Existing Ground Cross Sections

4.1 Draw Patterns

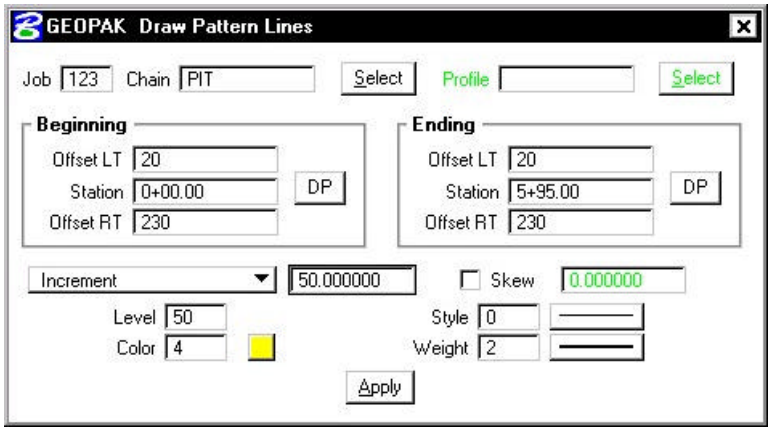
The first step is drawing MicroStation lines or line strings to define the location of the existing ground cross sections.

Step 1. Open the MicroStation file **c:\data\geo\vdot\s1373\s1373.dgn**

Attach the saved view called borrow.

Step 2. Select the **Draw Pattern** button from the **Applications>GEOPAK Road>Cross Sections>Draw Patterns By Station**.

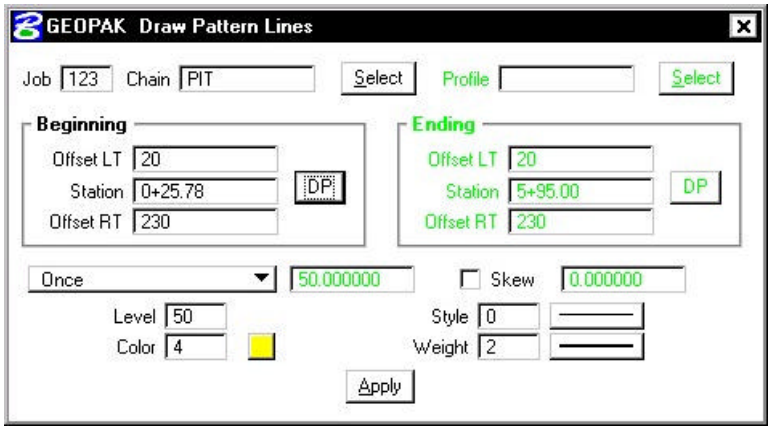
Step 3. Populate the dialog as depicted below.



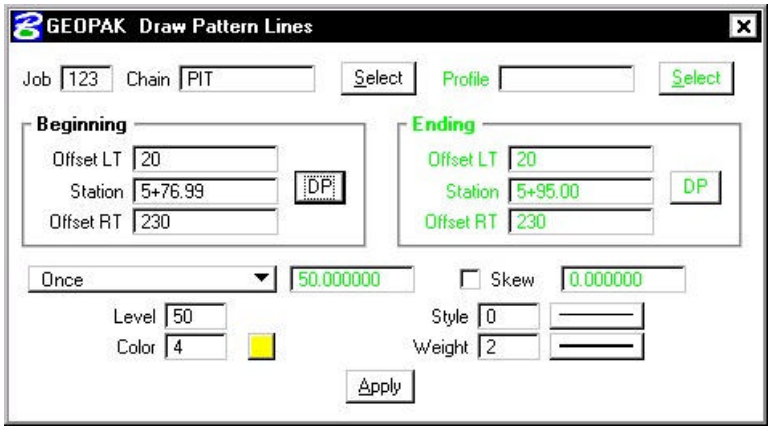
Step 4. Press **Apply** to initiate the plotting of the patterns into the design file.

Step 5. Change the interval toggle to **Once**. Since the pit begins and ends between nominal cross sections we will add one for the beginning and end.

Step 6. To place a pattern at that station, key in the station value and press **Apply**.



Step 7. Repeat the process for the ending station of the pit.



Step 8. Review the pattern lines.

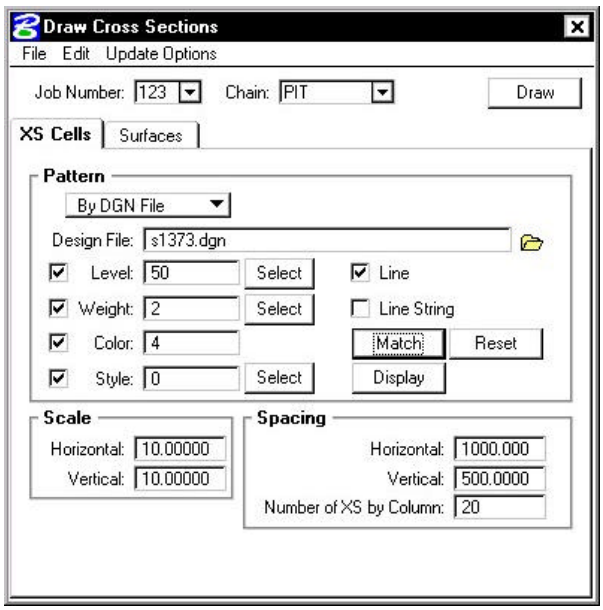
Step 9. **Exit** the Draw Pattern dialog and Save Settings.

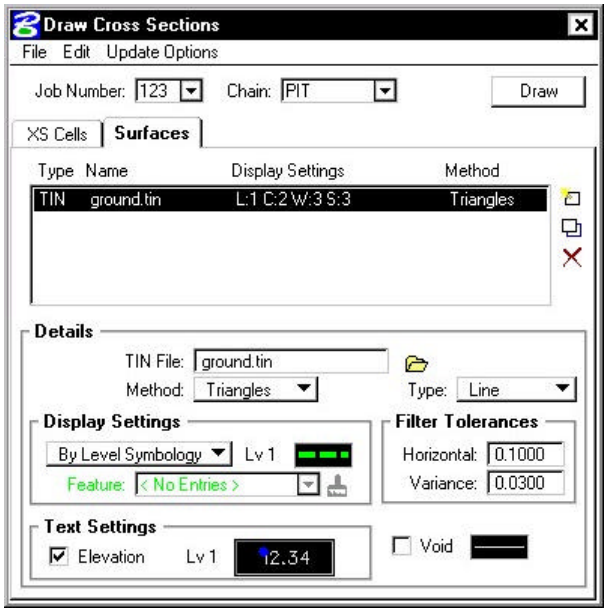
4.2 Generate Existing Ground Cross Sections

Step 1. Open the MicroStation file **c:\data\geo\vdot\s1373\xs.dgn**

Step 2. Select **Applications>GEOPAK Road>Cross Sections>Draw Cross Sections from Surfaces**.

Step 3. Generate the existing ground cross-sections by populating the dialog as shown on the following dialogs and pressing the **Draw** button to initiate the routine.

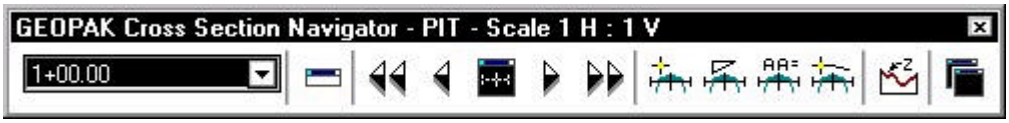




Step 4. Exit the dialog and Save Settings.

4.3 Review Cross Sections

Step 1. Select the **Cross Section Navigator** tool from the **Road Tools** tool frame.



Step 2. Use the **Cross Section Navigator** to browse and check your existing cross sections.

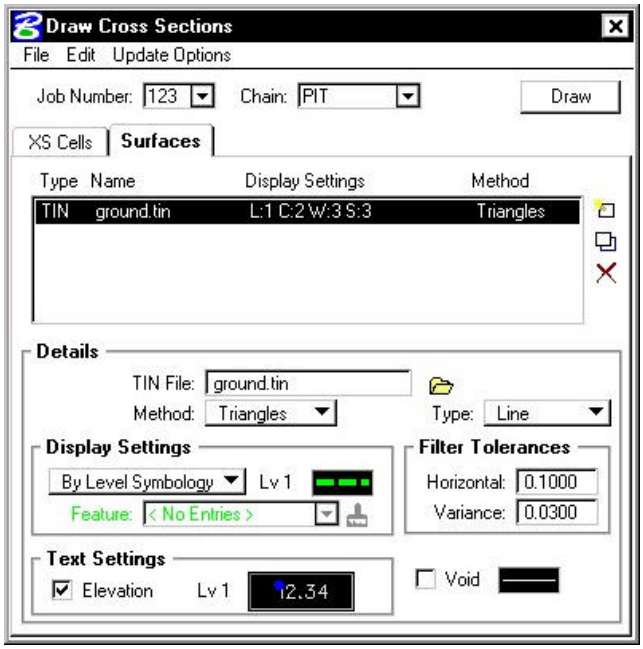
Step 3. **Exit** the XS Navigator dialog when done.

Step 4. Upon reviewing the sections, it is desirable to “lock” the elements to prevent accidental deletion or modification in later steps. Click **Edit > Select All** from the MicroStation menu bar. Then click **Edit > Lock** to lock the elements.

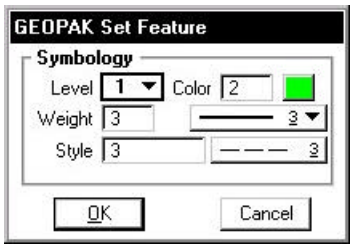
4.4 Generating Additional Cross Sections (Borrow Pit)

Additional cross sections may be desired if surveying a borrow pit or waste mound. The next steps will show how to add sections to the existing ones created in the previous step.

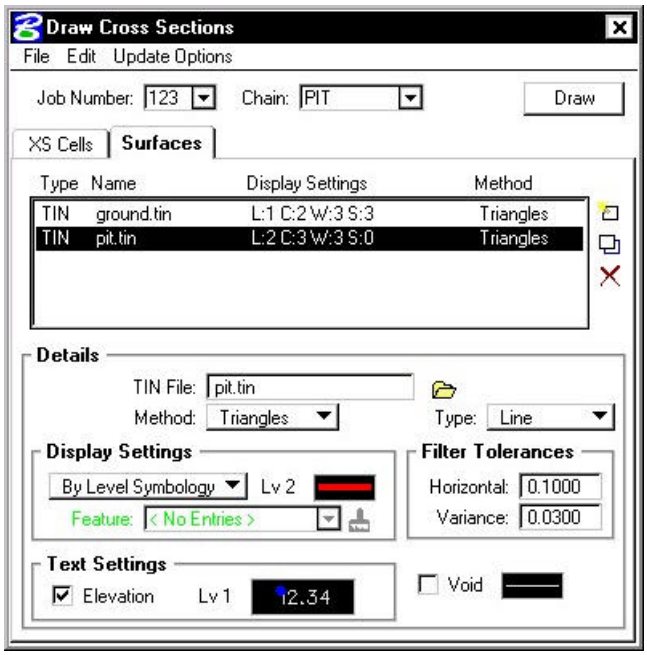
Step 1. Access the **Draw Cross Sections from Surfaces** dialog.



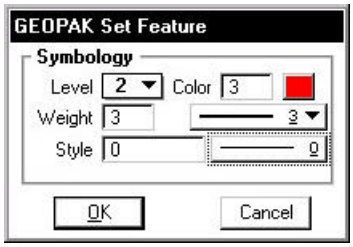
The symbology should appear as shown in the dialog below.



Step 2. This time we can either add the new sections to the list box and process both existing and new. Or delete the previous run and simply process the new. For this exercise we will add the pit and process both.



The symbology should appear as in the dialog below.



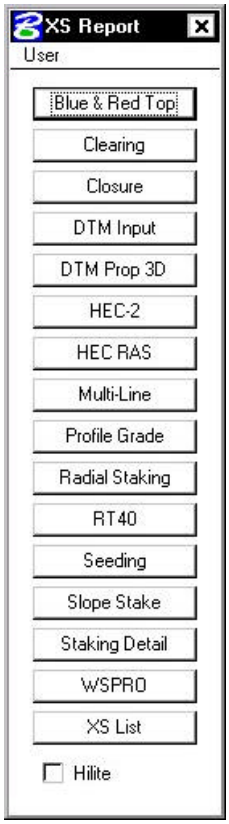
Step 3. Press the **Draw** button and close the dialog.

4.5 Closure Report

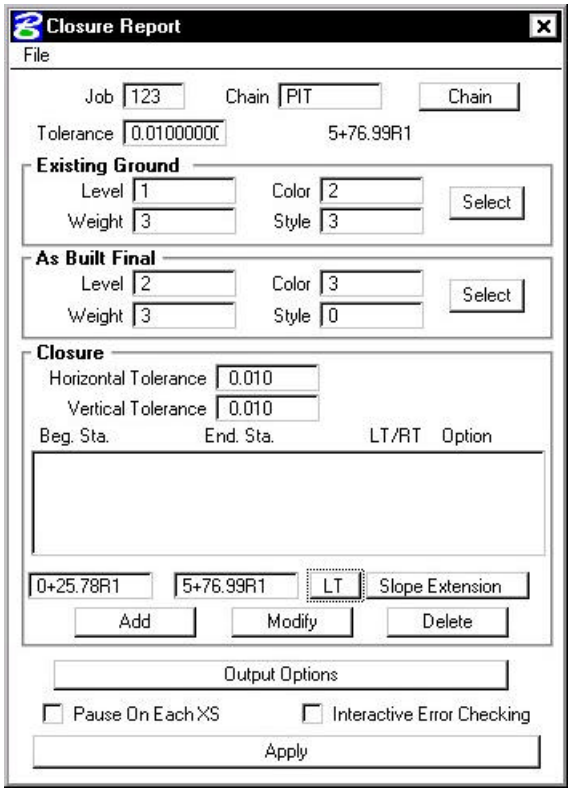
Invariably additional cross sections will tie precisely to the existing ground cross sections. The **Closure Report** will automate the process of connecting non-tied slopes.

Step 1. Access the **Cross Section Reports** dialog.

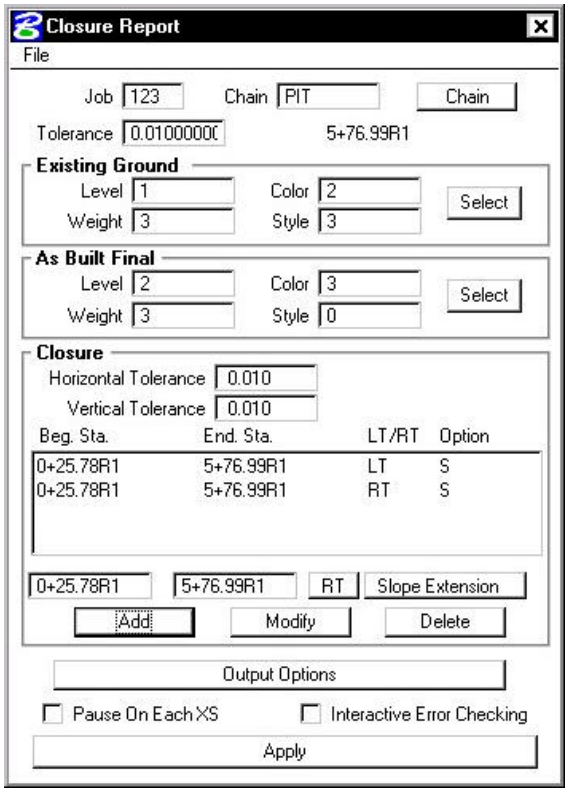
Step 2. From the reports dialog select the **Closure Report.**



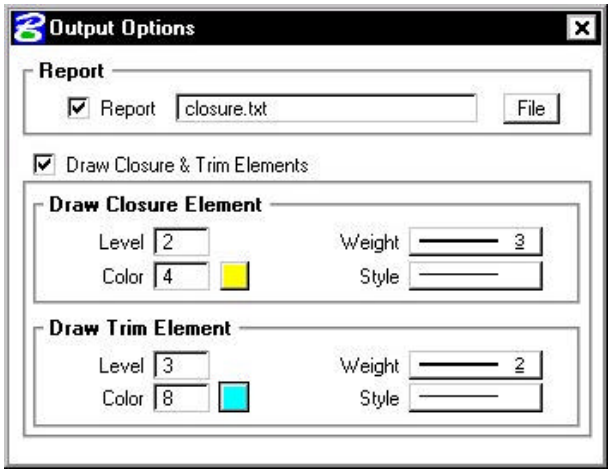
Step 3. Identify the existing and as-built surfaces by setting the symbology for each, as shown in the dialog below.



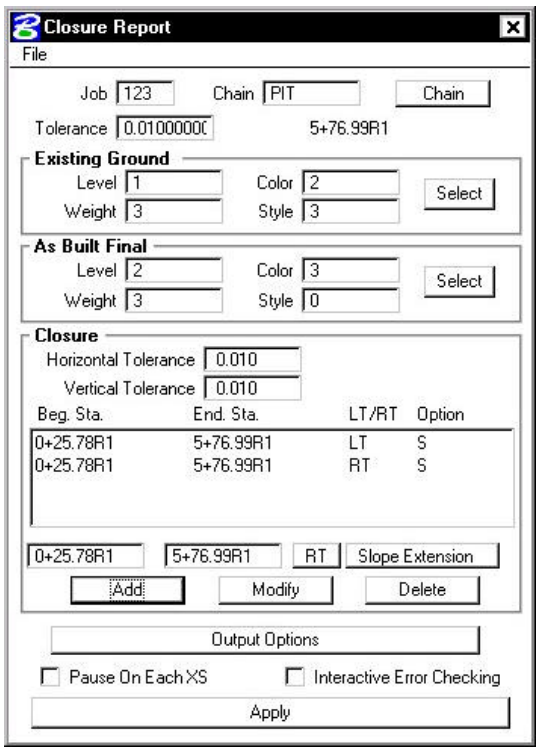
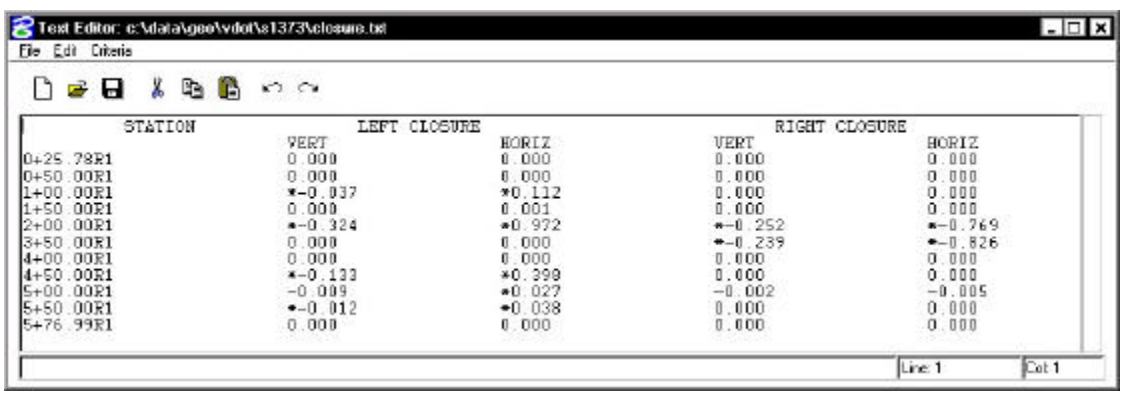
Step 4. Now select the desired method of correction in the **Closure** portion of the dialog. We will select slope extension for both the left and right sides of our sections.



Step 5. Once done, select the **Output Options** button so we can set the desired output. Complete the dialog as shown below and close.



Step 6. From the main dialog press the **Apply** button.



Step 7. Using the text editor, open the closure.txt file and review the closure operations.