LAB 12 - Create a Plan/Profile Sheet for the Intersection

Several plan/profile sheets have already been created using the InRoads **Plan/Profile Generator.** However, there are times when you need to create special plan or plan/profile sheets not created by the **Generator**. In this lab, you'll create a plan/profile sheet for the side road that runs through the intersection.

Chapter Objectives:

After completing this exercise you will know how to:

- Create a sheet file using a generic project file.
- Attach model files coincident-world
- Attach model files as saved views.
- Rotate the view to horizontal
- Use the CDOT Menu to place a border and associated information (bar scale, north arrow, region cell, etc.)
- Use the CDOT Menu to place a clipping boundary.
- Clip references
- Work with reference levels.
- Move references

Lab 12.1 - Review Plan/Profile Sheets

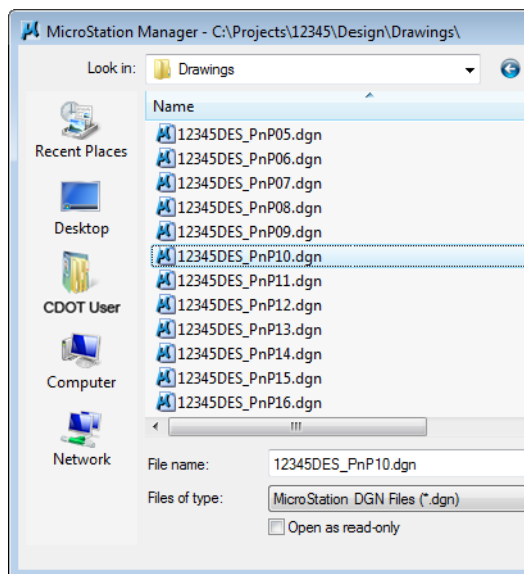Review the Plan/Profile sheets for this project previously created by the InRoads **Plan/Profile Generator**.

1. Start MicroStation.

2. In the MicroStation Manager, open **12345DES_PnP10.dgn** from the project's
   …**Design\\Drawings** folder.
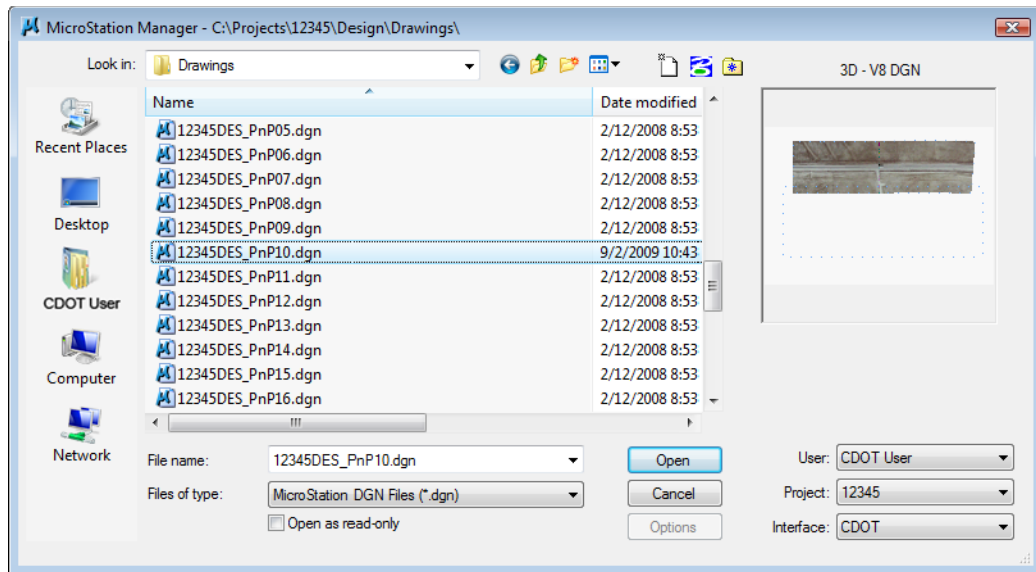
The ***InRoads Plan/Profile Generator*** automates the creation of sheet files along the
mainline alignment. This includes rotating the plan-view to horizontal, placing the
corresponding profile, placing the border, north arrow and match lines. MicroStation
references are used to bring in plan and profile graphics to the active sheet file.

3. Use **Level Display** to review the reference levels on which plan and profile graphics are
   placed in the sheet file.

Note that the only levels with graphics in the sheet file are sheet levels for the border,
match line, north arrow, *etc*.

4. Open other plan/profile sheets, as desired, from the ***Drawings*** folder and review the sheets.

Lab 12.2 - Create a New Sheet File

Since the ***InRoads Plan/Profile Generator*** did not create a sheet for the county cross road at the intersection, you'll create this P&P sheet file manually.

5. Select **File > New**.

6. Set the directory to the project's **\Design\Drawings** folder.

7. In the New box, make sure that the seed file is set to ***3D-Seed_CDOT.dgn***. If not, pick the **Browse** button and then select this file. Key in the name ***12345DES_PnP19.dgn***.

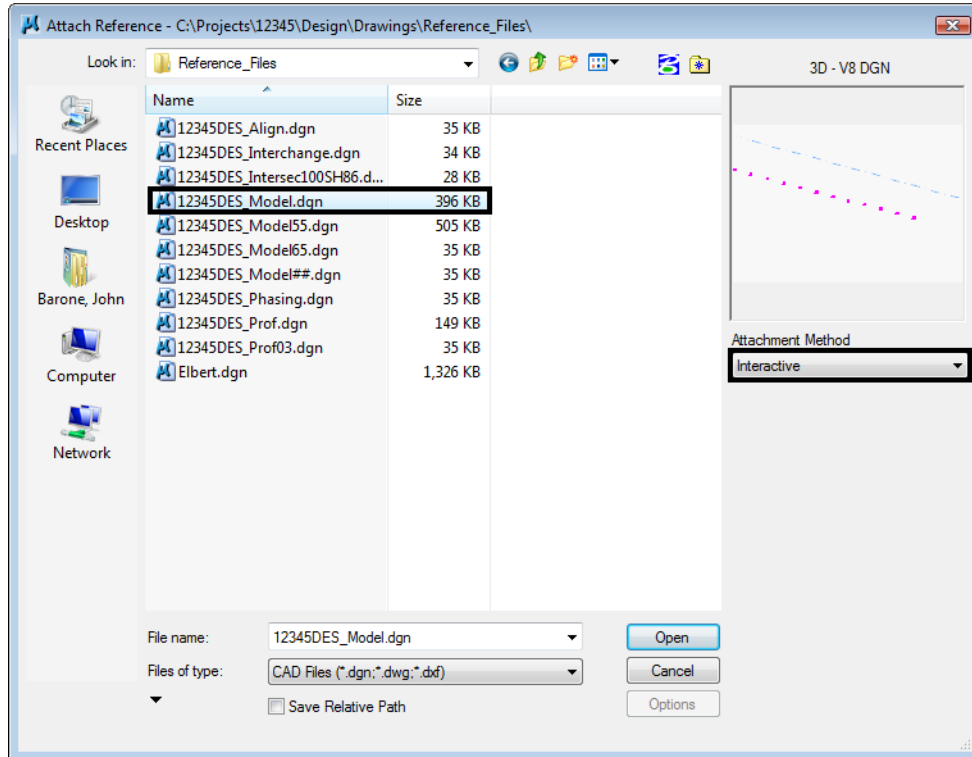   Nineteen is the next number in the plan/profile set of sheets.
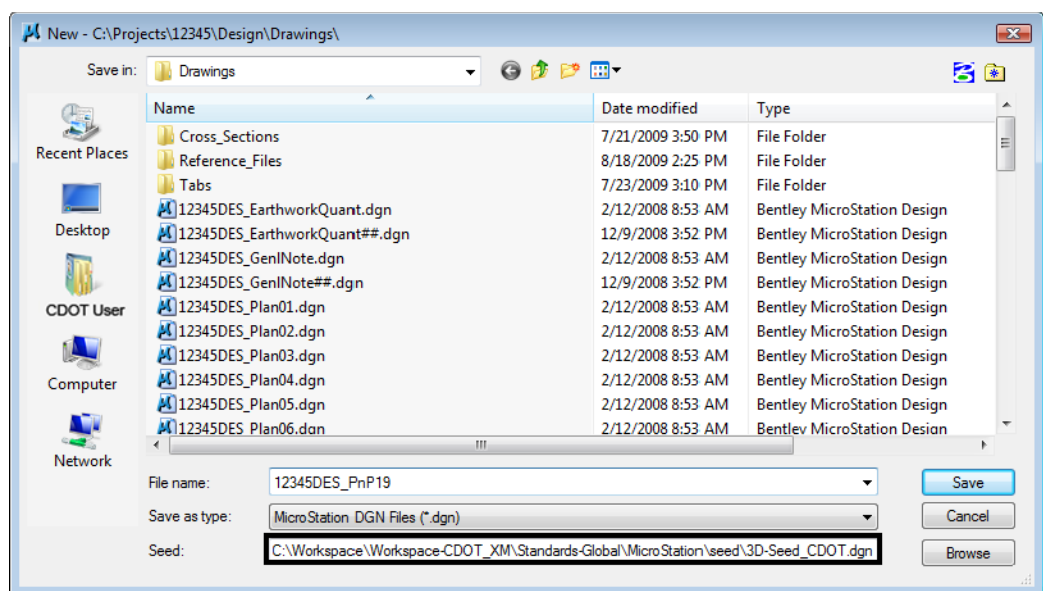
Select **Save** to create the file.

Lab 12.3 - Attach the Model file

8. Select the **Reference** icon from the ***Primary Tools*** toolbar.

9. In the ***References*** dialog box, select **Tools > Attach**.

10. Use the Directory pull-down menu and select the
    C:\Projects\12345\Design\Drawings\Reference_Files folder and select the file
    12345DES_Model.dgn

11. Verify the **Attachment Method** is set to **Interactive**. Select **OK**.

12. In the **Reference Attachment Settings** box:

    ♦ Key in a logical name of **Design** and **Proposed Intersection** for a description.

    ♦ Verify that **Orientation** is set to Coincident-World and the **Scale** is set at **1:1**

   ♦ Set **Nested Attachment** to Live Nesting and set **Depth** to **1**.

♦   Turn *off* Display Raster References.
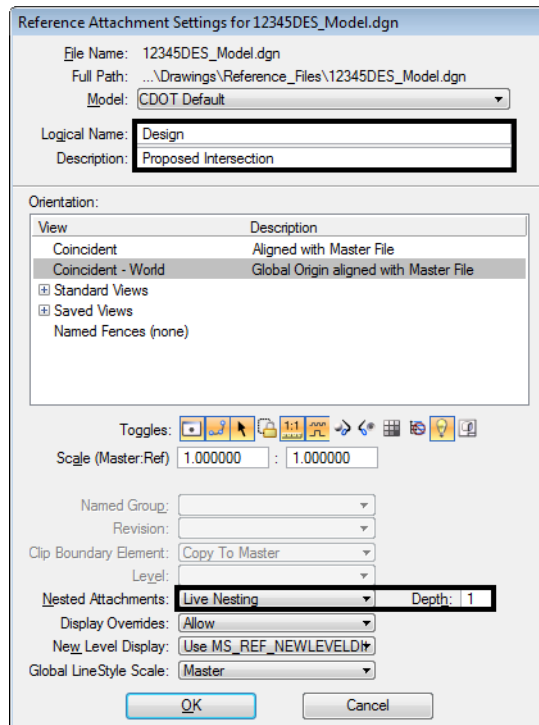
13. Select **OK**.

   Note: The ***Coincident World*** option ensures that references are attached with their true
   coordinate information. A scale factor of ***1:1*** ensures that plan graphics are
   referenced in actual size. These two options allow plan sheet graphics to maintain
   their true model coordinates and size.

14. Turn on the **Show Hierarchy** to expand the hierarchy list.
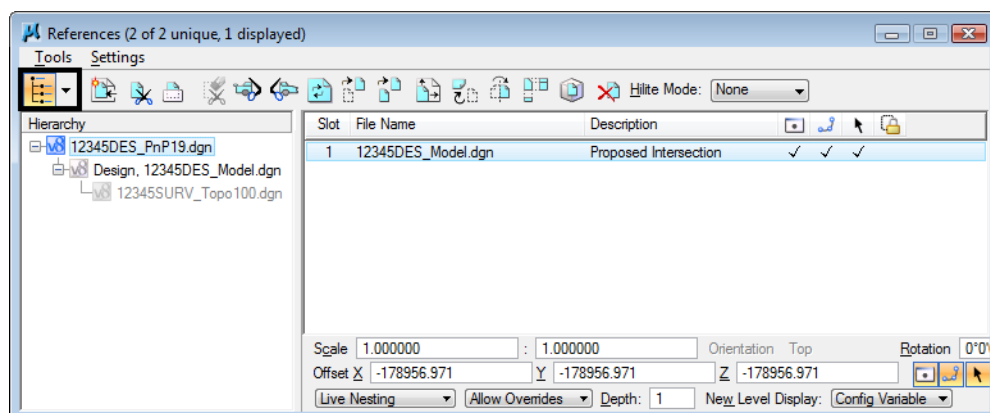
Note: Note that with nested references, the Survey/Topo reference is nested below the Design model file. You can typically reference model files as nested to sheet files instead of using the ***Copy Attachment*** command (as in this case, you want to show both Design and Survey/Topo graphics in the sheet file). However, if you need to control individual references in the sheet file, then use the ***Copy Attachment*** command.

15. ***Close*** the ***References*** dialog.

16. **Fit View** using the icon so all graphics are displayed.

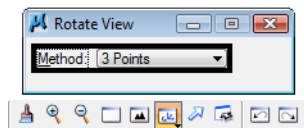17. Select **File > Save Settings** from the menu.

Lab 12.4 - Rotate the View using the 3-point method

Rotate the view so that the side road appears horizontal in the view.
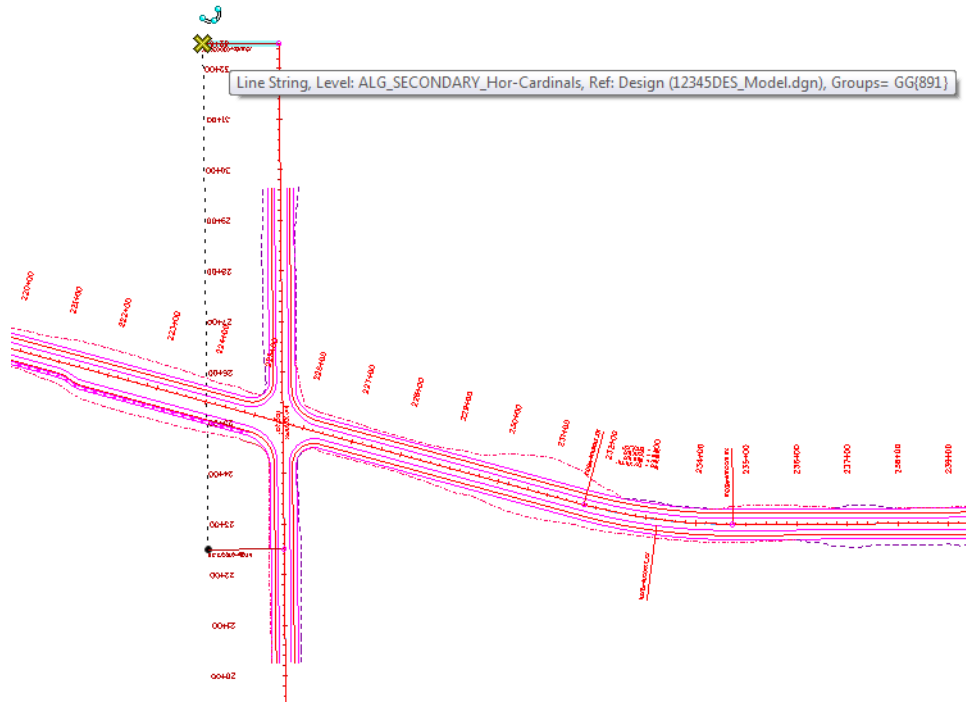
1. Window around the intersection as shown.
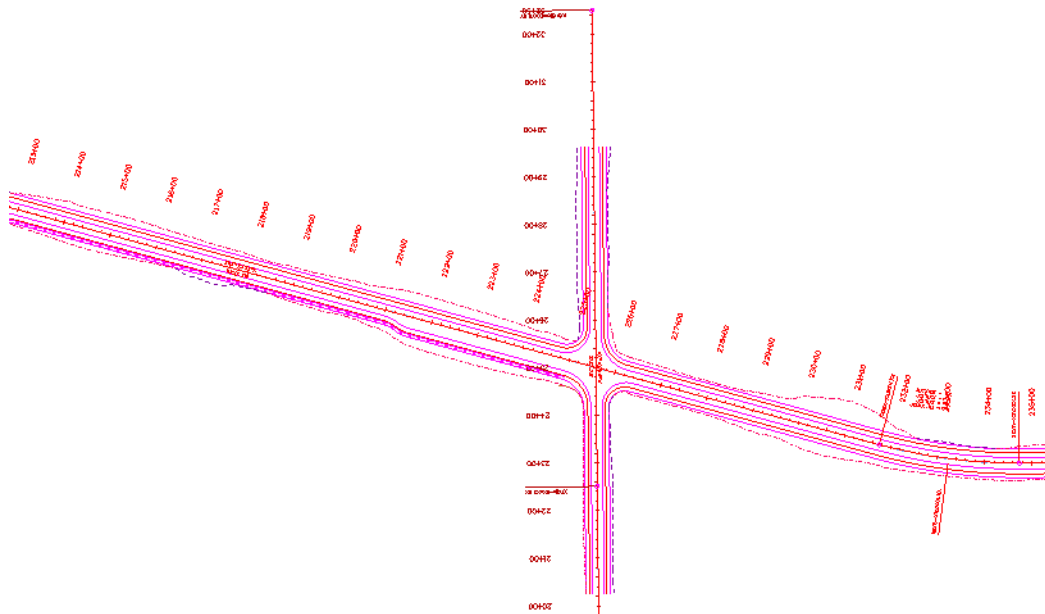
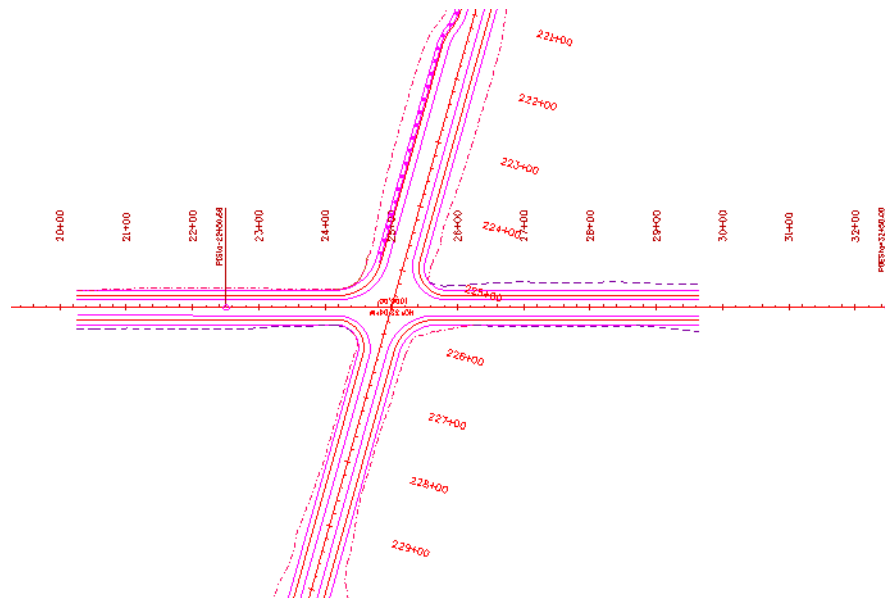2. Select the **Rotate View** command and set the ***Method*** to **3 Points**.

3. Follow your prompts and ***AccuSnap*** on the end of the PI leader line shown.

4. For the second point (X axis of the view), ***AccuSnap*** on the POE leader line.

5. For the third point (Y direction), **<D>** anywhere to the left of the first two points.

The view is rotated so that the side road appears horizontal.

Note: Remember that you are rotating the view, not the graphics. The graphics maintain their original coordinate position in the sheet file.

Note: The leader lines are both placed at elevation 0. If you pick points at different elevations, you'll need to first turn on Depth lock before choosing the 3-Point rotation command to avoid a skewed rotation.
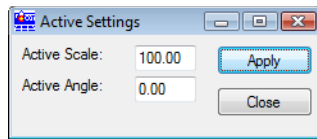
Lab 12.5 - Place the Border Cell

6. **Zoom out** as shown.
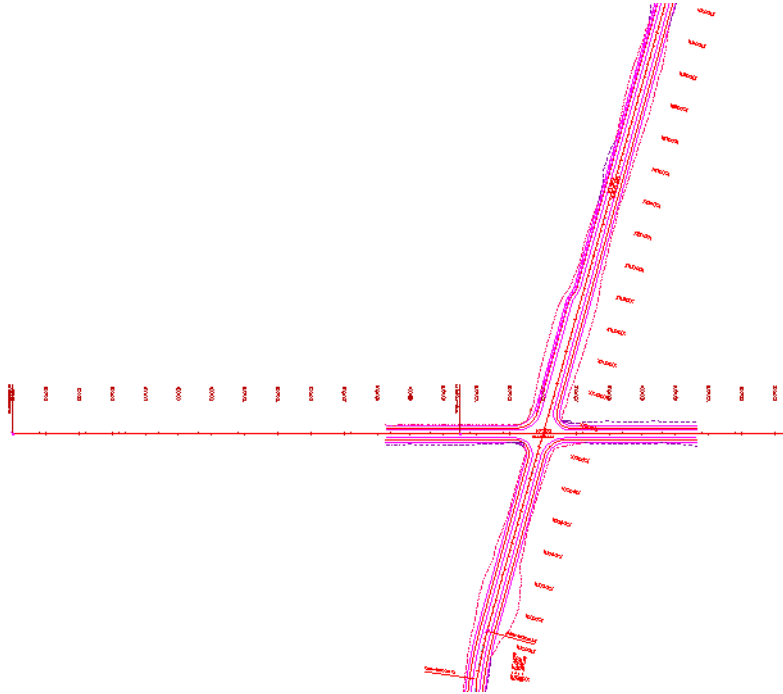
7. From the *CDOT Menu* Explorer, select **Drafting** and then select the **Border** category and choose the **Border (PnP 11″x17″) Item**.
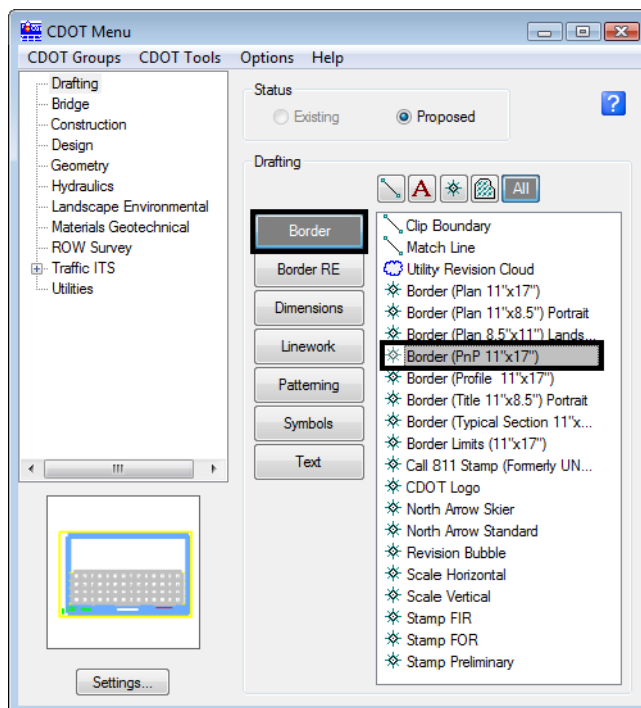
8. Select **Settings** and set *Active Scale* to **100** and
   *Active Angle* to **0**.

Note: Coordinate with the Region Surveyor when you are creating sheets that are not at a
          1:100 scale. They will provide you with the topography and survey MicroStation
          files at a different scale. Otherwise, the line work and cells will not be the correct
          size for the print scale.

The *Active Angle* is view independent and not associated with view rotation. Therefore, the
x-axis is always horizontal regardless of the view rotation. You will not need to set this for
correct placement of the North Arrow or other cells.

9. Select **Apply** and **Close** in the *Active Settings* box.

10. When prompted to locate the cell origin of the sheet border, **<D>** in the approximate
    location shown to place it. Don't worry about an exact location – you'll move it in the next
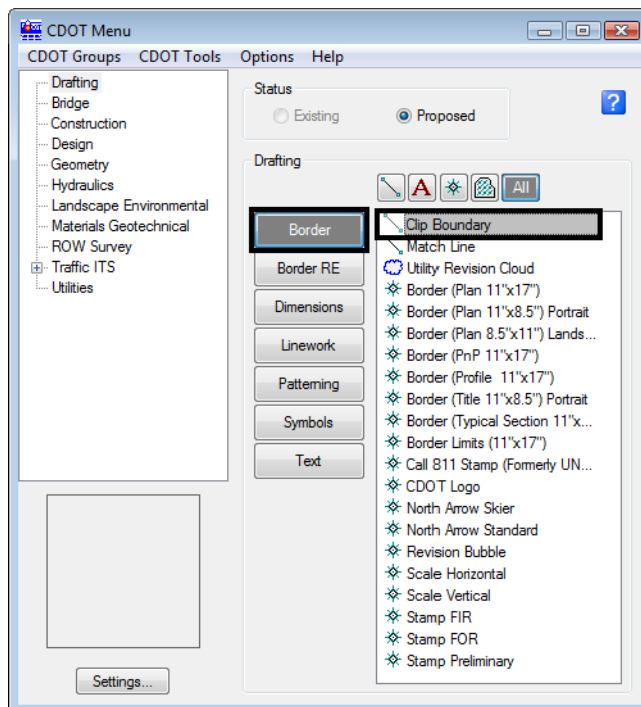   step.
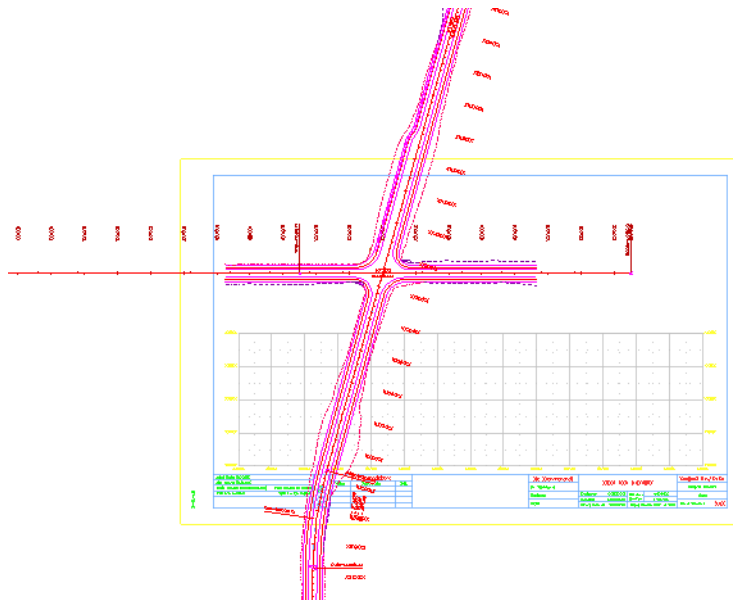
11. If necessary, use the **Move** command and move the border cell so that the intersection is centered in the upper plan portion as shown.
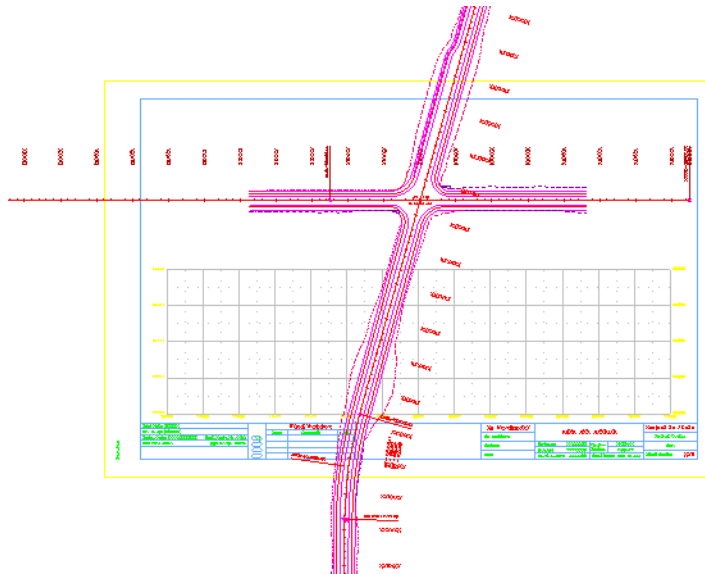
Lab 12.6 - Placing a Clip Boundary

1. From the CDOT Menu Explorer select **Drafting**.

- Set the *Category* to **Border**

- Select the **Item Clip Boundary**

- Verify the *SHEET_Clip-Boundary* level is active.

*Note:* Since *Plot* is turned off for the level *SHEET_Clip-Boundary* in the *Level Manager*, it will not print.

The *Place SmartLine* command is now automatically selected, allowing you to draw an irregular closed shape that represents your clipping boundary of the model file. However, if your clipping boundary is a rectangle, you can use the *Place Block* command.

2.   Select the **Place Block** icon from the *Main* toolbar and draw the clipping boundary as shown (corner to opposite midpoint on the blue inside margin).
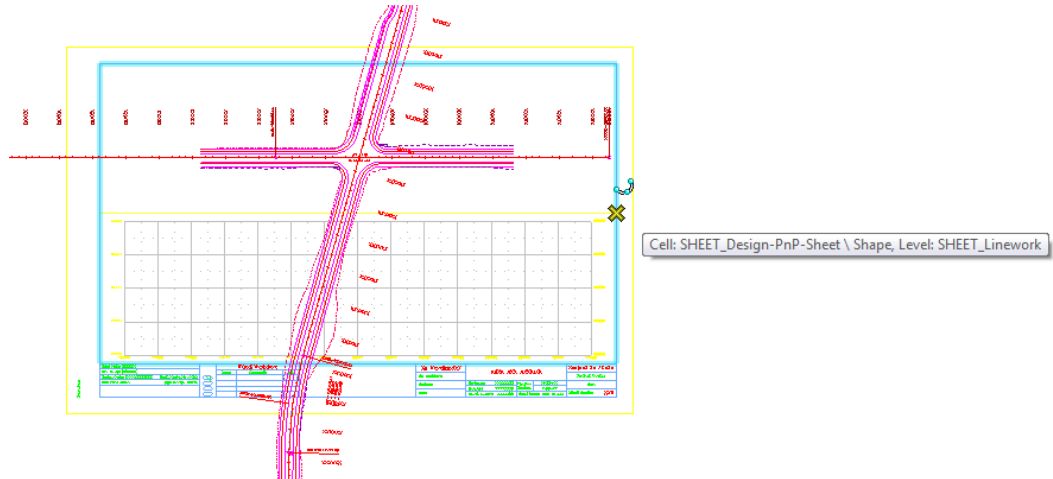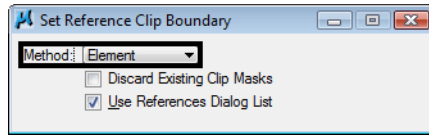

Lab 12.7 - Clip the Reference File

1.   In the *References* dialog box, highlight the **Design** reference.

2.   Select the **Clip Reference** icon.
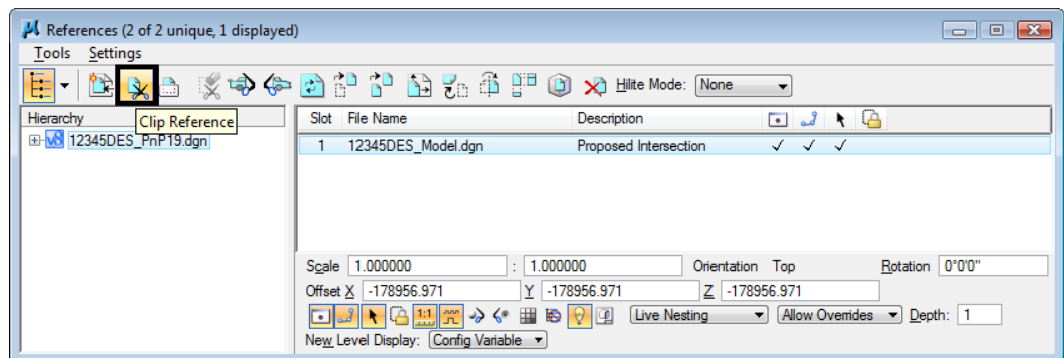
Note: You can select more than one reference file at a time by holding the **<Shift>** or **<Control>** keys down while you are making your selection. You can clip multiple drawings in one step when they are all selected.

3. In the **Tool Settings** box, verify **Method** is set to **Element**.

4. When prompted to **Identify Clipping Element**, **<D>** on the rectangular clipping boundary you just placed.

5. **<D>** to accept.

6. **Fit** the MicroStation view and **Save Settings** after clipping the reference files.
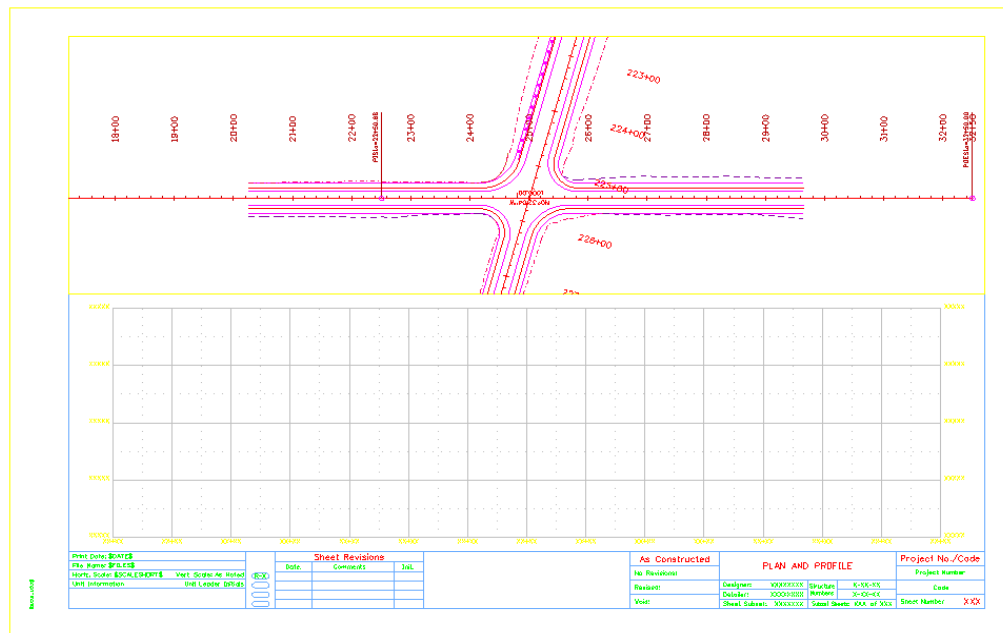
Note: Once the clipping boundary is placed, do not delete it. The clipping region of the reference file will be lost if the boundary is deleted.

In the next Chapter, you'll edit the border text to add project specific information.

Lab 12.8 - Turn off the Profile Grid and Text

1. Open the **Level Display** box and turn **Off** the following levels:

- **SHEET_Grid**
- **SHEET_Grid-Minor**
- **SHEET_Grid-Text**

This turns off the border's grid for the profile. You'll use the grid provided by the InRoads profile.

Lab 12.9 - Attach the Design Profile

1. In the *References* dialog box, select **Tools > Attach**.

2. Use the **Directory** pull-down to navigate to the **C:\Projects\12345\Design\Drawings\Reference_Files** folder and select the file *12345DES_Prof03.dgn*

3. Verify the *Attachment Method* is set to *Interactive*. Select **Open**.

4. In the *Reference Attachment Settings* box:

- Set *Orientation* to **Top**

- Key in a *Logical Name* of **Profile Side Road** and **Proposed profile for side road** as the *Description*.

- Set *Scale* to **1:1**

- Set *Nested Attachment* to **No Nesting**.
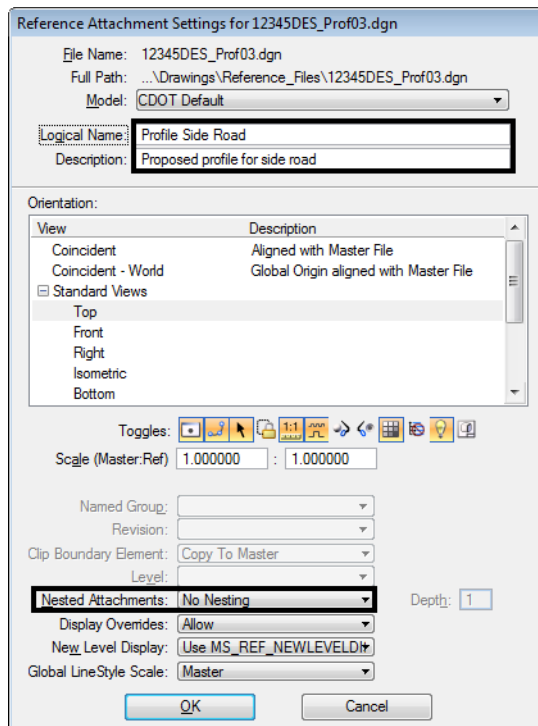
5. Select **OK**.

6. The outline of the profile reference is attached to your cursor. **<D>** in the approximate location shown to place the profile.
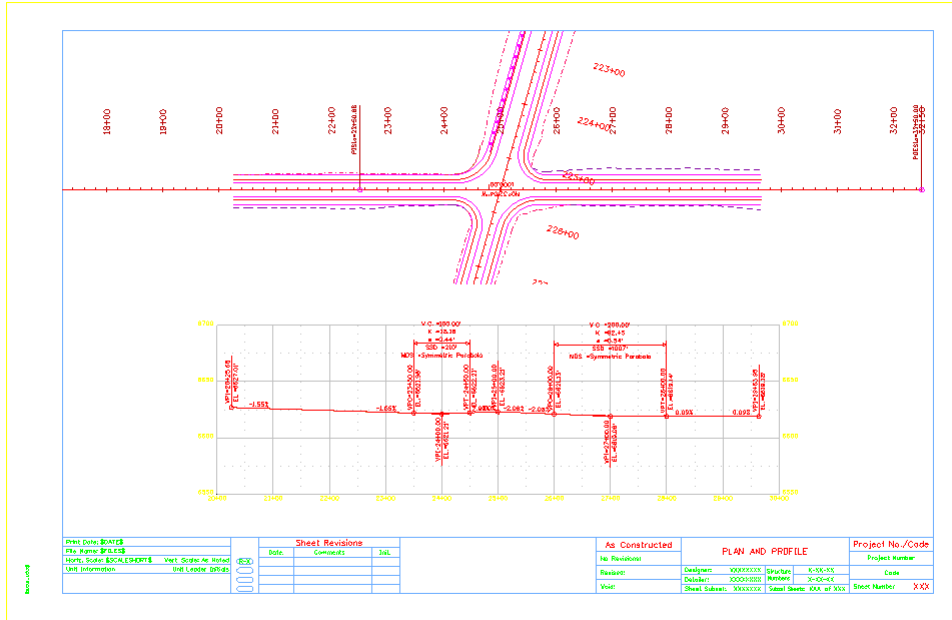

Move the profile reference

Since you attached the profile reference by a top view, it did not come in at a precise location. Next, you'll move the profile to line it up better with the plan.

1. Turn on **AccuDraw** if it's not already on.

2. Highlight the *Profile* in the *Reference* dialog and select the **Move Reference** icon or select **Tools > Move**.
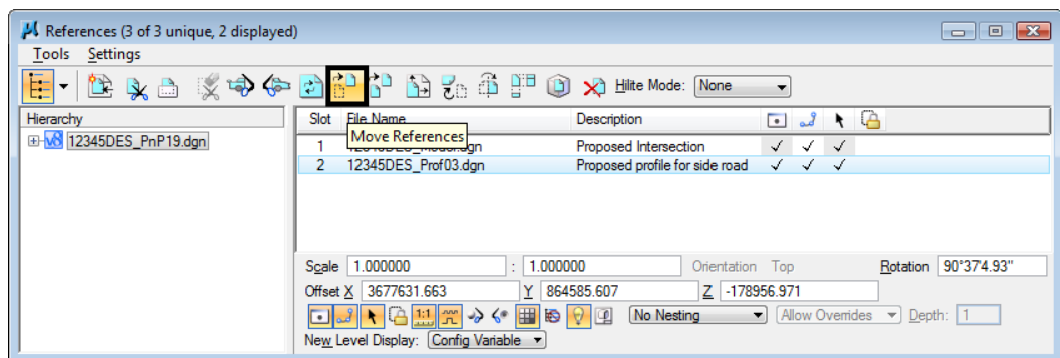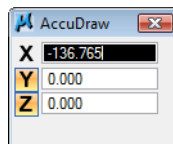

♦   Click into the AccuDraw window to set it active.

♦   Snap to the left end of the vertical alignment (the first VPI) as the Move From point.
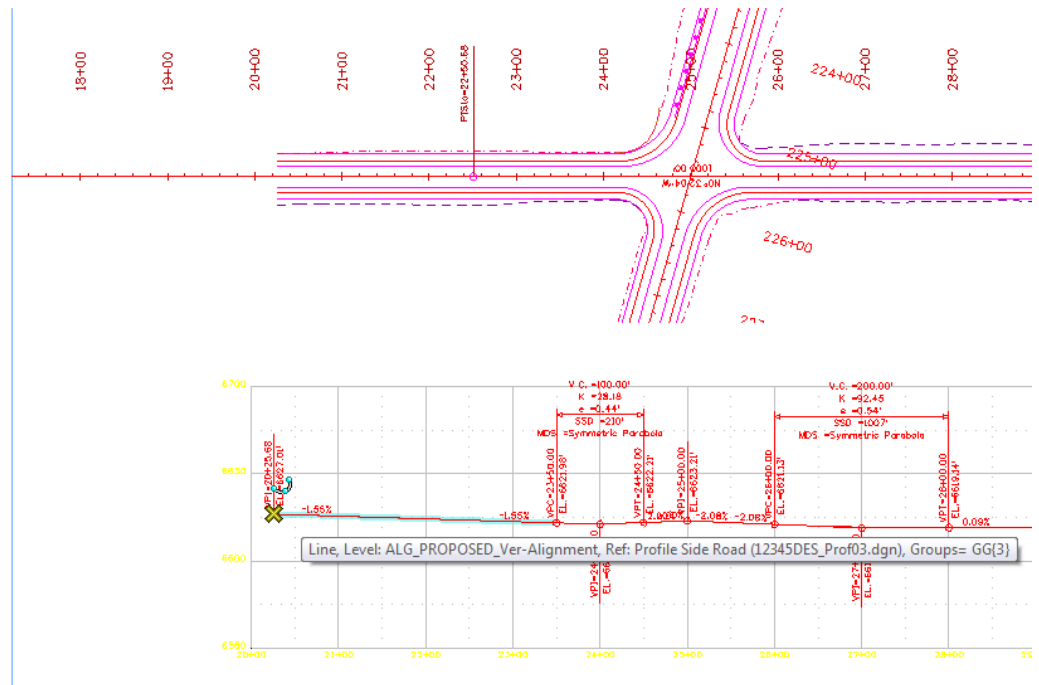
Move your cursor to the left along AccuDraw's **X** axis to set the focus (blinking cursor) in the AccuDraw **X** field, then Press **Enter**.
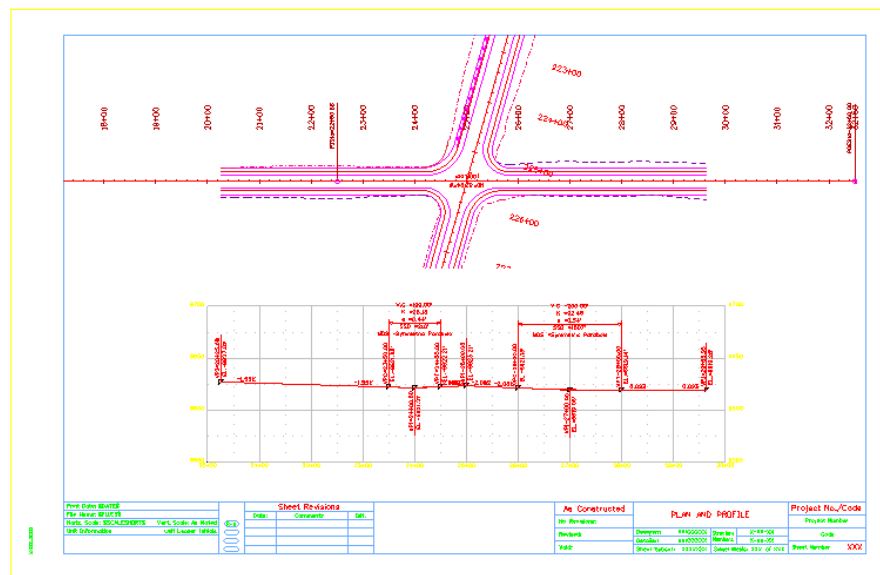

Note: The ***Enter*** key executes AccuDraw's ***SmartLock***. It locks the Y and Z axes to 0 so you can only move in the X direction.

- Move your cursor and **AccuSnap** on the end of the shoulder line as shown. You can zoom in, if needed.
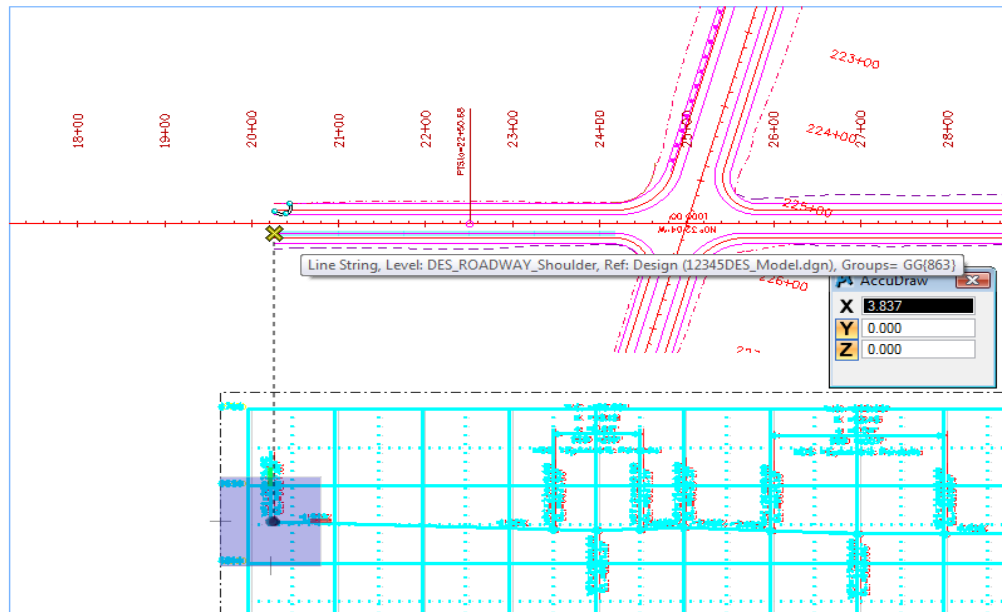
The beginning of the vertical alignment is now aligned with the beginning of the horizontal alignment.

3. **<R>** when done.
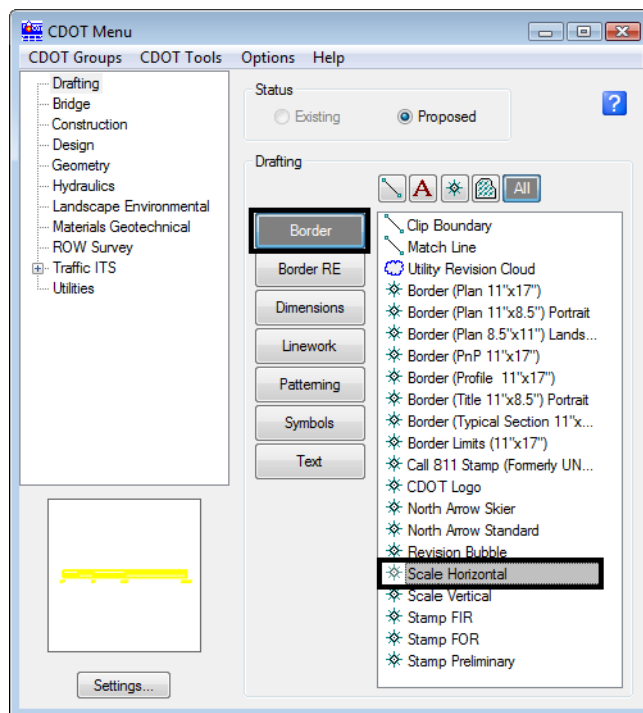
4. **Fit** the MicroStation view.

# Lab 12.10 - Place the bar scale, north arrow and RE cells

Follow the steps on the next page and use the diagram below to place the various border cells.
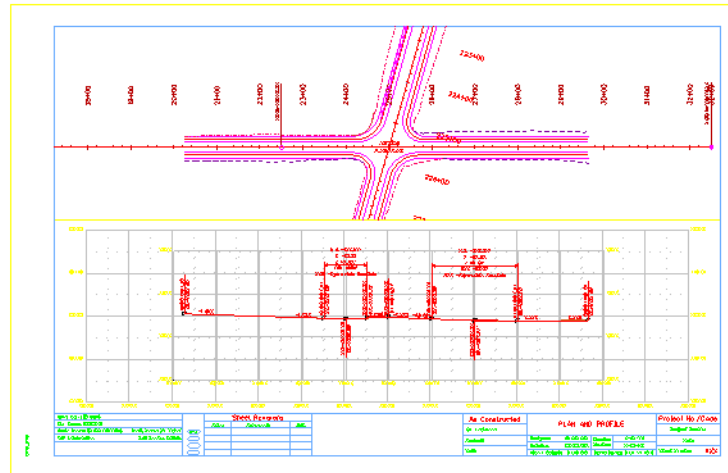

1. From the **CDOT Menu** Explorer, select **Drafting**. Set the **Category** to **Border**.

2. Select the Item **Scale Horizontal**.

3. When prompted to locate the cell origin of the **Bar Scale**, **<D>** inside the sheet border.

4. Select the Item **North Arrow Standard**
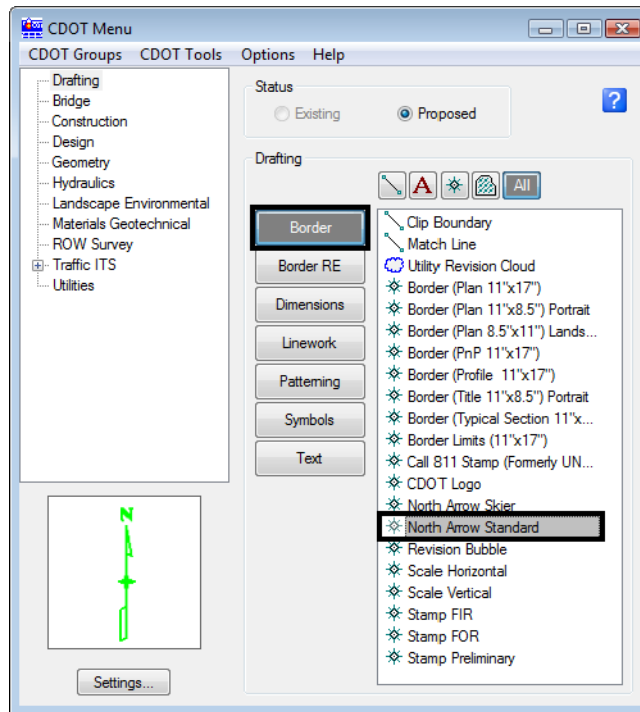
5. When prompted to locate the cell origin of the **_North Arrow_**, **<D>** inside the sheet border.

6. Set the Category to **Border RE**.

7. Select the Item **Default**.
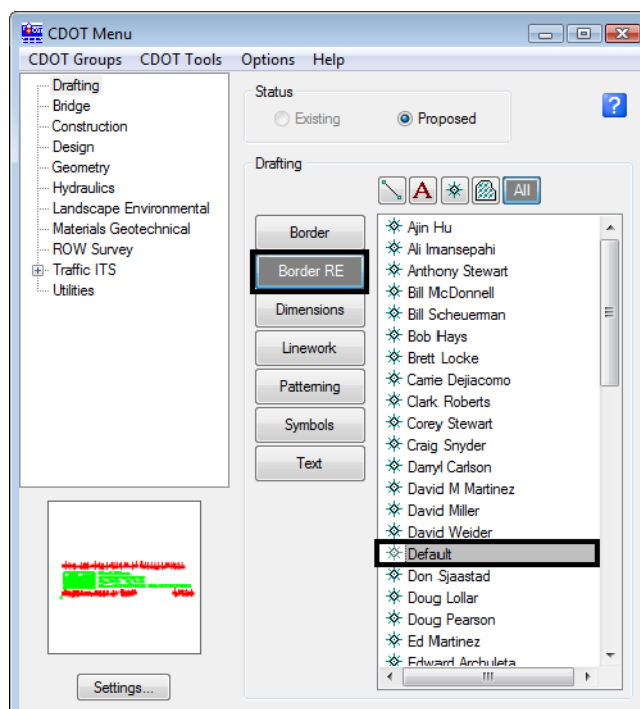
8. When prompted to locate the cell origin of the **Region Engineer** cell, Zoom in as necessary on the bottom portion of the border and <T> to the correct location and then <D> to accept.

Lab 12.11 - Turn On the Reference Display

1. On the **References** dialog, select the Survey/Topo reference nested under the **Design** Reference.

2. Toggle on Display for the **Survey/Topo** reference.

3. Use **Level Display** to turn On all **Survey/Topo** levels.

4. Fit the view.
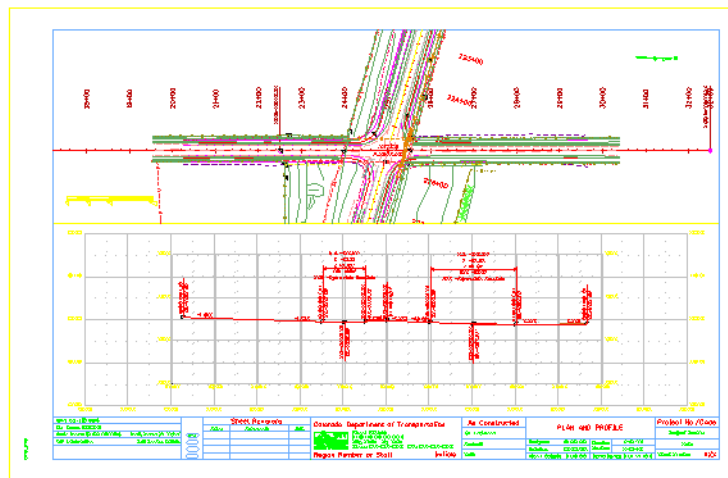
5. Save Settings.

Lab 12.12 - Optional Exercise

Change the Design reference's nested depth to *2* and turn on the display of the contour reference – *12345SURV_Contour100.dgn*. Use *Level Display* to turn On the contour levels to display the existing contours in the plan sheet.