



Lesson 15: Plans Preparation

WELCOME!

This lesson is about preparing data to be used for plans production. Much like producing Design Reports, this lesson will help you to prepare for plan production. With PowerCivil, you have the ability to produce the data that is required for complete construction plans. The tools used in this lesson will extract information from the design model to produce cross sections, contours and stationing.

LESSON OBJECTIVES

In this lesson, the topics covered include:

- Topic 1 Stationing – Design centerline stationing
- Topic 2 Cross Sections – automated design cross sections
- Topic 3 Contours – generating design contours

Be sure to have a look at the context sensitive help for PowerCivil. Either while using the tutorial or in general practice with the software, you will find the help system not only includes program documentation but it also is equipped with links to online video clips (internet connection is required). Access the help from the menu bar under *Help>Civil Help*.

PLANS PREPARATION

This Lesson will show you how to: station centerline alignment data with annotation on tangency points, create cross sections for plan use, generate contours for a grading plan, label design information for various plan types,.

All of this will be done in an effort to automate the production of plans in the next lesson.

STATIONING

From the desktop, launch PowerCivil from the program icon, navigate to the folder for Lesson 15 and then open the file “LAYOUT.DGN”.

To view this portion of the lesson, press the play button.



The “LAYOUT.DGN” file contains all of our design data and we will use it to produce the stationing for the centerline of the Decab Roadway.

Once in the file, you will want to follow these steps:

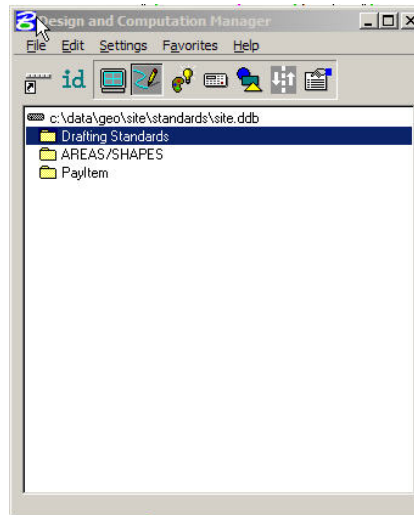
1. Open the Civil Tools (*Civil>Civil Tools*).



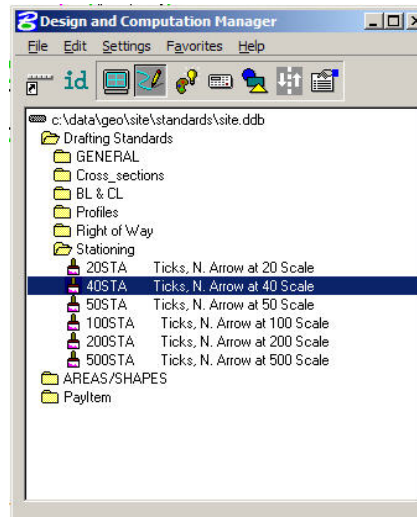
- Invoke the Design and Computation Manager (*Civil>Plans & Quantities>Design & Computation Manager*).



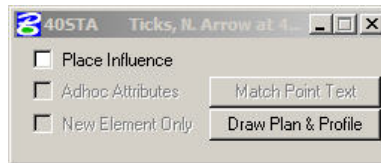
- Be sure that the "SITE.DDB" file is open from within the Standards directory of the tutorial directory structure. You will notice three main categories represented by folders inside the "Design and Computation Manager" dialog.



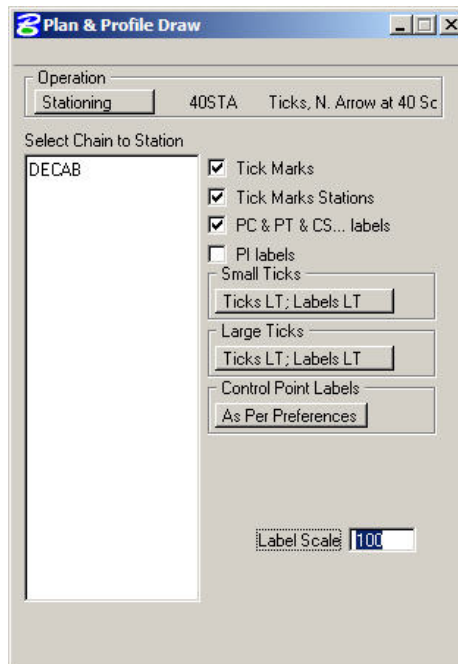
- Open the "Drafting Standards" category by double-clicking on the folder. This will expose the sub-categories and from there open the "Stationing" folder.
- There are six stationing items available for your use. You will want to select the item labeled "40STA". This will create stationing appropriate for a 40 scale drawing.



- Once the item has been selected, the “Draw Plan & Profile” dialog button is presented, press the “Draw Plan & Profile” button and then press the “OK” button to select the “Job 123” for the project.



- This will then present the “Plan & Profile Draw” dialog, the Chain Name “DECAB” is the only one in the list. Click on the chain name and the stationing is placed along the centerline.



CROSS SECTIONS

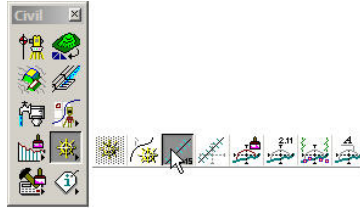
In order create cross sections along the DECAB centerline, pattern lines need to be established first. Once the pattern lines are created, the cross section generation can be performed.

To view this portion of the lesson, press the play button.

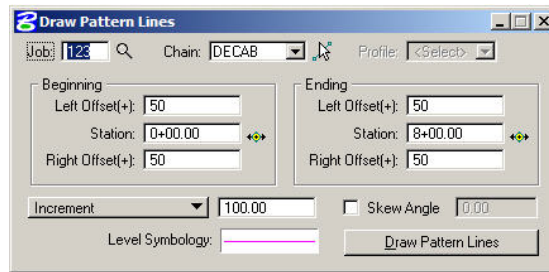


Continue working in the “LAYOUT.DGN” file. Let’s create the pattern lines used for cross section generation. You will want to follow these steps:

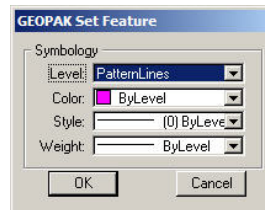
1. Invoke the Draw Pattern Line dialog (*Civil>Cross Section>Draw Patterns by Station Range*).



2. Use the following dialog settings:



3. Double-click the “Level Symbology” preview. Use the “Pattern Line” level with “By-Level” symbology. Press “OK”



4. Press the “Draw Pattern Lines” button. There should be nine new lines crossing the centerline at even 100 foot stations. These lines represent the location where sections will be cut in the next part of this lesson.

Next, the cross sections can be generated based on the new pattern lines that were just created.

To view this portion of the lesson, press the play button.

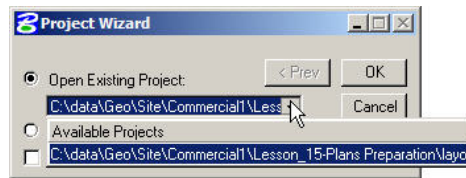


In order to process the cross sections properly we will need to load the site model first. You will want to follow these steps:

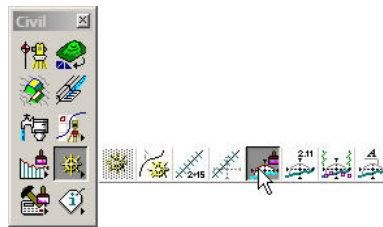
1. Invoke the Site Modeler (*Civil>Modeler*).



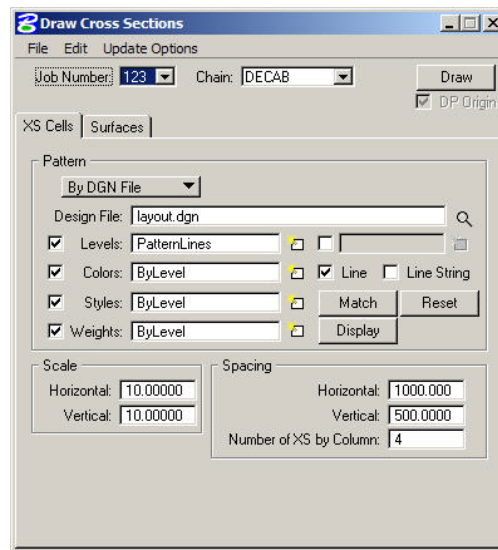
2. Open the project file "LAYOUT.GSF" from the Lesson 15 folder.

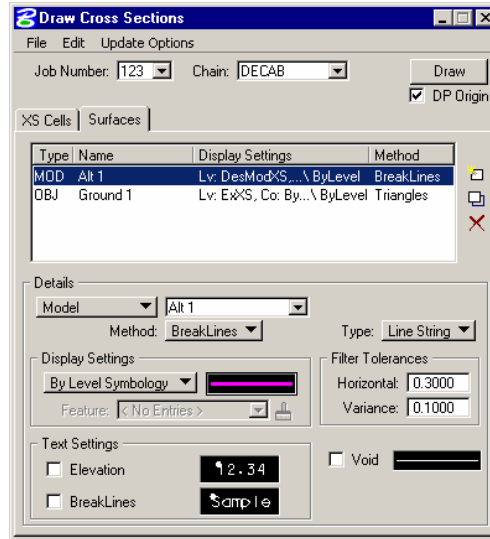


3. Now open the "Draw Cross Section from Surface" tool (*Civil>Cross Section>Draw Cross Sections from Surfaces*).



4. Use the following dialog settings:





5. Press the “Draw” button and place the sections in the file to the right of the layout area.

CONTOURS

During the modeling process the viewing of contours is almost a constant. The Site Modeler uses transient graphics to display the surface without actually writing the elements to the DGN file. This improves the processing speed of the Site Modeler, however, there is no permanent record of the design surface to reference for plan production. In order to achieve permanency of the surface graphics, PowerCivil allows you to export visualized features of the model to the DGN file.

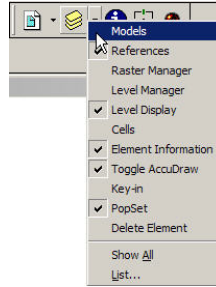
To view this portion of the lesson, press the play button.



In order to separate the graphics in the LAYOUT.DGN from the proposed surface graphics, you will need to create a second design model inside the DGN. This will be another container of information along side the default model which has been used exclusively to this point.

To create a model for the design contours, you will want to follow these steps:

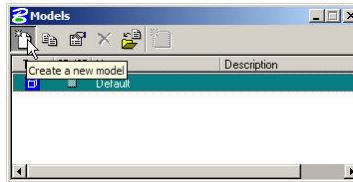
1. Right-click on the “Primary Tool Bar” and add the option for “Models” to the dialog.



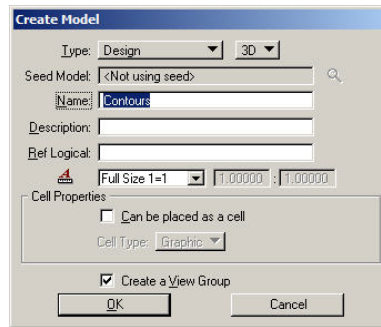
2. Now choose the “Models” button on the “Primary Tool Bar” to invoke the “Models” dialog.



3. From within the Models dialog, create a new model.



- Use the following dialog settings:



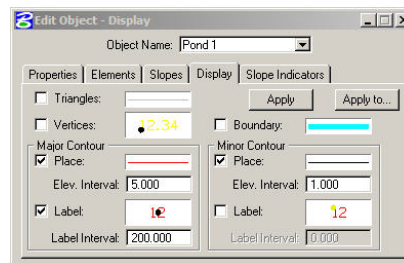
- After pressing OK, the model is created and your PowerCivil session will now be running in the second model named “Contours”. This can be verified by the View Groups dialog located in the lower left of the PowerCivil application window. The option box should read “Contours Views”.



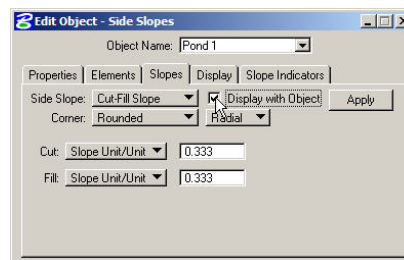
- By applying the “Fit View” command, the site grading will be centered on the screen.



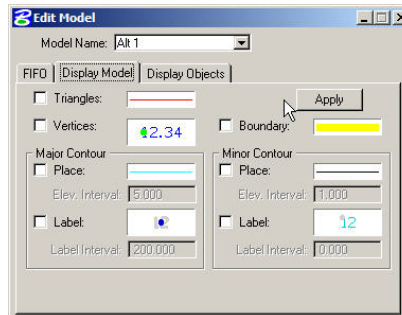
- Next, you will want to establish the correct symbology and slope treatment for each site object. From the Modeler menu bar select *Modeler>Object>Edit*. Use the following dialog settings on the Display tab to establish contours and contour labels for all site objects :



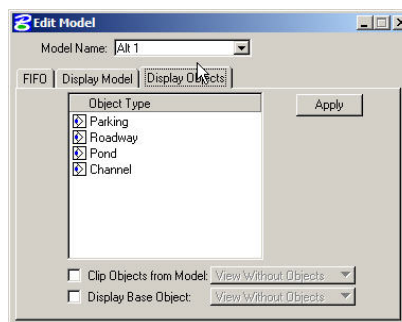
- While in the “Edit Object” dialog be sure to toggle “ON” the display of slopes by placing a check next to the “Display with Object” option on the “Slopes” tab.



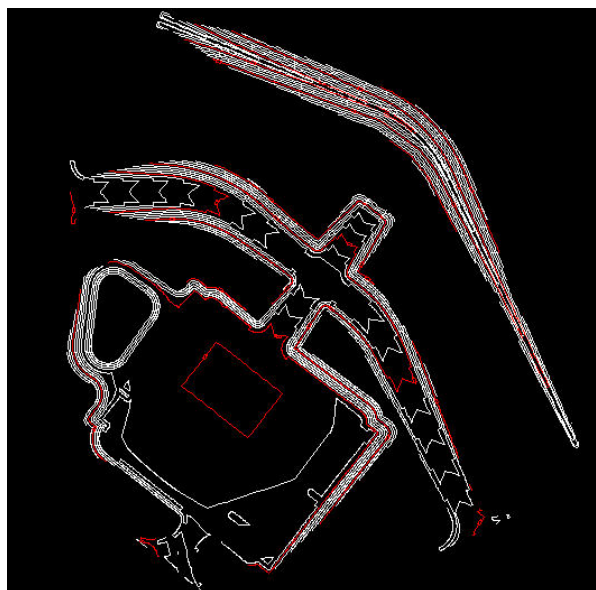
- Once all objects are adjusted, open the “Model Edit” dialog from the Modeler menu bar by selecting *Modeler>Model>Edit*. In the “Display Model” tab, remove all display features for the Model and press “Apply”. The dialog should look similar to this:



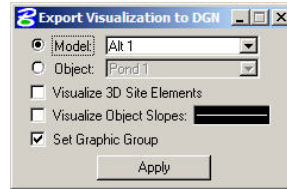
- Next, access the “Display Objects” tab and turn “ON” all objects by clicking the “eyeball” icon next to each and then press “Apply”. The dialog should look similar to this:



- The model should show just the proposed contours for all objects and should look like the following:



12. The site model is now ready for graphic export. From the Modeler menu bar select *Modeler>Project>Export>Visualization to DGN*. This will allow the transient graphics of the model to be written to the DGN for use in plan production. Use the following dialog settings:



13. Press the “Apply” button and answer “OK” to the Alert dialog. The contours are now written to the DGN.

SUMMARY

The main points to remember are:

- All centerlines can be stationed to your specifications.
- Cross sections can be produced along any chain or at any location within the design model.
- Creating a secondary DGN Model is a useful way to separate graphics without creating a separate file
- Surface graphics are only visualized temporarily during the design process. An export of the graphics is necessary to have permanent contours or triangles inside the DGN file.

For more video instruction please visit the following web page...

<http://65.217.17.142/downloads/sitemodeler/GEOPAK%20Site%20Modeler%20Training%20Videos.htm>