

CHAPTER 7

PROCESSING SURVEY DATA

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A. *DOWNLOADING THE TSC2 AND TSC3 DATA COLLECTORS.*

Files can be created for import into Inroads directly inside the Trimble Data Collectors and the data then can be transferred into the necessary folder.

1. Open the Job that you wish to export
2. Select Job Import / Export
3. Select Export fixed format files
4. Choose a file name and location.
5. Select Comma Delimited (*.CSV,*.TXT)
6. All points (If you want all points, otherwise choose another option)

B. *TRANSFERING DATA FROM THE DATA COLLECTOR TO THE COMPUTER.*

The newly created CSV file now needs to be copied or transferred into the computer.

1. Attach the Data collector the computer using the appropriate USB cord.
2. Open my computer. The data collector will show up as an additional folder.
3. Navigate to Trimble data and the sub-folder that the job was stored in.
4. Copy of move the CSV file to the project folder.

INTRODUCTION TO INROAD SURVEY

InRoads Survey is the ultimate link between electronic survey and computer aided design (CAD). InRoads Survey provides surveyors with a set of simple but effective tools to integrate electronic field books (EFBs) into a CAD environment. Because survey data can be verified visually, corrections can be made at the site, saving time and making your workflow more efficient.

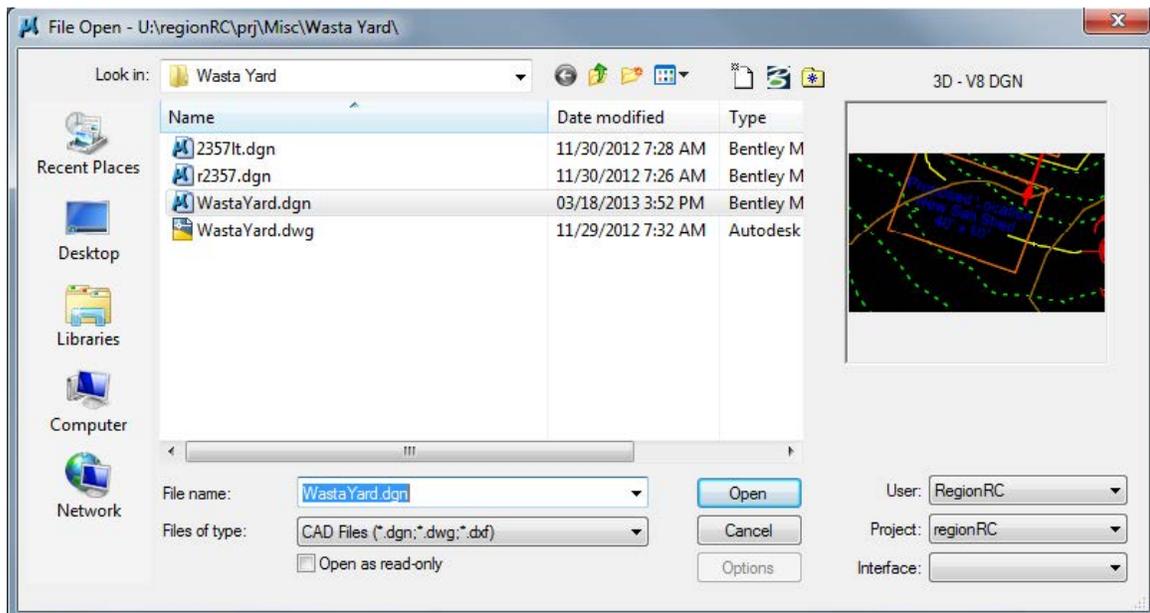
C. CREATING A DESIGN FILE

1. Select the InRoads Survey icon from the Intergraph Civil Engineering program group. Once InRoads Survey is activated, use the MicroStation Manager to select or create a three-dimensional design file.
2. Click on the New File Icon on the upper right corner of the File open menu.
3. After selecting the new file icon and New window will appear. Type in the proper design file name with the correct file location and hit Save.

---Important---

The proper name for a topo file would be t02ABr. The small letter t symbolizes that it is a topo file and the small r would symbolize it is in the rural scale. If the scale would be urban the PCEM would be followed by a small u. The PCEM letters should be all capital letters.

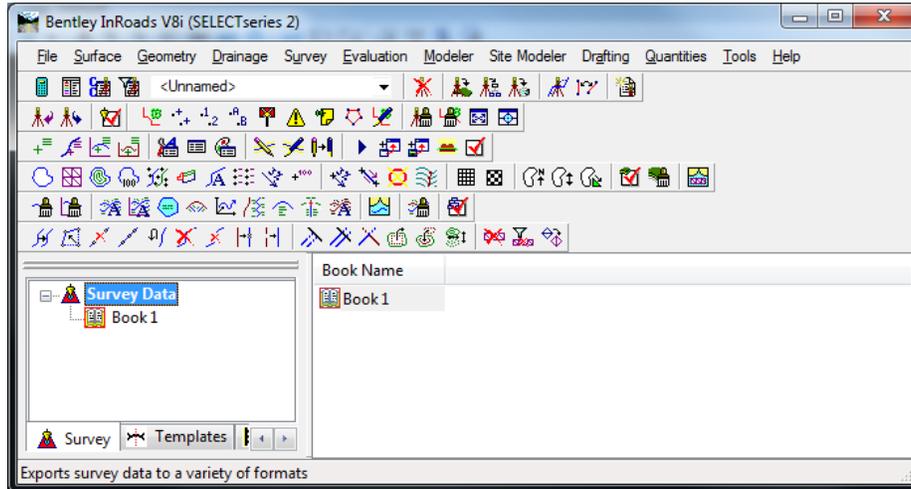
4. If a design file already exists you can select it from ***File Open*** window



D. IMPORTING CSV FILES

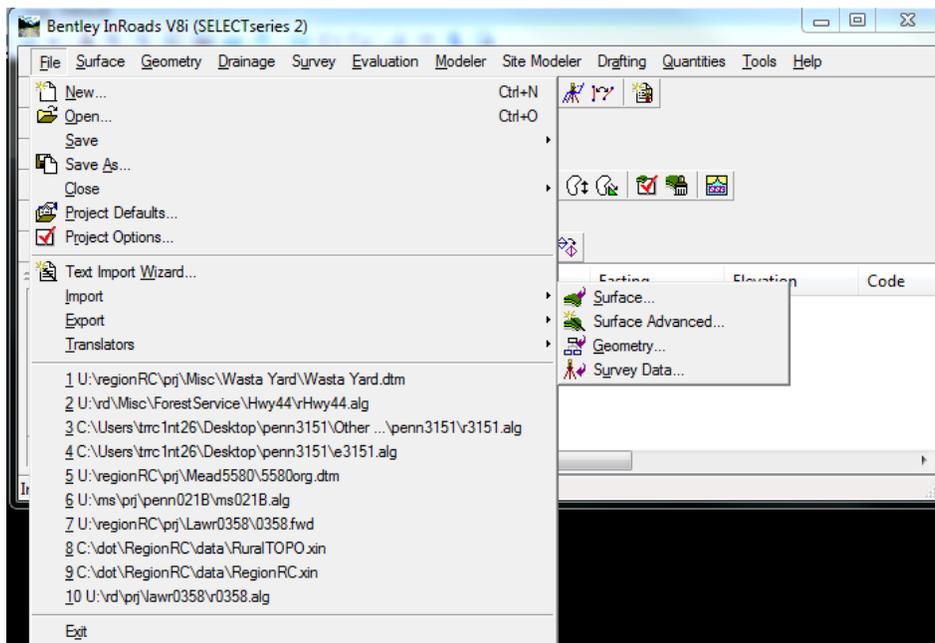
Bentley Inroads V8i Window will be displayed when inroads is open

1. Select the survey tab on the bottom of the window



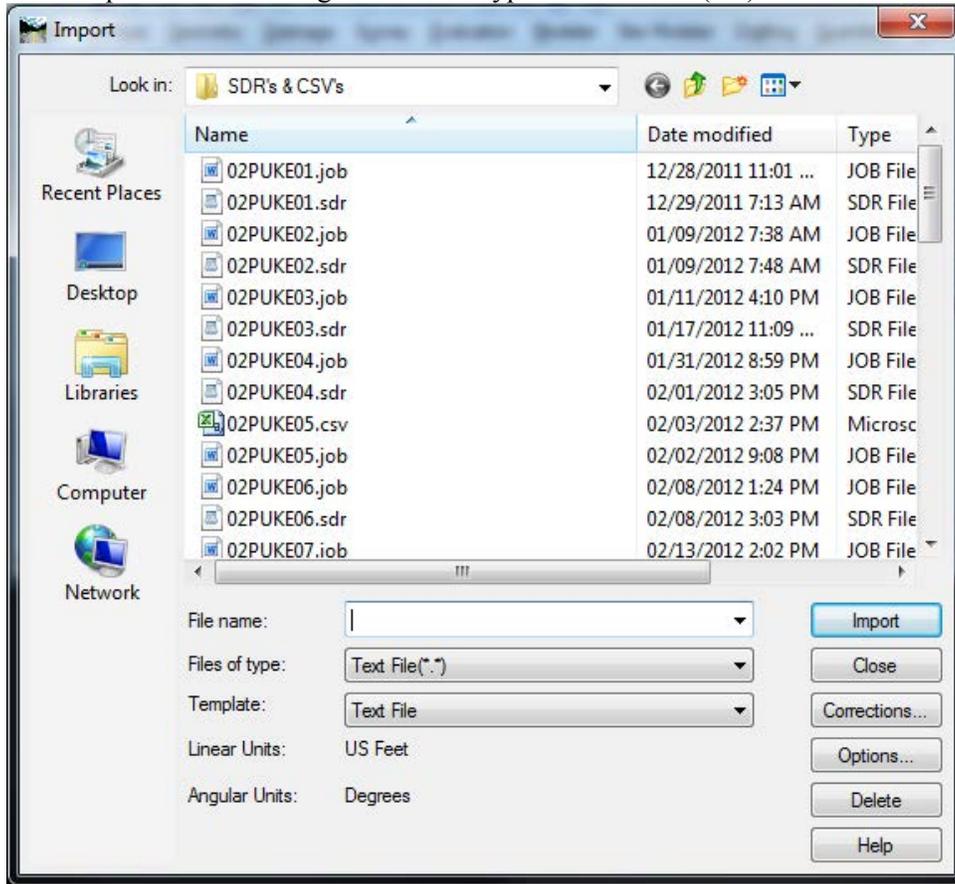
Importing CSV files into Inroads is originally set up using the Text Import Wizard.

2. Select > File > Import > Survey Data



D. IMPORTING CSV FILES (CONTINUED)

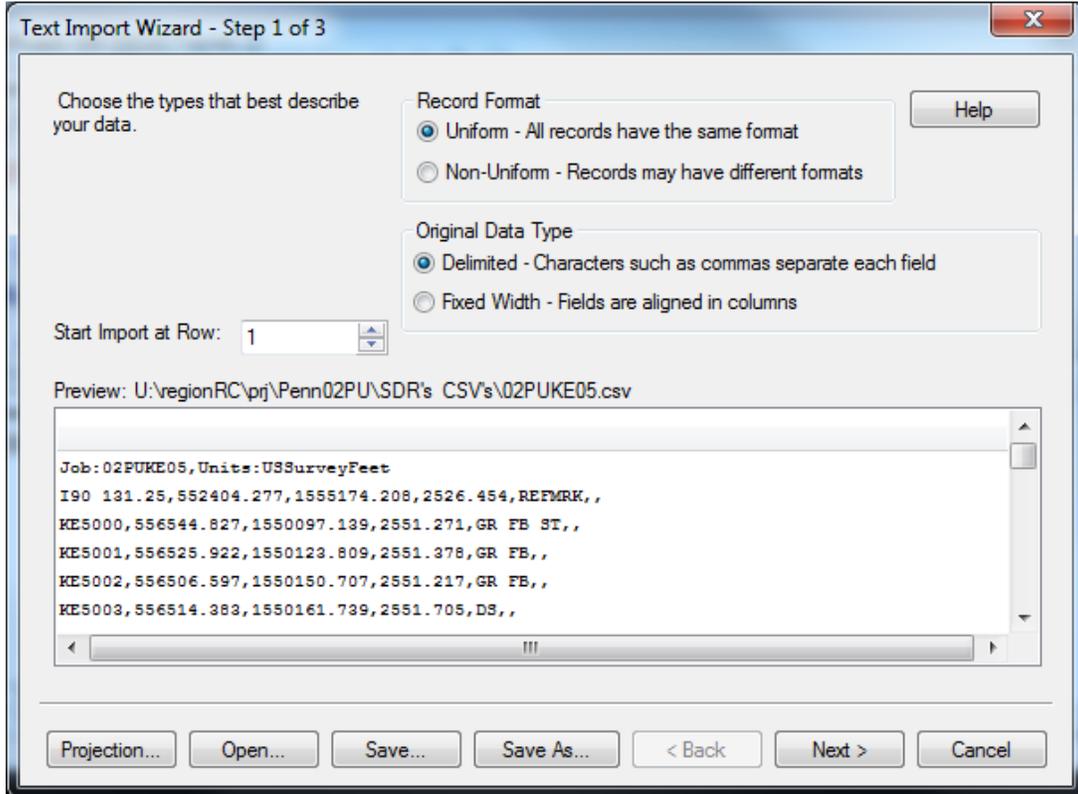
3. From the Import window change the files of type to : Text File (*.*)



The next window that appears is the Text Import Wizard. The CSV file will appear in the preview window.

4. Select Start Import at Row 1
5. Record Format > Uniform
6. Original Data Type > Delimited
7. Select > Next

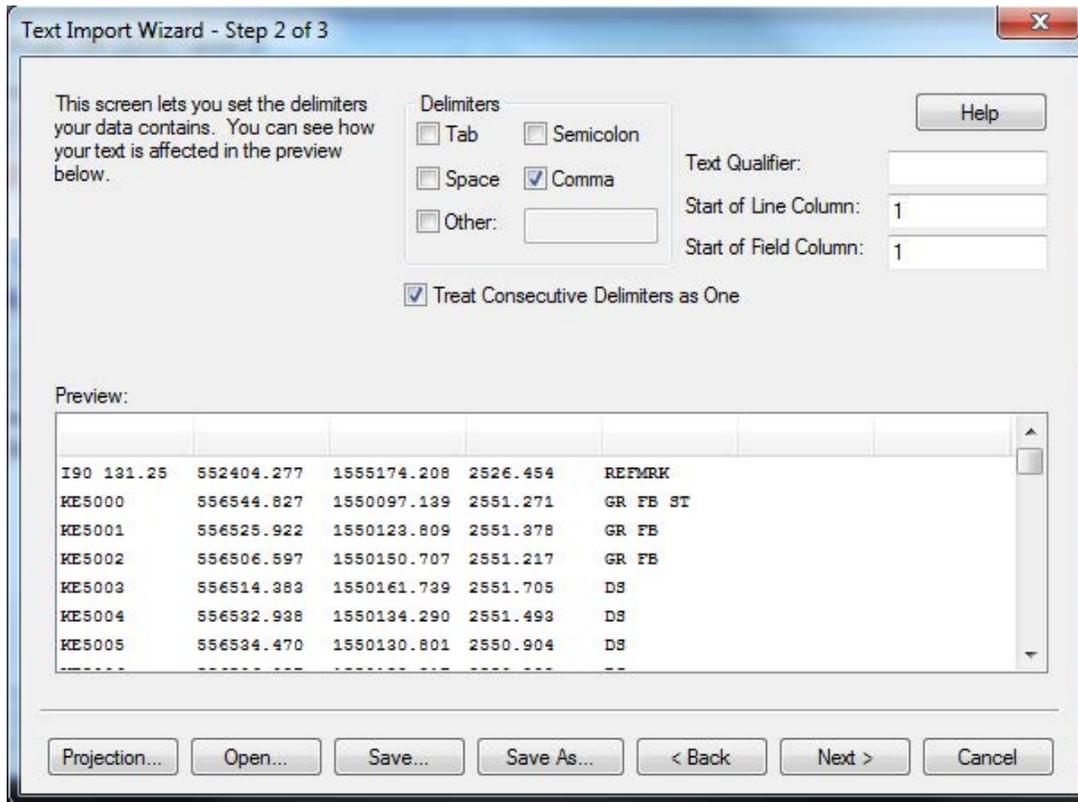
D. IMPORTING CSV FILES (CONTINUED)



8. Change Delimiter from Space to Comma

Select > Next

D. IMPORTING CSV FILES (CONTINUED)



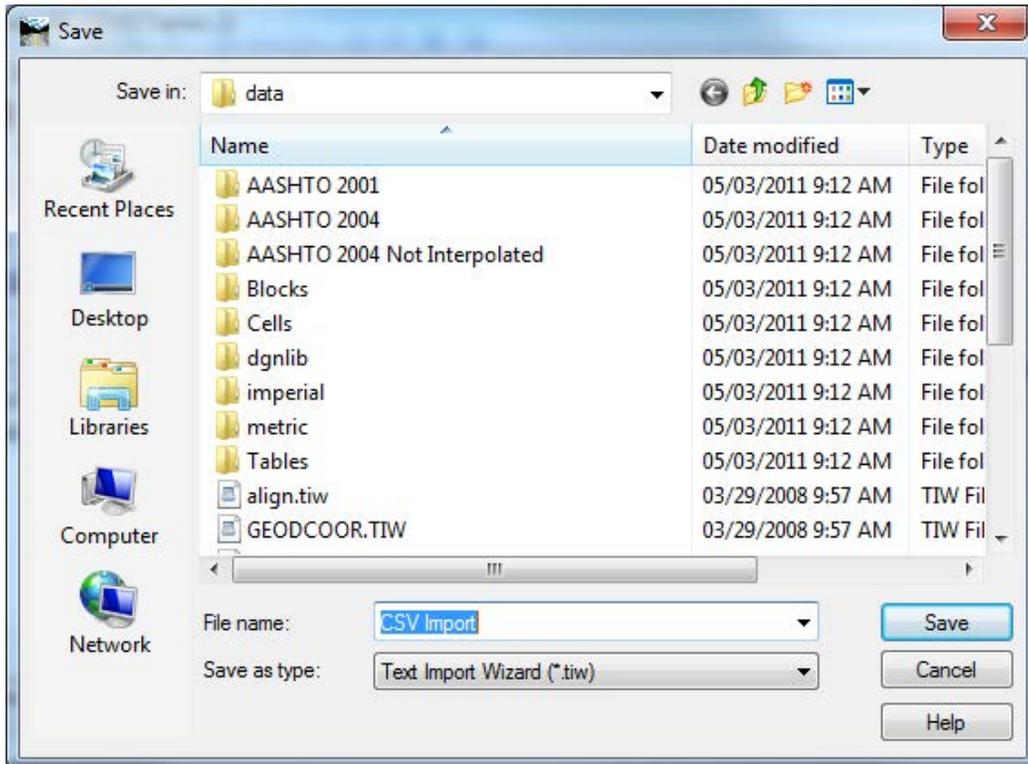
9. Right click on the box above each column to label the correctly.

10. Select > Finish to import the file and exit the wizard

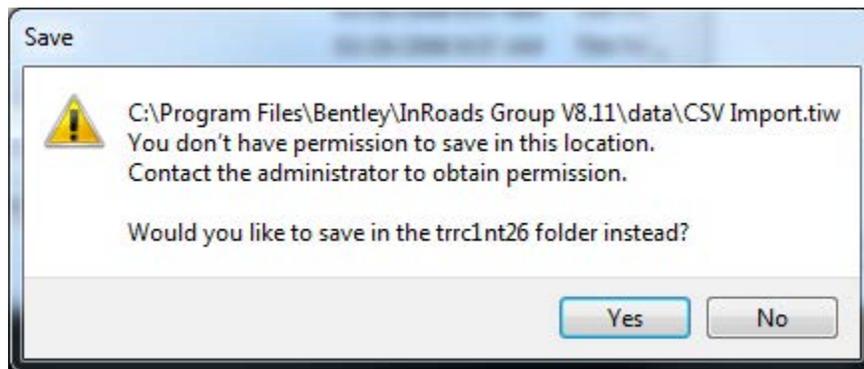
You will have to do this each time you import a CSV file. If you want to save your text import do as follows:

1. Select > Save As...
2. Type in CSV Import in File Name
3. Select > Save

D. IMPORTING CSV FILES (CONTINUED)

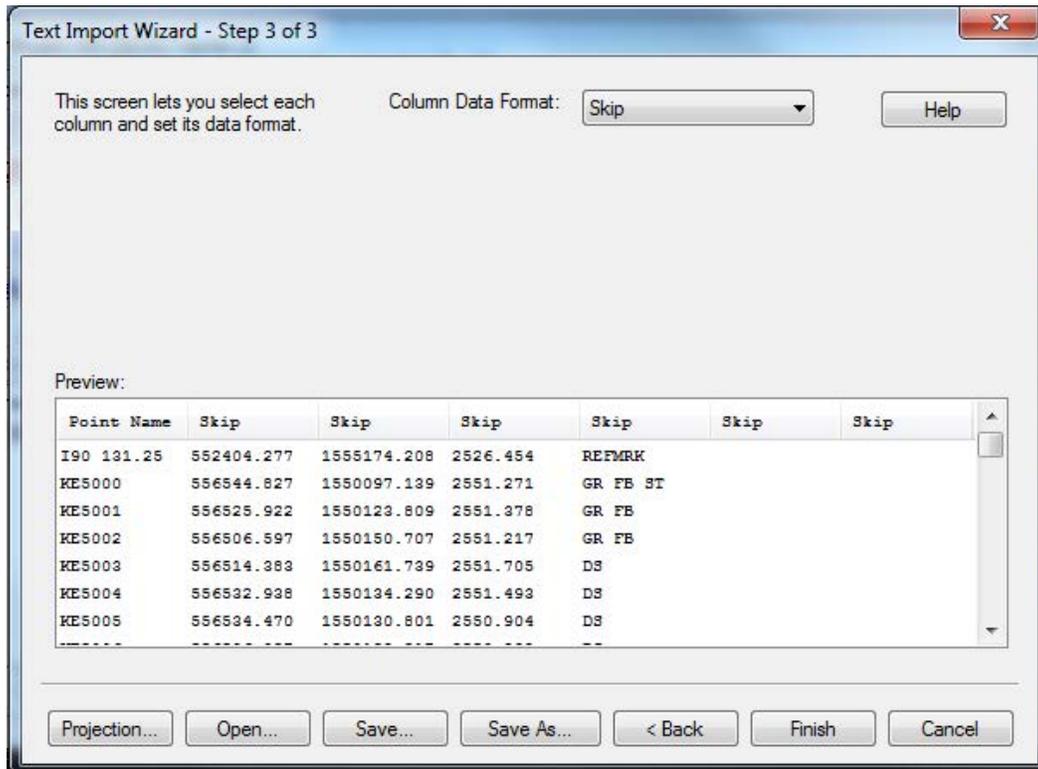


The following window will appear



4. Select yes and make note of the location.
5. Select > Save
6. This method of saving a CSV Text Import Wizard has not been proven to work at all times and there is work in progress to get the CSV import wizard added automatically.

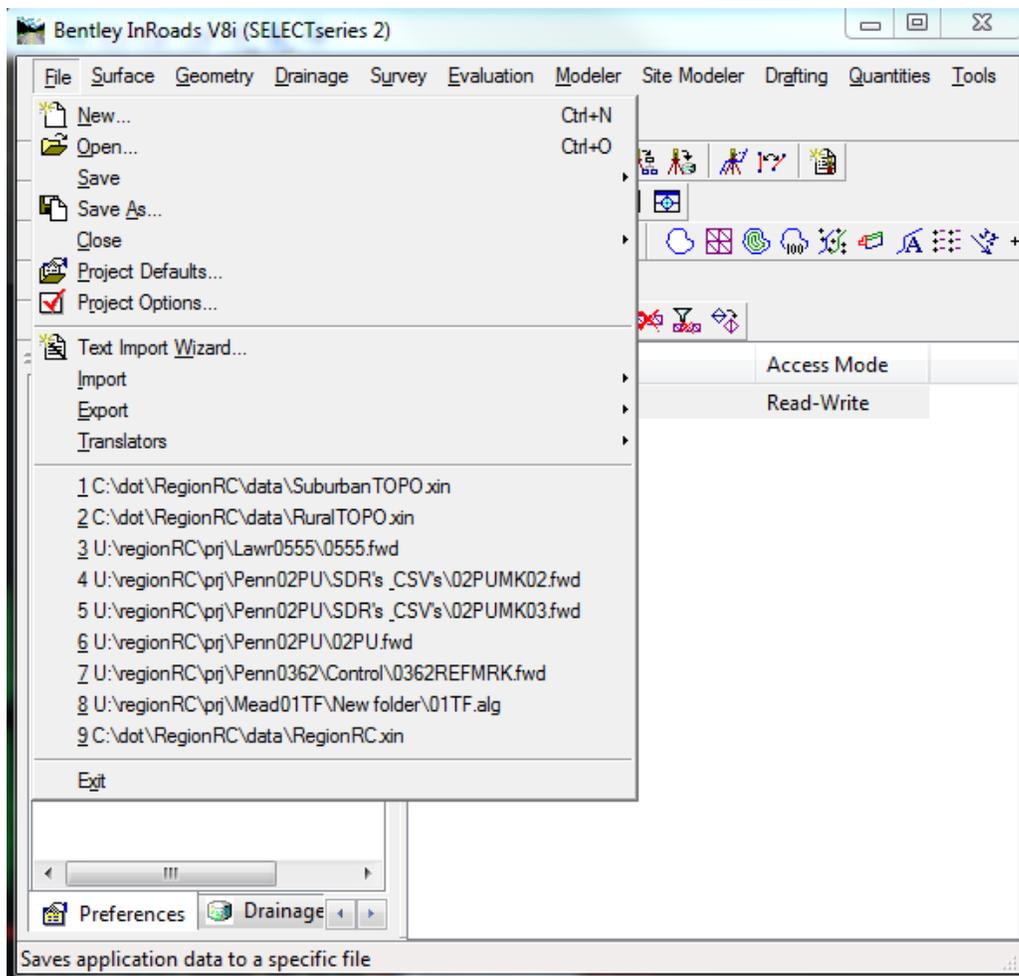
D. IMPORTING CSV FILES (CONTINUED)



E. PREFERENCES

The topo file survey may be created in 3 different scales, rural, suburban or urban. The scales is determined by the scale that the plan sheets will be printed at. The urban scale displayed the cells in the smallest scale and the rural scale would be the largest.

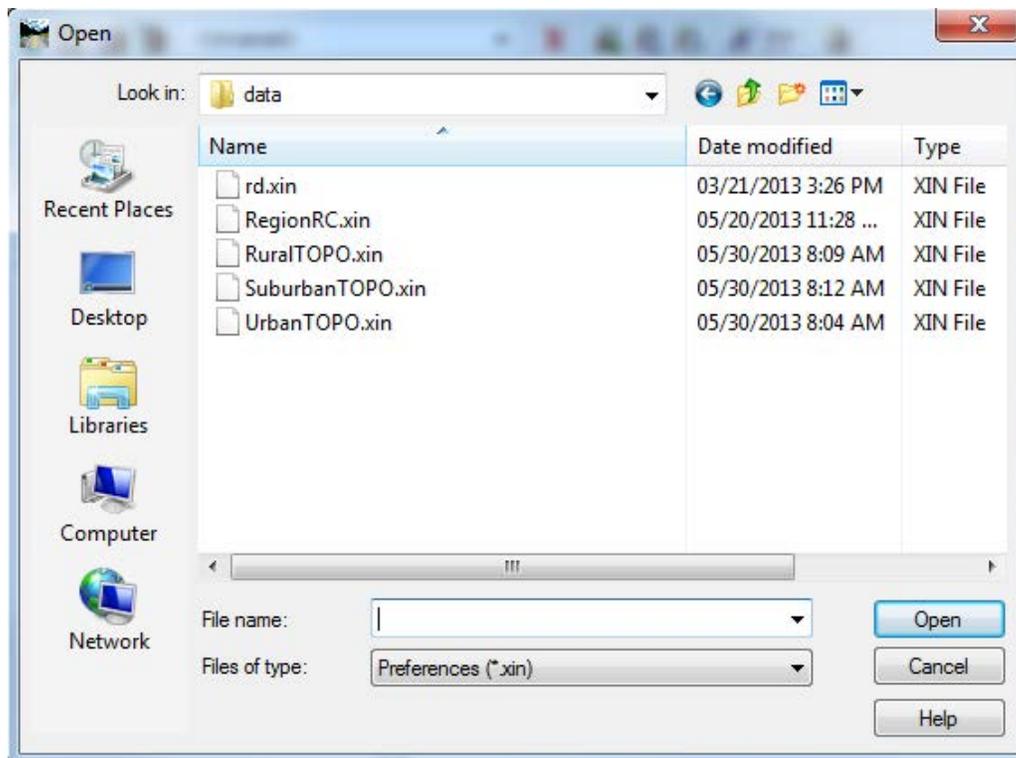
1. Open the preference file by File>Open



2. In the File of Type, from the pull down menu choose Preferences (*.xin)

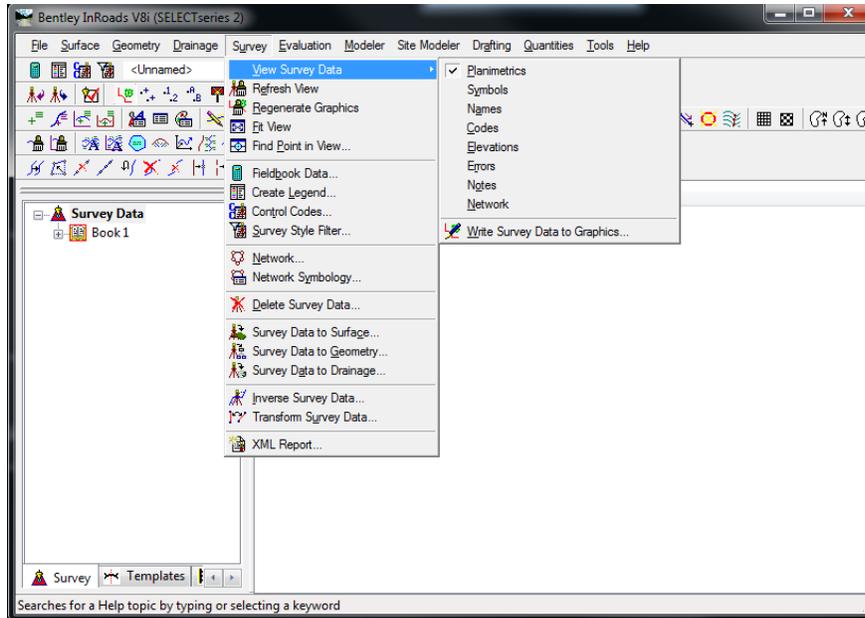
D. PREFERENCES (CONTINUED)

3. Select the preferred preferences and select open

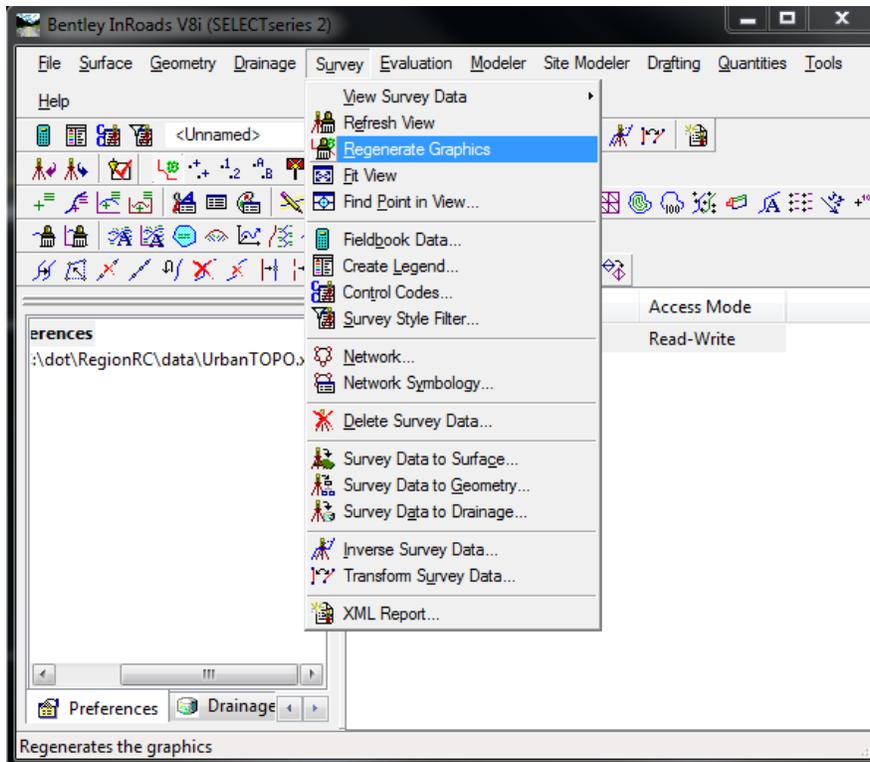


E. VIEWING THE DATA

After the data files have been loaded, we can now view the data. From the InRoads Survey main menu select *Survey > View Survey Data > Planimetrics*.



Regenerate Graphics to view the results.

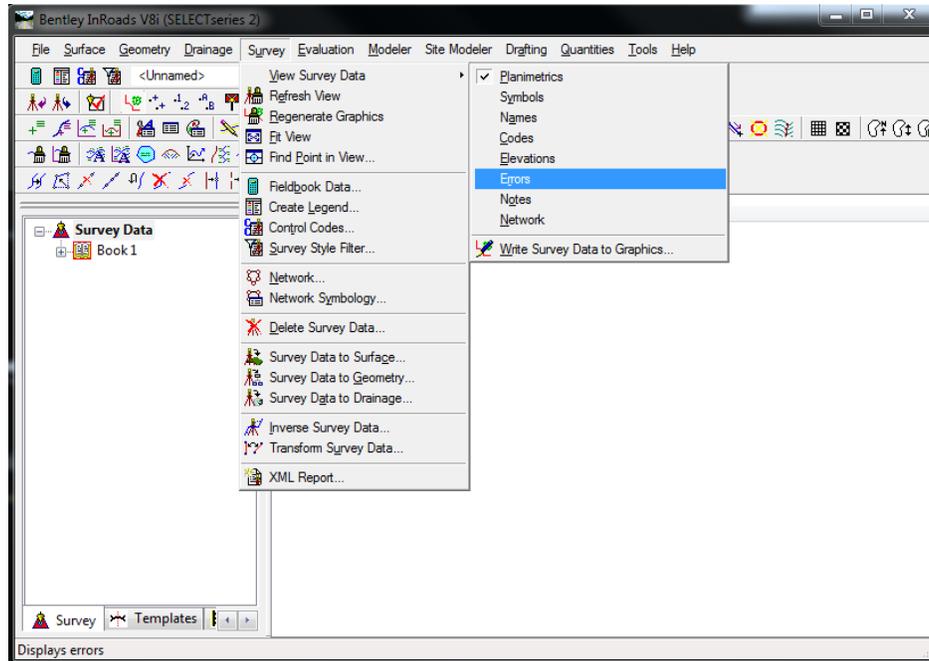


F. CORRECTING ERRORS

From the InRoads Survey main menu select **Survey > View Survey Data > Errors**. You will need to **Refresh View** in order to view the Errors, Points Elevations etc.

The errors will show up in the design file yellow in color.

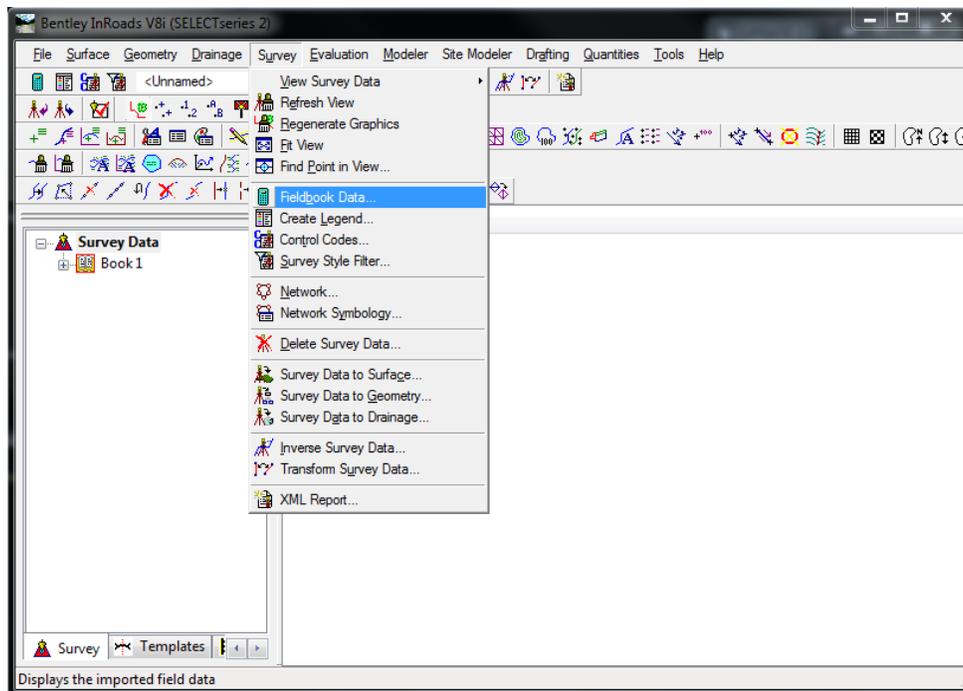
NOTE: There is only 2 L's in RTWALL



G. CORRECTING ERRORS (CONTINUED)

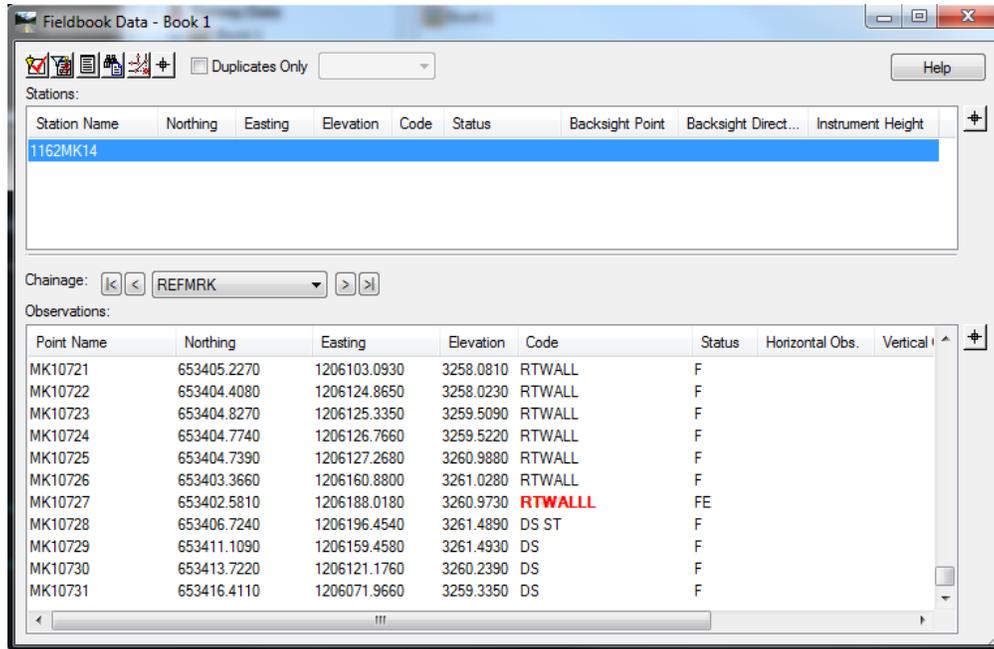


All of the errors should be corrected in the Fieldbook. The Fieldbook can be opened by selecting *Survey > Fieldbook Data*



G. CORRECTING ERRORS (CONTINUED)

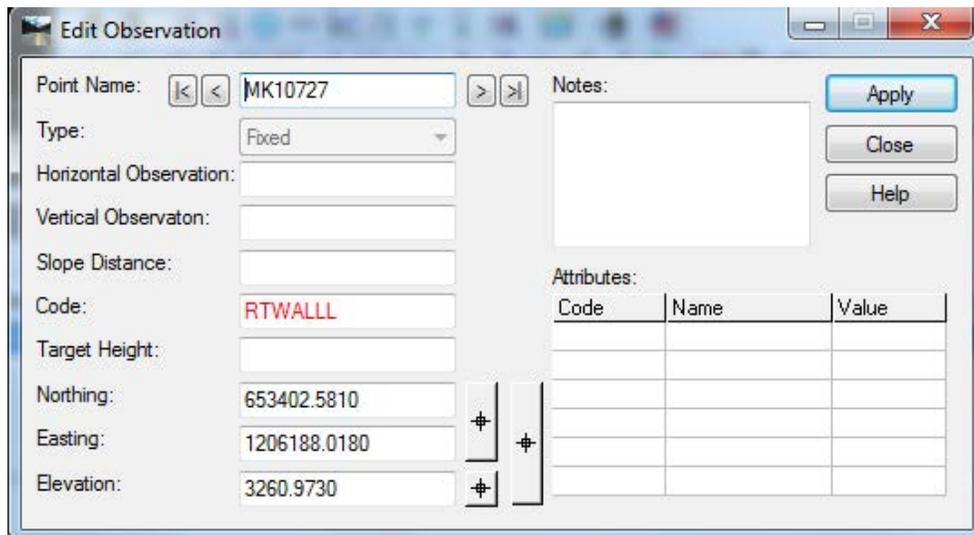
Activate the *Observations* window and click on the **Select** button. Click on the errors to highlight the observation. The code errors will be displayed with **red** text.



Point Name	Northing	Easting	Elevation	Code	Status	Horizontal Obs.	Vertical
MK10721	653405.2270	1206103.0930	3258.0810	RTWALL	F		
MK10722	653404.4080	1206124.8650	3258.0230	RTWALL	F		
MK10723	653404.8270	1206125.3350	3259.5090	RTWALL	F		
MK10724	653404.7740	1206126.7660	3259.5220	RTWALL	F		
MK10725	653404.7390	1206127.2680	3260.9880	RTWALL	F		
MK10726	653403.3660	1206160.8800	3261.0280	RTWALL	F		
MK10727	653402.5810	1206188.0180	3260.9730	RTWALLL	FE		
MK10728	653406.7240	1206196.4540	3261.4890	DS ST	F		
MK10729	653411.1090	1206159.4580	3261.4930	DS	F		
MK10730	653413.7220	1206121.1760	3260.2390	DS	F		
MK10731	653416.4110	1206071.9660	3259.3350	DS	F		

Double click on the point name that needs the correction.

The following dialog box. Here are where correction are made.

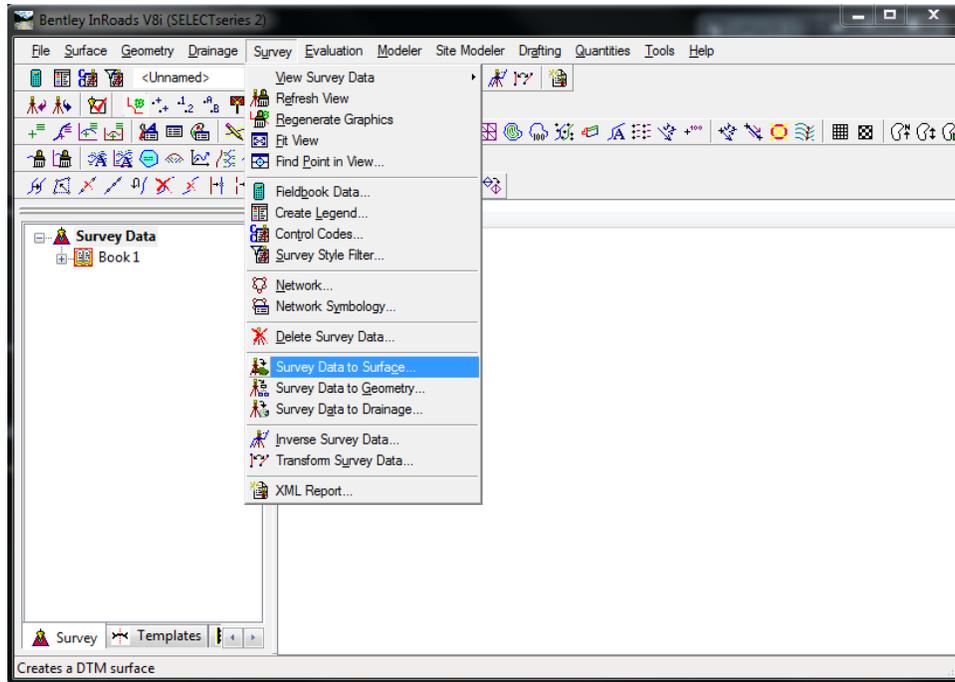


Code	Name	Value

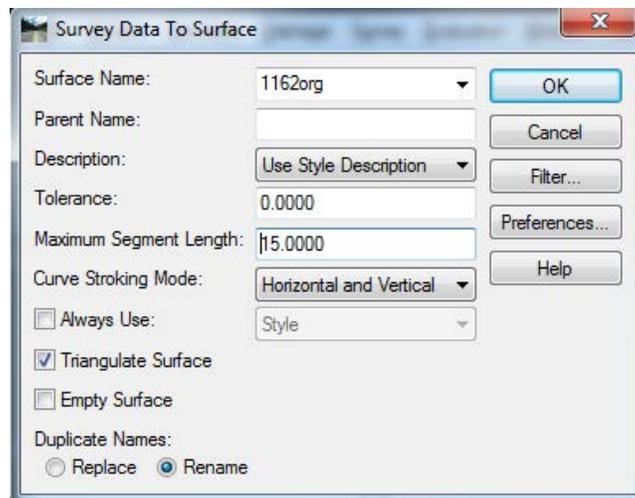
You will need to **Regenerate Graphics** to apply the changes.

H. GENERATING THE SURFACE

When all of the obvious errors have been corrected, the surface can now be generated. Select **Survey** > **Survey Data to Surface** from the InRoads Survey main menu.

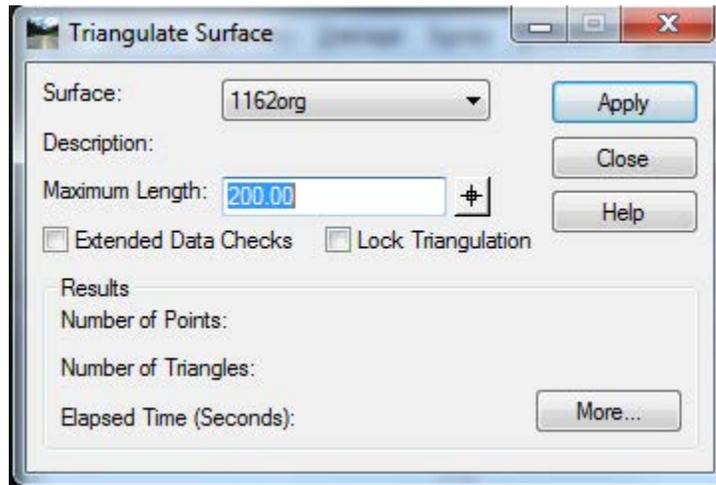


Type in the name of the surface in the **Surface Name** box. (This is the “internal name” of the surface.) In the **Max. Segment Length** box, type in a desired length. This length is the maximum segment distance allowable when triangles are created between two points defining a linear feature. This is **not** the maximum length of the triangle legs. Check the **Triangulate Surface** box .



Click on the **OK** button to generate.

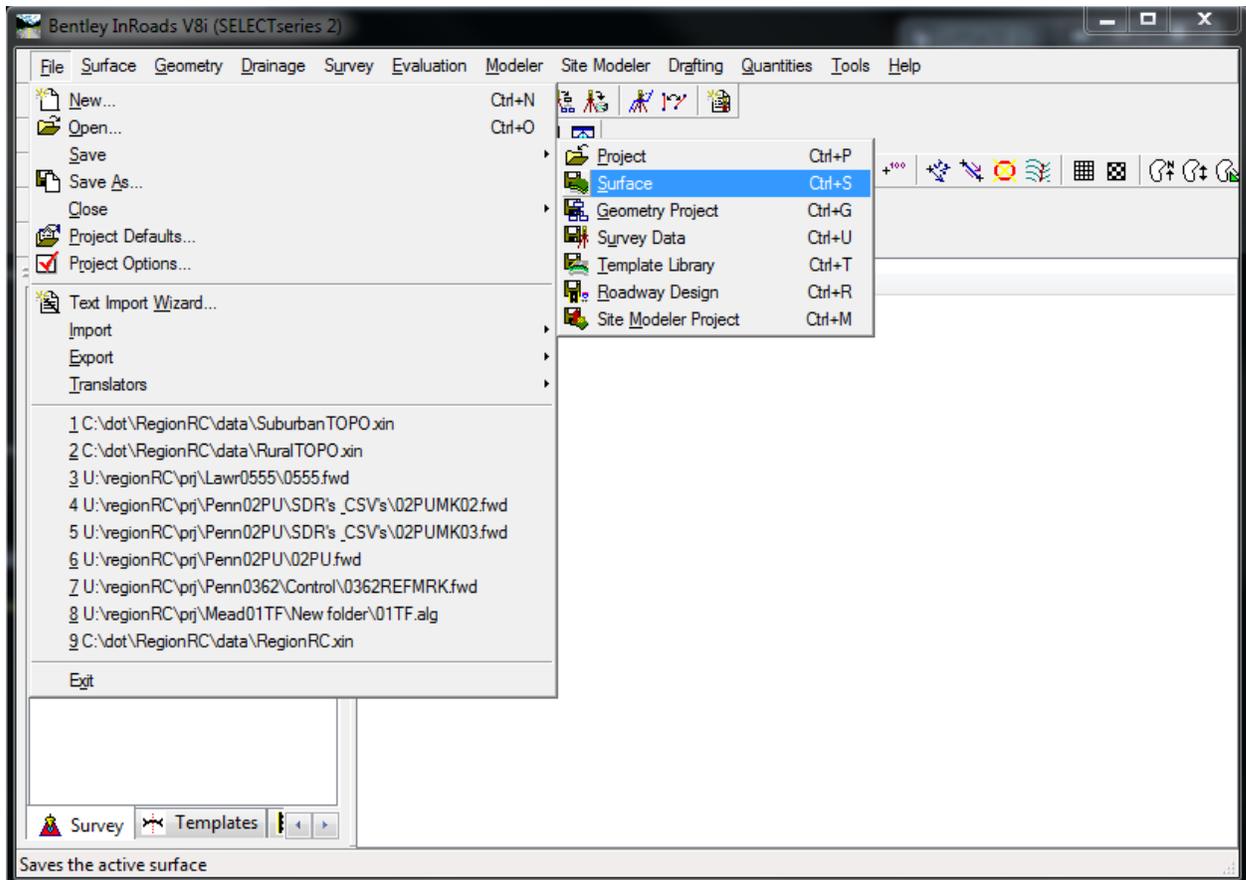
H. GENERATING THE SURFACE (CONTINUED)



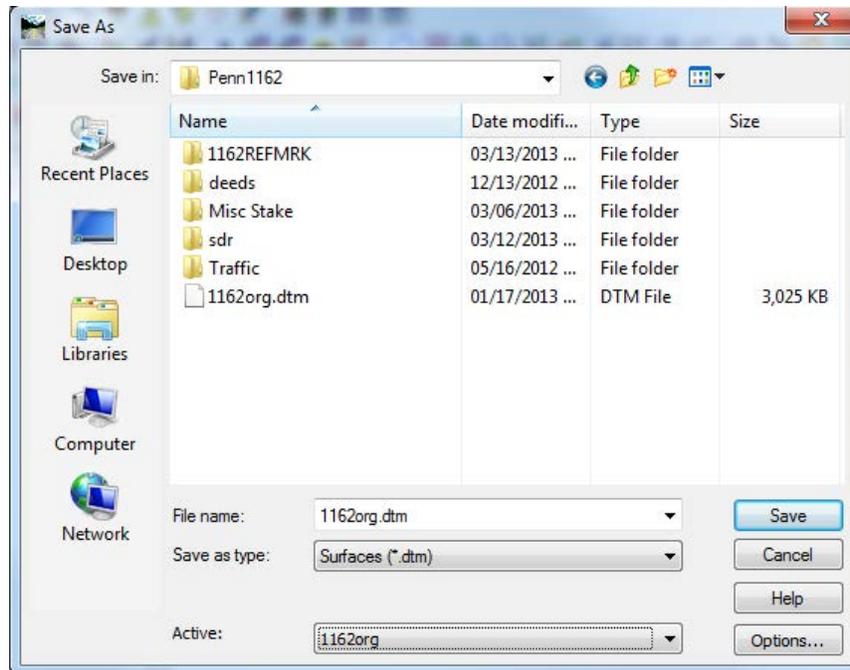
Fill in the *Maximum Length* box with the desired length of the triangle legs. Select *Apply*.

I. SAVING THE SURFACE

The **File > Save > Surface** command allows you to save the triangulated data as a surface DTM.

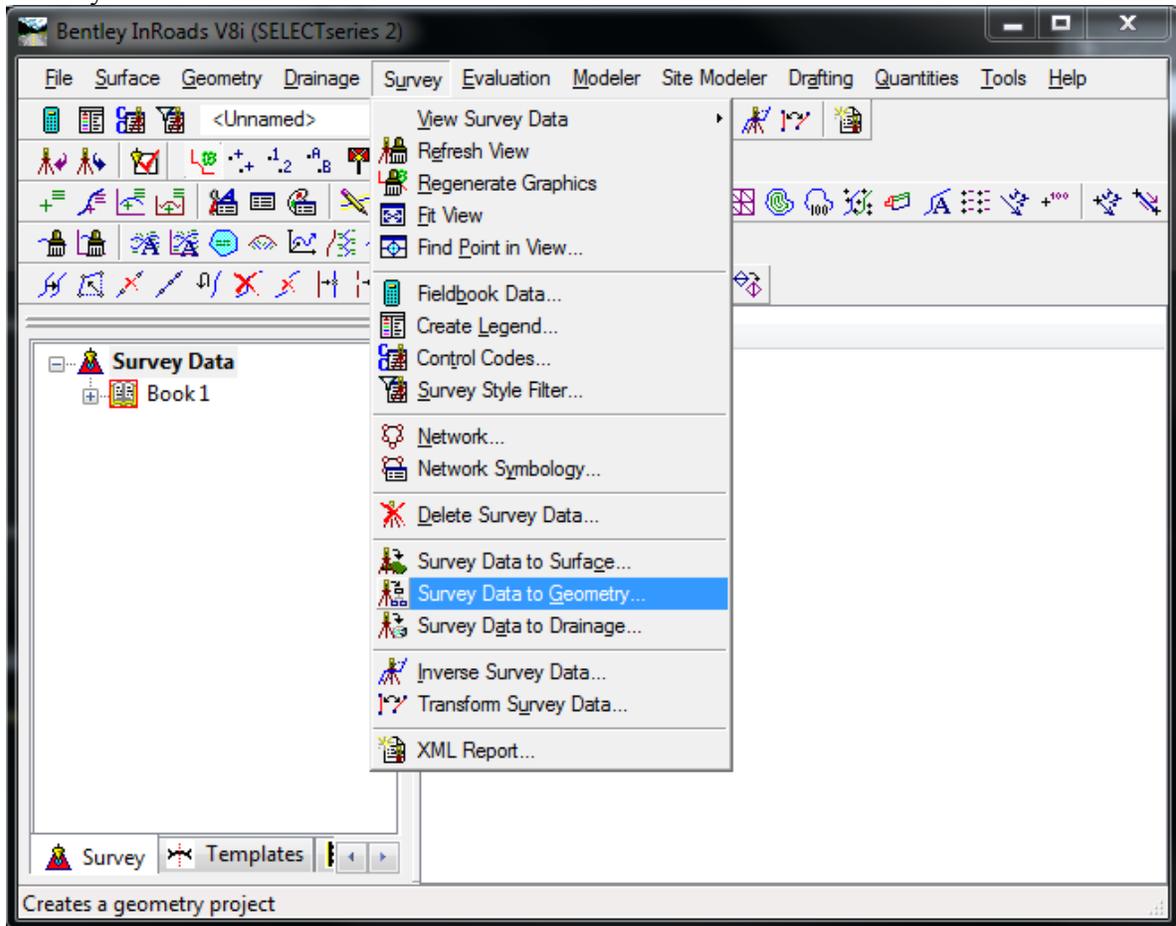


When you select the command, the Save dialog box is displayed. Key in a name (**PCEMorg**) for the surface. When you click Save, the surface is exported and the dialog box is dismissed. Depending on the size of the surface this process could take from several seconds to several minutes.



J. CREATING A GEOMETRY FILE

The *Survey > Survey Data to Geometry* command allows you to create the geometry from InRoads Survey.

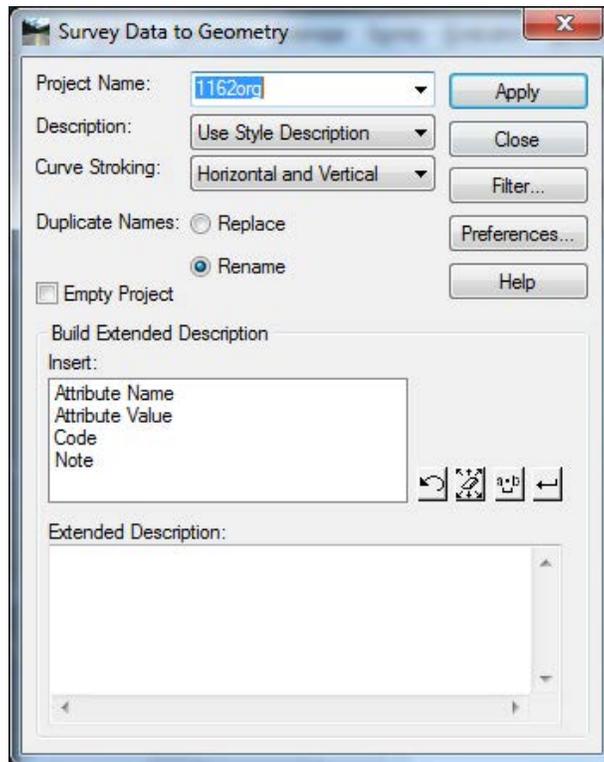


When you select the command, the Survey Data to Geometry dialog box is displayed. Key in a name (*PCEMorg*) for the geometry. Click *Apply*

K. SAVING GEOMETRY FILE

You will need to save the geometry project after it has been created. **File > Save > Geometry Project**

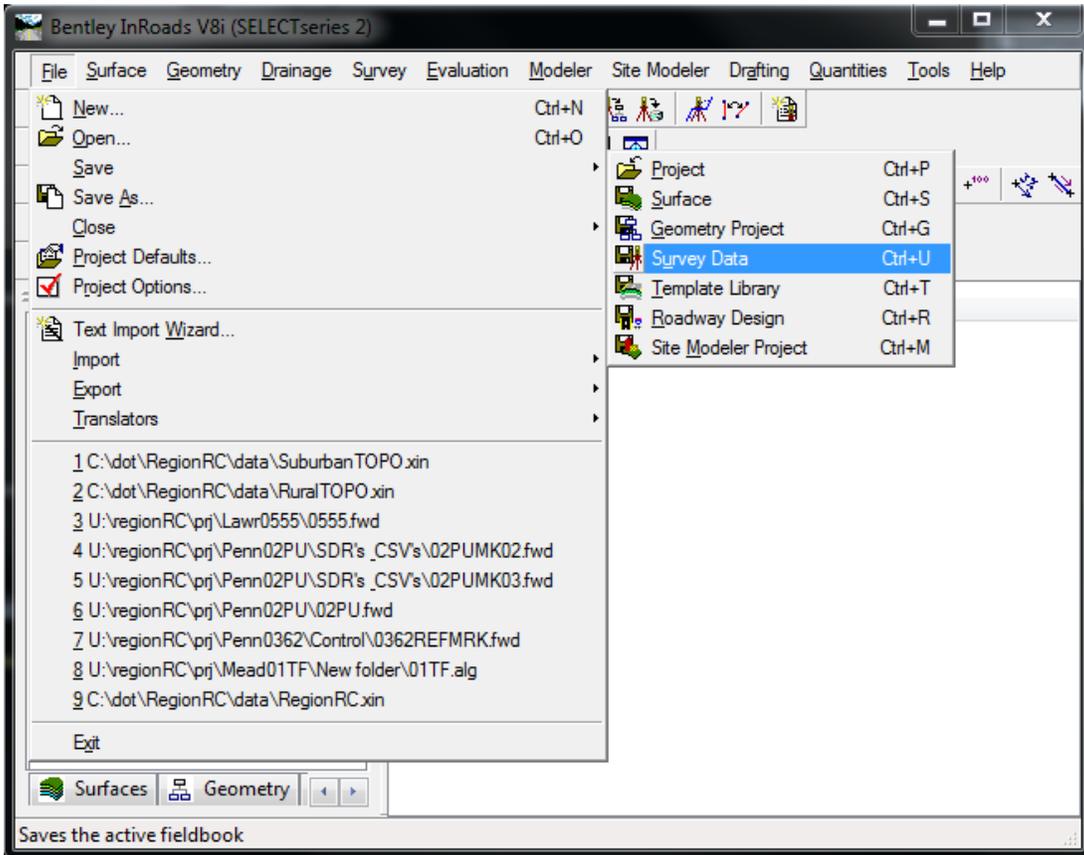
Type in the File Name and click on **Save**



L. SAVING THE INROADS SURVEY PROJECT

An InRoads Survey Project is the entire collection of all CSV files, corrections, and modifications you have made since you began.

From the InRoads Survey main menu select **File > Save > Survey Data**

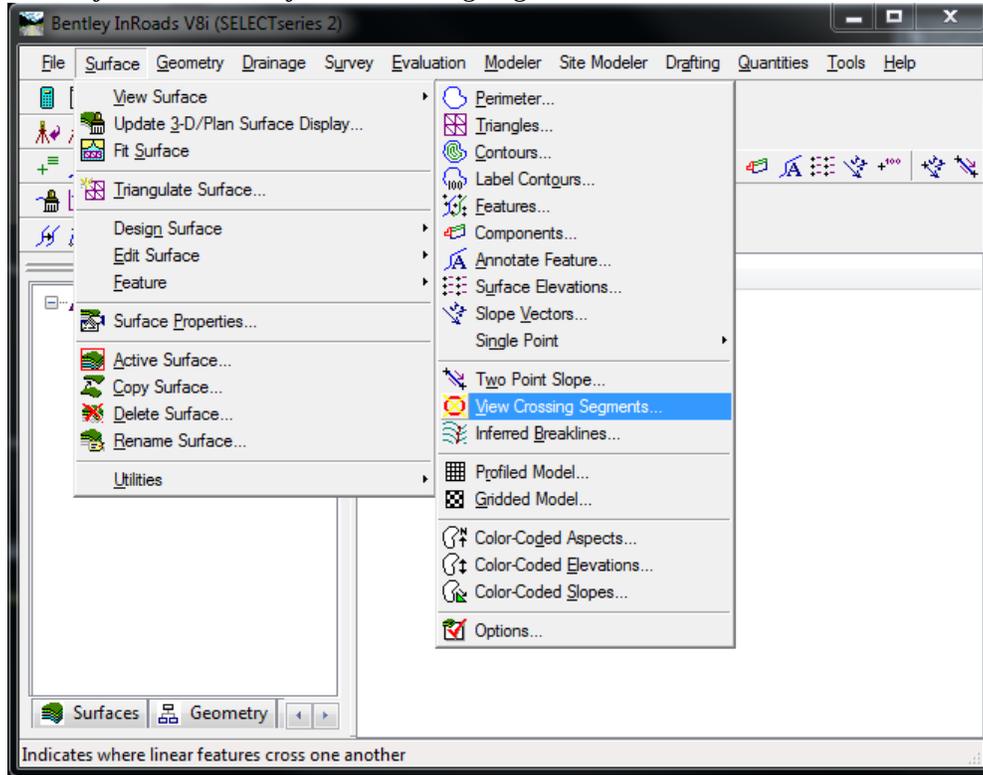


Key in a name for the file, or select a file from the displayed list to overwrite it.

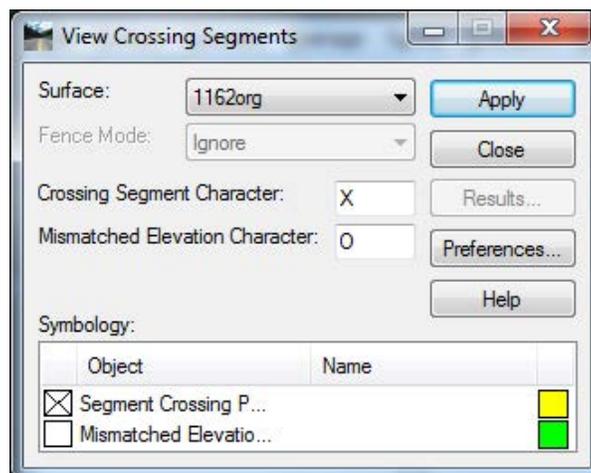
Hit save

M. CROSSING BREAKLINES

An editing tool that is available in InRoads Survey is the *Crossing Segment* command. Select *Surface > View Surface > Crossing Segments* from the SelectCAD main menu.

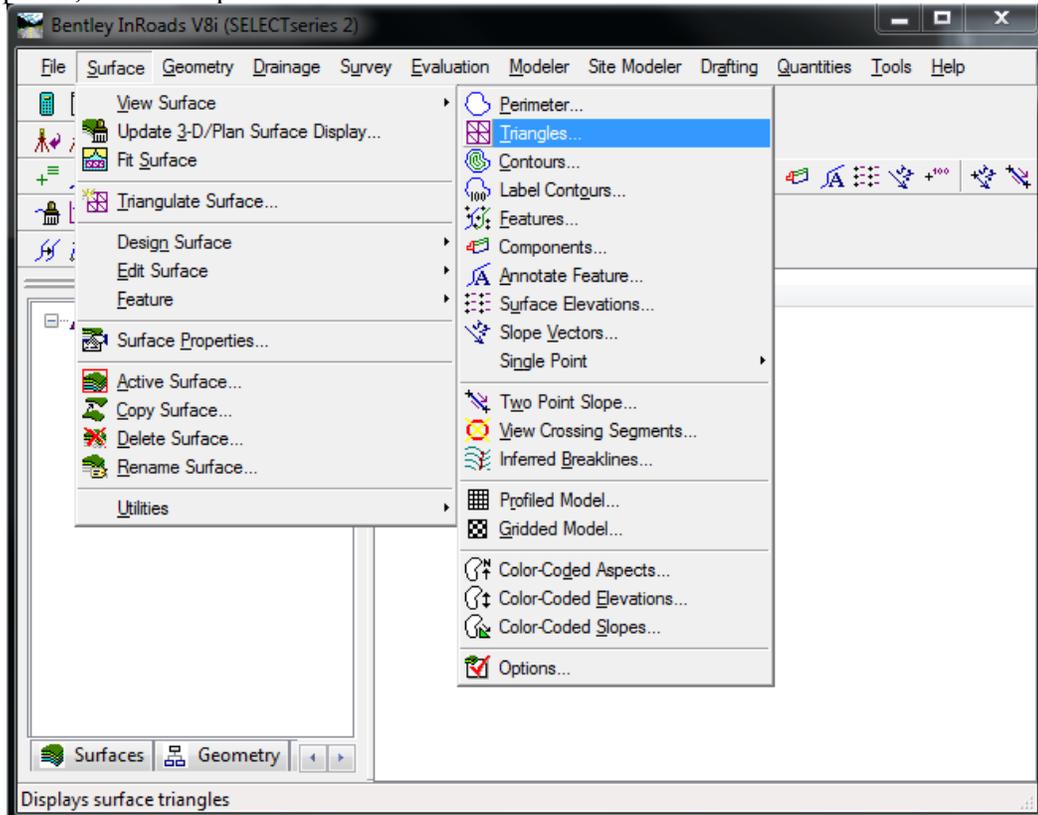


This command displays a symbol at the point where two breaklines cross and another symbol where crossing breaklines have different elevations at a common x-y coordinate.

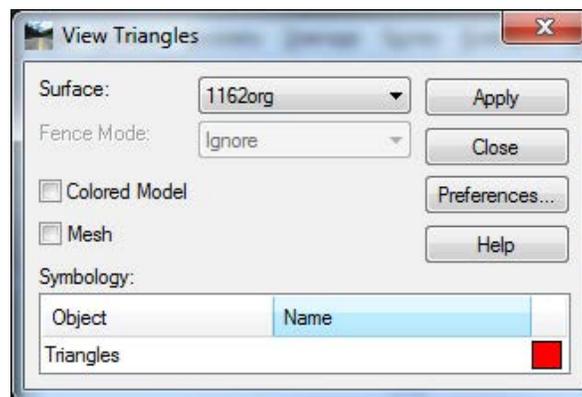


N. VIEWING AND DELETING TRIANGLES

The **Surface > View Surface > Triangles** command displays all or a portion of the triangles contained within the active surface. The triangles were created when you triangulated the surface. This command is useful after triangulating your data so you can see the location of surface points. You can use this command to help you to evaluate your model and pinpoint areas that have either too many points, or too few points.



Select the surface and click on the **Apply** button.



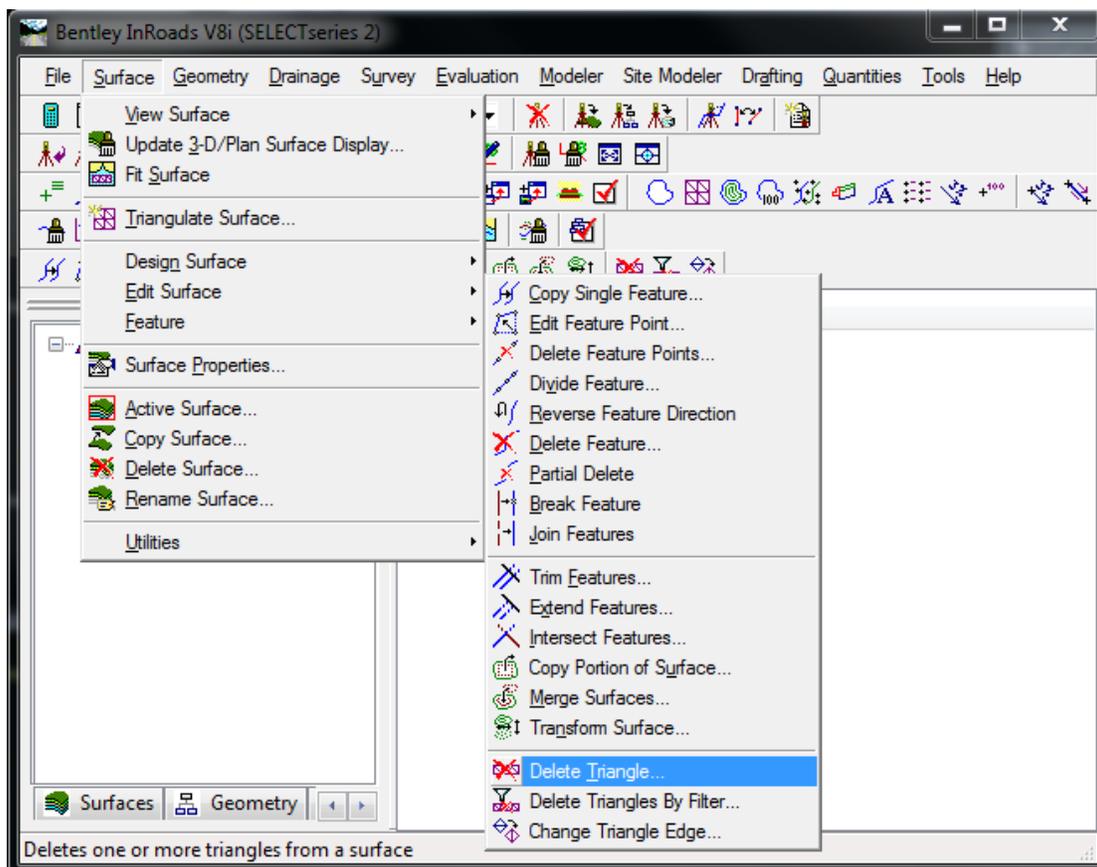
O. VIEWING AND DELETING TRIANGLES (CONTINUED)

Using the Delete Triangle command, you can manually delete one or several triangles at a time, but not the points that define the triangle(s). This command is useful if there are a few distorted triangles that you want to remove from the display.

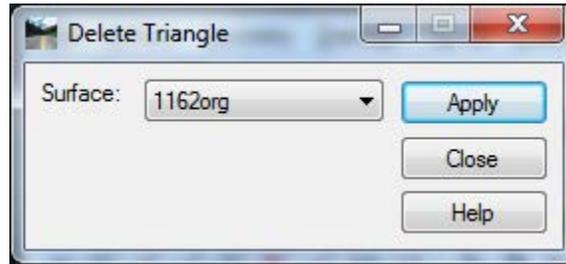
The areas covered by deleted triangles are not used in any subsequent processing. The triangles, even if they are deleted, remain in memory.

Normally, this command is used to delete long, narrow triangles that may appear on the outer edges of the model, these triangles typically provide little information to the overall surface.

From the *InRoads Survey* main menu select *Surface > Edit Surface > Delete Triangle*



P. VIEWING AND DELETING TRIANGLES

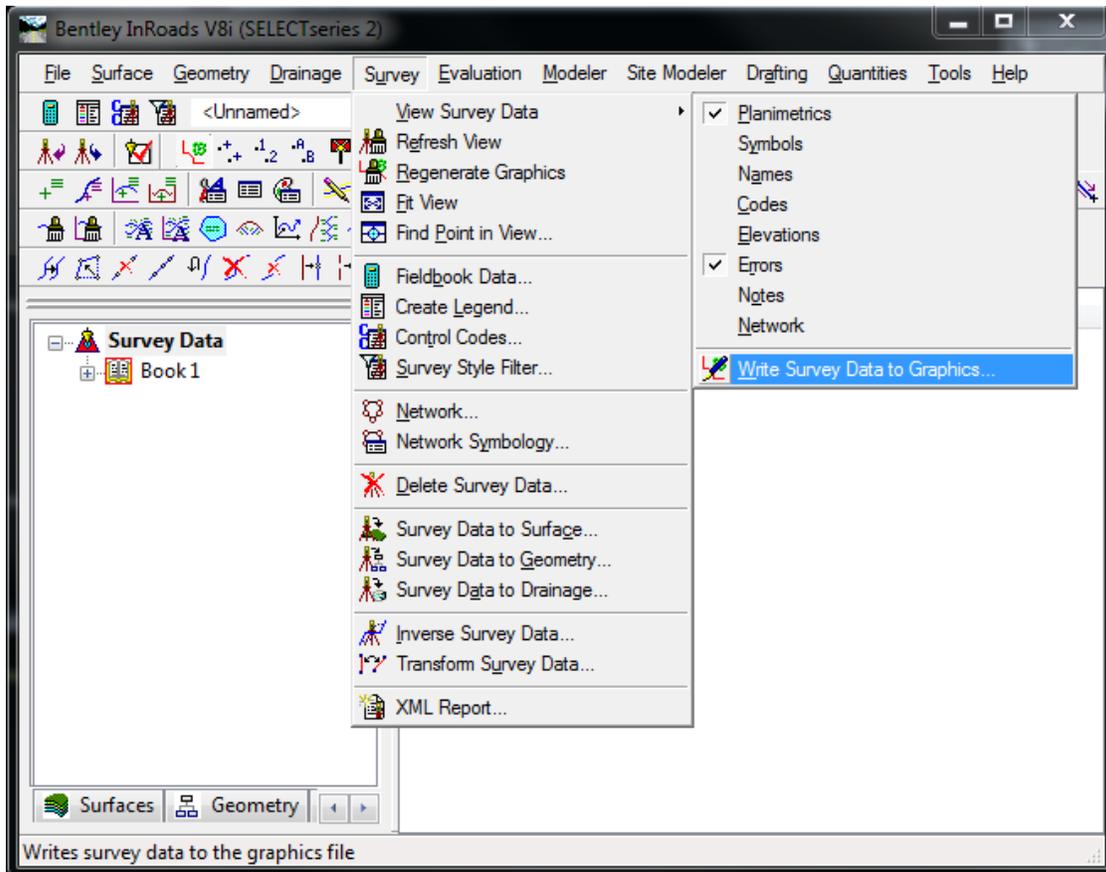


Click the ***Apply*** button from the ***Delete Triangle*** window.

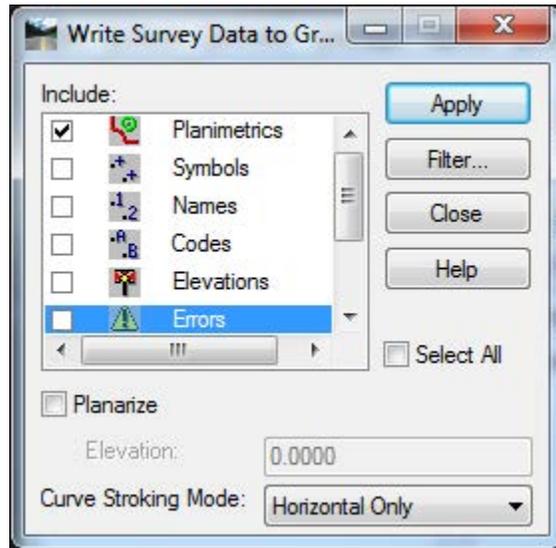
A dynamic line appears attached to the cursor. Move the dynamic line over all of the triangles you want to delete -- all of the triangles that the dynamic line touches will highlight. Place another data point and the dynamic line disappears. At this point, you are prompted to confirm or reject the deletion of the highlighted triangles. If you only want to delete one triangle, make sure that the dynamic line stays within the triangle. Be sure to save your newly remodeled surface.

Q. COMMITTING THE GRAPHICS TO A DESIGN FILE

The final step in the processing is committing your field data to a design file. From the InRoads Survey main menu select ***Survey > View Survey Data > Write Survey Data to Graphics***



K. COMMITTING THE GRAPHICS TO A DESIGN FILE (CONTINUED)



Toggle on *Planimeterics* and *Notes* and select *Apply*.

In order to keep the size of the design file as small as possible, be sure to delete or remove the discon lines from the final design file. All of the dskon lines are placed on level 62 so they can be easily deleted by turning off all levels except for 62 and using the Microstation fence delete command.