



MINISTRY OF TRANSPORTATION

InRoads Typical Example 4:

Creating Plan and Profile Sheets

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Design and Contract Standards Office**

Table of Contents

- 1.0 Overview 1**
- 2.0 InRoads Project Setup..... 4**
 - 2.1 Project Directory Set-up 4
 - 2.2 Project Defaults..... 8
 - 2.3 Project Files 10
- 3.0 Creating Plan Sheets..... 13**
 - 3.1 Setting Project Options 13
 - 3.2 Opening Plan and Profile Generator 14
 - 3.3 Dialog Settings..... 14
 - 3.4 Generating and Viewing Sheets..... 25
 - 3.5 VDF File and Preferences..... 28
- 4.0 Creating Profile Sheets..... 30**
 - 4.1 Profile Drawing and Data Files..... 30
 - 4.2 Setting Project Options 30
 - 4.3 Generating Profile Sheets 30
- 5.0 Creating Plan and Profile Sheets..... 38**
 - 5.1 Profile Drawing and Data Files..... 38
 - 5.2 Setting Project Options 38
 - 5.3 Generating Plan and Profile Sheets..... 38

1.0 Overview

This typical example illustrates the process for using Power InRoads Plan and Profile Generator command to automatically generate alignment-based sheets and attach the model files to them.

For easy identification, the directory, folder and file names are in *italics* in this document.

Prerequisites

Drafting:

- Basic View Control & Editing Command in MicroStation Environment
- MTO AutoCAD Standards Guide

InRoads:

User should be familiar with InRoads:

- Working Environment
- Tools
- Surfaces
- Features
- Geometry
- Profiles
- Preferences

It is also recommended that the user be familiar with the following:

- MTO InRoads Project Template
- MTO Customization Documentation
- MTO InRoads Standards and Preferences Manual – Power InRoads V8i(SS2)

Highway Design:

- Design principles
- MTO Design Manuals, Guidelines, and Policies

Software Version

- Power InRoads V8i (SELECTseries 2) – Version 08.11.07.615

Example Data

The files listed and described below are provided in the **Example 4** data set *Data4.zip*:

Existing Ground Surface (.dtm)

.....\Data4.zip\Surfaces\Ex4_OG.dtm

Example Design Surface (.dtm)

.....\Data4.zip\Surfaces\Example4.dtm

Geometry File (.alg)

.....\Data4.zip\Geometry\Ex4.alg

Inroads Template Library (.itl)

.....\Data4.zip\Standards\Example4.itl

InRoads Roadway Design File (.ird)

.....\Data4.zip\Corridors\Ex4.ird

MTO Preference File (.xin)

.....\Data4.zip\Standards\MTO_civil_SS2.xin

AutoCAD Drawings (.dwg)

.....\Data4.zip\Standards\MTO_InRoads_Template_SS2.dwg

.....\Data4.zip\Drawings\Ex4.dwg

.....\Data4.zip\Drawings\Ex4_Alignment.dwg

.....\Data4.zip\Drawings\Ex4_Contours.dwg

Half Size Sheet Border Files (.dwg & .dgn)

.....\Data4.zip\Standards\Sheet Borders\half_plan.dwg

.....\Data4.zip\Standards\Sheet Borders\half_plan.dgn

.....\Data4.zip\Standards\Sheet Borders\half_planprof.dwg

.....\Data4.zip\Standards\Sheet Borders\half_planprof.dgn

Title Block Data File (.dat)

.....\Data4.zip\Standards\Sheet Borders\Ex4_Plansheets.dat

.....\Data4.zip\Standards\Sheet Borders\Ex4_PlanProfilesheets.dat

Project Configuration File (.pcf)

.....\Data4.zip\Standards\pcf\PROJECTNAME.pcf

The following files will be created for this example:

Projects (.rwk)

Design Drawings (Plan, Profile, .dwg)

Topics Covered:

- Setting up Power InRoads Workspace
- Setting up InRoads Project
- Setting up Options
- Setting up Preferences for Plan and Profile Generator
- Setting up Plan and Profile Generator tabs
- Generating Plan Sheets
- Generating Plan and Profile Sheets

2.0 InRoads Project Setup

Note: All InRoads data files shall be as per the **MTO InRoads Project** directory structure posted on the MTO web site: <http://www.xfer.mto.gov.on.ca/PTASapps/index.htm>

This directory structure is mandatory for all in-house and service provider design work done with InRoads.

This section describes how to set-up the Power InRoads workspace and InRoads project directory and file structure.

2.1 Project Directory Set-up

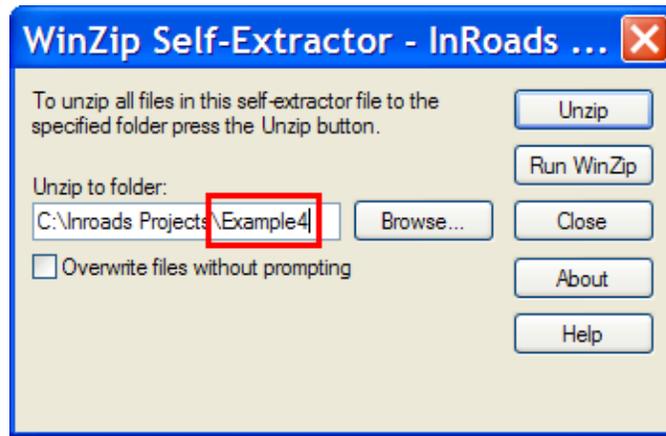
Getting started

1. For this example, on your C drive create a project folder named *InRoads Projects* and then a folder named *Example4*.

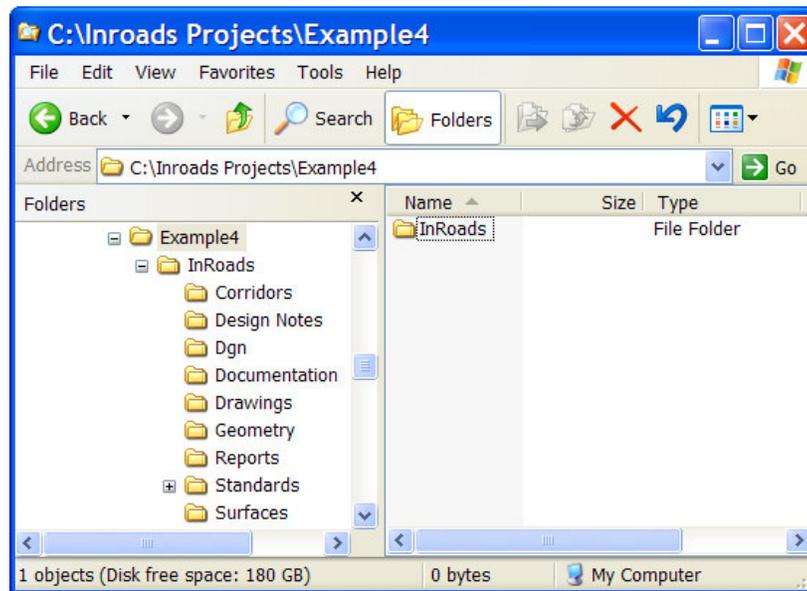
The folder path should now be: *C:\InRoads Projects\Example4*.

Note: For all InRoads design work, put in the project *GWP/WP* folder a subfolder called *InRoads* or something similar. This is where the InRoads highway design files should be kept.

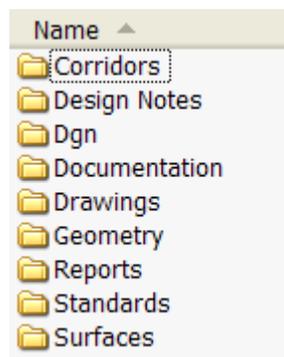
2. Go to the web site:
<http://www.xfer.mto.gov.on.ca/PTASapps/index.htm>
Click on **InRoads** under Menu on the left side of the page. A list of InRoads files will be shown on the right side of the page. Click on the file *Power InRoads V8i(SS2)PreferenceManual.zip* and save it to the folder called *InRoads Projects* that you created in step 1. Click **Close**.
3. Extract the downloaded .zip file to the current folder. Double clicking on the file *InRoads Project Template_SS2.exe* to run the file. By default, the *Unzip to folder* is pointing to the current folder *InRoads Projects*. Use the **Browse** button to find the *Example4* folder or you can type in *\Example4* after the default folder.



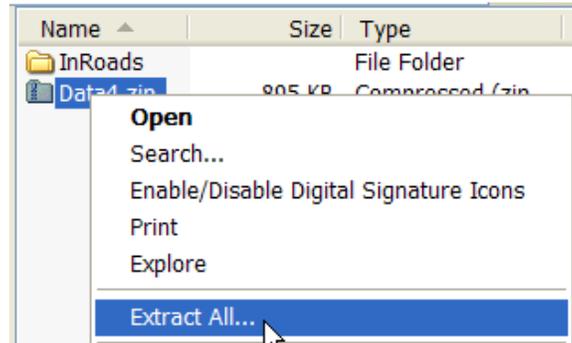
4. Click **Unzip** button. A folder called *InRoads* will be created in the Example4 folder if it does not exist and all subfolders will be automatically set-up. When it is finished, close the WinZip dialog.
5. The folder *Example4* will now look like this:



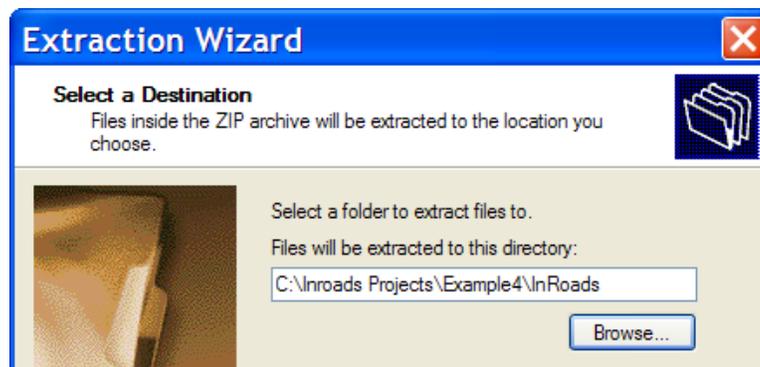
6. The *InRoads* folder in the Example4 contains the following subfolders:



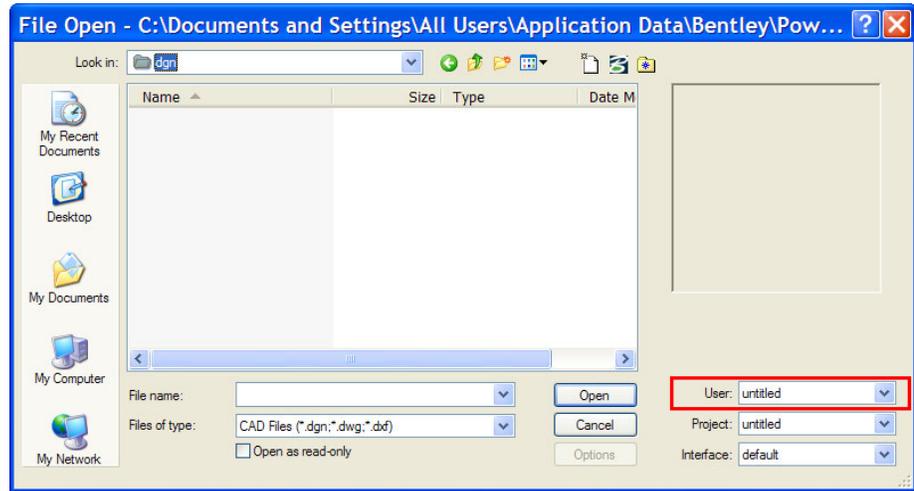
- Copy Example 4 data set Data4.zip to the folder Example4. Right click on the compressed file **Data4.zip** and select **Extract All** from the pop-up menu.



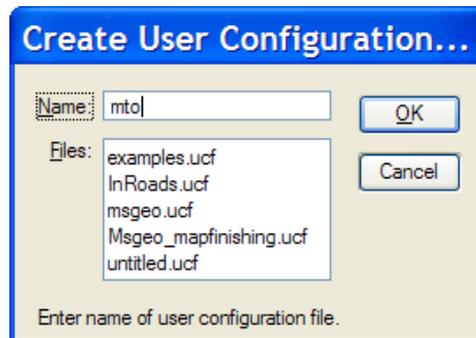
- Follow the Extraction Wizard. When the target directory appears on the dialog, make sure the path is pointed to the folder: `...\\Example4\\InRoads`.



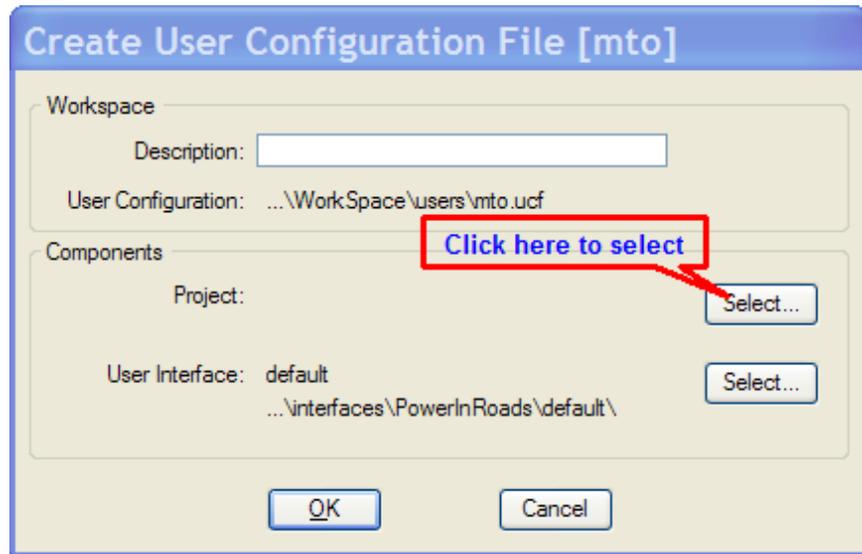
- When finished, go through each folder to verify that files are installed properly as described under *Example Data* section in Section 1.
- Locate the Project Configuration File (*.pcf) in the following folder:
.....\\InRoads\\Standards\\pcf
- Copy the file **PORJECTNAME.pcf** to the folder `C:\\InRoads Projects` and rename it to **Example4.pcf**.
- Start Power InRoads V8i (SELECTseries 2). On the File Open dialog of Power InRoads, locate the *User* list field at the bottom right of the dialog.



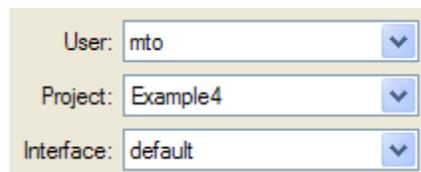
13. If you haven't created a user configuration file pointing to the project configuration file folder *C:\InRoads Projects*, click in the *User* field and select **New** from the list. If you have done so, select the user configuration file on the list, then click the *Project* field, the project configuration file *Example4.pcf* will be shown on the project list.
14. To create user configuration, select **New** from the *User* list, Create User Configuration dialog pops up. Type a name in the *Name* field on the dialog.



15. Click **OK**. Create User Configuration File dialog appears, type description in the *Description* field and click the **Select** button on the right side of the *Project* field.



16. Browse to the project configuration file folder *C:\InRoads Projects*. Select the project configuration file ***Example4.pcf*** and click **Open**.
17. When return to the Create User Configuration File dialog, the project configuration file you selected appears in the *Project* field. Click **OK** to close the dialog.
18. When return to the File Open dialog, you can also select a customized user interface or leave it with the default user interface.



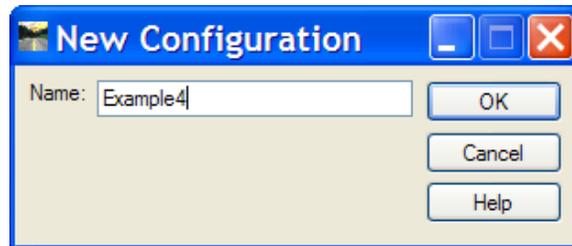
19. Open **Ex4.dwg** from the folder *...\Example4\InRoads\Drawings*. The drawing *Ex4.dwg* contains features displayed from the design surface.

2.2 Project Defaults

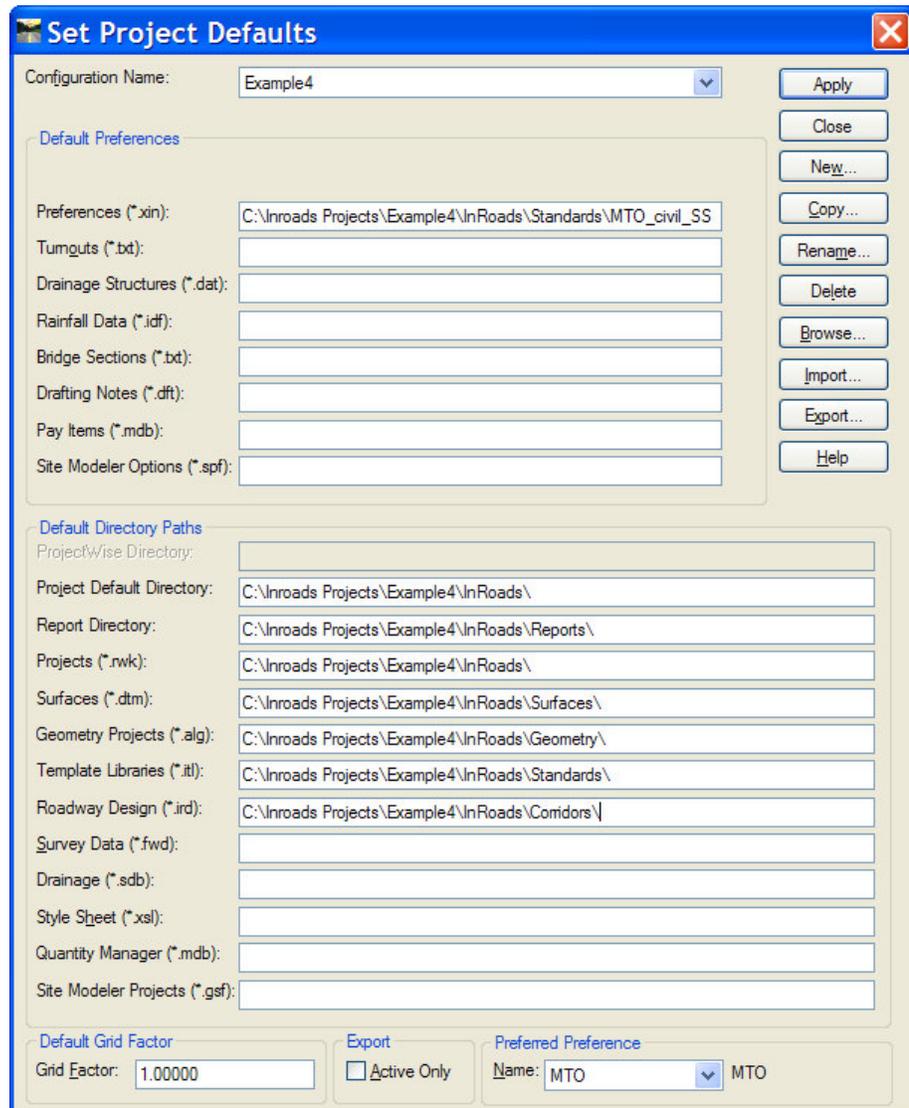
By setting up the project defaults, the user can set the default directory locations for opening/saving files for project design. The InRoads **Project Defaults** command is used to set up default directories for all file types that can be accessed through the File/Open and File/Save As dialog boxes. These include Project (.rwk), Surface (.dtm), Geometry (.alg), Template Library (.itl), and Roadway Design (.ird). All other files, which are opened or saved throughout the program, use the Project Default Directory setting. The project default file directories are stored in the computer's registry.

1. Click to **File > Project Defaults** on the InRoads Main Menu.

2. Click on the **New** button and the New Configuration dialog box will appear.
3. Type in **Example4** in the *Name* field, click **OK** to save and close the dialog box.



4. Click in the *Preferences (*.xin)* field and click the **Browse** button. The Open dialog will appear. Browse to ...*Example4\InRoads\Standards* folder.
5. Select *MTO_civil_SS2.xin*, and click **Open**,
6. Click in the *Project Default Directory* field and click the **Browse** button. The Open dialog will appear. Browse to ...*Example4\InRoads*, and Click **Open**.
7. Click in the *Report Directory* field and click the **Browse** button. The Open dialog will appear. Browse to ...*Example4\InRoads\Reports*, and Click **Open**.
8. Click in the *Projects (*.rwk)* field and click the **Browse** button. The Open dialog will appear. Browse to ...*Example4\InRoads*, and Click **Open**.
9. Click in the *Surfaces (*.dtm)* field and click the **Browse** button. The Open dialog will appear. Browse to ...*Example4\InRoads\Surfaces*, and Click **Open**.
10. Click in the *Geometry Projects (*.alg)* field and click the **Browse** button. The Open dialog will appear. Browse to ...*Example4\InRoads\Geometry*, and Click **Open**.
11. Click in the *Template Libraries (*.itl)* field and click the **Browse** button. The Open dialog will appear. Browse to ...*Example4\InRoads\Standards*, and Click **Open**.
12. Click in the *Roadway Design (*.ird)* field and click the **Browse** button. The Open dialog will appear. Browse to ...*Example4\InRoads\Corridors*, and Click **Open**.
13. Click the **Apply** button to save the configuration, and then click the **Close** button.

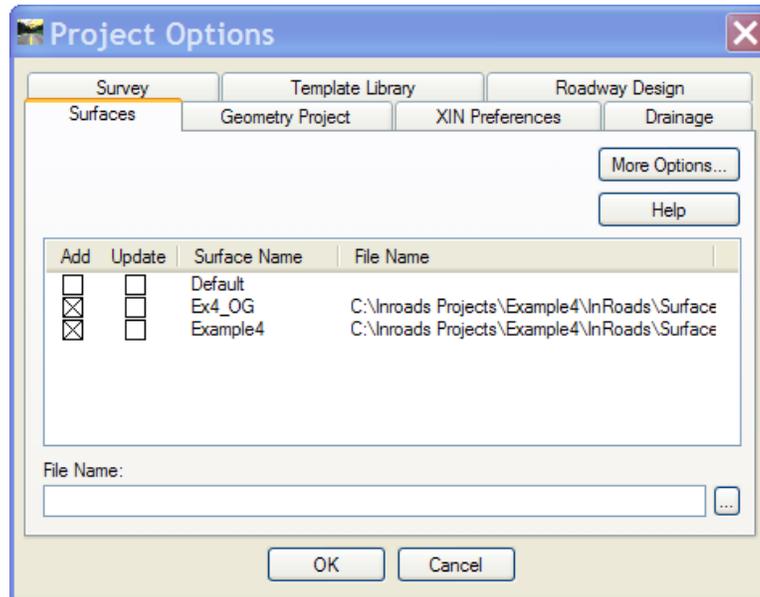


2.3 Project Files

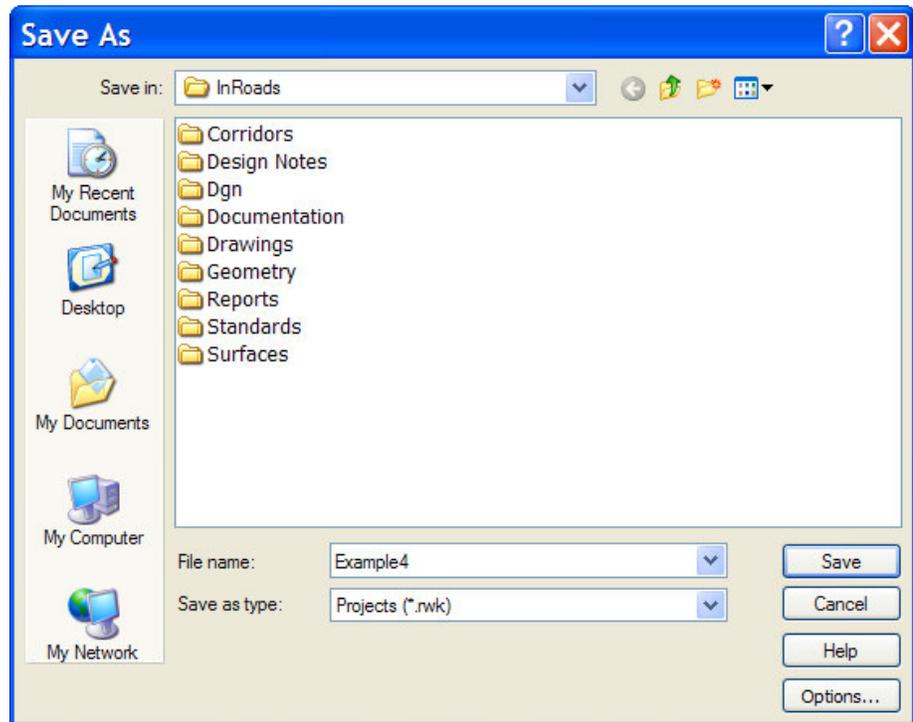
InRoads allows users to create a project file for each project. With project file, the user can quickly load all files needed for a particular project. A project file is composed of a list of files with path names. To create a project file for example 4:

1. Click to **File > Open** on the InRoads Main Menu.
2. Change the *Files of type* to Surfaces (*.dtm) and select *Ex4_OG.dtm*. Click **Open**. Select *Example4.dtm* then click **Open**.
3. Change the *Files of type* to Geometry Projects (*.alg) and select *Ex4.alg*. Click **Open**.
4. Change the *Files of type* to Template Libraries (*.itl) and select *Example4.itl*. Click **Open**.

5. Change the *Files of type* to Roadway Design (*.ird) and select *Ex4.itl*. Click **Open** and then **Cancel**.
6. Create Project file (.rwk). Click to **File > Save > Project** on the InRoads Main Menu.
7. On the lower right corner of the Save As dialog box, click the **Options (...)** button. The Project Options dialog box will appear.



8. For Surfaces tab, check **Add** for both the Existing surface *Ex4_OG* and the design surface *Example4* that were loaded in step 2.
9. For the Geometry Project tab, check **Add** for the geometry project *Ex4* that was loaded in step 3.
10. For the XIN Preferences tab, check **Add** and **Update** on file *MTO_civil_SS2.xin* under the **File Name**.
11. For the Template Library tab, check **Add** for the template library *Example4* that was loaded in step4.
12. For the Roadway Design tab, check **Add** for the corridor *Ex4* that was loaded in step 5.
13. Click **OK** button to close the Project Options dialog box.
14. In the Save As dialog box click in the *File name* field and type in *Example4*. Click the **Save** to complete creating the project file. Click **Cancel** to close the dialog.



3.0 Creating Plan Sheets

The InRoads Plan and Profile Generator command automatically generates horizontal alignment plan views and profile views. This command is used to assemble alignment-based sheets and to store their definitions in an ASCII file (VDF).

Before Using This Command

- You must have loaded an alignment.
- You must have loaded a surface if you are using the Plan and Profile or Profile Only method, which is specified on the Main tab of the dialog box.

All the resources required for this example have been loaded in previous section.

This section, use the data loaded to generate a set of 1:1000 scale half size (11"x17") plan sheets.

3.1 Setting Project Options

Some system parameters are necessary to be set up before using the Plan and Profile Generator command.

1. Select **File > Project Options**.
2. Click on *Precision* tab.
3. Set the *Northing/Easting* to **0.12345**.

Note: The border sheets used to generate the plan and/or profile sheets are set to 1000 paper units = 1 drawing unit scale. When the sheets are generated, the border sheets will be scaled up. Location related inputs need 5 decimal places to properly display the value.

4. Set the *Station* to **0**.

Note: The decimal places set here controls how the start and stop stations to be displayed on the generated sheets. Plan and profile sheets normally start and end at even stations. When the start station is an odd-numbered station, with the *Station Lock* turned on, after the first sheet all subsequent sheets are forced to even-numbered stations. Adjust the sheet extents generated by InRoads so some design features (structures, intersections etc.) can be displayed entirely on one sheet.

5. Click on *Factors* tab.
6. Set the *Scale Factor* to **0.5**.

Note: If the plotted drawing scale to be 1:1000, 1:500, or 1:200 etc, set the *Scale Factor* to 1, 0.5, and 0.2 respectively for a full size sheet. Set the factors to 0.5, 0.25, and 0.1 for a half size sheet.

7. Close the dialog.

3.2 Opening Plan and Profile Generator

To open the command dialog, select **Drafting > Plan and Profile Generator** from the InRoads menu bar.

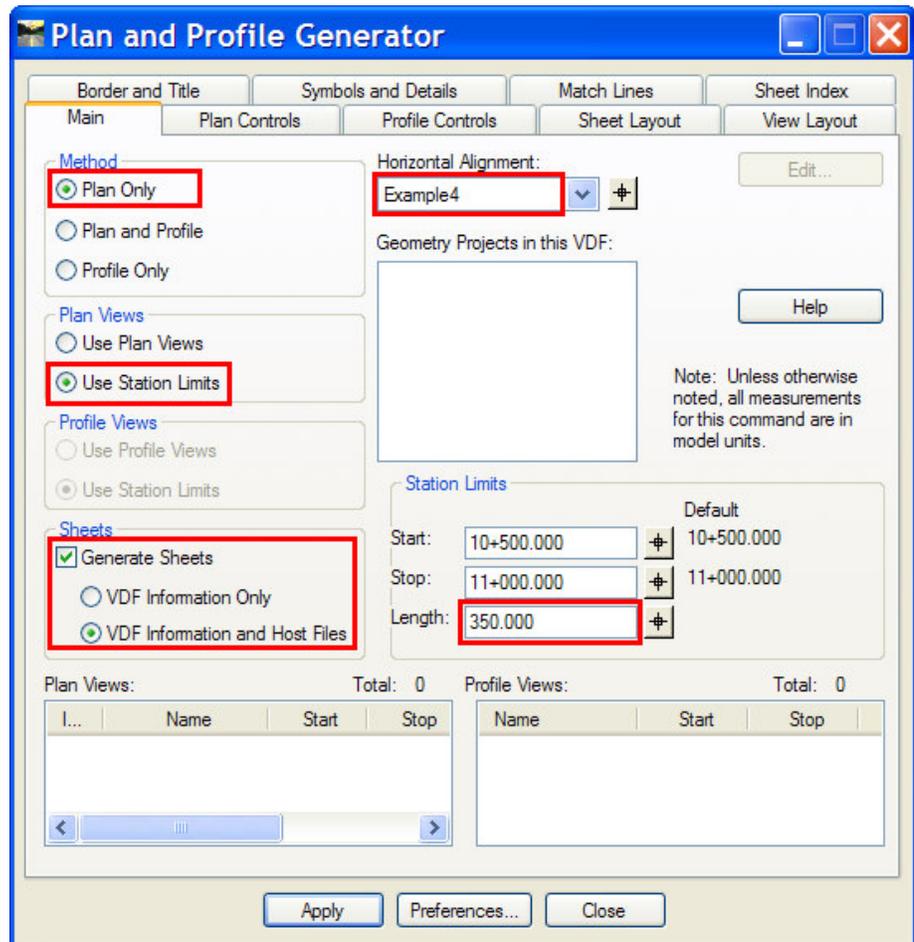
On the Plan and Profile Generator dialog, there are nine tabs that control various settings used with the command. They are Main, Plan Controls, Profile Controls, Sheet Layout, View Layout, Border and Title, Symbols and Details, Match Lines, and Sheet Index. The tabs require user inputs for various parameters. The dialog box settings can be saved to a preference file and be loaded into future design sessions.

3.3 Dialog Settings

Main Tab

The Main tab allows you to specify the type of sheets you want to create (Plan and Profile, Plan only, or Profile only) and edit the parameters for plan views and profile views in your VDF file.

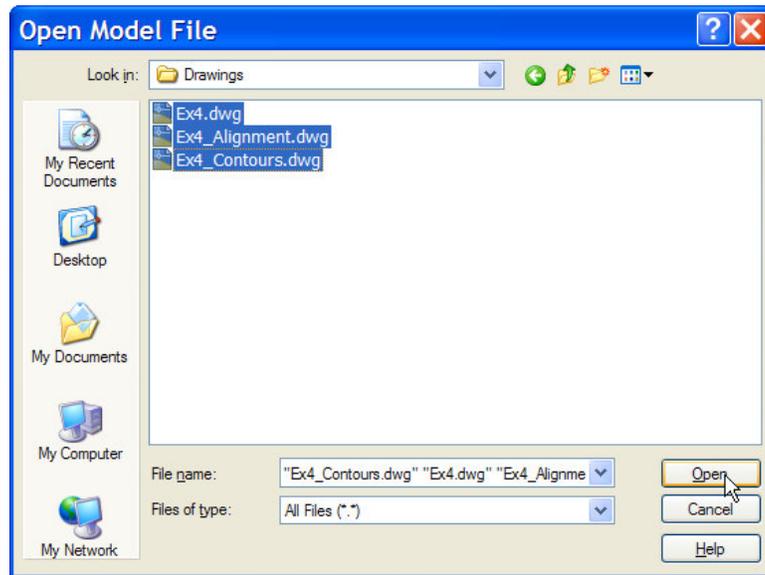
1. Select the **Main** tab.
2. In the *Method* section, select **Plan Only**.
3. In the *Plan Views* section, select **Use Station Limits**.
4. In the *Sheets* section, toggle on **Generate Sheets** and select **VDF Information and Host Files**.
5. Select alignment **Example4** from the available alignments drop-down list. The active alignment is listed by default. The plan and/or profile views are created using this alignment. The alignment selected here determines the *Start* and *Stop Default* stationing in the *Station Limits* section of the dialog box.
6. In the *Station Limits* section, key in **350** in the *Length* field. For a 1:1000 scale 11"x17" (half size) sheet, 350m is the length along the alignment that will fit in the plan view.



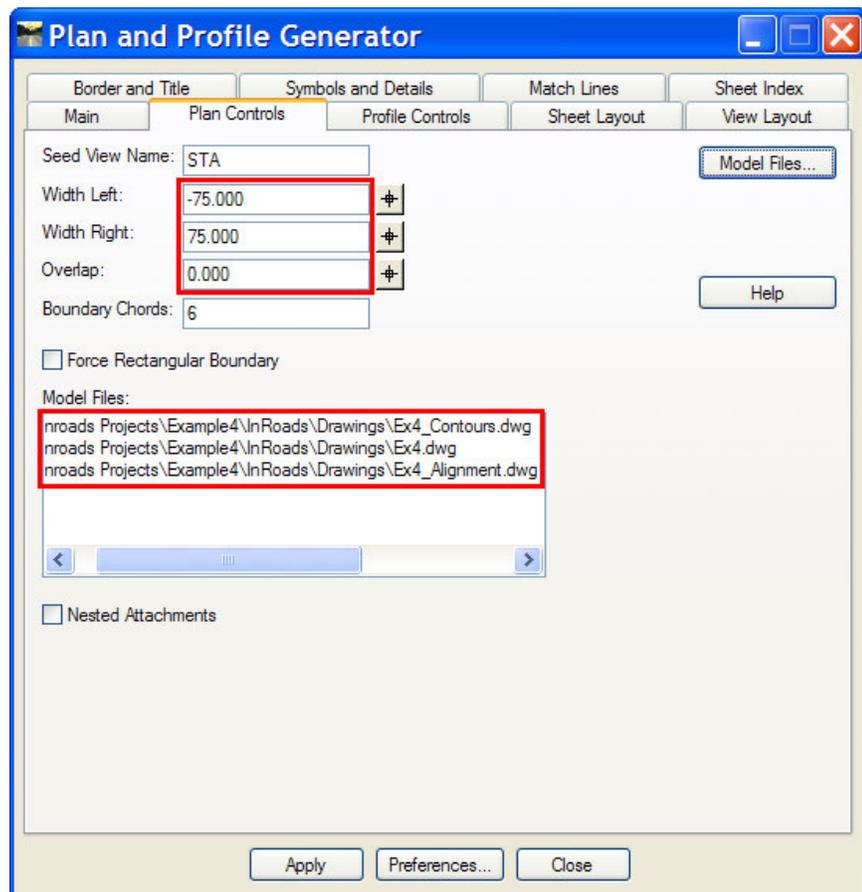
Plan Controls Tab

The Plan Controls tab allows you to specify the parameters for the automatic generation of plan views.

1. Select the **Plan Controls** tab.
2. Key in **-75** in the *Width Left* field and **75** in the *Width Right* field. These define the plan area to be clipped to the left and right of the alignment.
3. Set the *Overlap* to **0**.
4. Click the **Model Files** button. The Open Model File dialog will appear and allow you to choose the model files that you want to attach to the sheet. Browse to the drawing folder ...Example4\InRoads\Drawings.
5. Change the *Files of type* to All Files (*.*). Select DWG file ...*Drawings\Ex4.dwg, Ex4_Alignment.dwg and Ex4_Contours.dwg*. Hold down the **CRTL** key while selecting the reference files.



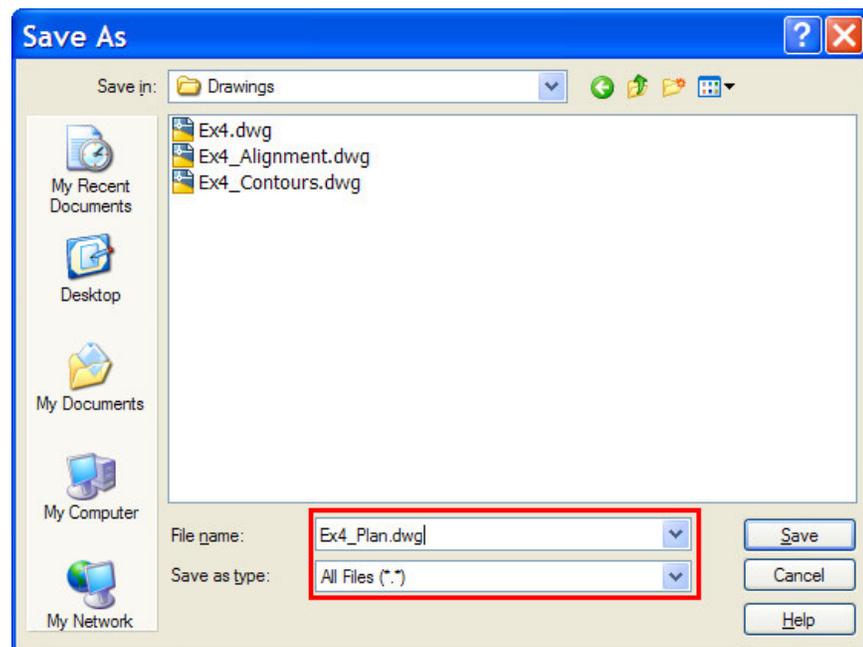
6. Click **Open** return to the Plan and Profile Generator dialog. The files selected in step 5 are listed under the *Model Files* list.
7. If the selected model files contain attached reference files, toggle on the *Nested Attachments* option will attach the reference files to the sheet drawing.



Sheet Layout Tab

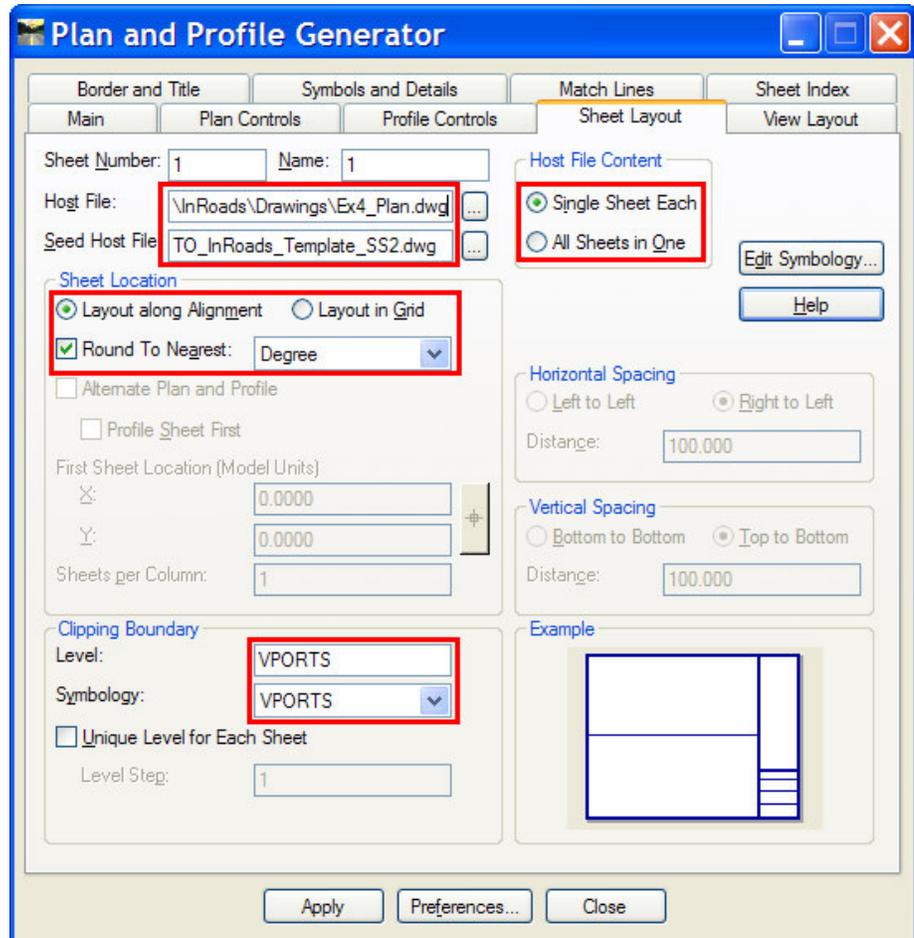
The Sheet Layout tab allows you to specify the parameters for the generation of sheets. The parameters on this tab are used if the Generate Sheets option is selected on the Main tab.

1. Select the **Sheet Layout** tab.
2. Click on the browse button icon  to the right of *Host File* field to specify the sheet name to be created. The *Save As* dialog box will appear.
3. Navigate to ...*Example4\InRoads\Drawings* folder.
4. Change the *Save as type* to All Files (*.*)).
5. In the File name field, type in the host file name *Ex4_Plan.dwg*.



6. Click **Save** to close the dialog and return to the Sheet Layout tab. The sheet name with path is inserted in the Host File field.
7. Click on the browse button icon  to the right of *Seed Host File* field to specify the design file to be used to create the sheet files. The *Browse* dialog box will appear.
8. Navigate to ...*Example4\InRoads\Standards* folder.
9. Change the *Save as type* to All Files (*.*) and select *MTO_InRoads_Template_SS2.dwg*. Click **Open** to close the dialog and return to the Sheet Layout tab.

10. In the *Sheet Location* section, verify the *Layout along Alignment* option is selected. Toggle on the *Round to Nearest* option and set to **Degree**.
11. Key in **VPORTS** in the *Level* field.
12. Select **VPORTS** from the *Symbology* drop-down list.
13. Toggle off the *Unique Level for Each Sheet* option.
14. In the *Host File Content* section, verify the *Single Sheet Each* option is selected.

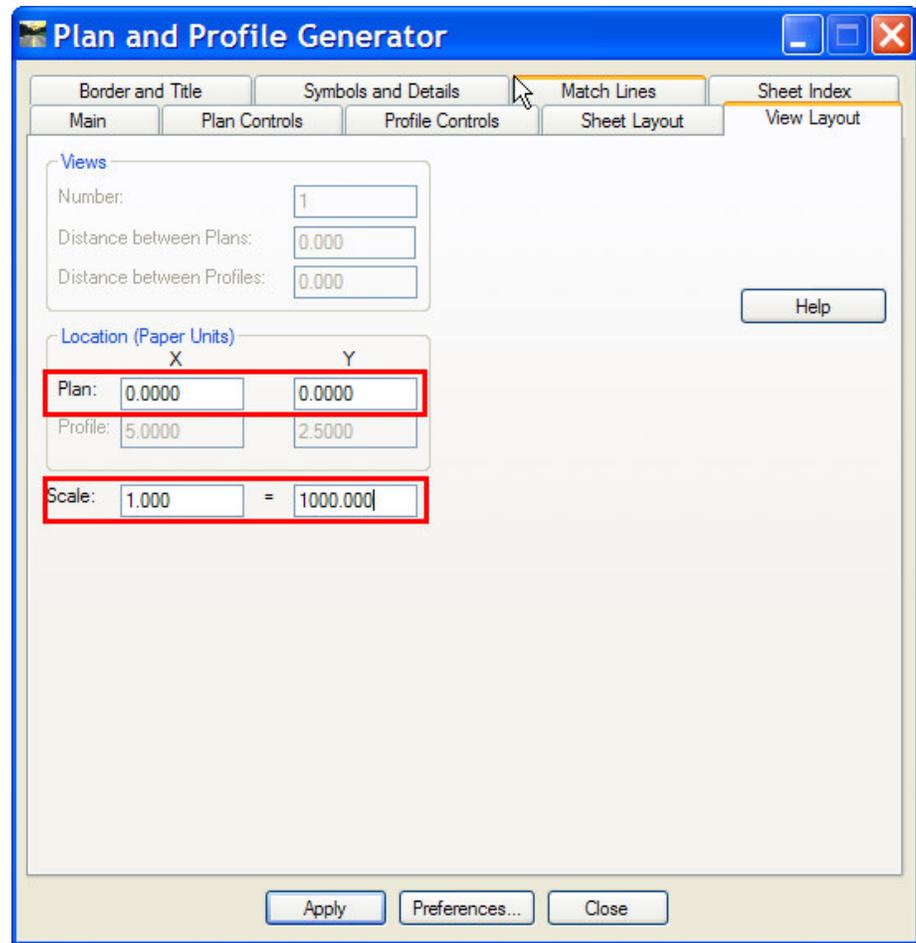


View Layout Tab

The View Layout tab allows you to specify the location of the anchor point for the selected plan and/or profile views. The parameters on this tab are used if the Generate Sheets option is selected on the Main tab.

1. Select the **View Layout** tab.

2. In the *Location (Paper Units)* section, set both *Plan X* and *Plan Y* to **0**. For the border sheet used to create the plan sheets, the middle point of the left side of the inside border is 0, 0 (origin).
3. In the Scale section, set it to **1 = 1000** since the plan sheets to be created is 1 to 1000 scale.



Border and Title Tab

The Border and Title tab allows you to enter the parameters for the border placement and title block population. The parameters on this tab are used if the Generate Sheets option is selected on the Main tab.

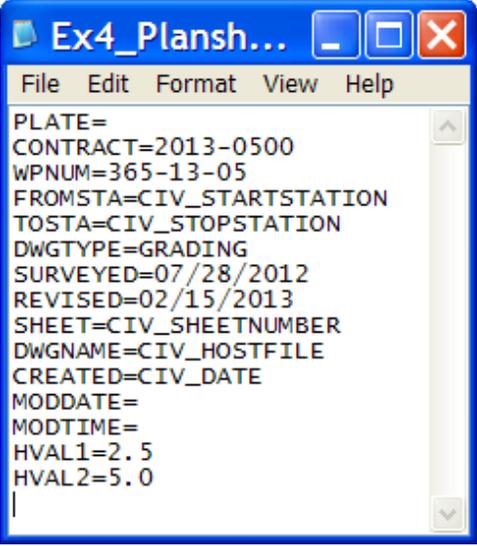
1. Select the **Border and Title** tab.
2. In the *Border* section, click on the option *Reference File Name*. This will activate the input field.
3. Click in the input field, and then click on the **Browse** button. The *Browse* dialog box will appear.
4. Navigate to ...*Example4\InRoads\Standards\Sheet Borders* folder.

5. Select *half_plan.dgn* from the available file list. Click **Open** to close the dialog and return to the Border and Title tab.

Note: A DGN sheet border is used in order to populate the title block automatically. When the generated plan sheets (DWG files) are saved, the DGN sheet border will be replaced by a same name DWG reference file located in the same folder.

6. For *Sheet Size*, select **B (11 x 17)** from the drop-down list.
7. The *Title Block Data* file is to be used to populate various tagged enter data fields in the selected border sheet file. The file is an ASCII file and contains information for the title block. A sample file is provided in the data set.

The sample data file is shown blow.

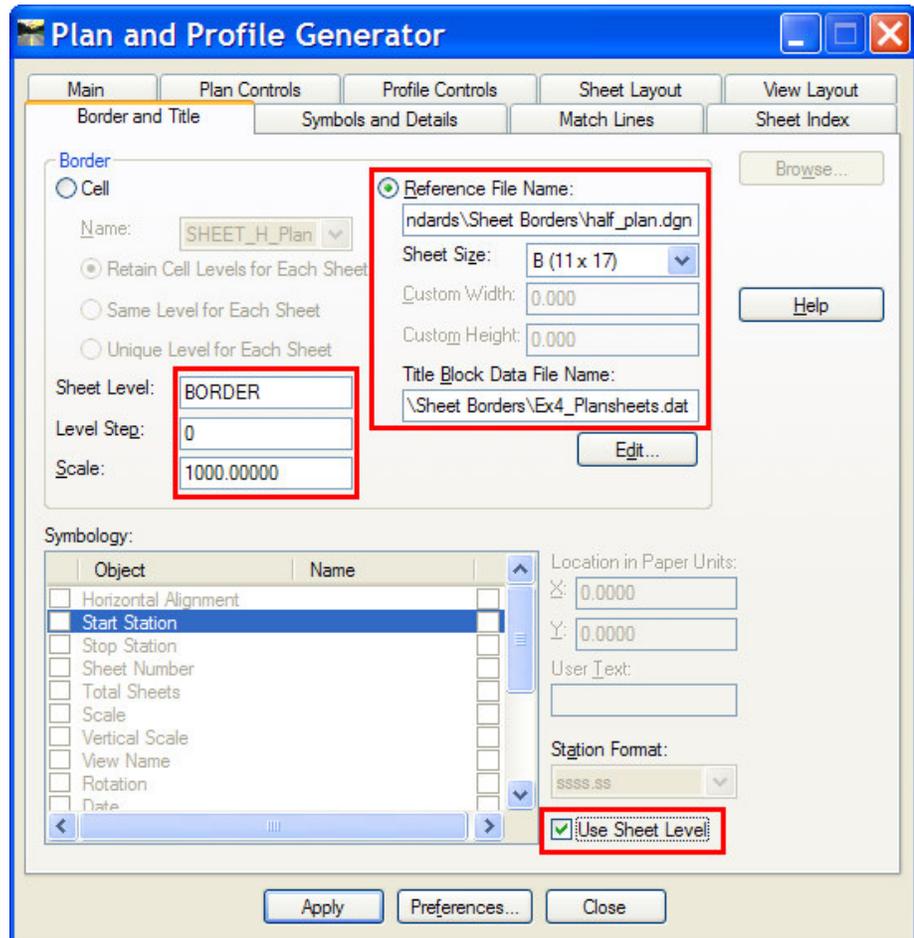


The screenshot shows a text editor window with a menu bar (File, Edit, Format, View, Help) and a text area containing the following data:

```
PLATE=  
CONTRACT=2013-0500  
WPNUM=365-13-05  
FROMSTA=CIV_STARTSTATION  
TOSTA=CIV_STOPSTATION  
DWGTYPE=GRADING  
SURVEYED=07/28/2012  
REVISED=02/15/2013  
SHEET=CIV_SHEETNUMBER  
DWGNAME=CIV_HOSTFILE  
CREATED=CIV_DATE  
MODDATE=  
MODTIME=  
HVAL1=2.5  
HVAL2=5.0
```

8. Click in the *Title Block Data File Name* input field, and then click on the **Browse** button. The *Browse* dialog box will appear.
9. Navigate to ...*Example4\InRoads\Standards\Sheet Borders* folder.
10. Select *Ex4_Plansheets.dat* from the available file list. Click **Open** to close the dialog and return to the Border and Title tab.
11. Click the **Edit** button below the input field to open the file. Modify the value to the right of the equals sign as shown above and save the file. The default Editor is determined on the *General* tab of the *Project Options* dialog.
12. For *Sheet Level*, key in **BORDER**.
13. For *Level Step*, key in **0**.
14. For *Scale*, key in **1000**.

15. To the bottom of the dialog, verify the *Use Sheet Level* option is toggled on.



Symbols and Details Tab

The Symbols and Details tab allows you to specify the North Arrow cell on the plan sheets. The North Arrow cell is included in MTO cell library. It will automatically rotate to North when specified on this tab.

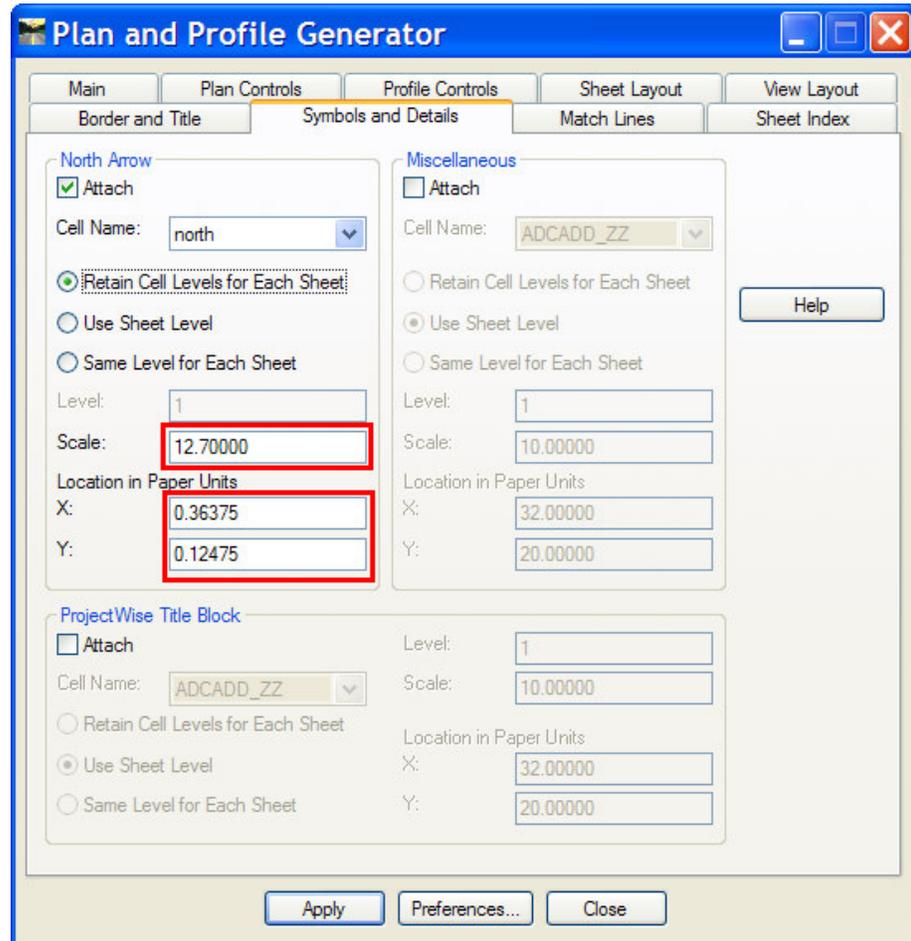
1. Select **Symbols and Details** tab.
2. In the *North Arrow* section, toggle on the **Attach** option.
3. From the *Cell Name* drop-down list, select cell **north**.
4. Toggle on *Retain Cell Levels for Each Sheet*.
5. In *Scale* input field, key in **12.7**.

The North Arrow current set up in a 1:1000 scale drawing for a full size sheet is 25.4 and for a half size sheet is 12.7.

6. For *Location in Paper Units*, set coordinates as:

$$X = 0.36375$$

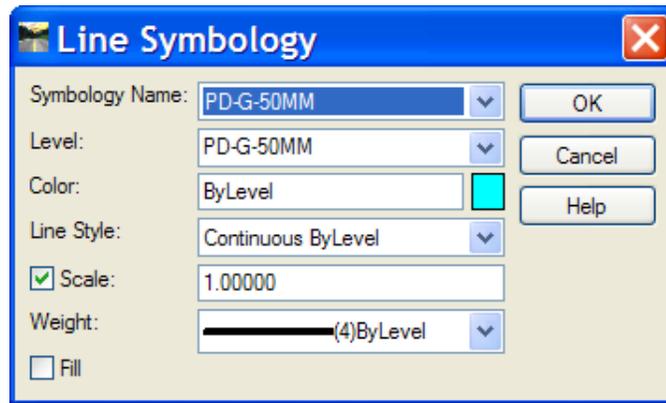
$$Y = 0.12475$$



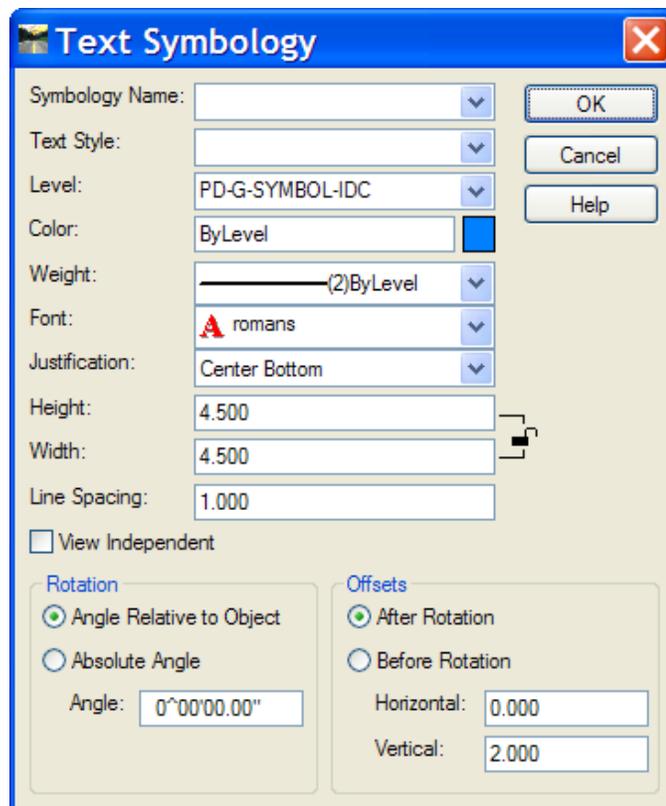
Match Lines Tab

The Match Lines tab allows you specify the parameters to control the match line placement and annotation.

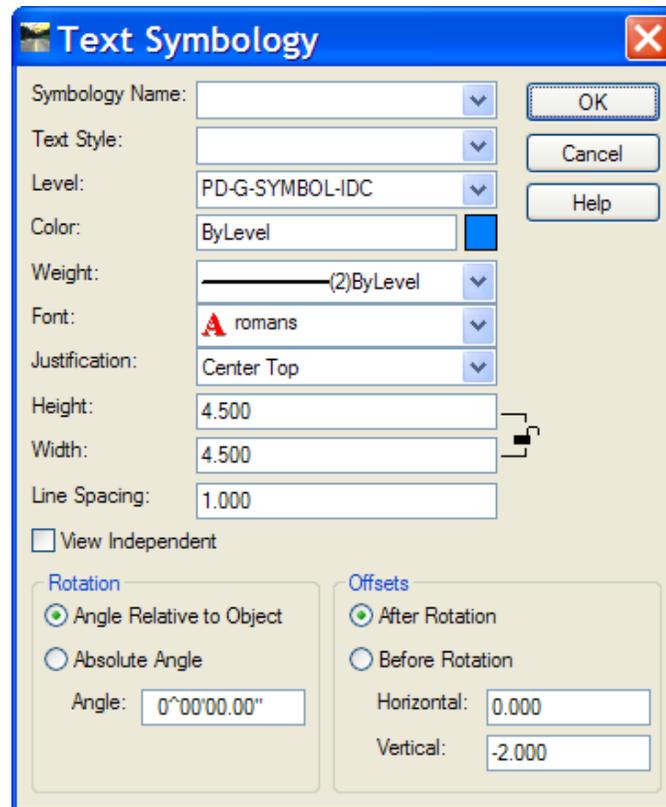
1. Select *Match Lines* tab.
2. In *Symbology* section, toggle on the *Plan Line*.
3. Double click on **Plan Line**. On Line Symbology dialog, select **PD-G-50MM** from the *Symbology Name* drop-down list.
4. Click **OK** to close the dialog.



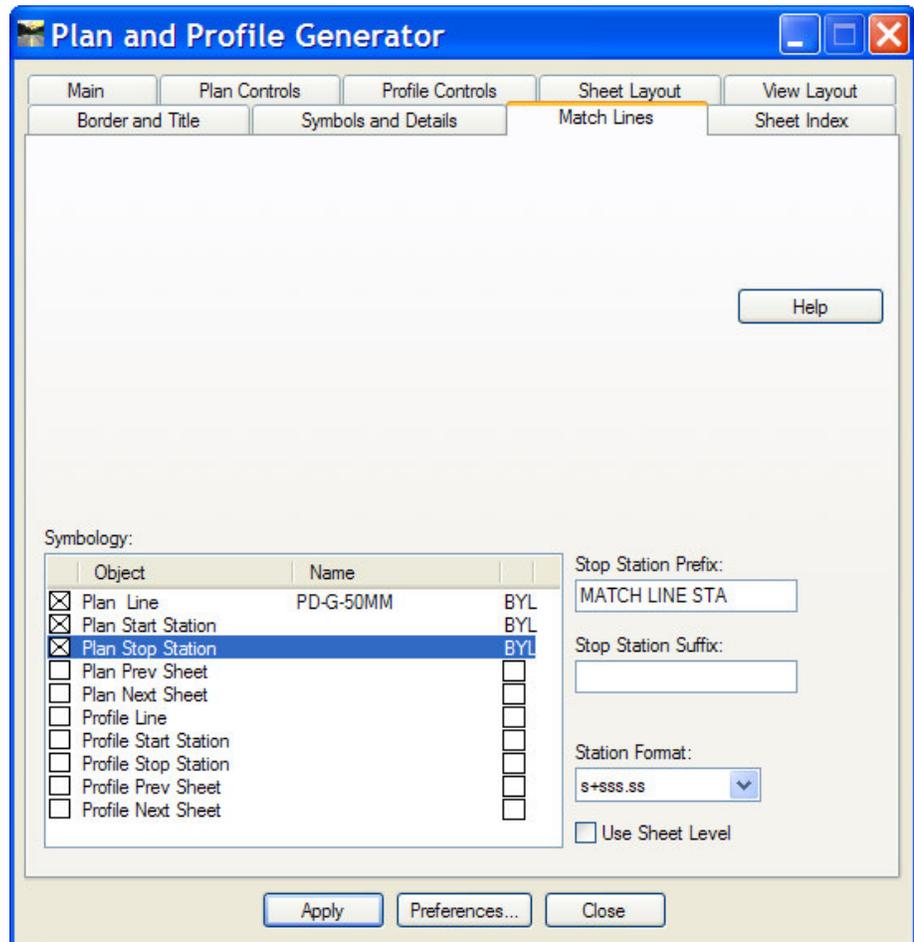
5. In the *Extend* section, the default option is *To Clipping Boundary*.
6. Set the *Station Format* to **s+sss.ss**.
7. Toggle off the *Use Sheet Level* option.
8. Toggle on *Plan Start Station* in the *Symbology* section.
9. In the *Start Station Prefix* input field, key in **MATCH LINE STA**.
10. Double click on **Plan Start Station**. On Text Symbology dialog, select **PD-G-SYMBOL-IDC** from the *Symbology Name* drop-down list.
11. Select **Text45** from the *Text Style* drop-down list.
12. Change the *Justification* to **Center Bottom**.
13. In the *Offsets* section, set *Vertical* to 2.



14. Click Ok to close the dialog.
15. Toggle on *Plan Stop Station* in the *Symbology* section.
16. In the *Stop Station Prefix* input field, key in **MATCH LINE STA.**
17. Double click on **Plan Stop Station**. On Text Symbology dialog, select **PD-G-SYMBOL-IDC** from the *Symbology Name* drop-down list.
18. Select **Text45** from the *Text Style* drop-down list.
19. Change the *Justification* to **Center Top**.
20. In the *Offsets* section, set *Vertical* to **-2**.



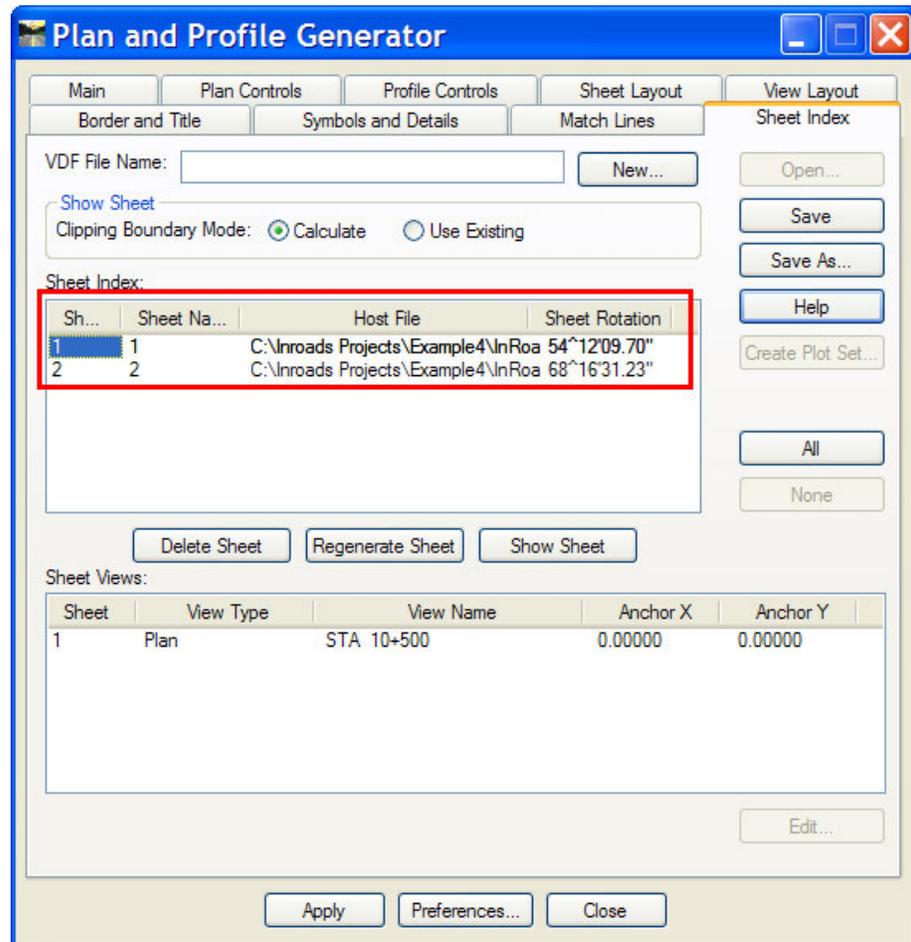
21. Click Ok to close the dialog.



3.4 Generating and Viewing Sheets

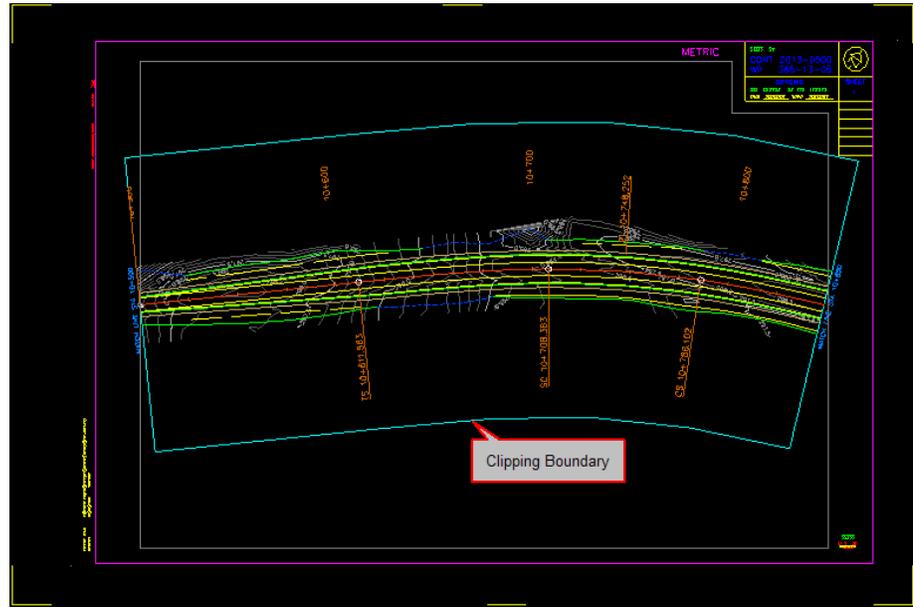
1. Select the *Sheet Index* tab.
2. In *Show Sheet* section, set *Clipping Boundary Mode* to **Calculate**.
3. Click the **Apply** button located at the bottom of the Plan and Profile Generator dialog to execute the command using the information defined in the dialog box.

The plan sheets are generated and list in the *Sheet Index* field.

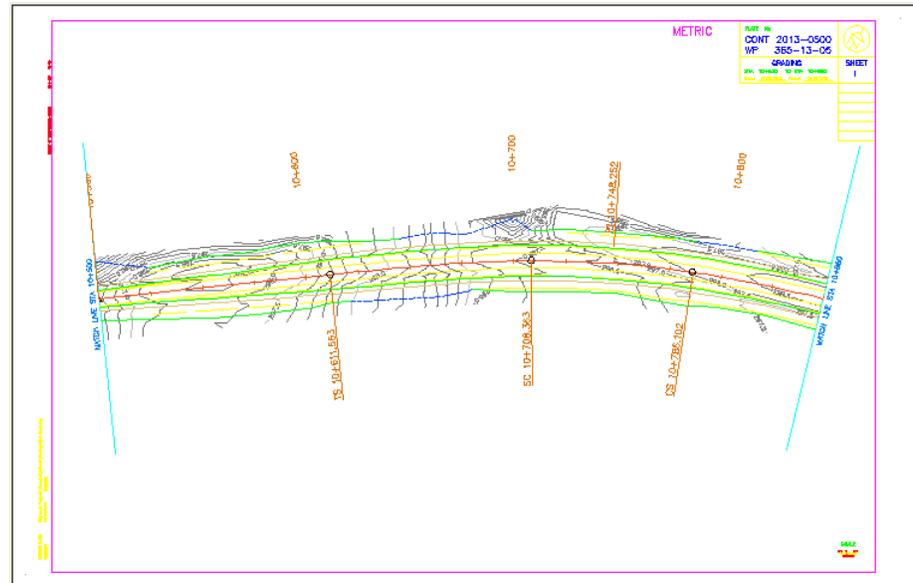


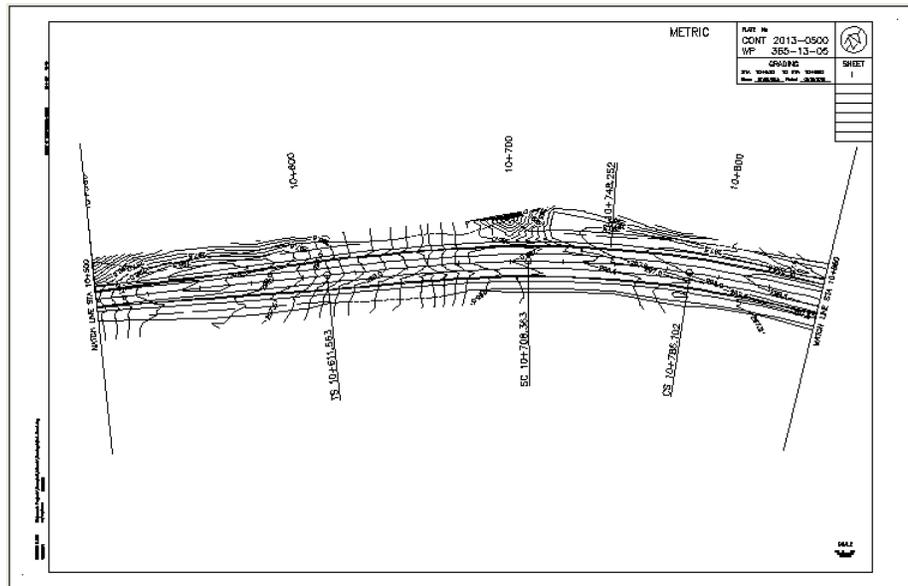
Viewing Sheets

1. Highlight a sheet from the Sheet Index list.
2. Click the **Show Sheet** button below the list.
3. The selected sheet is opened in Power InRoads/MicroStation.
4. Shown below is sheet 1.

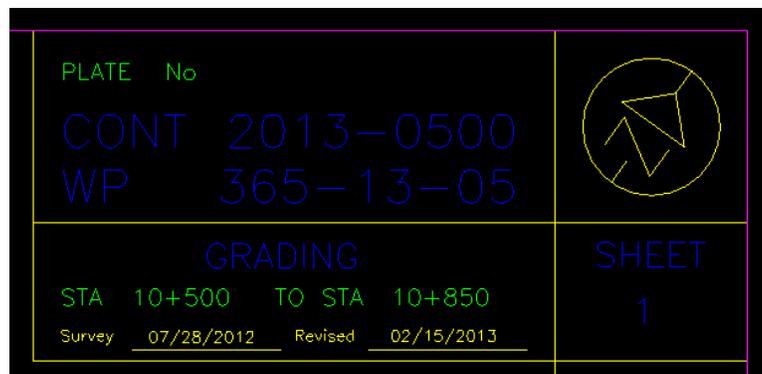


5. The clipping boundary in cyan color (see above) is placed as a MicroStation construction element on the level specified on the Sheet Layout tab when a DGN seed file is used. It is placed on the layer with a suffix “(Construction)” attached to the name specified on the Sheet Layout tab when a DWG seed file is used. Turn off this layer with CAD commands.
6. The inner border of the sheet border in grey color is on layer PD-G-CONS with Plot property turned off. Shown below are plotted sheets in color and monochrome.





7. The title block is populated with the information from the title block data file. The start and end stations are from the sheet generator.



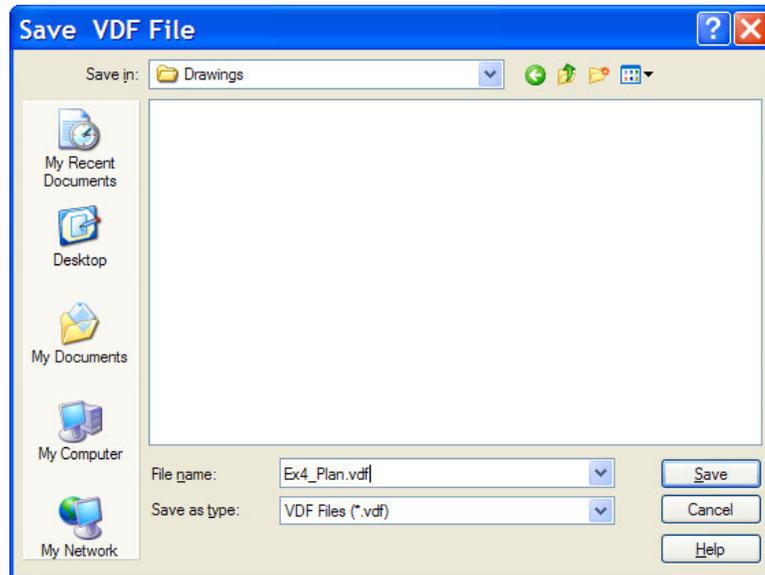
3.5 VDF File and Preferences

After the plan sheets have been generated, the Sheet Index and Sheet Views list are populated. The view settings on the dialog box can be saved in an ASCII file called the View Definition File (.vdf). The file can be used to recreate the plan sheets as originally defined or used to compute quantities by sheet. Use the preferences to save the Plan and Profile Generator dialog box settings for future use.

To save the VDF file,

1. Click the **Save** button. The Save VDF File dialog appears.
2. On the Save VDF File dialog, navigate to the folder *...Example4\InRoads\Drawings*

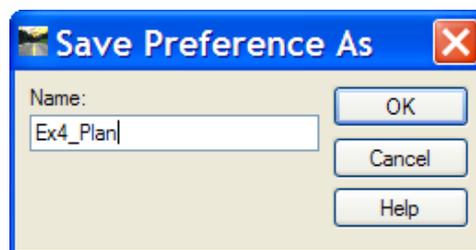
3. In the File Name field, type in the name *Ex4_Plan*.



4. Click **Save**. This will create the file and close the Save VDF File dialog.

To save the preferences,

1. Click **Preferences** button. The Preferences dialog appears.
2. Click **Save As** button on the Preferences dialog.
3. After the Save Preference As dialog appears, type *Ex4_Plan* in the *Name* field.



4. Click **OK** to close the Save Preference As dialog.
5. Click **Close** to close the Preferences dialog.
6. Close all InRoads files.

4.0 Creating Profile Sheets

This section, use the same data as previous section to generate a set of 1:1000 scale half size (11"x17") profile sheets.

4.1 Profile Drawing and Data Files

1. Open drawing template **MTO_InRoads_Template_ss2.dwg** from the folder ...\Example4\InRoads\Standards.
2. Select **File > Save As** to open the Save As dialog.
3. Navigate to folder ...\Example4\InRoads\Drawings.
4. Type **Ex4_Profile** in the *File name* field. The *Save as type* field remains as Autodesk(R) DWG Files (*.dwg).
5. Click **Save**.
6. Load data files with InRoads project file Example4.rwk (created in previous section).

4.2 Setting Project Options

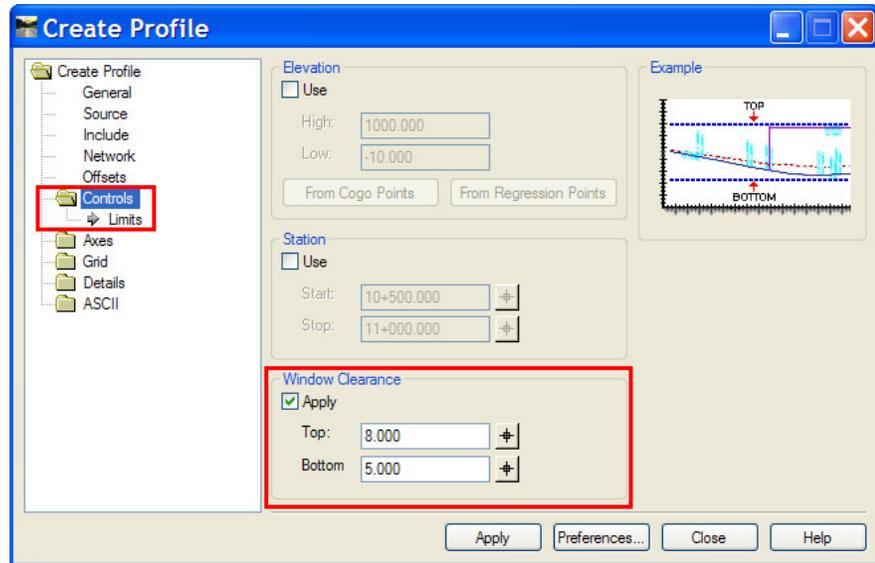
1. Select **File > Project Options**.
2. If you have saved the settings as a reference in previous section, load it. If not, click on *Precision* tab and set the *Northing/Easting* to **0.12345**.
3. Set the *Station* to **0**.
4. Click on *Factors* tab.
5. Set the *Scale Factor* to **0.5**.
6. Close the dialog.

Note: Refer to section 3.1 Setting Project Options for details.

4.3 Generating Profile Sheets

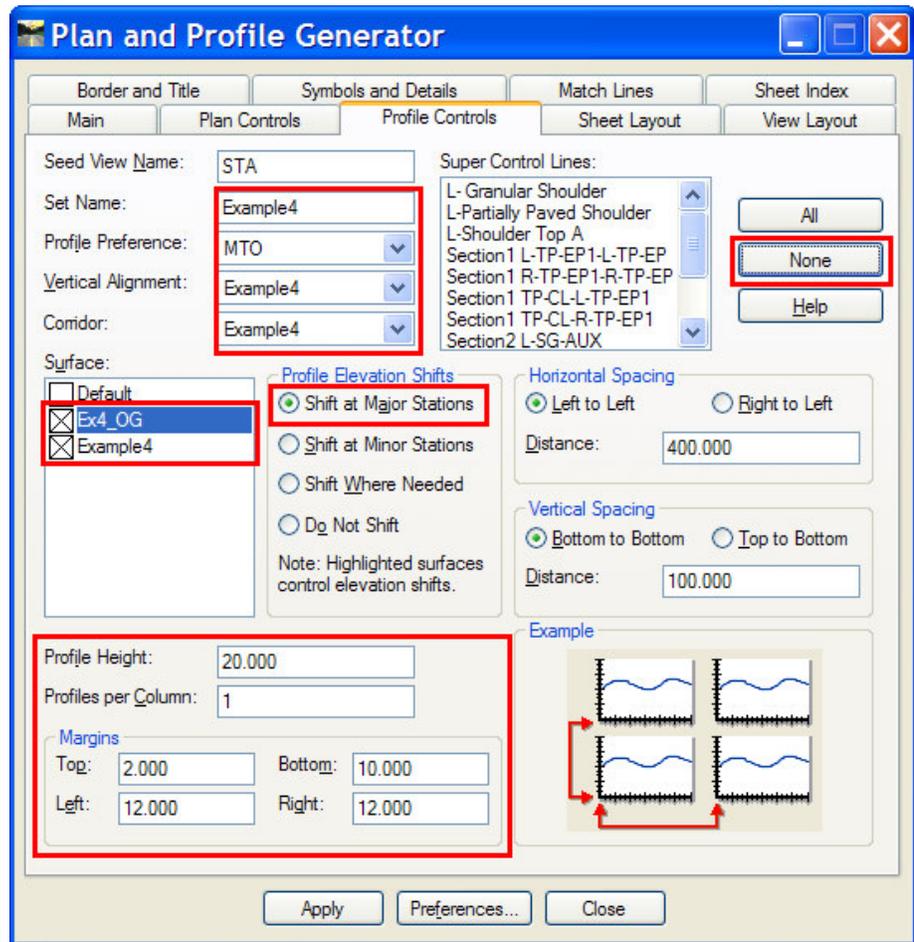
1. Open the Plan and Profile Generator dialog.
2. Load the preference **Ex4_Plan** as saved in section 3.5.
3. Click **Main** tab.
4. In the *Method* section, toggle on **Profile Only** option.
5. Verify **Example4** is the active *Horizontal Alignment*.
6. Verify the value of the *Length* field is **350**.
7. Click **Profile Controls** tab. The settings on this tab control the automatic generation of profile views.
8. Select the profile preference **MTO** from the available *Profile Preference* drop-down list.

Note: The preference set that was saved in the Create Profile command is used to control the appearance of the profile. To adjust the profile position in the profile view, change the *Window Clearance* settings under **Controls** folder on the *Create Profile* dialog, and then save to a named profile preference to be used in the Plan and Profile Generator.

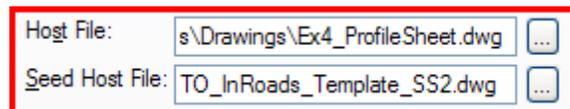


9. Click the *Vertical Alignment* drop-down list and select **Example4** from the list.
10. Toggle on **Surface Ex4_OG** and **Example4** in the *Surface* section. Highlight the surface **Ex4_OG**. The highlighted surface is used to check the window clearance.
11. In the *Profile Elevation Shifts* section, toggle on **Shift at Major Stations**.
12. Click the **None** button to the right of the *Super Control Lines* list to deselect all the superelevation control lines associated with the active corridor.
13. Key in **20** in the *Profile Height* field.
14. Set *Margins* as:

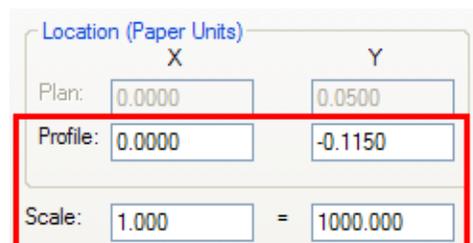
<i>Top: 2</i>	<i>Bottom: 10</i>
<i>Left: 12</i>	<i>Right: 12</i>



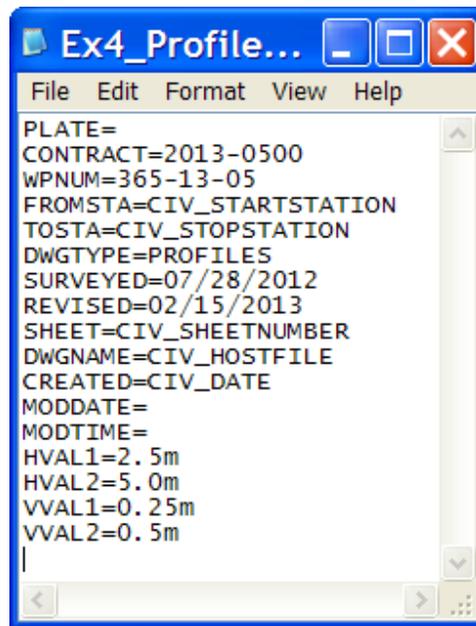
15. Select the **Sheet Layout** tab.
16. Click in the *Host File* name field. Change the file name to ***Ex4_ProfileSheet.dwg***.
17. Verify the *Seed Host File* to be ***MTO_InRoads_Template_SS2.dwg***.



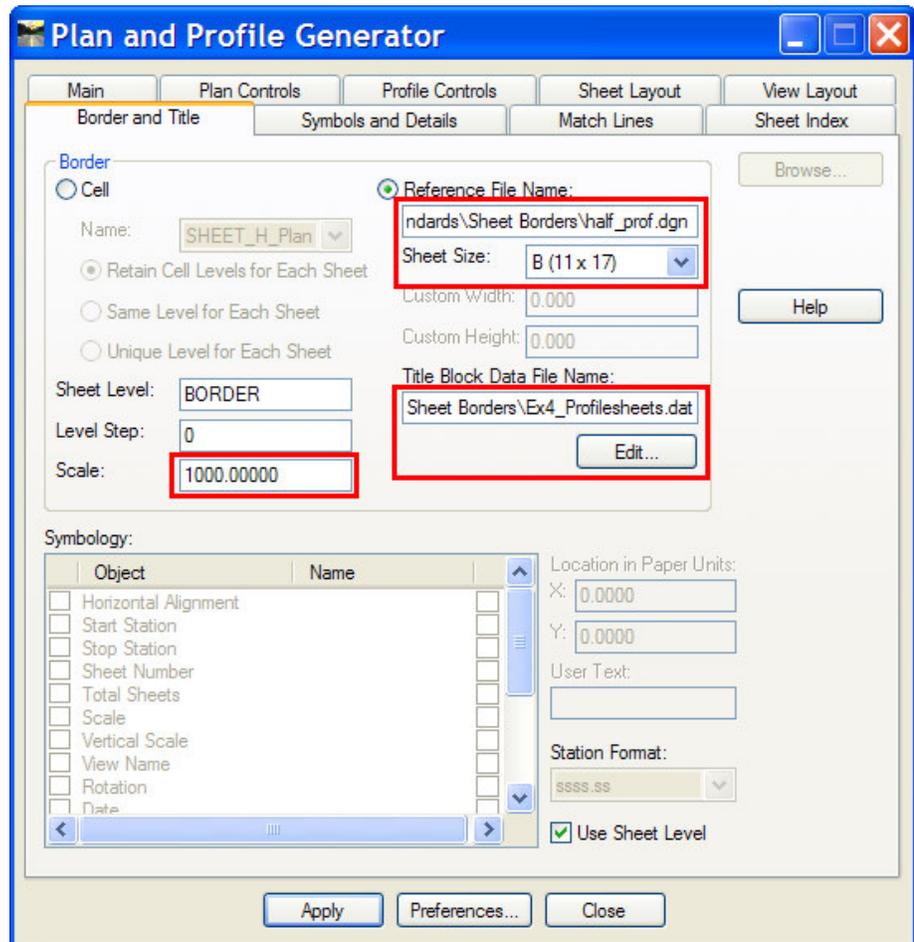
18. Select the **View Layout** tab. In the *Location (Paper Units)* section, set *Profile X* to **0** and *Profile Y* to **-0.115**.
19. In the Scale section, set it to ***I* = 1000**.



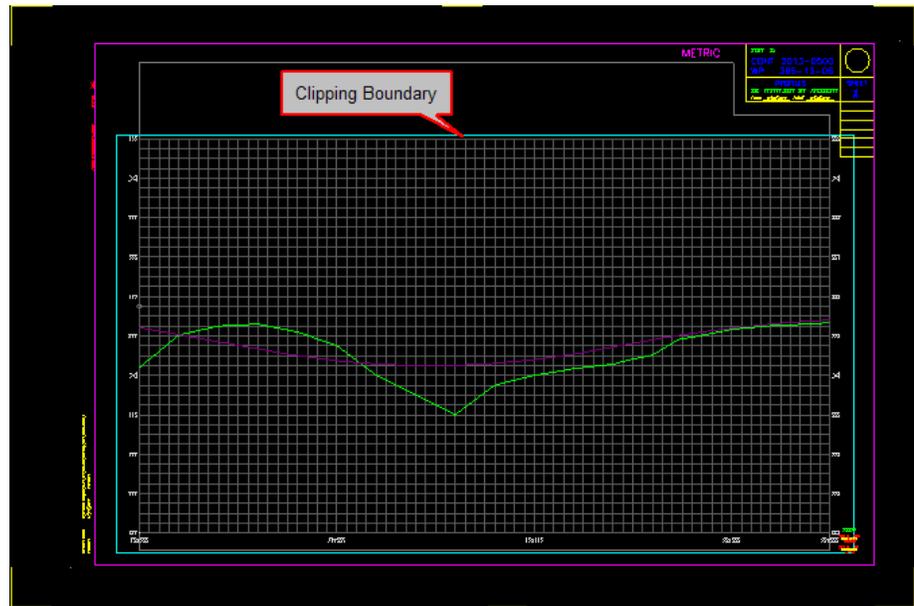
20. Select the **Border and Title** tab.
21. Click in the *Reference File Name* input field, then click on the **Browse** button. Navigate to ...*Example4\InRoads\Standards\Sheet Borders* folder and select the file ***half_prof.dgn***.
22. Verify the *Sheet Size* is ***B (11 x 17)***.
23. Click in the *Title Block Data File Name* input field, and then click on the **Browse** button. Navigate to ...*Example4\InRoads\Standards\Sheet Borders* folder and select file ***Ex4_Profilesheets.dat***.
24. Click **Edit** button after loading the file to review and modify the inputs as needed.



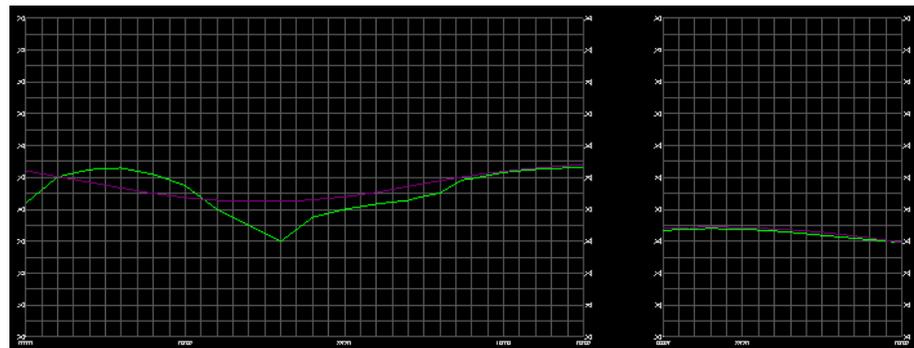
25. Set the *Scale* to ***1000***.



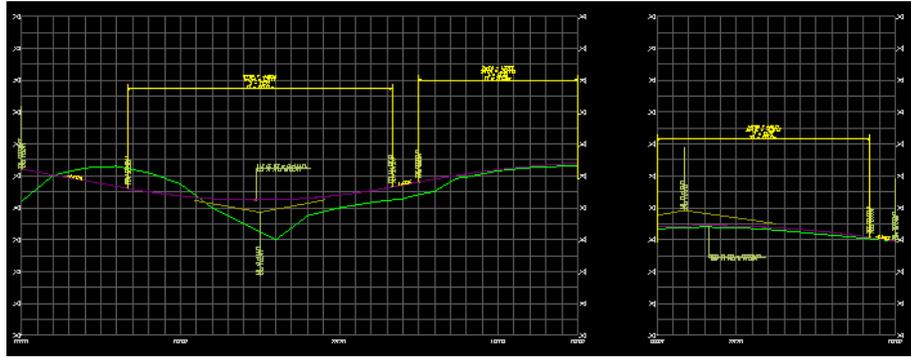
26. Select the **Symbols and Details** tab. Toggle off the *North Arrow* attachment.
27. Click the **Apply** button located at the bottom of the Plan and Profile Generator dialog.
28. Click in the MicroStation view window to provide a point for the lower left corner of the profile set.
29. Save the Plan and Profile Generator dialog box settings to preference *Ex4_Profiles* for future use.
30. Save the VDF file. See section 3.5 for details about VDF file.
31. Close the Plan and Profile Generator dialog.
32. Shown below is the generated profile sheet.



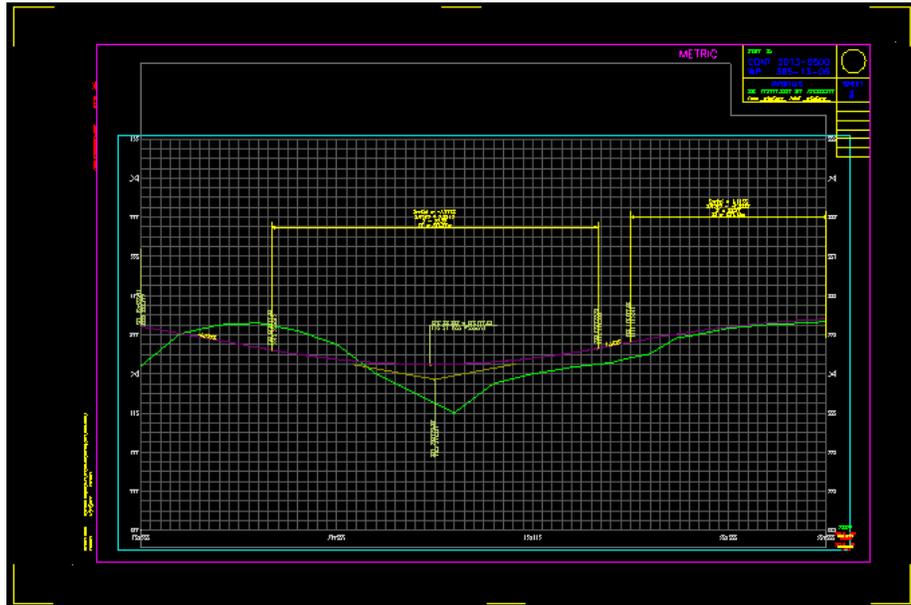
33. Open the profile drawing **Ex4_Profile.dwg** created in step4.
34. The profile is drawn by sheets as defined in the Plan and Profile Generator.



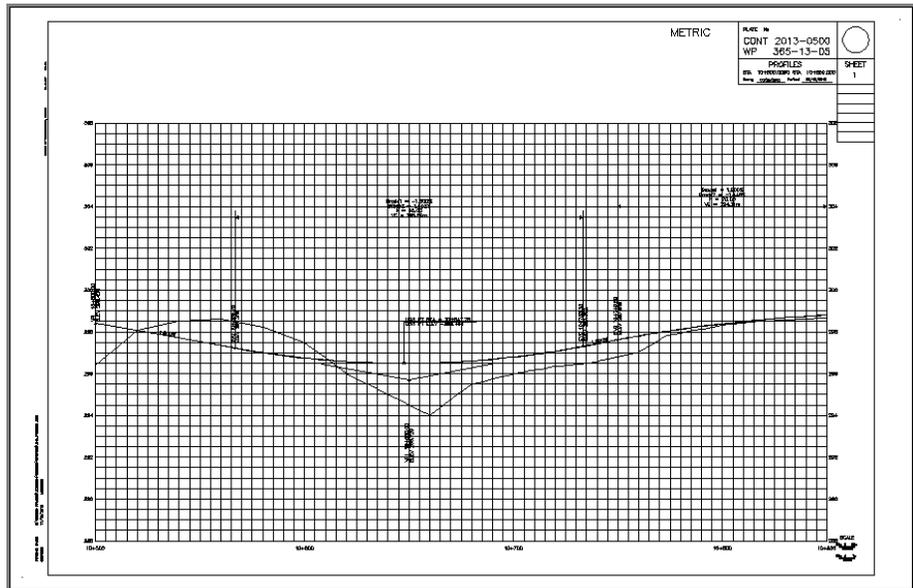
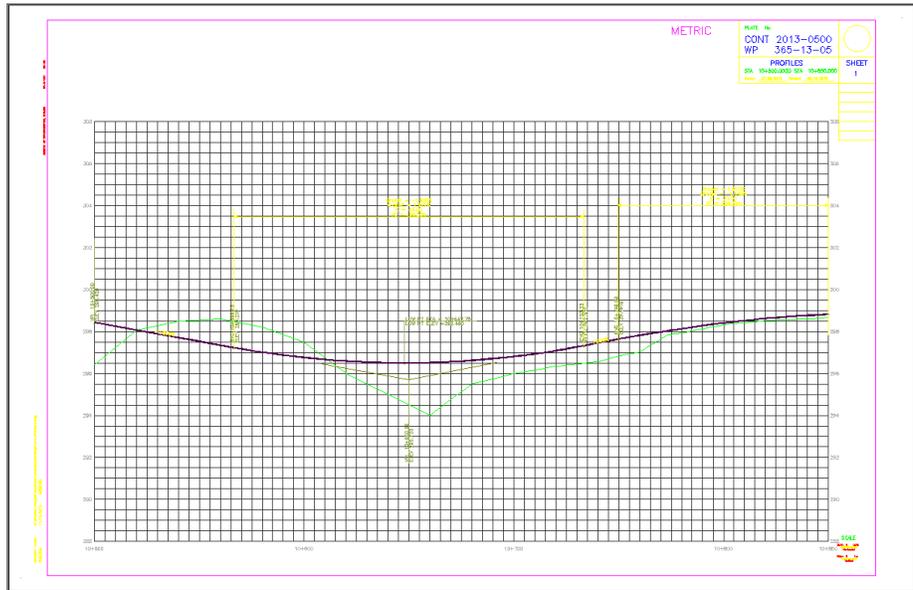
35. Select InRoads **Geometry > View Geometry > Vertical Annotation**.
36. Click **Preferences** and load named preference **MTO_Proposed** on the View Vertical Annotation dialog.
37. Click **Apply** and close the dialog. The profile is annotated as shown below.



38. Save the profile drawing and reopen the generated profile sheet.



39. The annotated profile is now showing on the generated sheet. Turn off the clipping boundary before print the sheet. Shown below are plotted sheets in color and monochrome.



5.0 Creating Plan and Profile Sheets

This section, use the same data as previous section to generate a set of 1:2000 scale half size (11"x17") plan and profile sheets.

5.1 Profile Drawing and Data Files

1. Open drawing template *MTO_InRoads_Template_ss2.dwg* from the folder ...*Example4\InRoads\Standards*.
2. Select **File > Save As** to open the Save As dialog.
3. Navigate to folder ...*Example4\InRoads\Drawings*.
4. Type *Ex4_Profile* in the *File name* field. The *Save as type* field remains as Autodesk(R) DWG Files (*.dwg)
5. Click **Save**.

Note: If the profile drawing has been created in previous section, you can just open it and create the profile in the same drawing.

6. Load InRoads project file *Example4.rwk* (created in previous section) if InRoads files haven't been loaded.

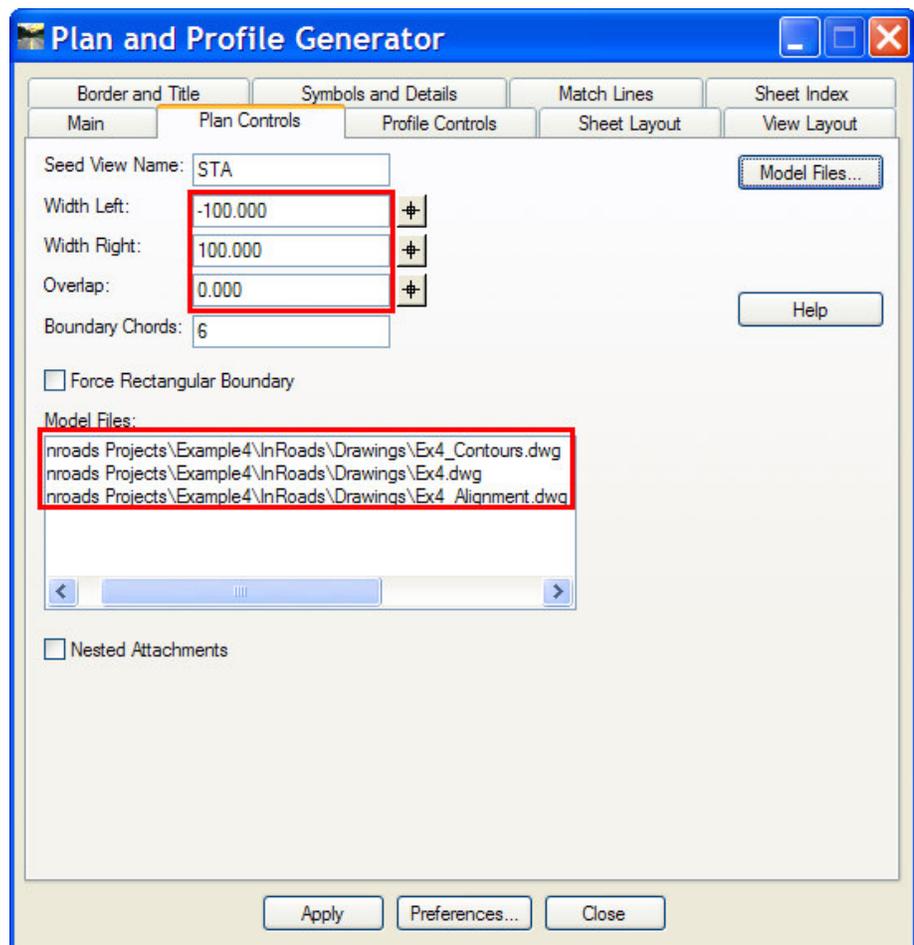
5.2 Setting Project Options

1. Verify and set the project options as described in section 3.1. Select **File > Project Options**.
2. If you have saved the settings as a reference in previous section, load it. If not, click on *Precision* tab and set the *Northing/Easting* to **0.12345**.
3. Set the *Station* to **0**.
4. Click on *Factors* tab.
5. Set the *Scale Factor* to **1** for this 1:2000 scale half size sheet.
6. Close the dialog.

5.3 Generating Plan and Profile Sheets

1. Open the Plan and Profile Generator dialog.
2. Load the preference *Ex4_Plan* as saved in section 3.5.
3. Click **Main** tab.
4. In the *Method* section, toggle on **Plan and Profile** option.
5. Verify **Example4** is the active *Horizontal Alignment*.

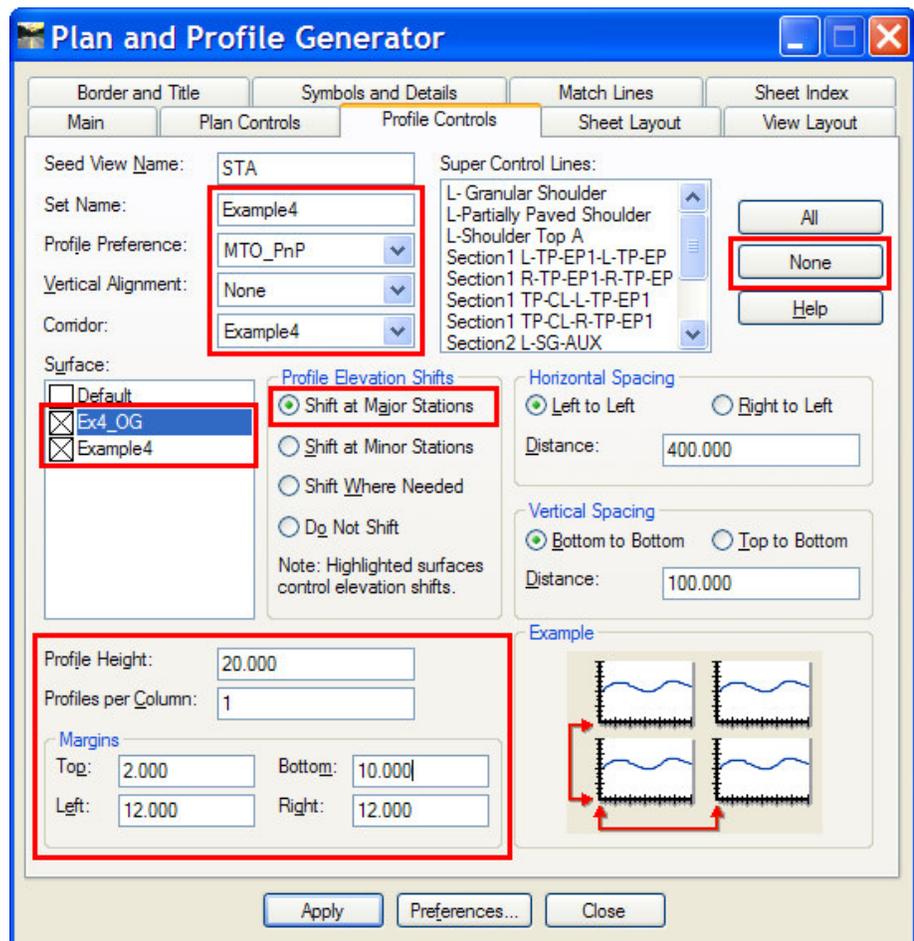
6. In the *Station Limits* section, key in **700** in the *Length* field. For a 1:2000 scale 11”x17” sheet, 700m is the length along the alignment that will fit in the plan view
7. Click *Plan Controls* tab.
8. Key in **-100** in the *Width Left* field and **100** in the *Width Right* field (with 1: 2000 scale, a wider area can be displayed).
9. Click the **Model Files** button. On the Open Model File dialog, browse to the drawing folder ...*Example4\InRoads\Drawings*.
10. Change the *Files of type* to All Files (*.*). Select DWG file ...*Drawings\Ex4.dwg, Ex4_Alignment.dwg and Ex4_Contours.dwg*. Hold down the **CRTL** key while selecting the reference files.
11. Click **Open** return to the Plan and Profile Generator dialog.



12. Click **Profile Controls** tab. The settings on this tab control the automatic generation of profile views.
13. Select the profile preference **MTO** from the available *Profile Preference* drop-down list.
14. Click the *Vertical Alignment* drop-down list and select **Example4** from the list.

15. Make sure both **Ex4_OG** and **Example4** are toggled on in the *Surface* section. Highlight the surface **Ex4_OG**.
16. In the *Profile Elevation Shifts* section, toggle on **Shift at Major Stations**.
17. Click the **None** button to the right of the *Super Control Lines* list to deselect all the superelevation control lines associated with the active corridor.
18. Key in **20** in the *Profile Height* field.
19. Set *Margins* as:

<i>Top: 2</i>	<i>Bottom: 10</i>
<i>Left: 12</i>	<i>Right: 12</i>



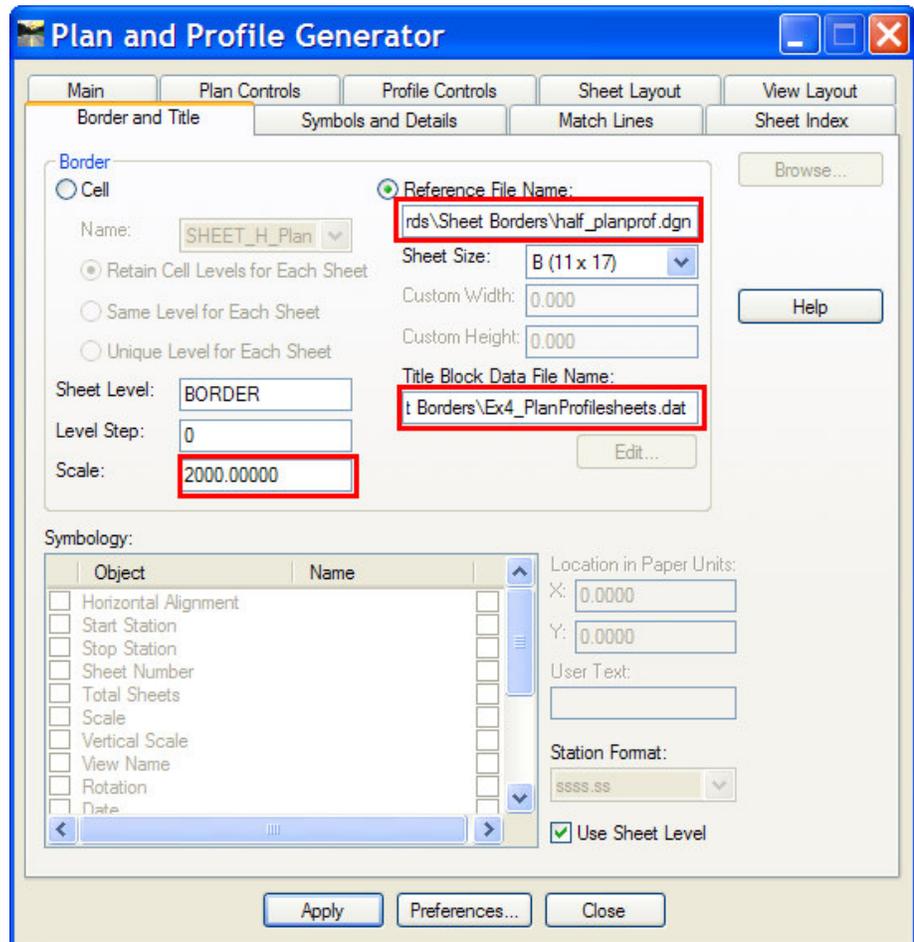
20. Select the **Sheet Layout** tab.
21. Click in the *Host File* name field. Change the file name to **Ex4_PnP.dwg**.
22. Verify the *Seed Host File* to be **MTO_InRoads_Template_SS2.dwg**.

Host File:	<input type="text" value="\InRoads\Drawings\Ex4_PnP.dwg"/>	<input type="button" value="..."/>
Seed Host File:	<input type="text" value="TO_InRoads_Template_SS2.dwg"/>	<input type="button" value="..."/>

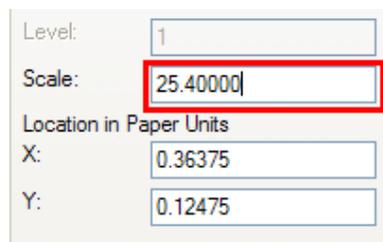
23. Select the **View Layout** tab. In the *Location (Paper Units)* section, set *Plan Y* to **0.05** and *Profile Y* to **-0.1235**.
24. In the Scale section, set it to ***I* = 2000**.

Location (Paper Units)	
X	Y
Plan: <input type="text" value="0.0000"/>	<input type="text" value="0.0500"/>
Profile: <input type="text" value="0.0000"/>	<input type="text" value="-0.1235"/>
Scale: <input type="text" value="1.000"/>	= <input type="text" value="2000.000"/>

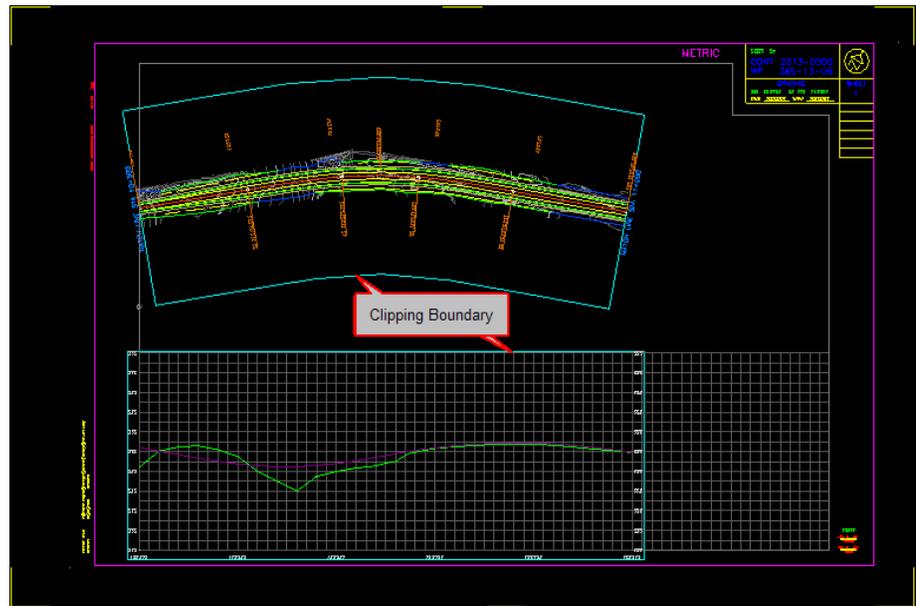
25. Select the **Border and Title** tab.
26. Click in the *Reference File Name* input field, then click on the **Browse** button. Navigate to ...*Example4\InRoads\Standards\Sheet Borders* folder and select the file ***half_planprof.dgn***.
27. Verify the *Sheet Size* is ***B (11 x 17)***.
28. Click in the *Title Block Data File Name* input field, and then click on the **Browse** button. Navigate to ...*Example4\InRoads\Standards\Sheet Borders* folder and select file ***Ex4_PlanProfilesheets.dat***.
29. Set the *Scale* to **2000**.



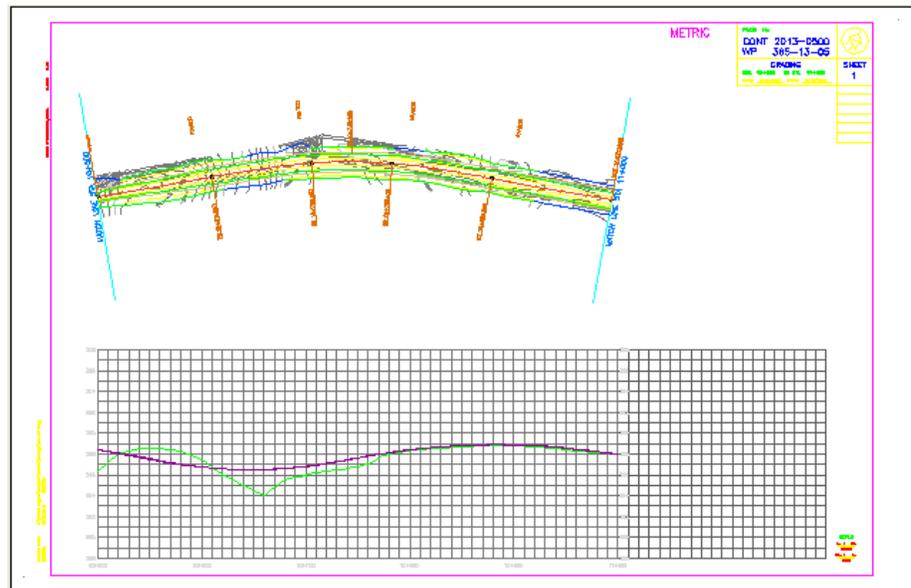
30. Select the **Symbols and Details** tab. Change the Scale to **25.4**.

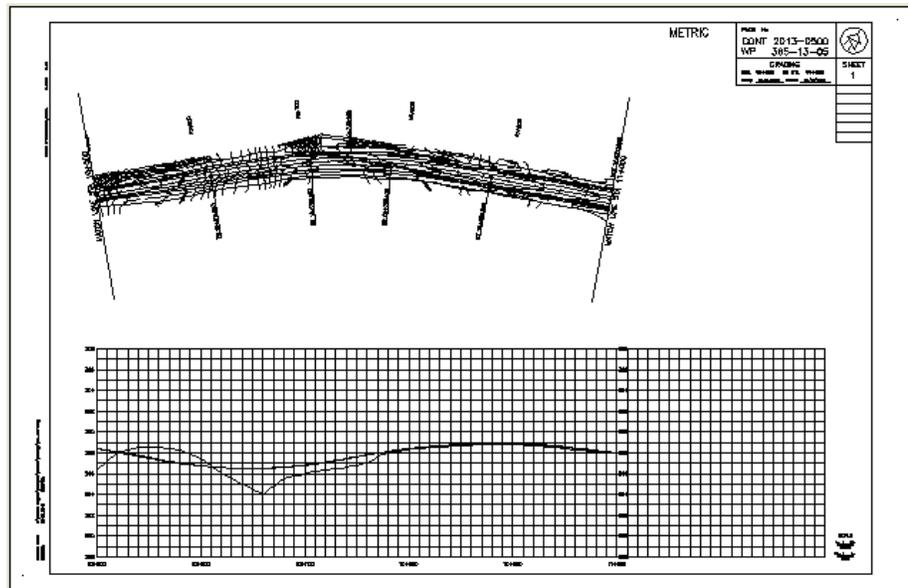


31. Click the **Apply** button located at the bottom of the Plan and Profile Generator dialog.
32. Click in the MicroStation view window to provide a point for the lower left corner of the profile set.
33. Save the Plan and Profile Generator dialog box settings to preference **Ex4_PnP (2000H, 10V)** for future use.
34. Save the VDF file. See section 3.5 for details about VDF file.
35. Close the Plan and Profile Generator dialog.
36. Shown below is the generated plan and profile sheet.



37. Turn off the clipping boundary. Shown below are plotted sheets in color and monochrome.





38. To annotate the profile, open the profile drawing Ex4_Profile.dwg and follow the steps 34 to 38 in section 4. Shown below is plotted with plot style table *MTO_monochrome_Half_Size.ctb* with profile annotation.

