

LAB 17 - Creating Plan Sheets

Creating Plan and Profile sheets is a repetitive and time consuming process. InRoads has automated this process. This lab demonstrates P and P sheet creation and editing with the InRoads Plan and Profile Generator command.

Chapter Objectives:

- Input data for the initial P and P sheet creation
- Prepare the seed files for the Plan and Profile Generator command
- Edit sheet extents and recreate sheets
- Move reference files within the sheet border
- Add a model file to a single sheet

Before beginning this lab, verify that the following files are loaded:

- C:\Projects\12345\Design\InRoads\12345DES_Geometry.alg
- C:\Projects\12345\Design\InRoads\12345 existing ground.dtm
- C:\Projects\12345\Design\InRoads\12345DES.dtm
- C:\Projects\12345\Design\Drawings\Reference Files\12345DES_Prof.dgn
- C:\Projects\12345\Design\Drawings\Reference Files\12345DES_Model.dgn

Note: The 12345DES_Model.dgn file should have feature data displayed from previous labs. If this file is empty or if data not appropriate for plan sheets is near the SH 86 alignment, then all data in the the file should be deleted and surface features from the 12345DES.dtm and the SH 86 alignment should be displayed prior to working the lab.

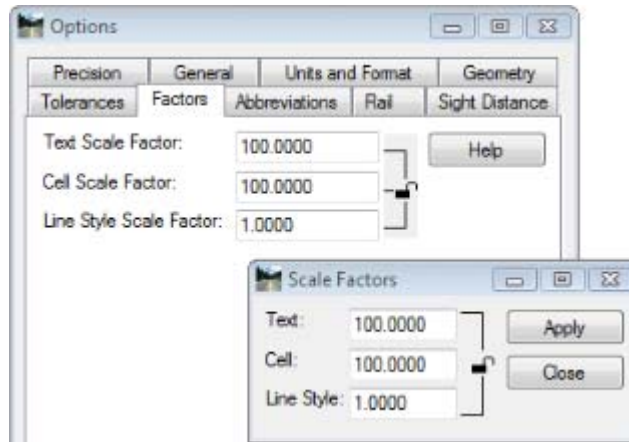
Lab 17.1 - Creating 100 Scale P and P Sheets

This lab illustrates the user input required to produce an initial set of P and P sheets.

1. Open the **C:\Projects\12345\Design\Drawings\Reference Files\12345DES_Prof.dgn** file in MicroStation.

The step below sets the scale factor so that text displayed by InRoads will be the proper size for a 100 scale plan set.

2. Select **Tools > Options** and <D> the **Factors** tab and set the scale factors to **100** for the **Text Scale Factor** and the **Cell Scale Factor**. Set the **Linestyle Scale Factor** to **1**. This can also be done from the **Global Scale Factors** dialog box.

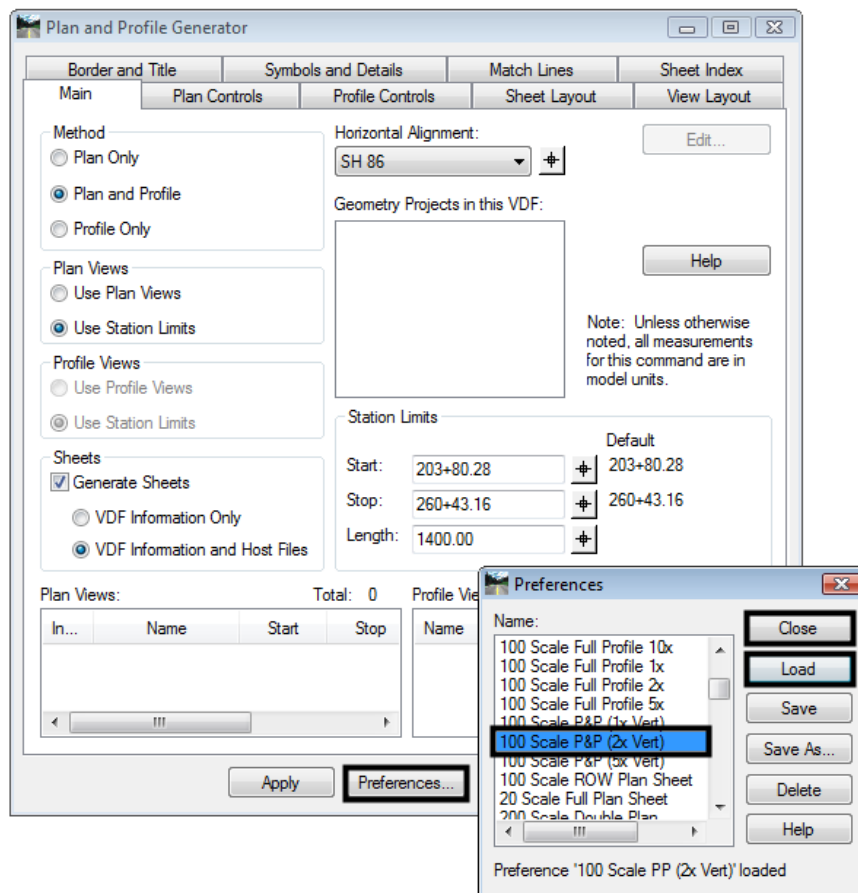


3. <D> **Apply** then **Close**.

Preferences are predefined menu settings that are used to set up the dialog box for a particular style of plan sheet. In this case, a 100 scale plan and profile sheet with a 2 times vertical exaggeration is desired. The steps below select the desired preference.

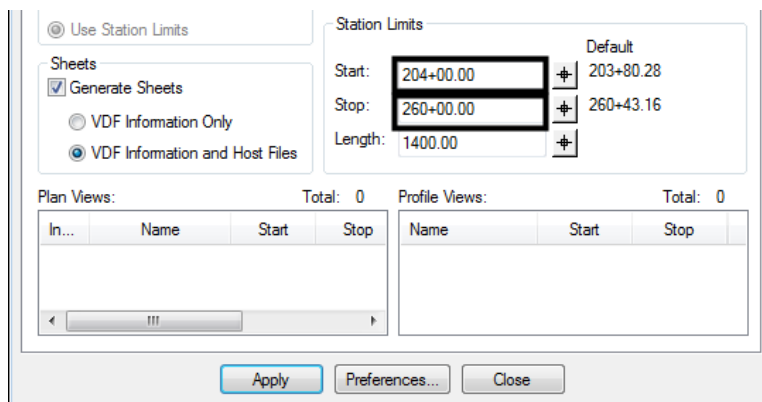
4. From the InRoads menu bar, select **Drafting > Plan and Profile Generator**. The **Plan and Profile Generator** dialog box is displayed.
5. On the Plan and Profile Generator **Main** tab, <D> the **Preferences** button. This displays the **Preferences** dialog box.
6. From the **Preferences** dialog box, highlight **100 Scale P&P (2x Vert)**.
7. <D> **Load**.

8. <D> **Close**. This dismisses the Preferences dialog box.



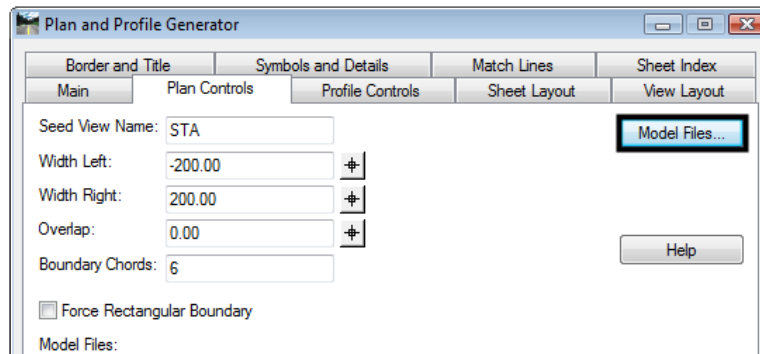
Preferences do not make all of the desired changes to menu settings, in particular those that are project specific. The steps below make the project specific changes to the menu settings.

9. Back on the **Main** tab, in the Station Limits area, key in **204+00.00** for the **Start** station.
10. key in **260+00.00** for the **Stop** station.

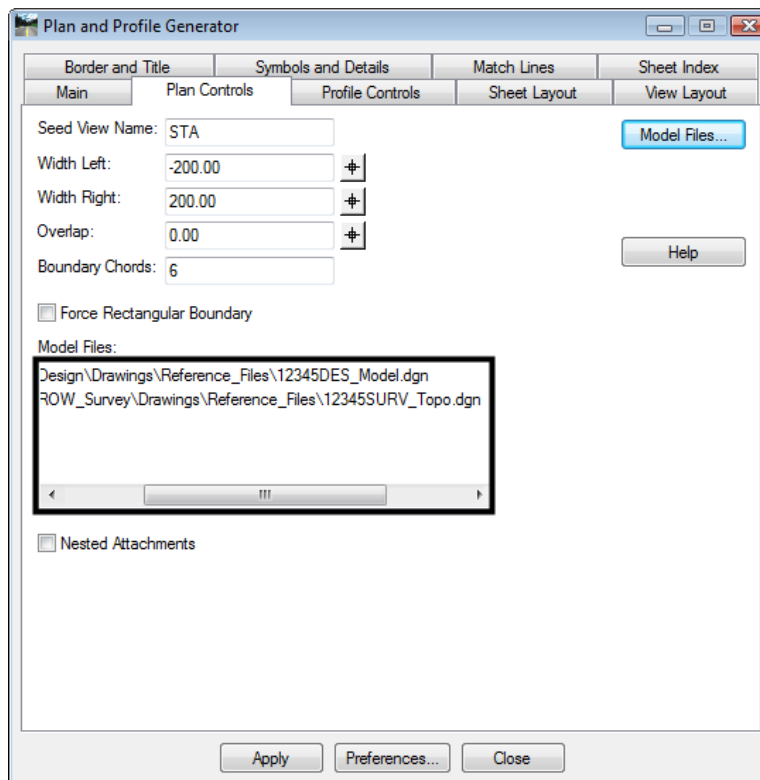


Reference files that make up the plan portion of the sheets are selected from the Plan Controls tab. The following steps are used to select the desired files.

11. <D> the **Plan Controls** tab.
12. <D> the **Model Files** button. This displays the **Open Model File** dialog box.

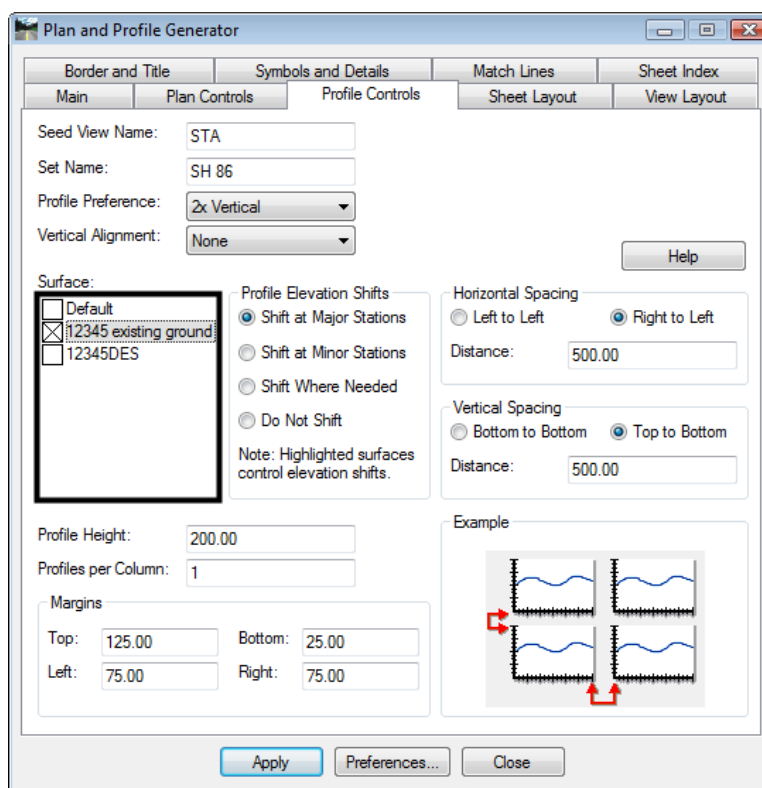


13. Highlight the **C:\Projects\12345\Design\Drawings\Reference Files\12345DES_Model.dgn** file.
14. <D> **Open**. The file is added to the **Model Files** list and the **Open Model File** dialog box is dismissed.
15. <D> the **Model Files** button. This displays the **Open Model File** dialog box.
16. Highlight the **C:\Projects\12345\ROW_Survey\Drawings\Reference Files\12345SURV_Topo.dgn** file.
17. <D> **Open**. The illustration below shows the Plan Controls tab with the two files added.




The Profile controls tab determines how the profiles will be displayed. Most of the settings are by the selected preference, however, it is a good idea to check the Surface area and make sure it is set up as desired. In this exercise, only the existing ground is to be displayed in the profile so it is the only one toggled on. The highlighted surface is used to determine where elevation shifts occur. Because the existing ground is the only surface displayed, it is also used to determine elevation shifts.

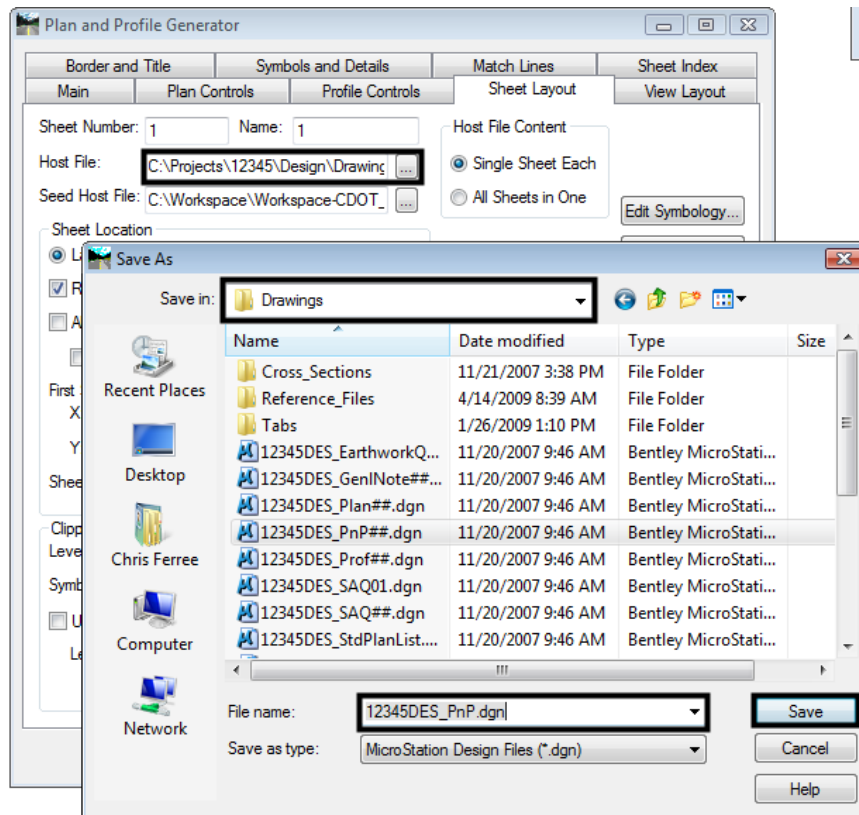
18. <D> the **Profile Controls** tab.
19. In the **Surface** area, toggle off all surfaces except **12345 existing ground**.
20. Verify that the surface **12345 existing ground** is toggled on and highlighted. The illustration below shows the tab as completed.



With the exception of the Host File, the Sheet Layout tab is set by the preference selected. The Host File is the base name that the finished sheets will be called. The host file name is incremented for each sheet created so that they will all have a unique name. In the steps below, the host file name is entered.

21. <D> the **Sheet Layout** tab.
22. <D> in the **Host File** field, then <D> the  button. This displays the **Save As** dialog box.
23. In the **Save As** dialog box, navigate to the **C:\Projects\12345\Design\Drawings** folder.
24. In the **File Name** field, key in **12345DES_PnP.dgn**.

25. <D> the **Save** button. This dismisses the **Save As** dialog box adds the file name to the **Host file** field.

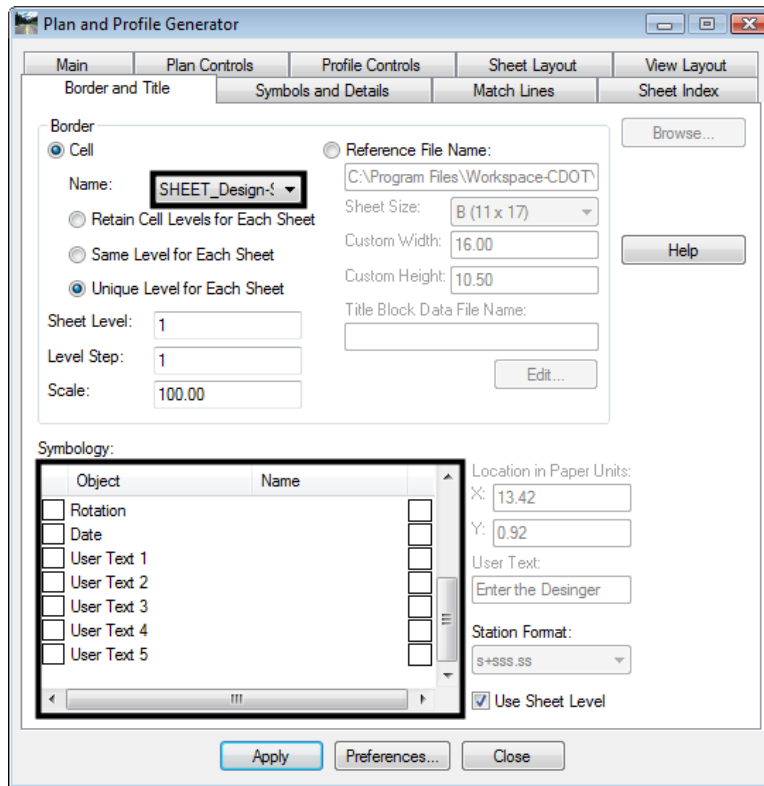


The Border and Title tab identifies the cell used for the sheet border. This tab should be checked to ensure that the proper border cell is being used. Also check to make sure that all of the toggles in the symbology area are turned off. If left on, erroneous data could be displayed on the sheets.

26. <D> the **Border and Title** tab.

27. Verify that the **Sheet_Design-Sheet** cell is selected for the cell **Name**.

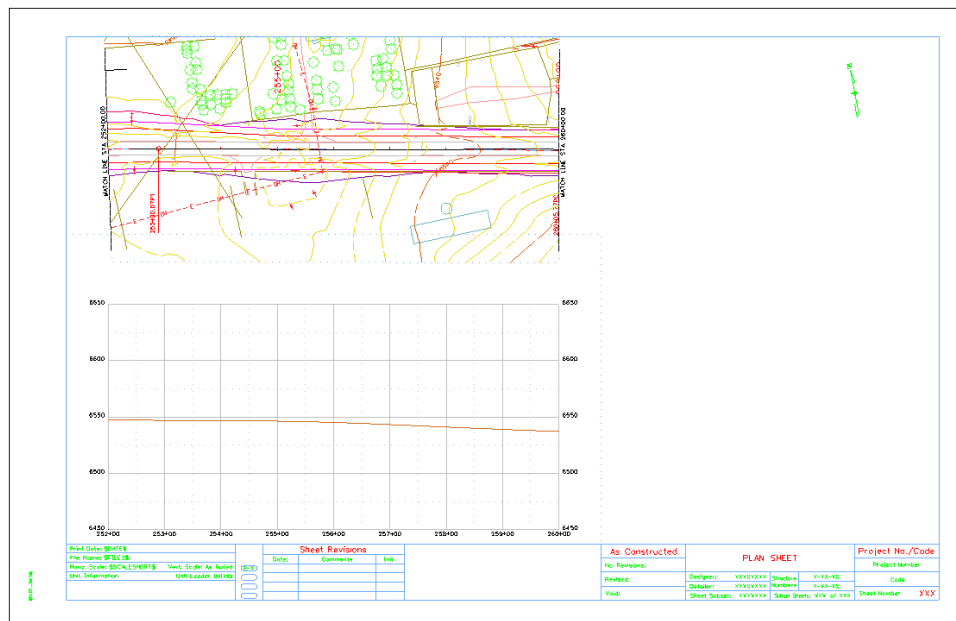
28. Verify that all of the check boxes in the **Symbology** area are toggled off.



29. <D> the **Apply** button.

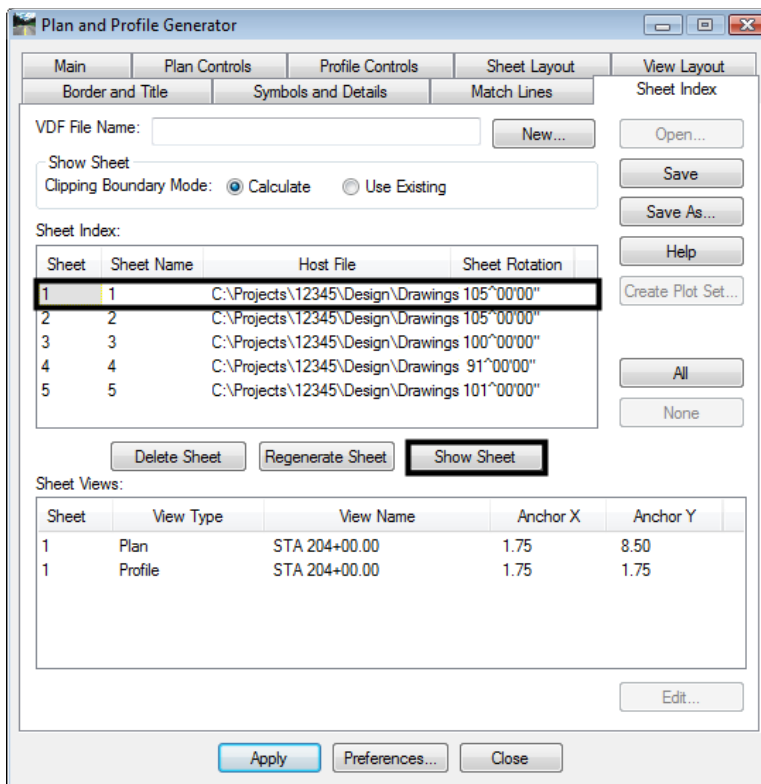
30. <D> in the MicroStation view window.

The command creates a profile for each sheet (there are 5 sheets in this project) and then creates the sheets, each as a separate dgn file. The last sheet is shown below.



The plan and Profile generator offers an easy to move between generated sheets. Using the Sheet Index tab, sheets can be opened in without having to navigate through the MicroStation menus. Use the steps below to review the other sheets.

31. <D> the **Sheet Index** tab.
32. Highlight sheet **1** in the **Sheet Index** list.
33. <D> the **Show Sheet** button.



34. Repeat steps 31 and 32 for the remaining sheets.

Lab 17.2 - Creating 50 Scale P and P Sheets

To switch from 100 scale sheets to 50 scale requires some additional setting changes. Most of these are handled through the preferences, however the Annotation Scale for the profile and seed host file and the InRoads Scale Factors must be set before executing the command. This insures that the correct annotation scale is applied to each sheet.

The (MicroStation) annotation scale does not affect graphic elements displayed by InRoads but it will affect elements added with MicroStation commands.

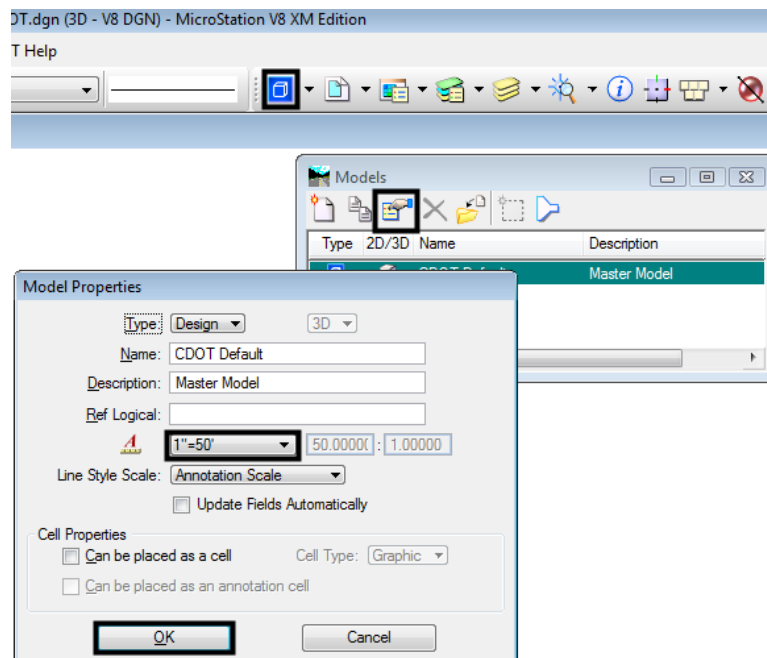
This lab uses the same data as above to create a set of 50 scale P&P sheets.

In the steps below, the model properties are changed in the 3D-Seed_CDOT.dgn (seed host file). This will ensure that each P and P sheet created will have the proper annotation scale for the project.

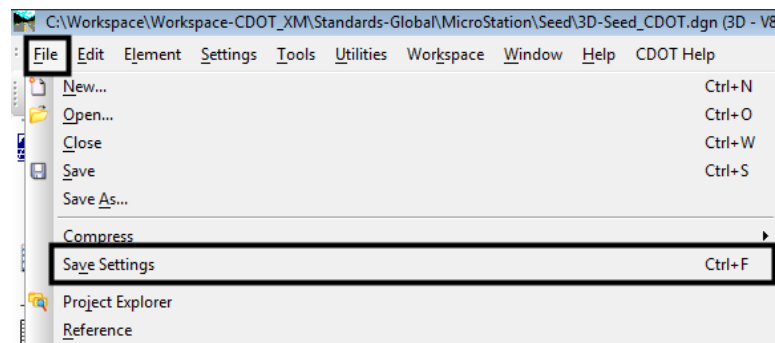
1. Using the MicroStation menu bar, open the:

C:\Workspace\Workspace-CDOT_XM\Standards-Global\MicroStation\Seed\3D-Seed_CDOT.dgn

2. <D> The **Models** button on the MicroStation **Primary** toolbar. This displays the Models dialog box.
3. On the **Models** dialog box, <D> the **Edit Model Properties** button. This displays the **Model Properties** dialog box.
4. Set the **Annotation Scale** to 1" = 50' using the drop down menu.
5. <D> **OK**. This dismisses the **Model Properties** dialog box.



6. <D> **Yes** on the message window that is displayed. This has no effect because the drawing is empty.
7. **Close** the **Models** dialog box.
8. From the MicroStation menu bar, select **File > Save Settings**.



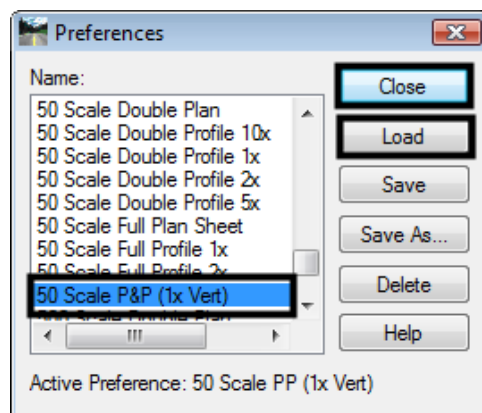
Note: The changes to the seed file only last until the computer is logged off. At the next log in, the settings revert back their original state. The sheets created from the seed file maintain the changes.

The same setting made above must also be made in the dgn file that will contain the profile information. The following steps remove the data from the previous lab and update the model properties and InRoads scale factors for 50 scale sheets.


9. Open the **C:\Projects\12345\Design\Drawings\Reference Files\12345DES_Prof.dgn** file.
10. Select **File > Save As** from the MicroStation menu bar. Navigate to:
C:\Projects\12345\Design\Drawings\Reference Files
11. Key in **12345DES_Prof_50Scale.dgn** for the file name.
12. <D> **Save**.
13. Delete all of the data in the dgn file.
14. Repeat steps 2 through 8 above.

The dgn files are ready for the new scale. Next the InRoads settings are changed for 50 scale..

15. From the InRoads menu bar, select **Tools > Options** and <D> the **Factors** tab and set the scale factors to **50**. This can also be done from the **Global Scale Factors** dialog box.
16. <D> **Apply** and then <D> **Close** to dismiss the dialog box used.
17. Display the **Plan and Profile Generator** dialog box.
18. <D> the **Main** tab.
19. <D> the **Preferences** button. This displays the **Preferences** dialog box.
20. From the **Preferences** dialog box, highlight **50 Scale P&P (1x Vert)**.
21. <D> **Load**.
22. <D> **Close**. This dismisses the Preferences dialog box.

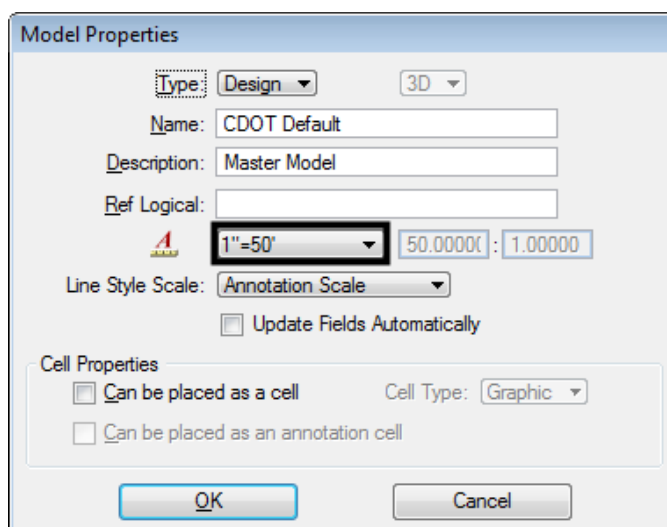


Except for the Host File name, the user defined settings are still active and are used for this lab. To set the Host File name:

23. <D> the **Sheet Layout** tab.
24. <D> in the **Host File** field, then <D> the  button. This displays the **Save As** dialog box.
25. In the **Save As** dialog box, navigate to the **C:\Projects\12345\Design\Drawings** folder.
26. In the **File Name** field, key in **12345DES_PnP_50Scale.dgn**.
27. <D> the **Save** button. This dismisses the **Save As** dialog box and adds the file name to the **Host file** field.
28. <D> the **Apply** button.
29. In the **“Do you want to regenerate Plan Views?”** message box, <D> **Yes**.
30. In the **“Do you want to regenerate ProfileViews?”** message box, <D> **Yes**.
31. <D> in the MicroStation view window.

Nine 50 scale sheets are created. Follow the steps below to check that the correct annotation scale was used.

32. <D> The **Models** button on the MicroStation **Primary** toolbar. This displays the Models dialog box.
33. On the **Models** dialog box, <D> the **Edit Model Properties** button. The **Model Properties** dialog looks like the illustration below.



34. <D> **Cancel** to dismiss the **Model Properties** dialog box.
35. **Close** the **Models** dialog box.

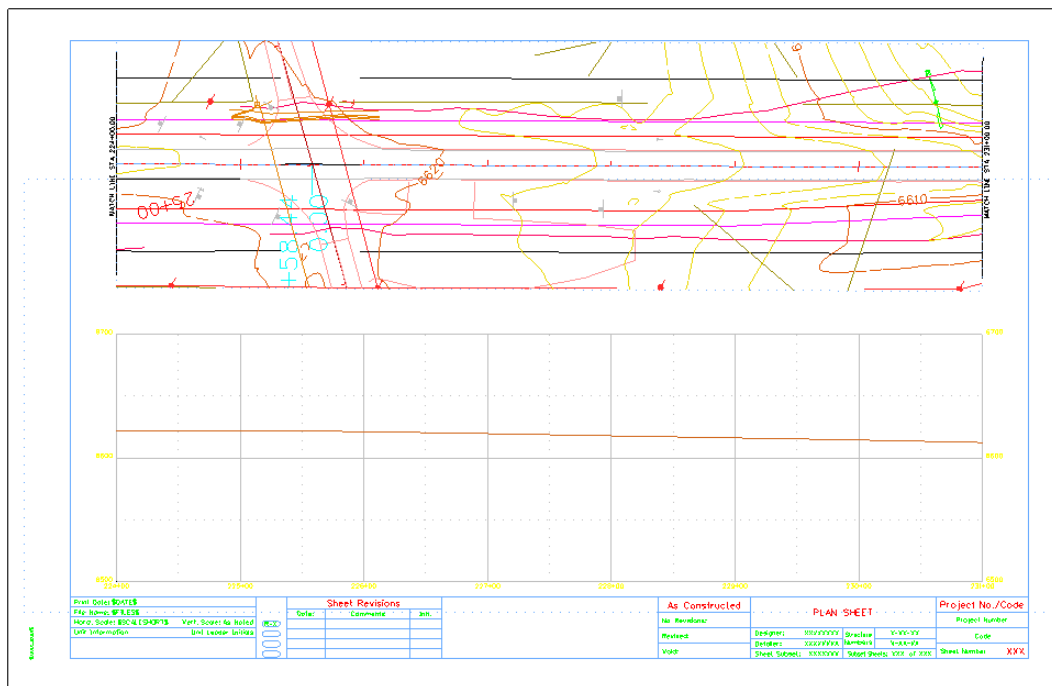
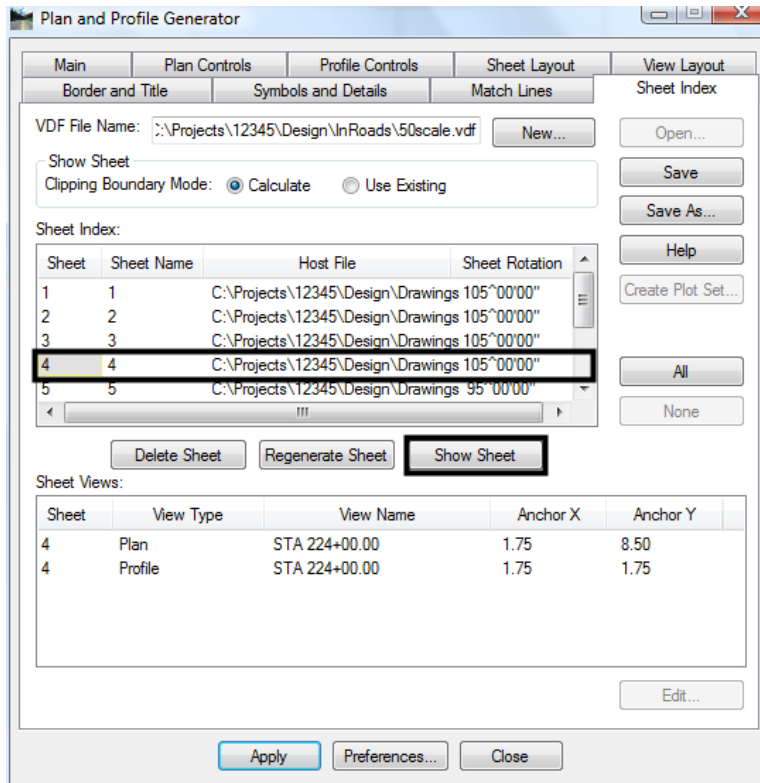
Lab 17.3 - Edit Sheet Extents

After examining the sheets created in the last lab, the intersection on sheet 4 should be centered on the sheet. In this lab, the sheet extents are changed to center the intersection.

First, view sheet 4 to determine the amount of shift required.

1. <D> the **Sheet Index** tab.
2. Highlight sheet **4** from the **Sheet Index** list.

3. <D> the Show Sheet button.

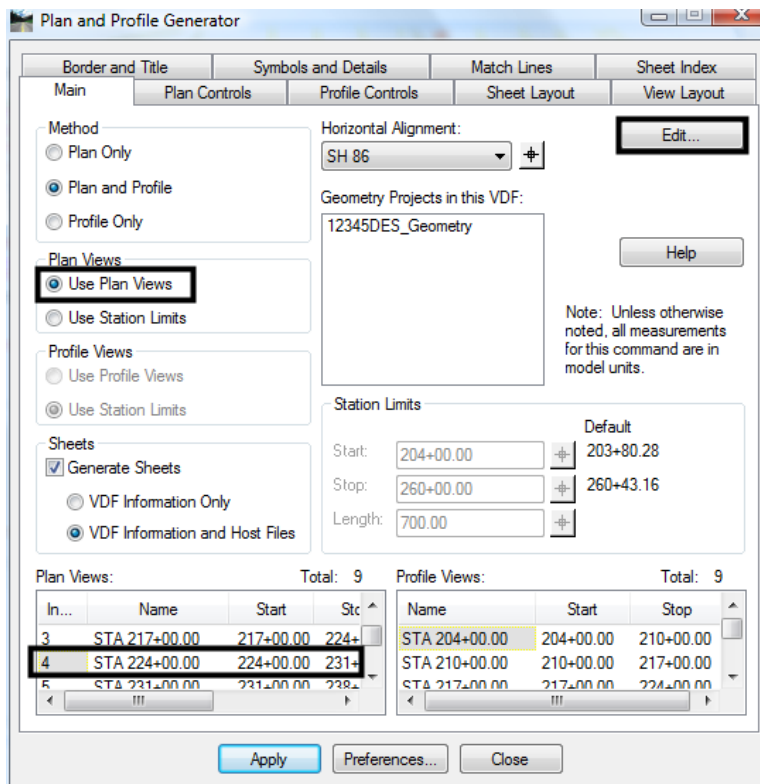


Examining sheet 4 shifting two stations (200 feet) to the left centers the intersection.

4. Open the *C:\Projects\12345\Design\Drawing\Reference Files\12345DES_Prof.dgn* file.
5. Delete the previously displayed profiles.

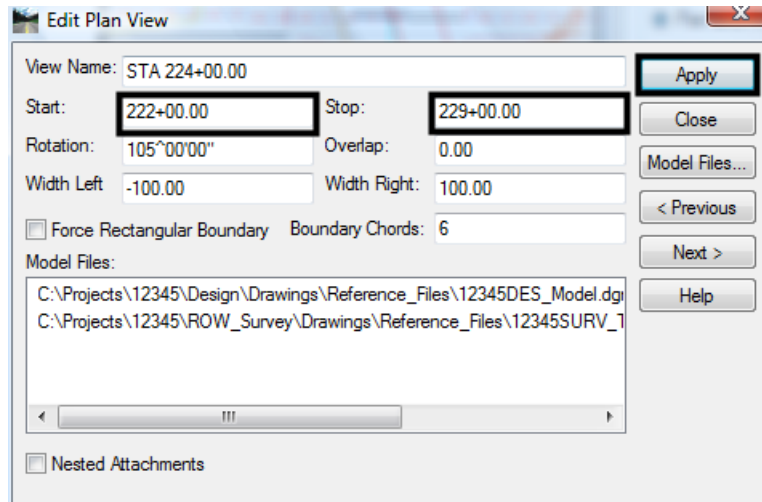
Plan and Profile Generator can be used to specify the station extents of any sheet. Here, sheet 4 is adjusted to center the intersection and the other sheets will automatically be changed to match. The steps below update the station extents on sheet 4.

6. <D> the **Main** tab.
7. Toggle on **Use Plan Views**.
8. Highlight sheet **4** in the **Plan Views** list.
9. <D> the **Edit** button. This displays the **Edit Plan View** dialog box.



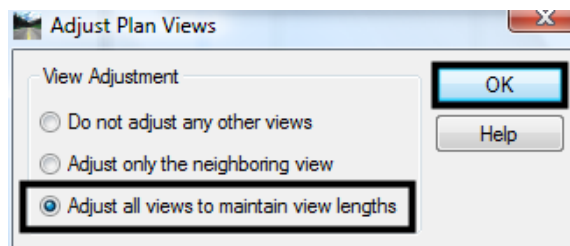
10. In the **Edit Plan View** dialog box, key in **222+00.00** for the **Start** station.
11. Key in **229+00.00** for the **Stop** station.

12. <D> **Apply**. This displays the **Adjust Plan Views** dialog box.

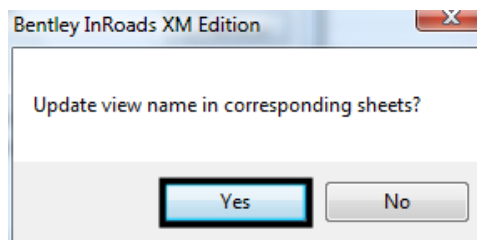


The next steps update the remaining sheets to match the changes made to sheet 4.

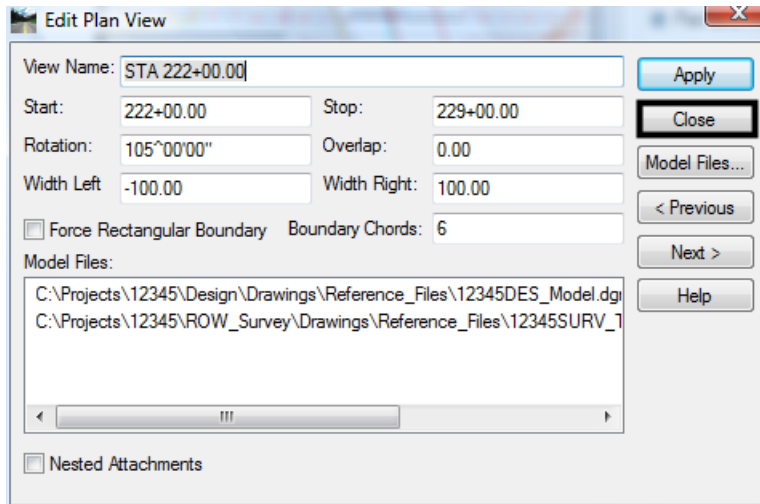
13. In the **Adjust Plan Views** dialog box, toggle on **Adjust all views to maintain view lengths**.
14. <D> the **OK** button.



15. <D> **Yes** on the **“Update view names in corresponding sheets?”** Message box.



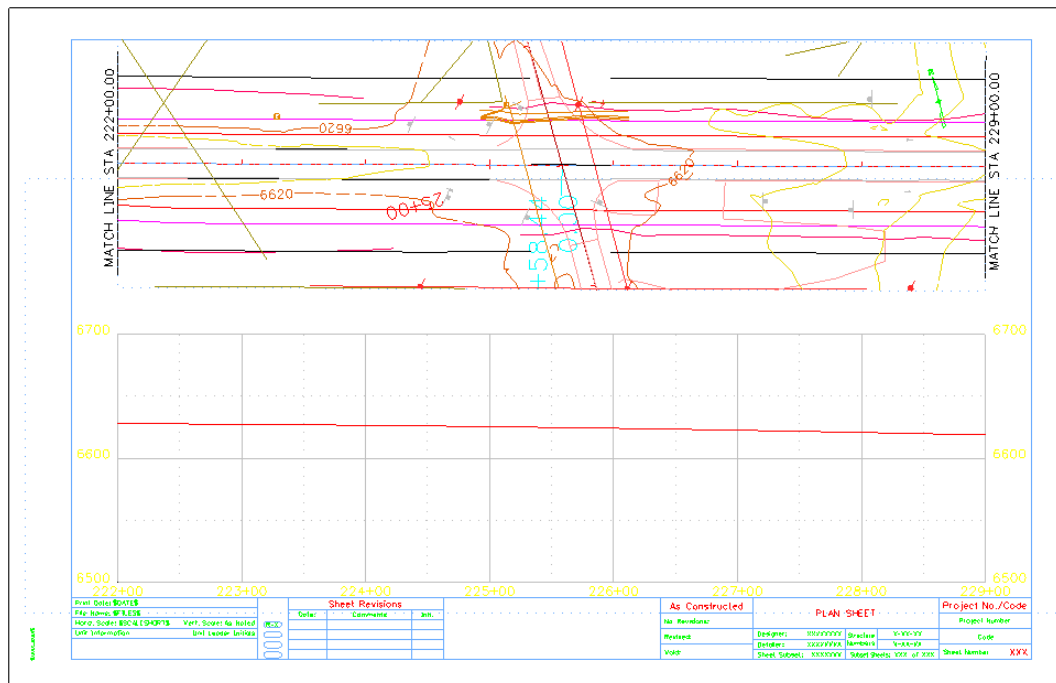
16. In the **Edit Plan View** dialog box, <D> **Close**.



Reducing the start station by 2, shifts the intersection to the middle of the sheet. Toggling on **Adjust all views to maintain view lengths**, resets the stations on the remaining sheets.

Finally, the steps below regenerate the sheets.

17. On the **Plan and Profile Generator** dialog box, <D> **Apply**.
18. <D> **Yes** in the, **“Do you want to regenerate Profile Views?”** message.
19. <D> in the MicroStation view window.
20. After processing is complete, examine sheet 4 as described at the first of the lab. The illustration below shows how the sheet looks.



Lab 17.4 - Moving Reference Files Within the Sheet Border

After adjusting the sheets in the last lab, the first sheet has only 400 feet of data. The data is aligned with the left margin of the sheet border, but should be aligned with the right margin.

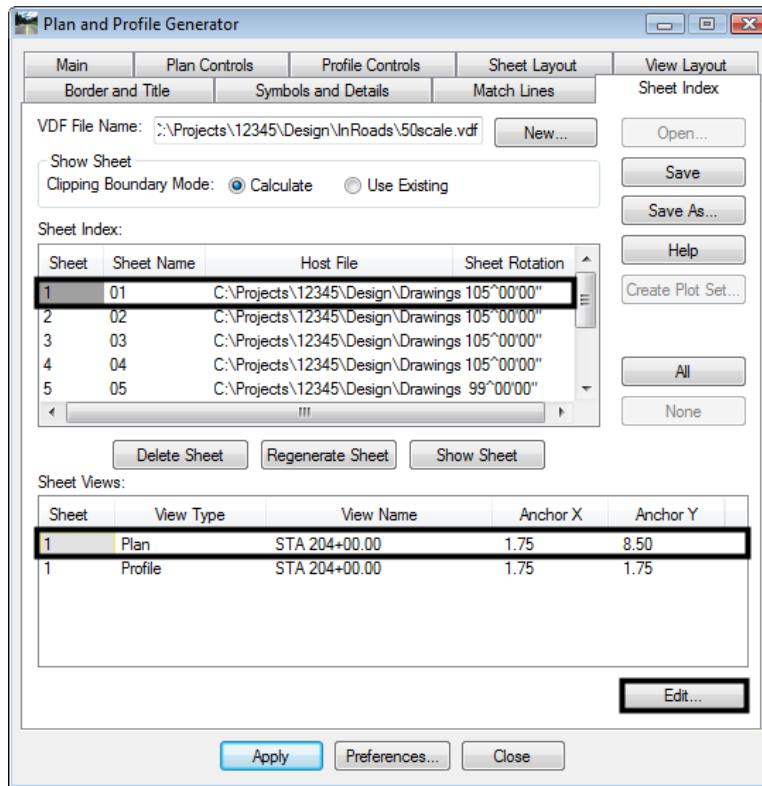
This lab demonstrates how to shift the data within the sheet border.

1. Examine sheet 1, as described at the first of the lab. The illustration below shows sheet 1. The reference files for the plan and profile need to be shifted 300 feet or 6" (paper scale) to the right.

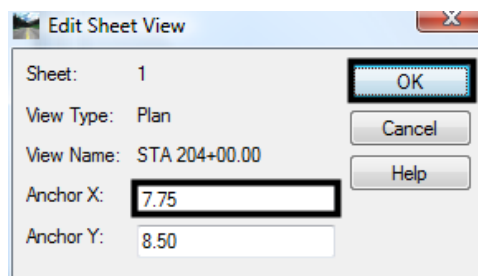


2. On the Plan and Profile Generator's **Sheet Index** tab, highlight sheet 1 in the **Sheet Index** list.
3. In the **Sheet Views** list, highlight sheet 1 Plan.

4. <D> Edit. This displays the **Edit Sheet View** dialog box.

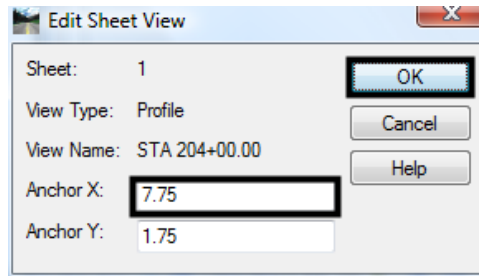


5. In the **Anchor X** field, key in **7.75**.
6. <D> OK. This dismisses the **Edit Sheet View** dialog box.



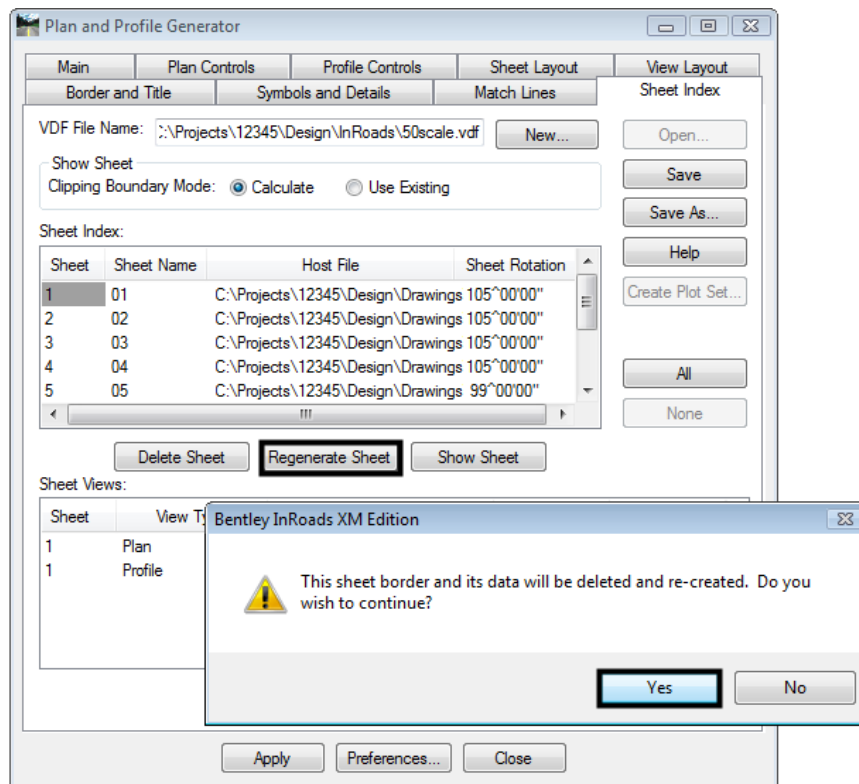
7. In the **Sheet Views** list, highlight sheet **1 Profile**.
8. <D> Edit. This displays the **Edit Sheet View** dialog box.
9. In the **Anchor X** field, key in **7.75**.

10. <D> OK.

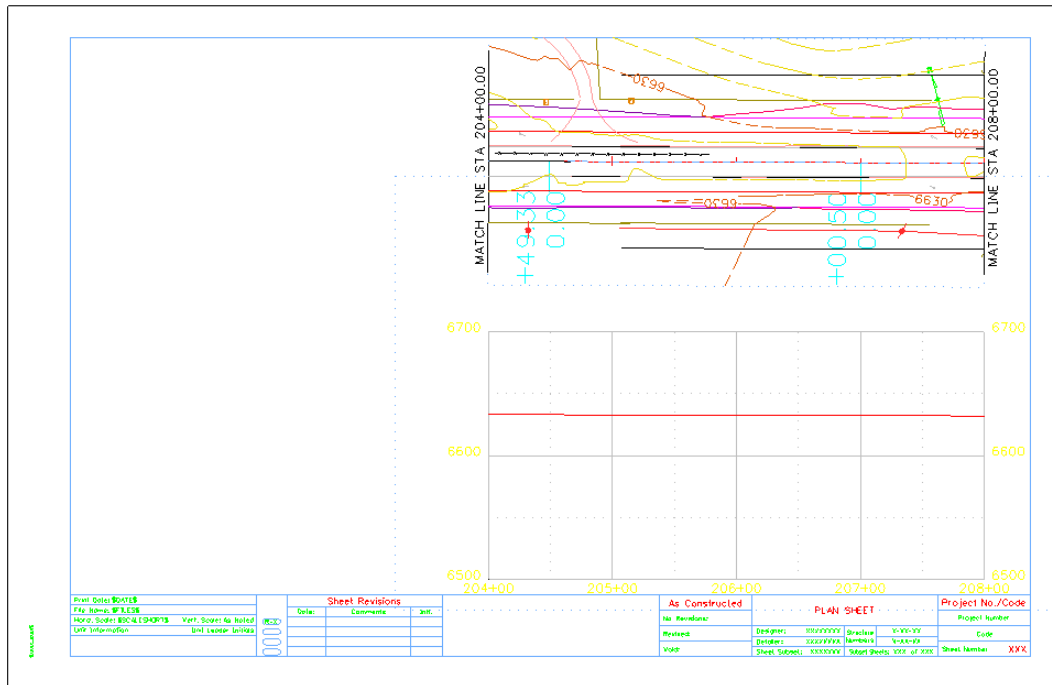


11. <D> the Regenerate Sheet button.

12. <D> Yes on the message box that is displayed.



The sheet now looks like the illustration below.

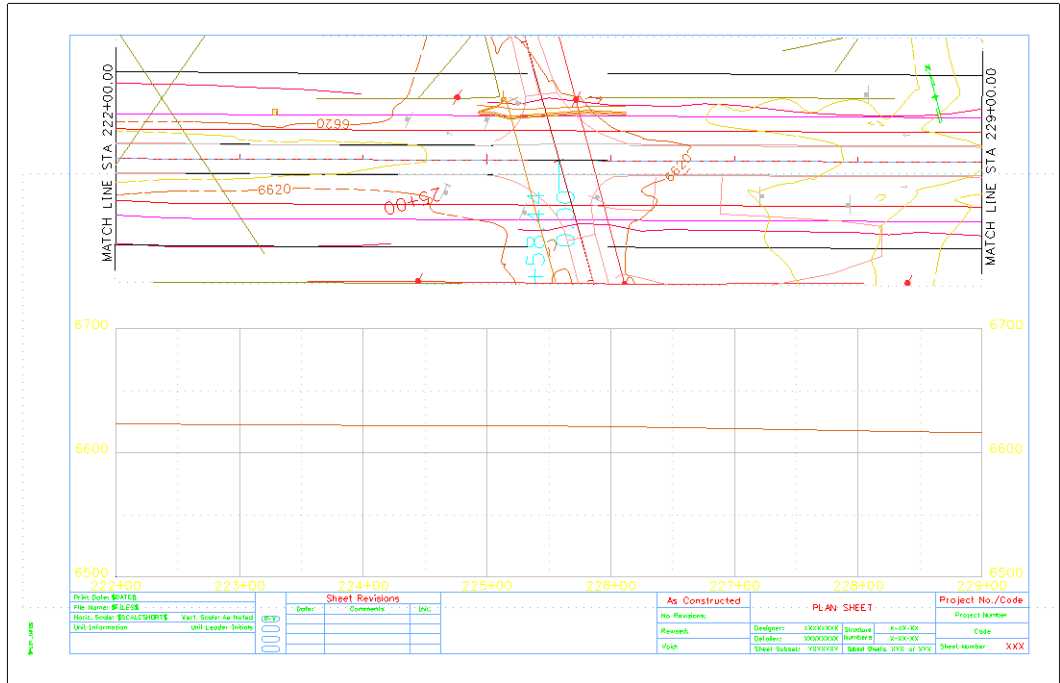


Lab 17.5 - Adding a Model File to a Single Sheet

Many of the specialty groups create data that is included on the plan sheets. However, much of this information applies to a localized area and is contained on one or two sheets in the set (a bridge or intersection, for example).

This lab demonstrates how to attach a Model File to a single P&P Sheet. A traffic signal plan is added to Sheet 4.

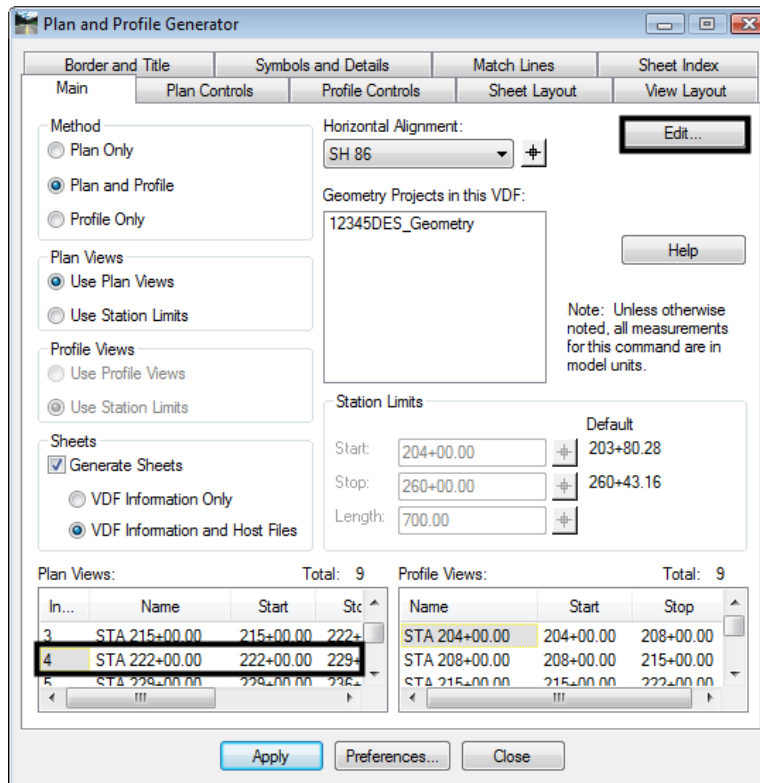
1. Examine sheet 4, as described at the first of the lab. The illustration below shows sheet 4.



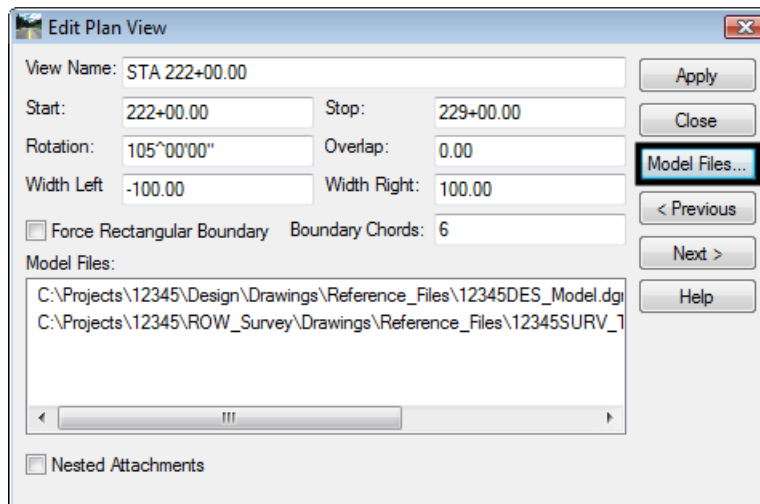
Additional models are added from the Edit options on the Main tab of the Plan and Profile Generator dialog box. The steps below illustrate this process.

2. <D> the **Main** tab.
3. Highlight sheet **4** in the **Plan Views** list.

4. <D> the **Edit** button. This displays the **Edit Plan View** dialog box.



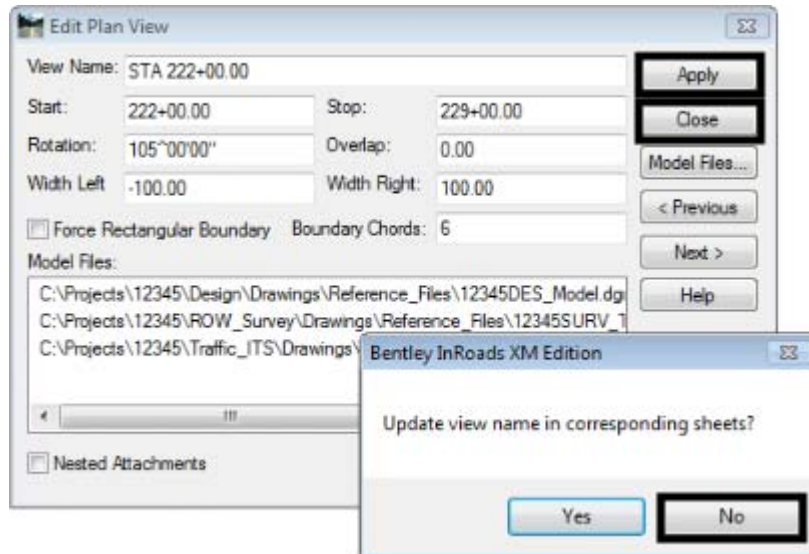
5. In the **Edit Plan Views** dialog box, <D> the **Model Files** button.



6. In the **Open Model File** dialog box, navigate to **C:\Projects\12345\Traffic_ITS\Drawings\Reference_Files**.
7. Highlight the **12345Signal01.dgn** file.
8. <D> **Open**.
9. Back in the **Edit Plan Views** dialog box, <D> **Apply**.

This change only occurs on sheet 4. Therefore, there is no need to update the other sheets.

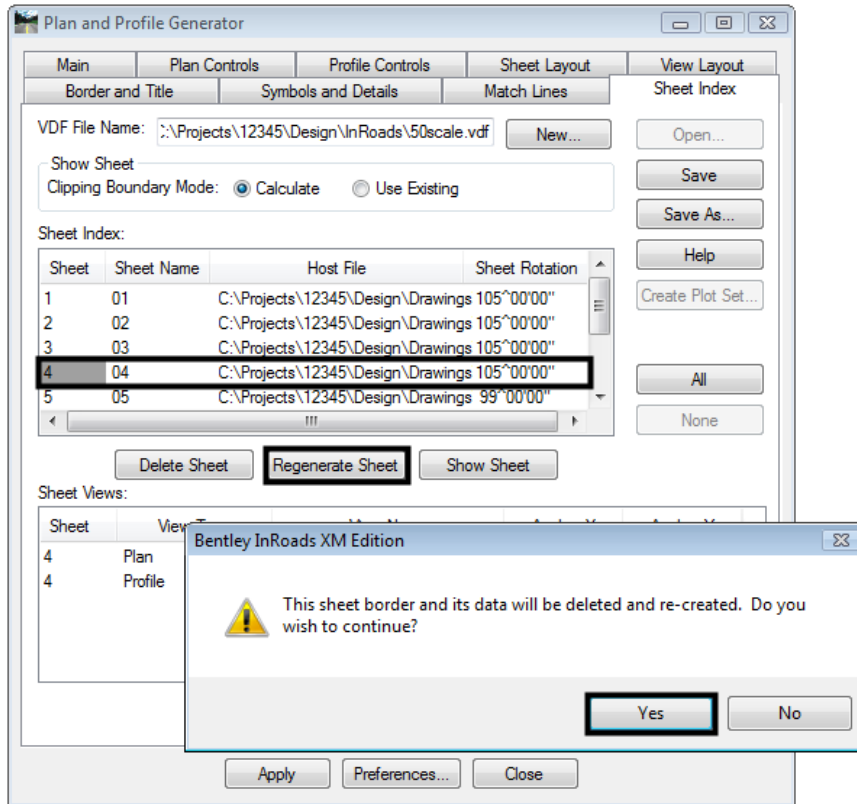
10. <D> **No** in the message box that is displayed.
11. <D> **Close** to dismiss the **Edit Plan View** dialog box.



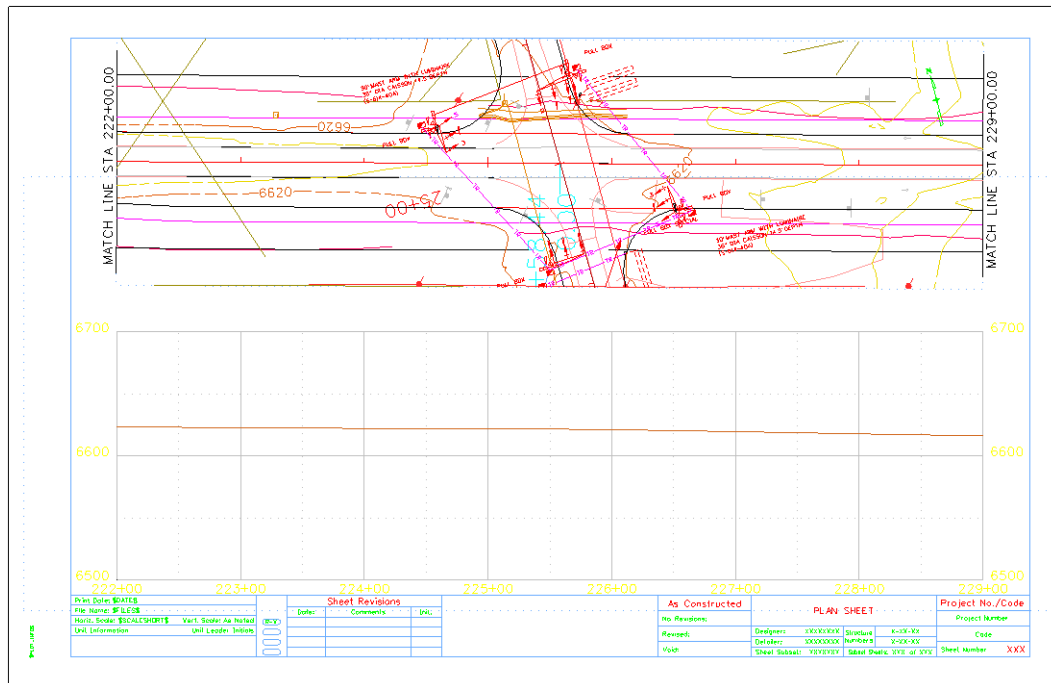
Since the added model file only affects on sheet (sheet 4), there is no need to generate a new complete set. Instead, only sheet 4 is updated. The steps below are used to update the sheet.

12. In the **Plan and Profile Generator** dialog box, <D> the **Sheet Index** tab.
13. In the **Sheet Views** list, highlight sheet 4.
14. <D> the **Regenerate Sheet** button.

15. <D> Yes on the message box that is displayed.

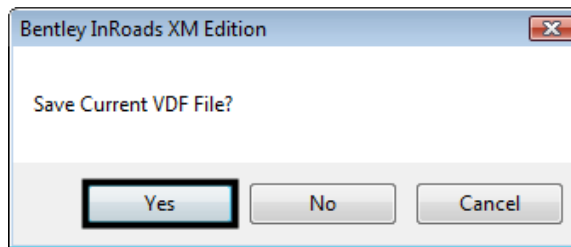


The sheet now looks like the illustration below.



16. Close the Plan and Profile Generator dialog box.

17. <D> **Yes** on the message box that is displayed. Navigate to *C:\Projects\12345\Design\InRoads* and name it **12345DES_50Scale.vdf**.



18. Save all of the data files and Close InRoads.
19. Close MicroStation.

Chapter Summary:

- In [Lab 17.1 -Creating 100 Scale P and P Sheets](#) the input data for the initial 100 scale Plan and Profile Generator run was described
- In [Lab 17.2 -Creating 50 Scale P and P Sheets](#) the annotation scale in the seed files was changed for 50 scale sheets along with the InRoads scale factors and the Plan and Profile Generator settings. Then a new set of sheets was generated
- In [Lab 17.3 -Edit Sheet Extents](#) the sheet extents for the 50 scale plans were modified to center the intersection and the sheets were regenerated
- In [Lab 17.4 -Moving Reference Files Within the Sheet Border](#) the reference files (plan and profile) were moved within the sheet border to the right margin
- In [Lab 17.5 -Adding a Model File to a Single Sheet](#) a traffic signal plan model file was added to sheet 4 only

