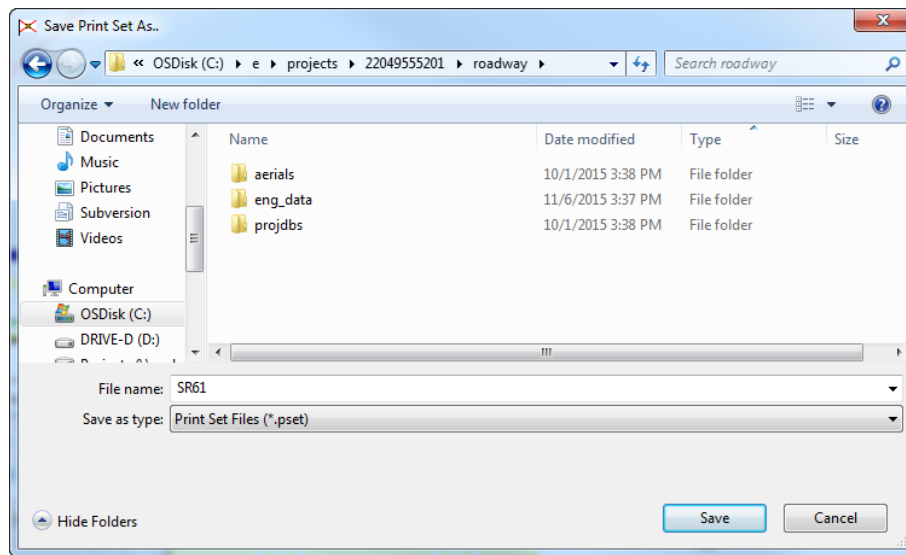
8. The *Index* will be updated in the MicroStation file to reflect the changes in the index.

Exercise 11.4 Create a PSET of the Project

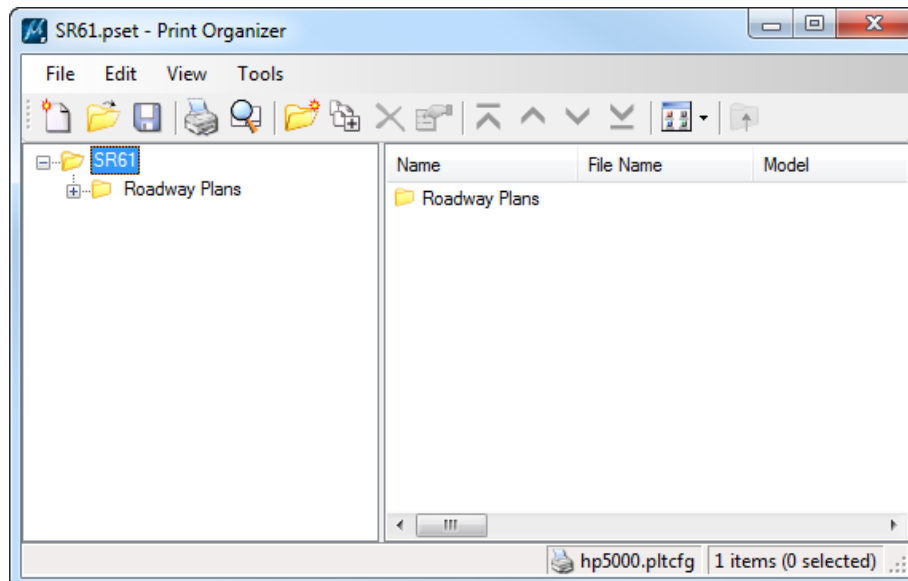
1. Continuing in MicroStation, on the Sheet Navigator dialog select **File > Generate Print Set**.
2. The Create Print Set dialog displays. Select **All Sheets** and click **OK**.



Navigate to the *C:\e\projects\22049555201\roadway* folder and save the file as **SR61.pset**.

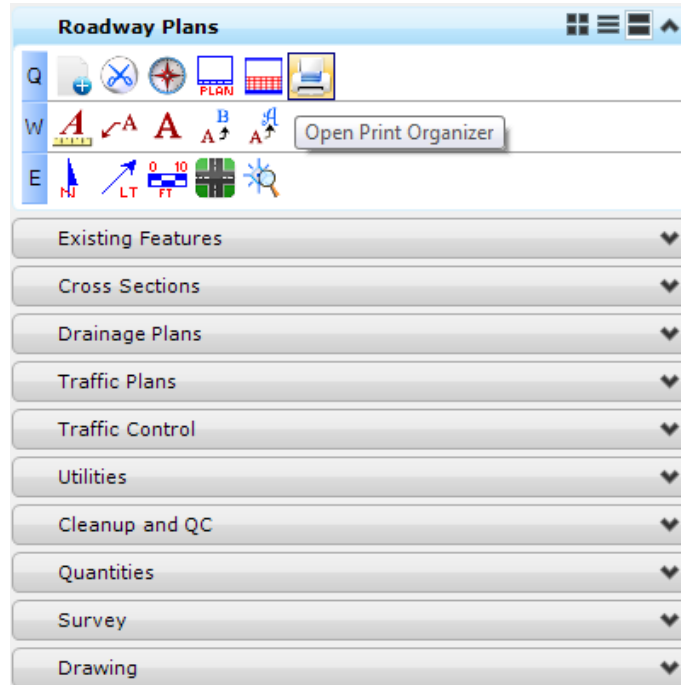


The print set will generate. Print Organizer displays with the Sheets added under the Roadway Plans.

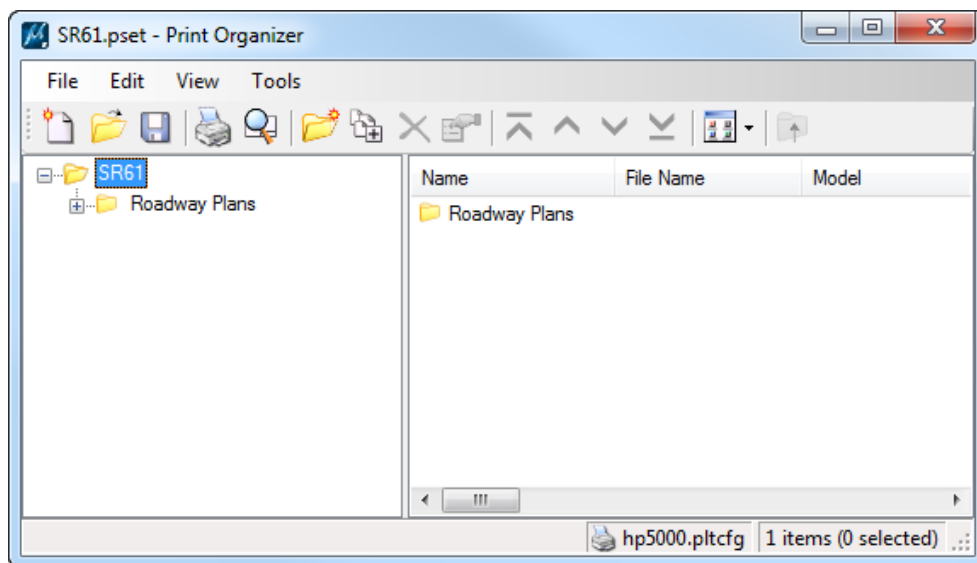


Exercise 11.5 *Print the Complete Project*

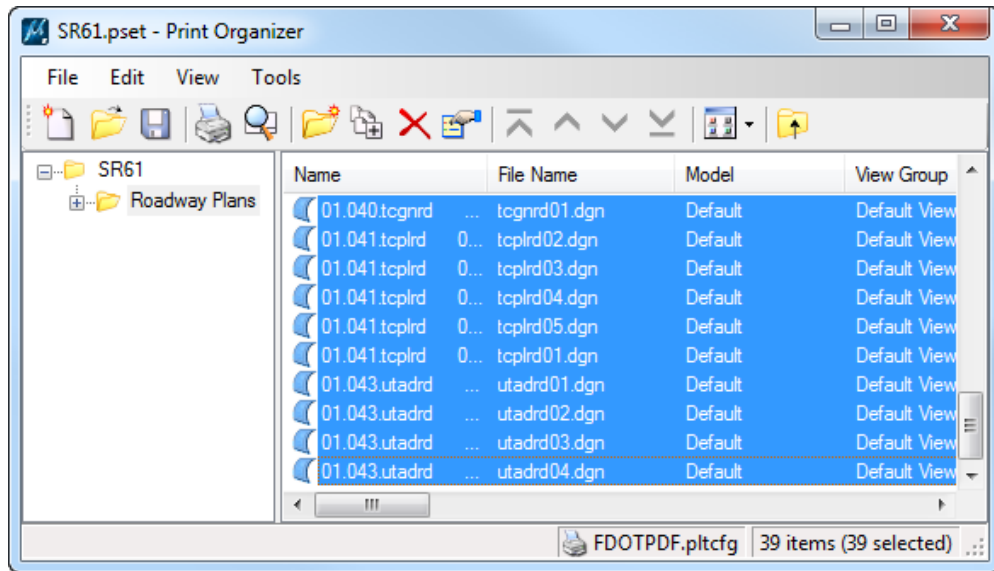
1. Use the **FDOTSS4** icon, open MicroStation design file
C:\e\Projects\22049555201\roadway\DSGNRD01.dgn.
2. On the FDOT Plans Development Task Menu, select **Roadway Plans > Open Print Organizer**.



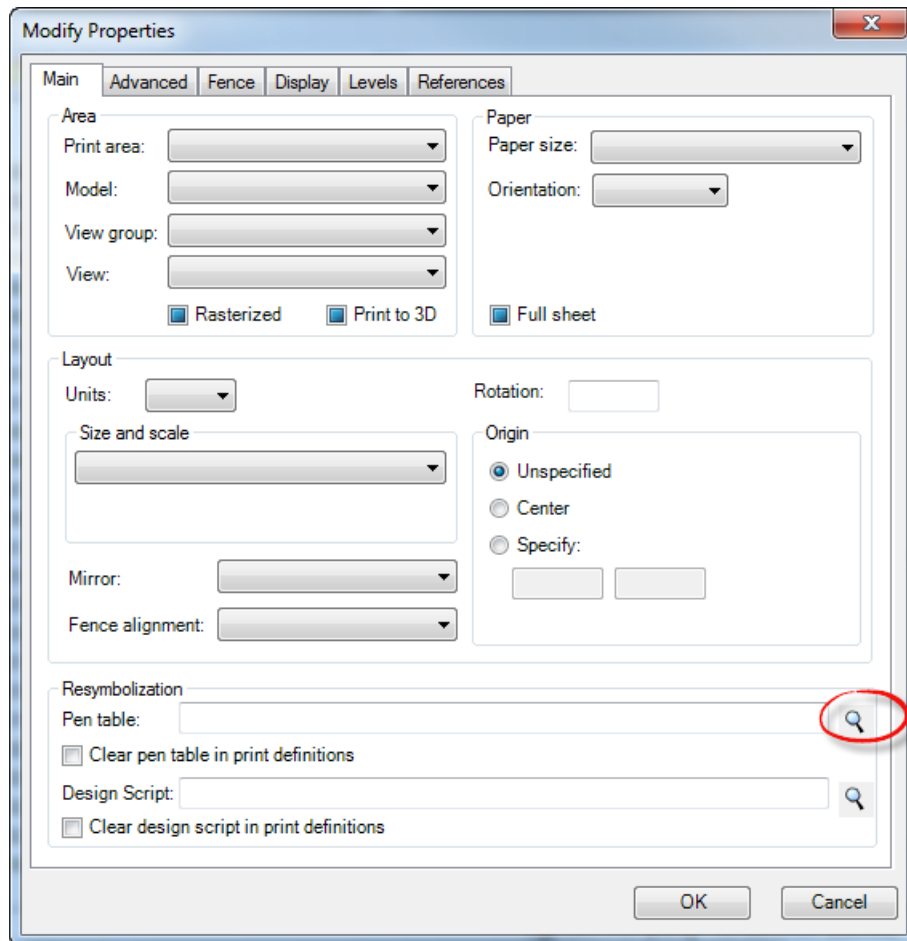
3. The Print Organizer dialog displays. Select **File > Open**, then navigate and select:
C:\e\Projects\22049555201\roadway\SR61.pset file.



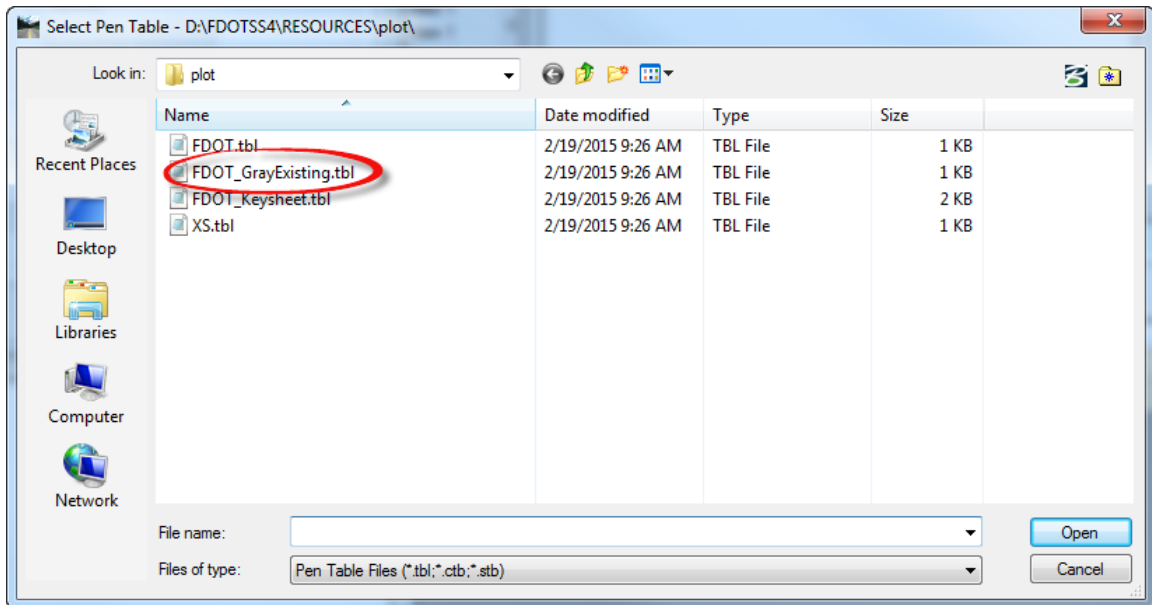
4. **Highlight** all of the files in the *Roadway* folder, except the *Key Sheet*, **right-click** and select **Properties**.



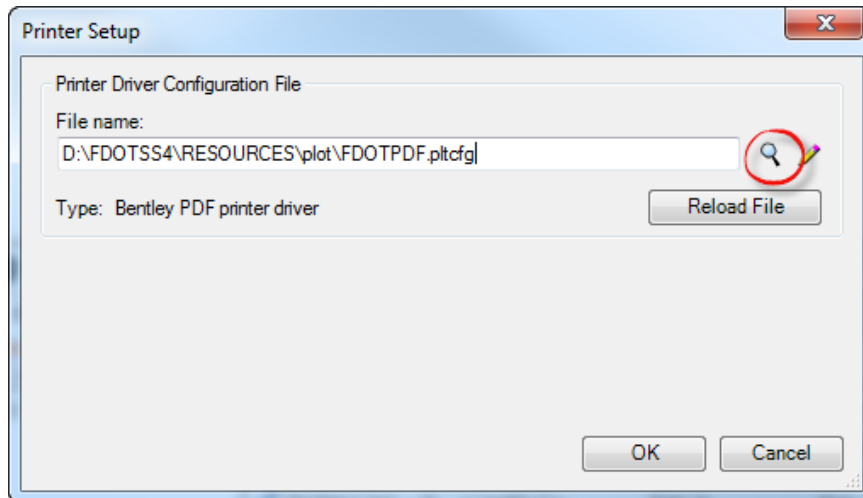
5. The Modify Properties dialog displays. On the *Main* tab under *Resymbolization*, click on the **Magnifying Glass** next to *Pen Table*.



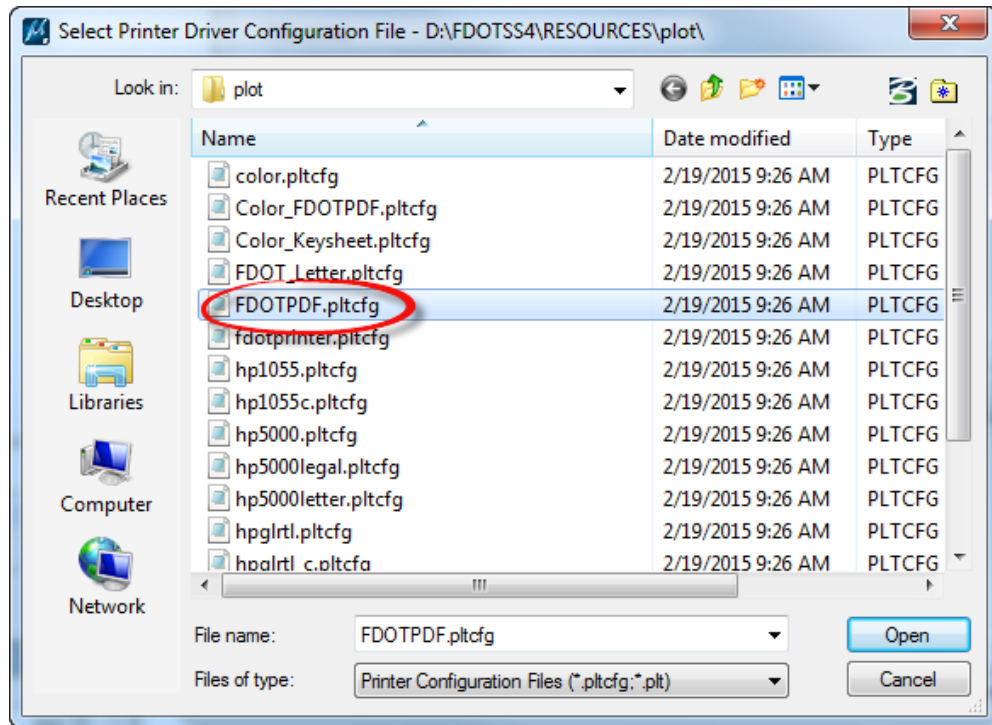
- The Select Pen Table dialog displays. Select the *FDOT_GrayExisting.tbl* Pen table and click **Open**.



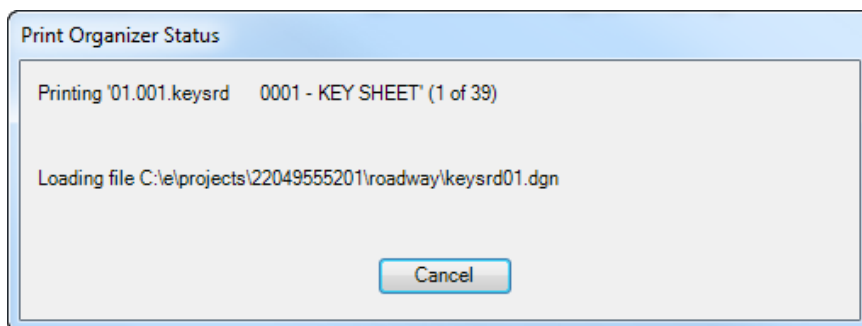
- The Modify Properties dialog displays, click **OK**. The Gray Existing pen table will get applied to each sheet.
- With all of the sheets still highlighted in Print Organizer, select **File > Printer Setup**. The Printer Setup dialog displays. Click on the **Magnifying Glass** icon.



9. The Select Printer Driver Configuration File dialog displays. Select the *FDOTPDF.pltcfg* file and click **Open**.



10. From the Print Organizer dialog, select **File > Print**. The Print dialog displays.
- Set the *Destination path* to *C:\e\projects\22049555201\roadway\Eng_Data\SR61.pdf*.
 - Toggle **On** Open Print File after creation.
 - Click **OK**.
 - The Print Organizer Status dialog opens showing what sheets are being printed.



- Once complete the *SR61.pdf* file will open.
11. **Reprint** the *Key Sheet* as shown in Exercise 2.7 and **replace** the *Key sheet* in the pdf.