

# LAB 15 - Create a Typical Section Sheet

Normally, all graphics are created in the model file and referenced to the sheet file. The sheet file contains the border, annotations and dimensions. However, typical section sheets are an exception to this rule.

Roadway Design typical sections can be created with the **CDOT Typical Section Generator Program**. The **Generator Program** not only creates the graphics, but it also annotates and dimensions the typical section. It uses a **Text Scale Factor** of 10 for all text. Therefore, the program must be run in a sheet file set up at a 10 scale. The auto-populated file **JPC#DES\_TypISect##.dgn** is automatically created with the text scale factor set to 10 and the border placed at a 10-scale. Therefore, run the **Typical Section Generator** in the sheet file.

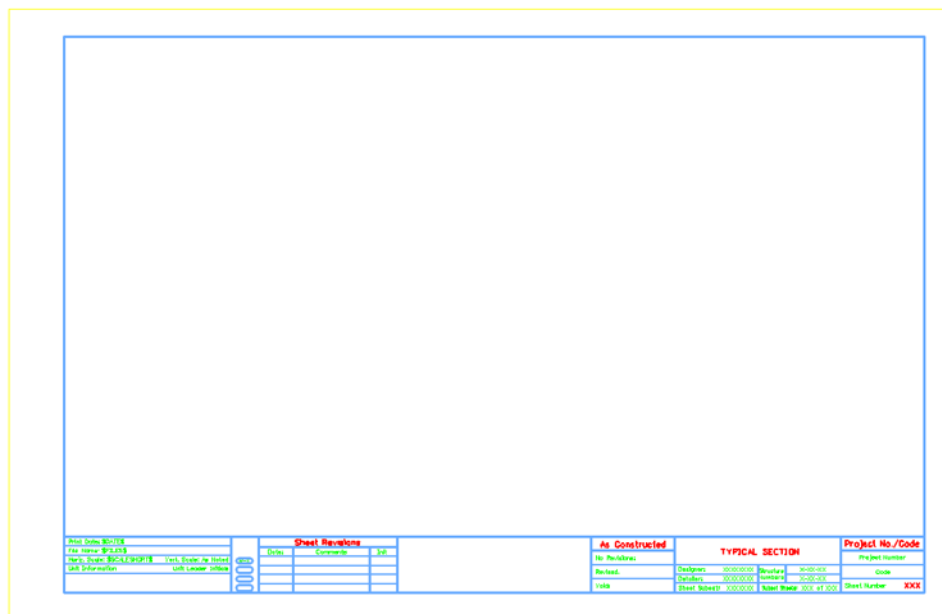
## Chapter Objectives:

After completing this exercise you will know how to:

- Create a Typical Section sheet.
- Attach a project-specific border cell library.
- Use the **Replace Cell** command to replace a generic border with a project border.
- Use the **CDOT Typical Section Program** to automatically create a typical section based on input values.
- Use **AccuDraw** and “**SmartLock**” to align graphics.
- **Save** the typical section input file.

## Lab 15.1 - Create a New Sheet File

1. Start MicroStation and open the file **12345DES\_TypISect##.dgn** from the **\12345\Design\Drawings** folder.



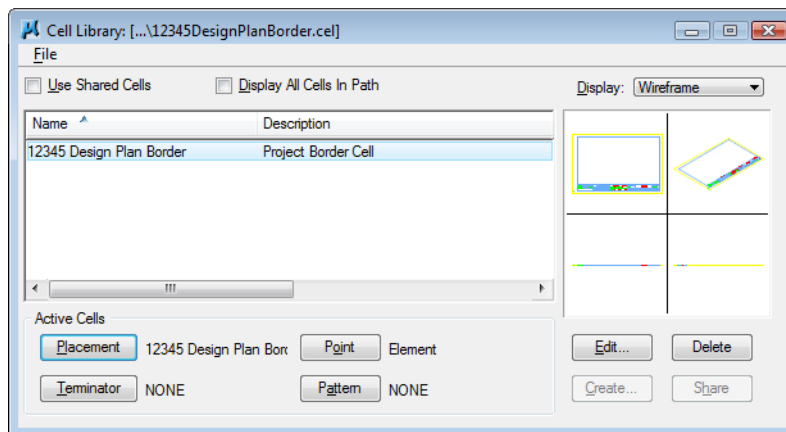
The file opens and contains the generic border.

2. Select **File > Save As...** and rename the file to **12345DES\_Typ1Sect01.dgn** and select **OK**.

The file is copied to the **Drawings** folder with the new name.

## Lab 15.2 - Attach the Border Cell Library

1. Select **Cells** from the **Primary** toolbar.
2. In the **Cell Library** dialog box, select **File > Attach** and navigate to the **C:\Projects\12345\Miscellaneous** folder.
3. Select the **12345DesignPlanBorder.cel** file.
4. This is the project-specific border created earlier.
5. Select **Open** to attach the cell library.



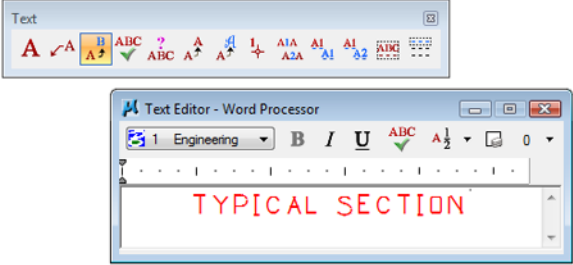
The cell library only has one cell (model) – the **12345 Design Plan Border** that you previously created.

6. Select **Placement** to make the border the active placement cell.
7. Close the **Cell Library** dialog box.



## Lab 15.3 - Edit the Border Text for a Typical Section Sheet

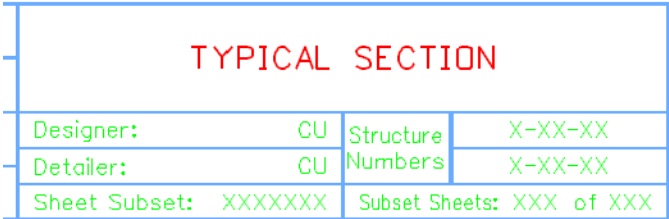
1. Select the Edit Text Command from the Text toolbar.
2. <D> on the Plan Sheet text.
3. Change the text to **Typical Section**.



The screenshot shows the MicroStation Text toolbar and a Text Editor window. The toolbar includes icons for text creation and editing. The Text Editor window displays the text 'TYPICAL SECTION' in red. Below this, a table represents the layout of a typical section sheet.

ed	<b>PLAN SHEET</b>			Project No./Code	
				STA 086A-039	
	Designer:	CU	Structure	X-XX-XX	12345
	Detailer:	CU	Numbers	X-XX-XX	
	Sheet Subset:	XXXXXXX	Subset Sheets:	XXX of XXX	Sheet Number <b>XXX</b>

4. <D> to accept.



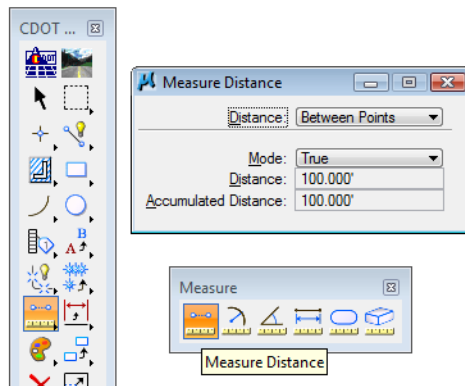
The screenshot shows the typical section sheet layout with the text 'TYPICAL SECTION' in red. Below this, a table represents the layout of a typical section sheet.

<b>TYPICAL SECTION</b>					
	Designer:	CU	Structure	X-XX-XX	
	Detailer:	CU	Numbers	X-XX-XX	
	Sheet Subset:	XXXXXXX	Subset Sheets:	XXX of XXX	

## Lab 15.4 - Check Model Properties

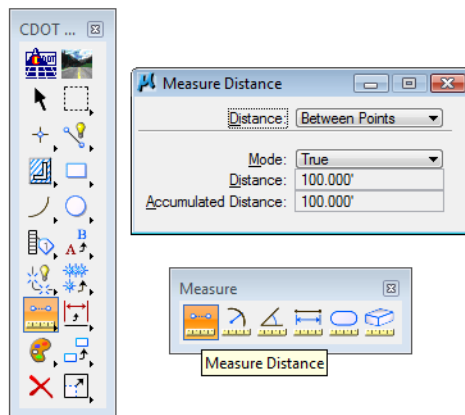
1. Select File > Models from the menu (or select the Models icon from Primary Tools).
2. Select the Edit Model Properties icon

Note that the **Annotation Scale** factor is set to 1:10 for running the CDOT Typical Section Program. The text placed from the program will appear the correct size.

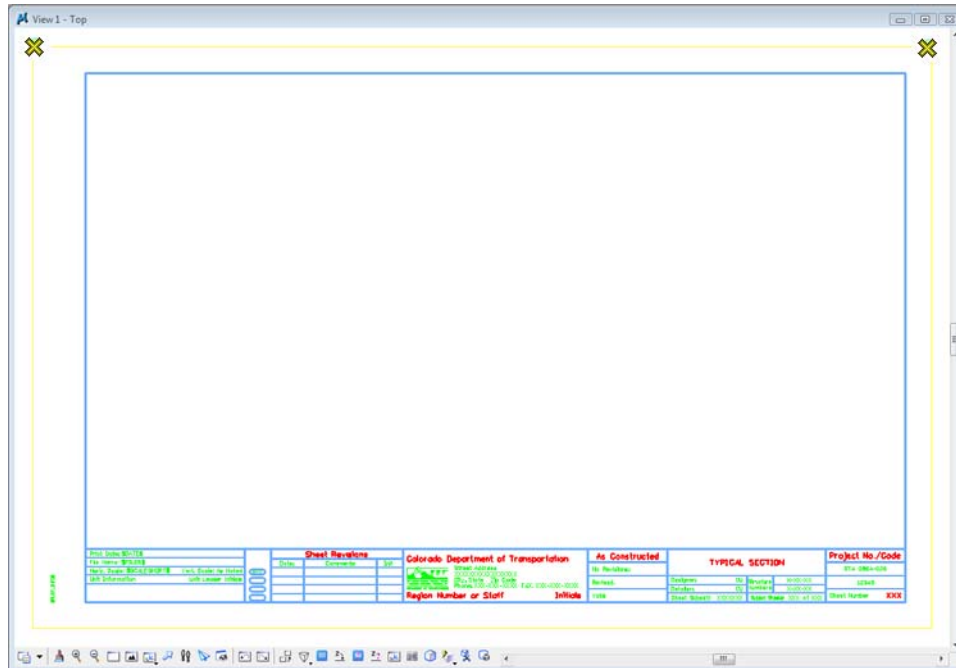


**Note:** You must change the **Annotation Scale Factor** if you run the **Typical Section Program** in any file other than the JPC#DES\_Typ1Sect##.dgn file.

3. Select the **Measure Distance** command and set the **Distance** to **Between Points**.



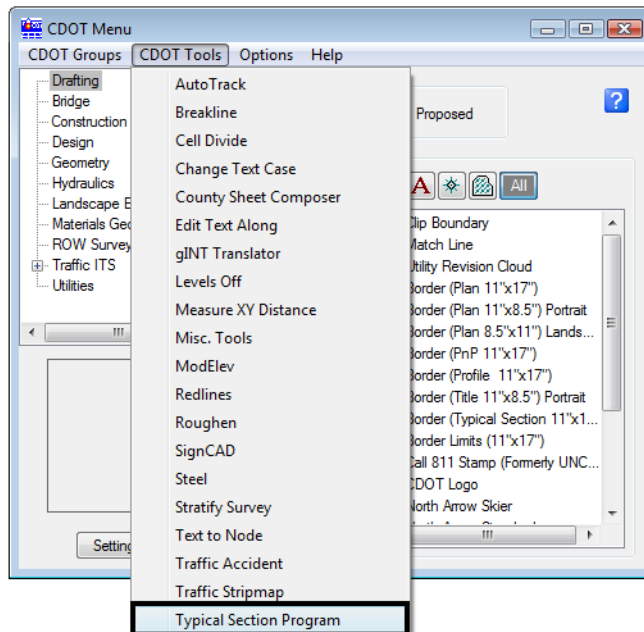
4. Measure the height and length of the border (AccuSnap along the yellow edge).



Note that the border measure 110 x 170, or 10 times the actual size. If the border cell was scaled to a factor other than 1:10 (like 1:100 for a plan sheet), then it must be re-scaled or replaced at the proper scale of 10.

## Lab 15.5 - Start the Typical Section Program

1. On the CDOT Menu, select Add On's > Typical Section Program.



The CDOT Typical Section Program lets the user input different values based on the desired roadway section. The various options are highlighted in blue.

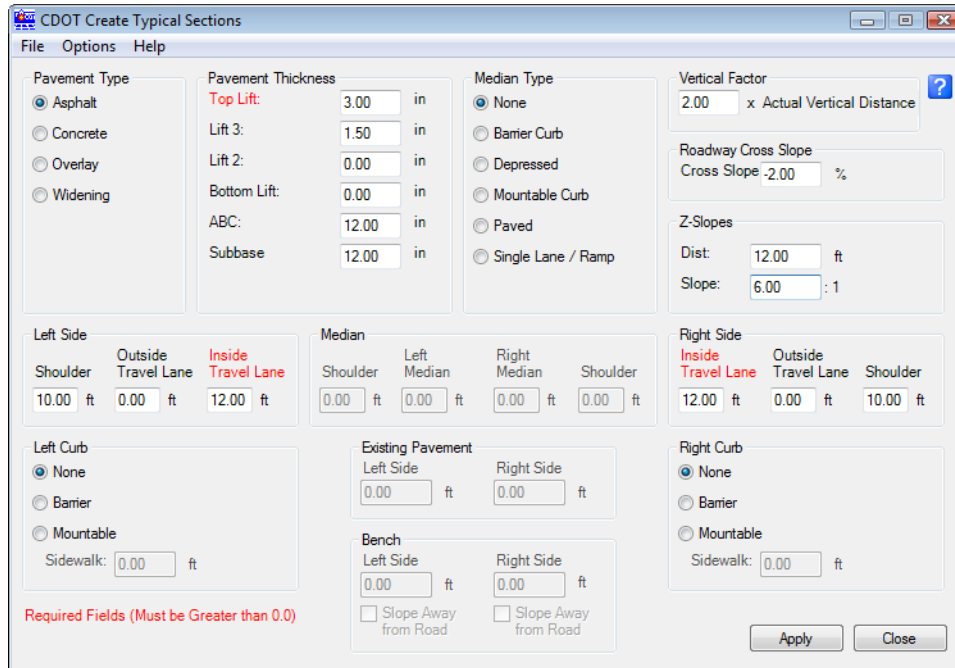
**Note:** Items that require input are shown in red.

## Create a 2-Lane Rural Typical Section

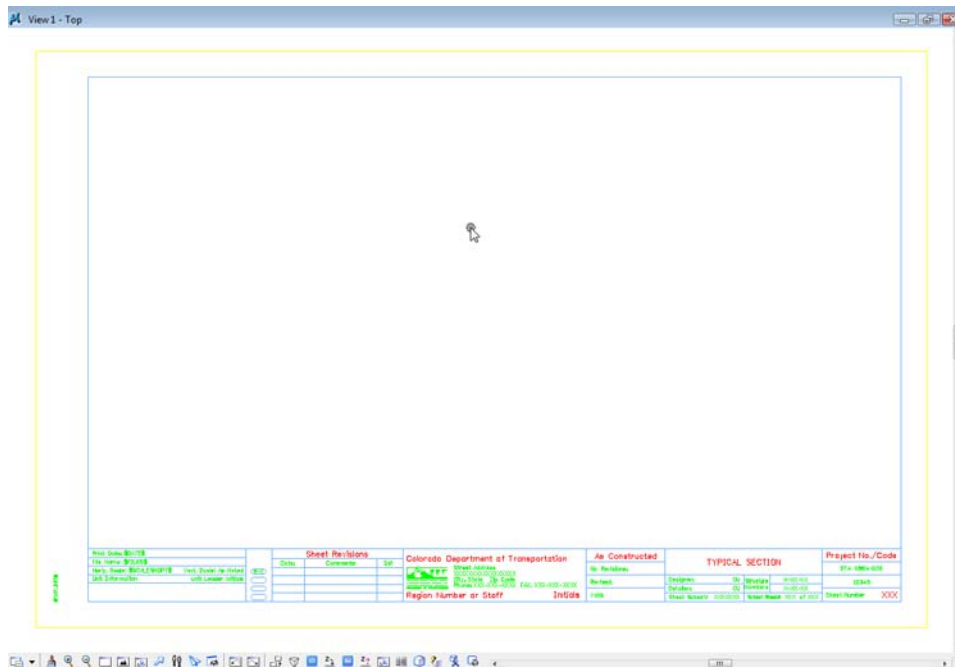
1. On the Create Typical Sections dialog box, select **Options > Writelock** to toggle it **On** (a checkmark).

**Note:** If **Writelock** is **On**, permanent graphics will be generated in the file. If **Writelock** toggle is **Off**, the graphics are temporary and if you zoom or pan, the graphics will disappear. A checkmark next to **Writelock** indicates that it is on.

- Set the Typical Section Program options as shown.



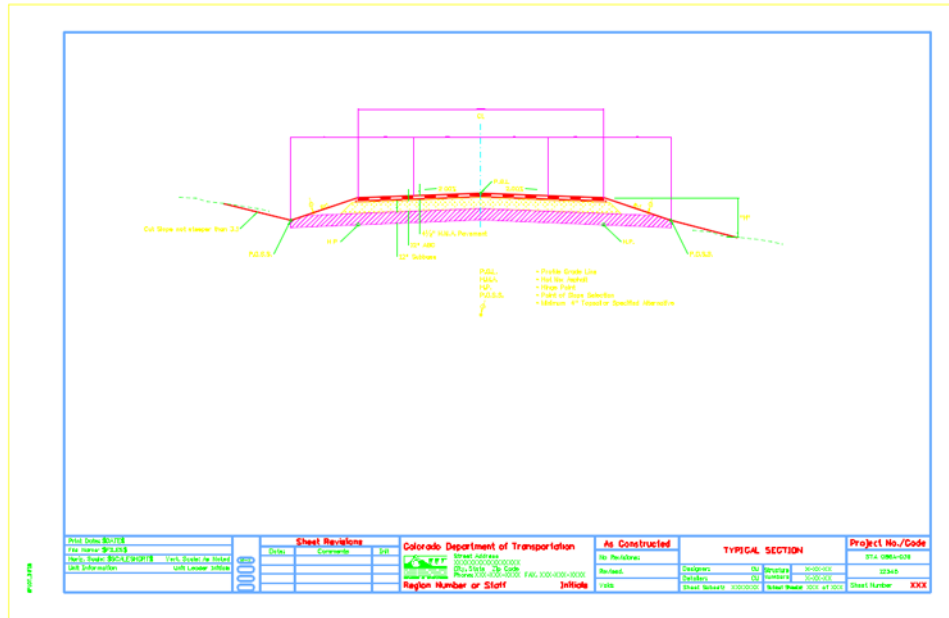
- Select **Apply**.
- When prompted to locate the profile grade point, <D> near the top-center of the sheet as shown.



The 2-Lane rural section is automatically drawn, annotated and dimensioned.

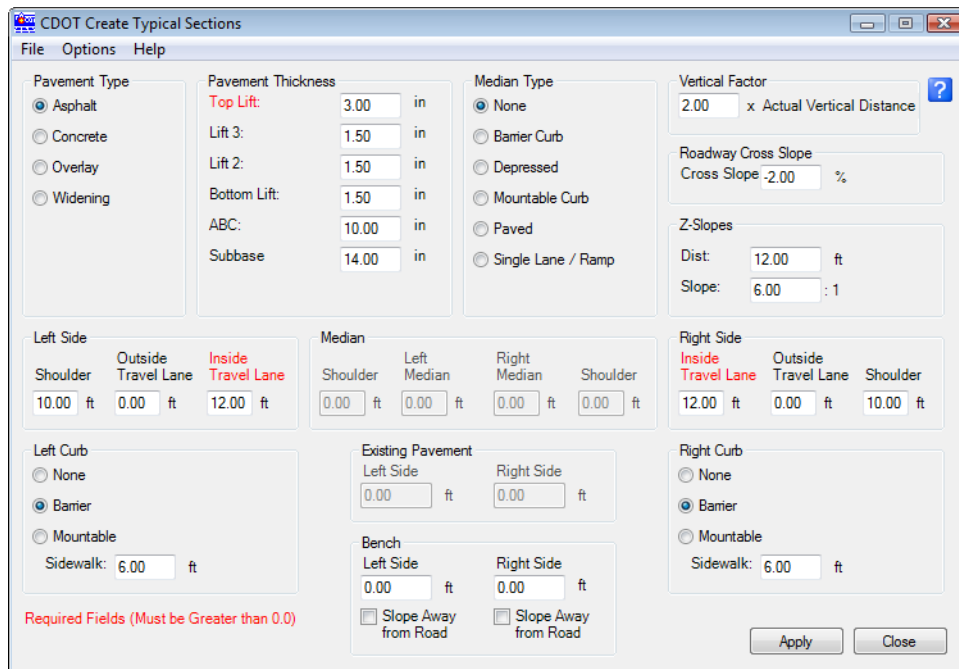


5. **Do not** close the Create Typical Section dialog box.



## Create a 2-Lane Urban Typical Section

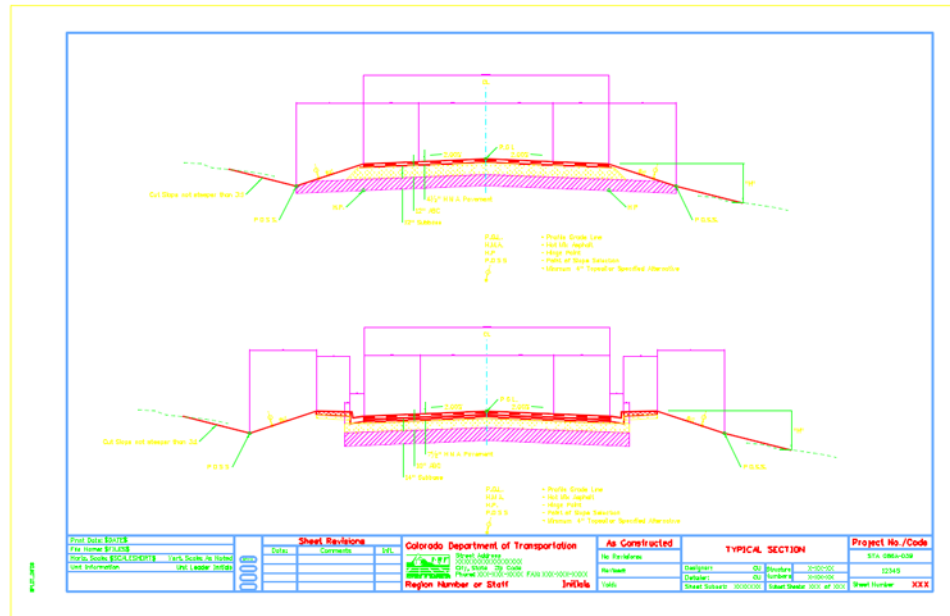
1. Set the Typical Section Program options as shown.



2. Select **Apply**.
3. When prompted to locate the profile grade point, <D> near the bottom-center of the sheet below the first section.

The 2-Lane urban section is automatically drawn, annotated and dimensioned.

4. **Do not** close the Create Typical Sections dialog box.



## Save the 2-Lane Urban Section Input File

1. From the Create Typical Section dialog box, select File > Save.
2. Navigate to the C:\Projects\12345\Miscellaneous folder.
3. Key in a File name **SH86\_2L\_Urban\_Typical** and select Save.

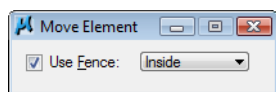
The input file is saved. If you need to generate this typical section again, Select File > Open from the Create Typical Section dialog box and select this text file.

4. Close the Create Typical Section dialog box.

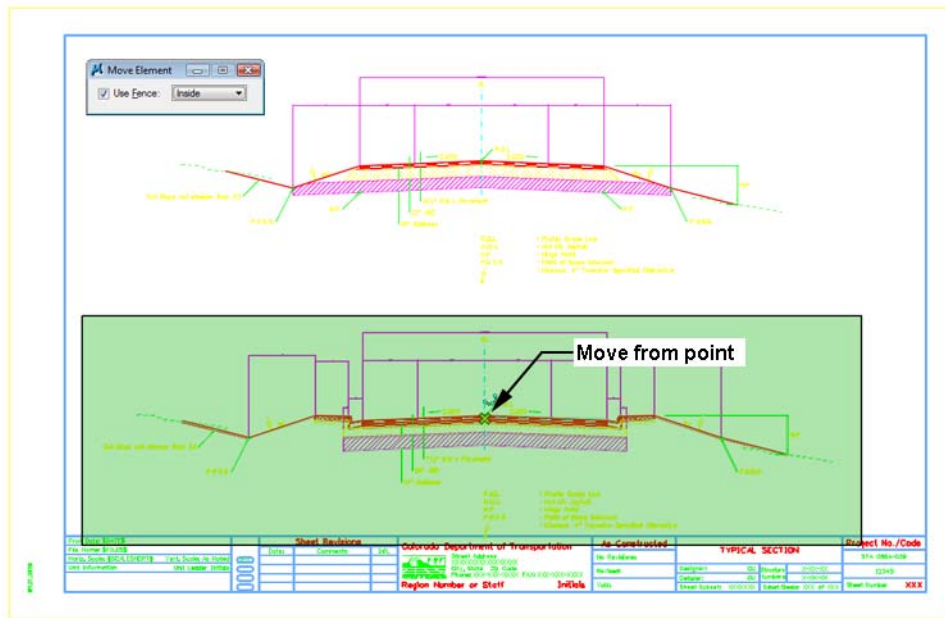
## Align the Sections

Since you did not snap to a location for the sections, you may need to align the sections at their centerlines as well as move the section graphics into the border.

1. Place a fence block around the urban section.
2. Select the **Move** command from the **Manipulation** toolbar and toggle on **Use Fence**.



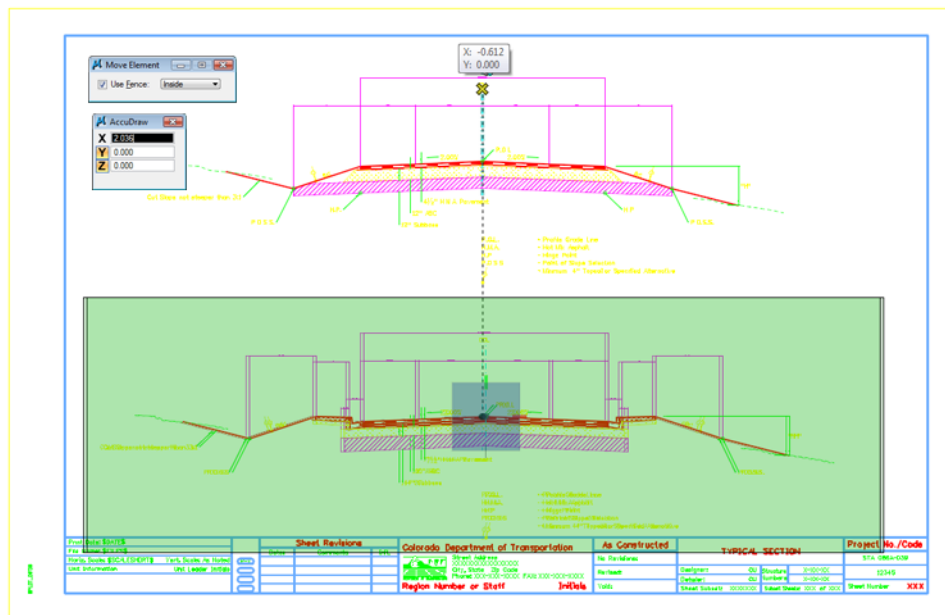
3. **AccuSnap** on the centerline of the urban section as shown for the move from point.



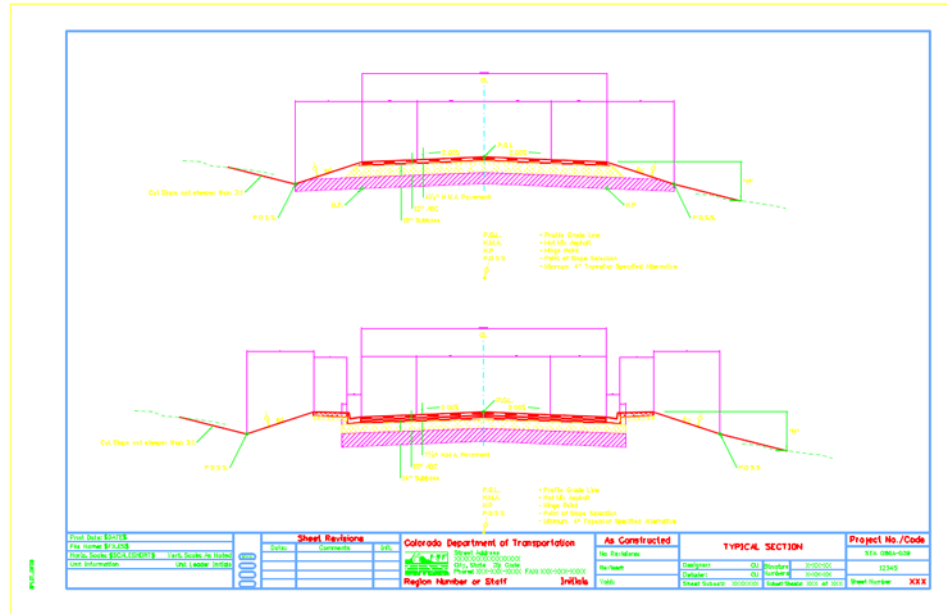
4. **Move** your cursor horizontally (either to the right or left), lock on AccuDraw's X-axis then press <Enter> on the keyboard.

This smartlocks the **AccuDraw** axis so that you can only move in the horizontal direction.

5. <D> on the rural section centerline as shown for the move to point.



The two sections are now aligned at the centerlines.



6. Fit the view.
7. Save Settings.
8. Exit MicroStation.