

**CROSS SECTIONS**

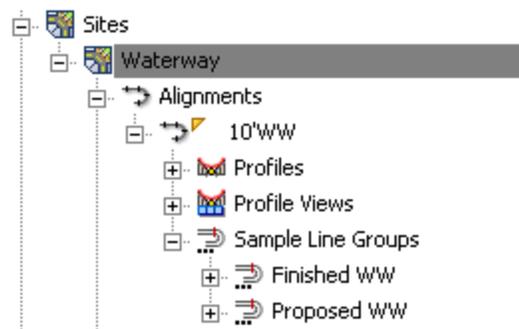
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**CROSS SECTIONS****STEP 1: CREATE SAMPLE LINES**

**Sample Lines** are objects that sample elements and display the data in cross sections. You can sample the following elements:

- Corridors
- Surfaces
- Corridor Surfaces

Samples lines are based on the alignment you select. Any alignment can have multiple Sample Line Groups.

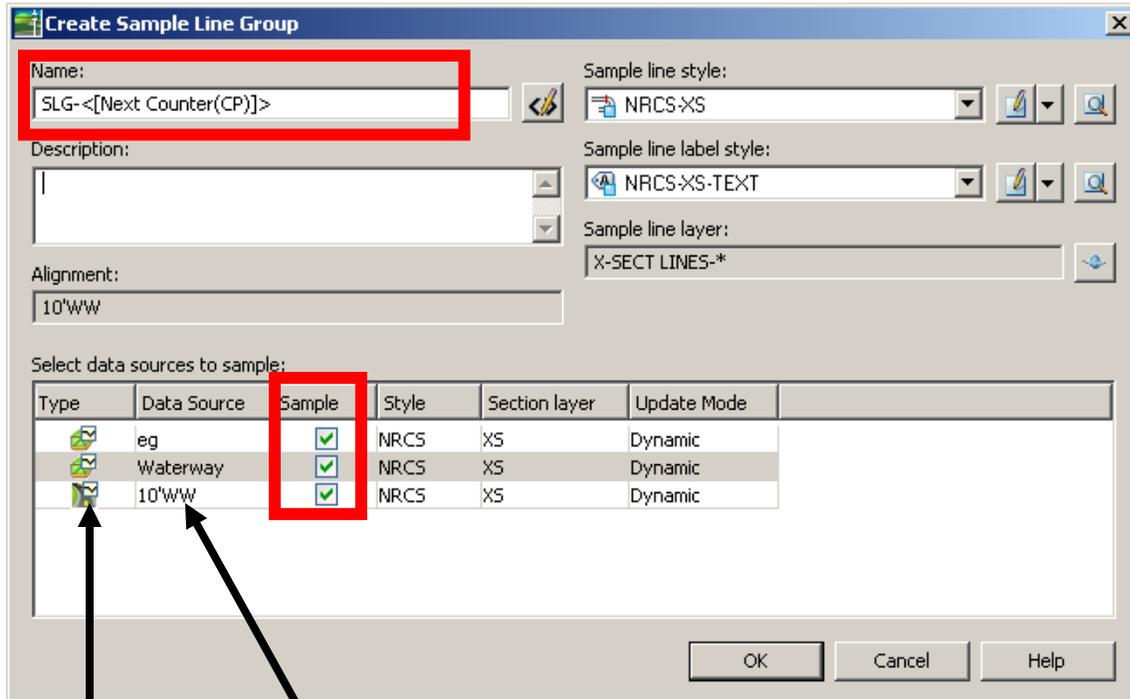


- 1) In the menu bar go to: Sections > Create Sample Line
- 2) The command line asks you to “Select an Alignment”  
You can either click on the alignment  
or hit “Enter” and select the alignment from the list
- 3) The “Create Sample Line Group” dialog box will then appear.  
\*\*This dialog box only appears the first time you make a Sample Line Group for a particular alignment.

**CROSS SECTIONS**

You will need to make a few choices in this dialog box.

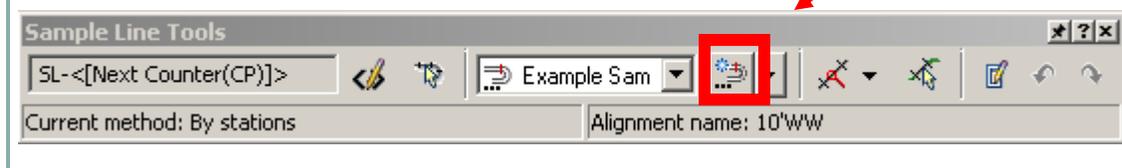
- Change the name of the Group.
- Select what sources you want to sample from. Remember you can sample from: Corridors, Corridor Surfaces, and Surfaces. All the options for your particular drawing will be listed.



Indicates what type of data it is: Surface, Corridor, or Corridor Surface

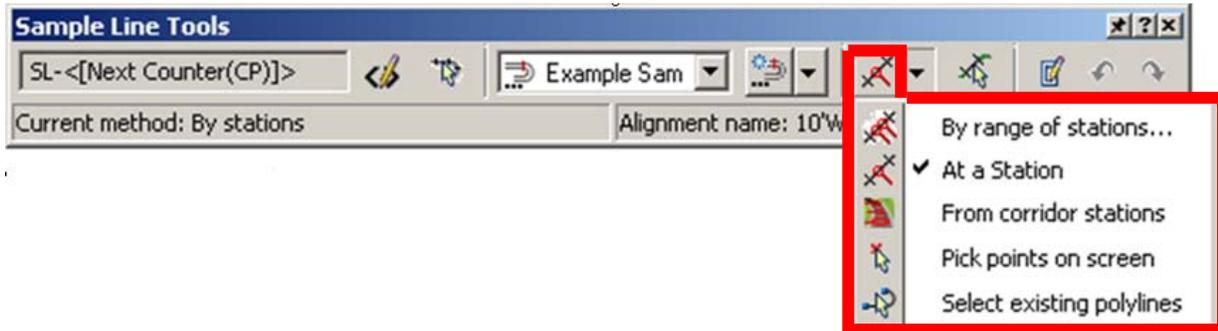
The name of the Corridor or Surface

\*\* As previously mentioned the dialog box only appears the first time you create a sample line group for the particular alignment. When creating additional Sample Lines for the same alignment the “Sample Line Tools” toolbar will appear. To create another Sample Line Group select the “Create Sample Line Group” tool from the *Sample Line Tools* Toolbar.



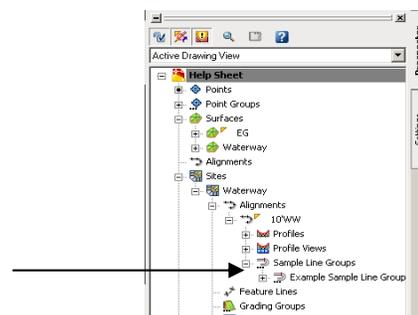
## CROSS SECTIONS

- 5) Once you have created the Sample Line Group the command line asks you to “Specify Station” that you would like to sample. Pull down the “Sample Line Creation Methods” pull down menu and select an option, then follow the command line.



- **By Range of Stations:** allows you to specify a range of stations, sampling width, and other options.
- **From Corridor Stations:** allows you to create a sample line at all predefined corridor sections. The Create Sample Like dialog box opens and you can define the station range and swath width for the sections.
- **Pick Points on Screen:** allows you to select points in the drawing and define the swath width for each section. This can have multiple vertices!
- **Select Existing Polyines:** allows section lines to be based on polylines already existing in the drawing. The polyline does not have to be perpendicular to the center line and it can have multiple segments.

- 6) After the sample line group is created you will see it listed in the Prospector tab.

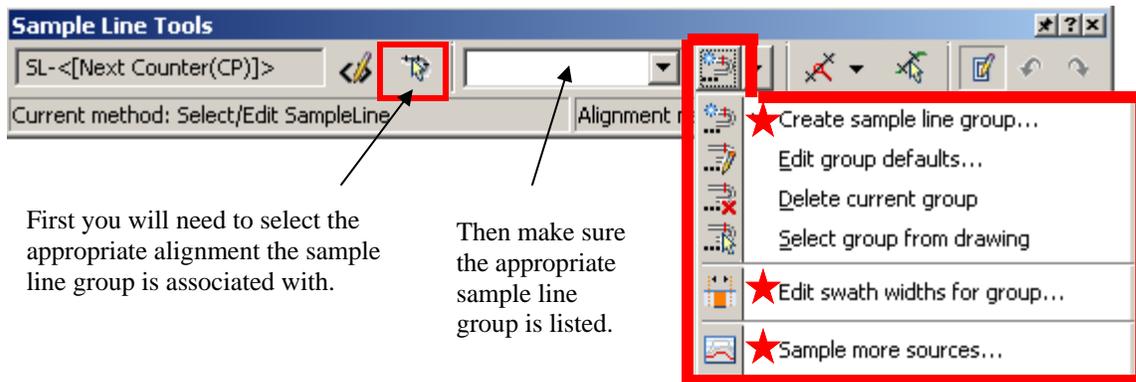


## CROSS SECTIONS

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### EDITING YOUR SAMPLE LINE GROUPS

Do you want to make changes to sample line groups? You can add or delete sample line groups, change the swath widths, and new data sources can be added using the “Modify” drop-down list in the *Sample Line Tools* Toolbar.



\*\*\*\*Editing the sample line is very useful after you have created additional sources such as: a corridor, a corridor surface, or any other surfaces! Just by selecting the “Sample more Sources” and choosing what other source you want to sample, your section views will automatically be updated! (This also works when you want to remove a surface that you have sampled.)

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## STEP 2: CREATE SECTION VIEWS

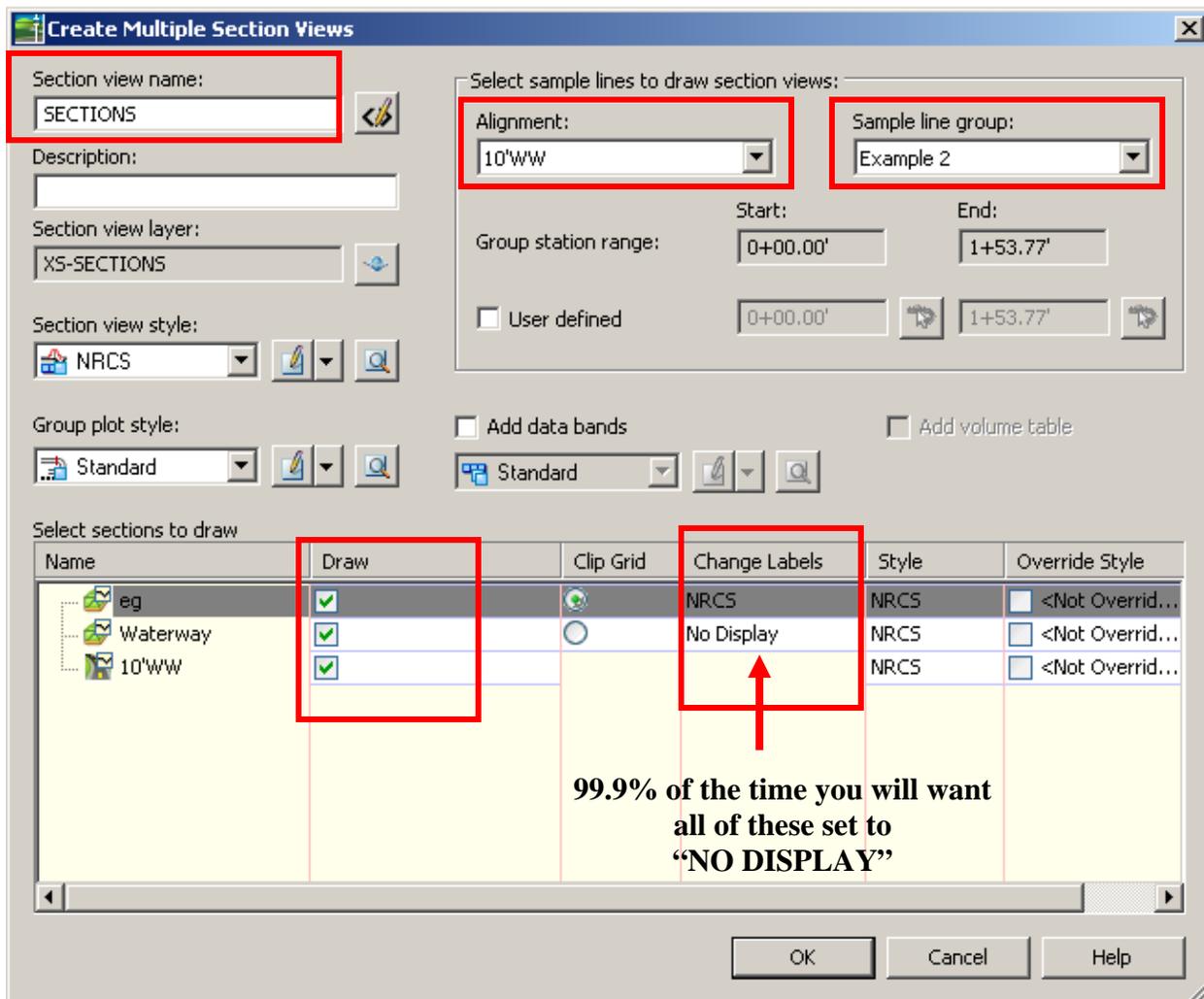
**Section Views** display the sampled surface sections, corridor assemblies, and any other structures. Similar to profile views, section views can be moved and retain the correct information. They are also dynamic, as the source data changes the section view automatically updates. Section views can be created individually or as a group.

- 1) From the menu go to Sections >
  - Create Section View (for an individual section)
  - or Create Multiple Section Views (for multiple sections)

## CROSS SECTIONS

The “Create {Multiple} Section Views” dialog box will open and you will need to make some changes.

- Change the name of the Section View
- Make sure the correct Alignment is selected
- Make sure the correct Sample Line Group is selected
- Be sure to change any options at the bottom to reflect what you want your final section to look like! (choose what to draw and what label styles you want).



2) After clicking OK the command line asks you where you want to place the cross sections (Identify Section View Origin).

### CROSS SECTIONS

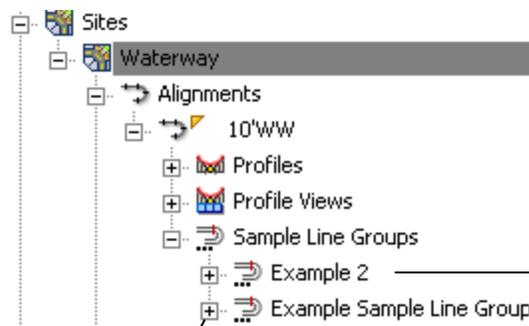
## EDITING YOUR SECTION VIEWS

There are several ways to edit your section views. Just like profile views you can right click on a section and choose:

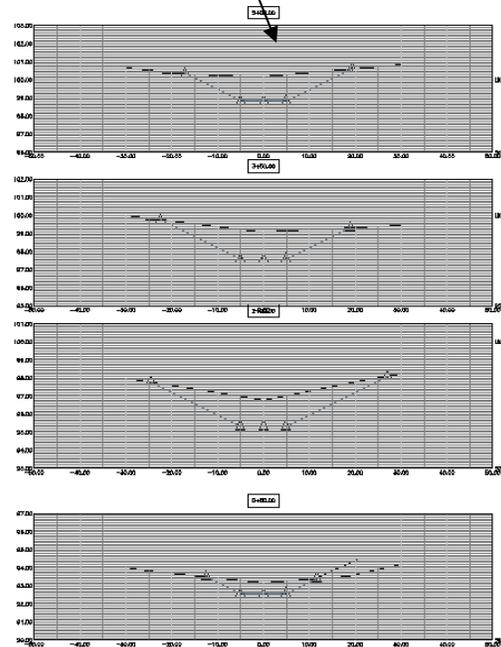
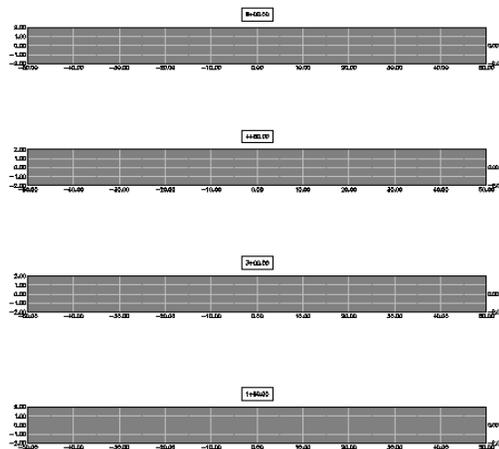
- Edit Section View Properties (change properties in the section)
- Edit Section View Style (change how the graph looks)

You can also right click on a section and change the Section View Group Properties.

The key to changing the style (including vertical exaggeration), is to remember all sections with the same style will change. Even if you are only changing 1 Sample Line Group, if another group is using the same style, that group will change as well.



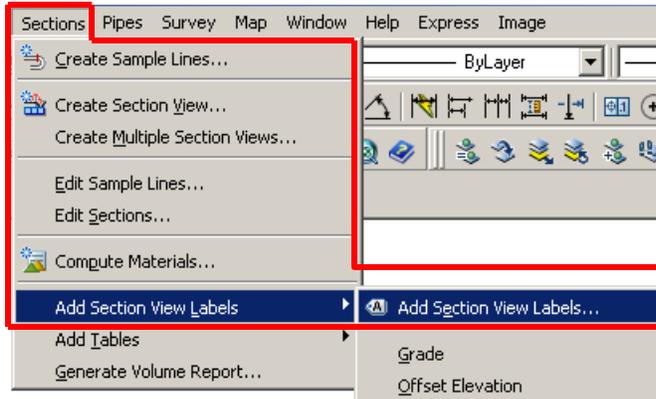
These 2 groups are using different styles.



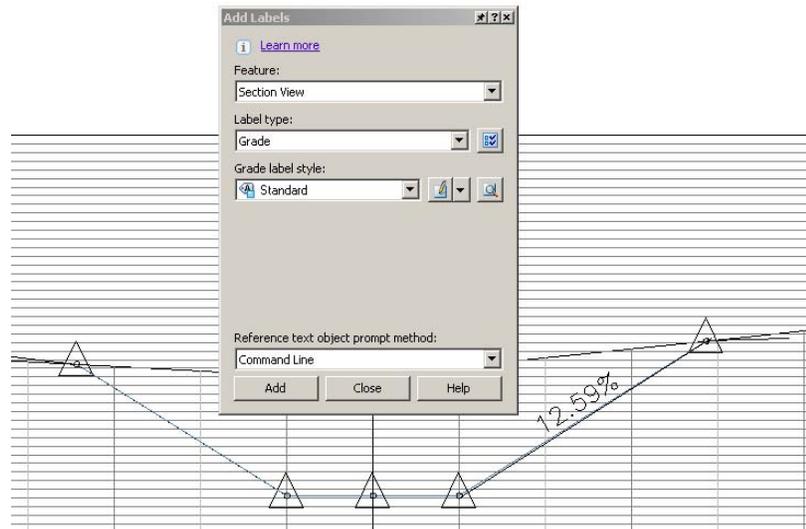
## CROSS SECTIONS

You can add labels to your sections.

From the menu choose Sections > Add Section View Labels > Add Section View Labels



Choose which options you want;  
Grade (slope or grade)  
or Offset Elevation  
then follow the command line.



### STEP 3: Section Based Volume Quantities

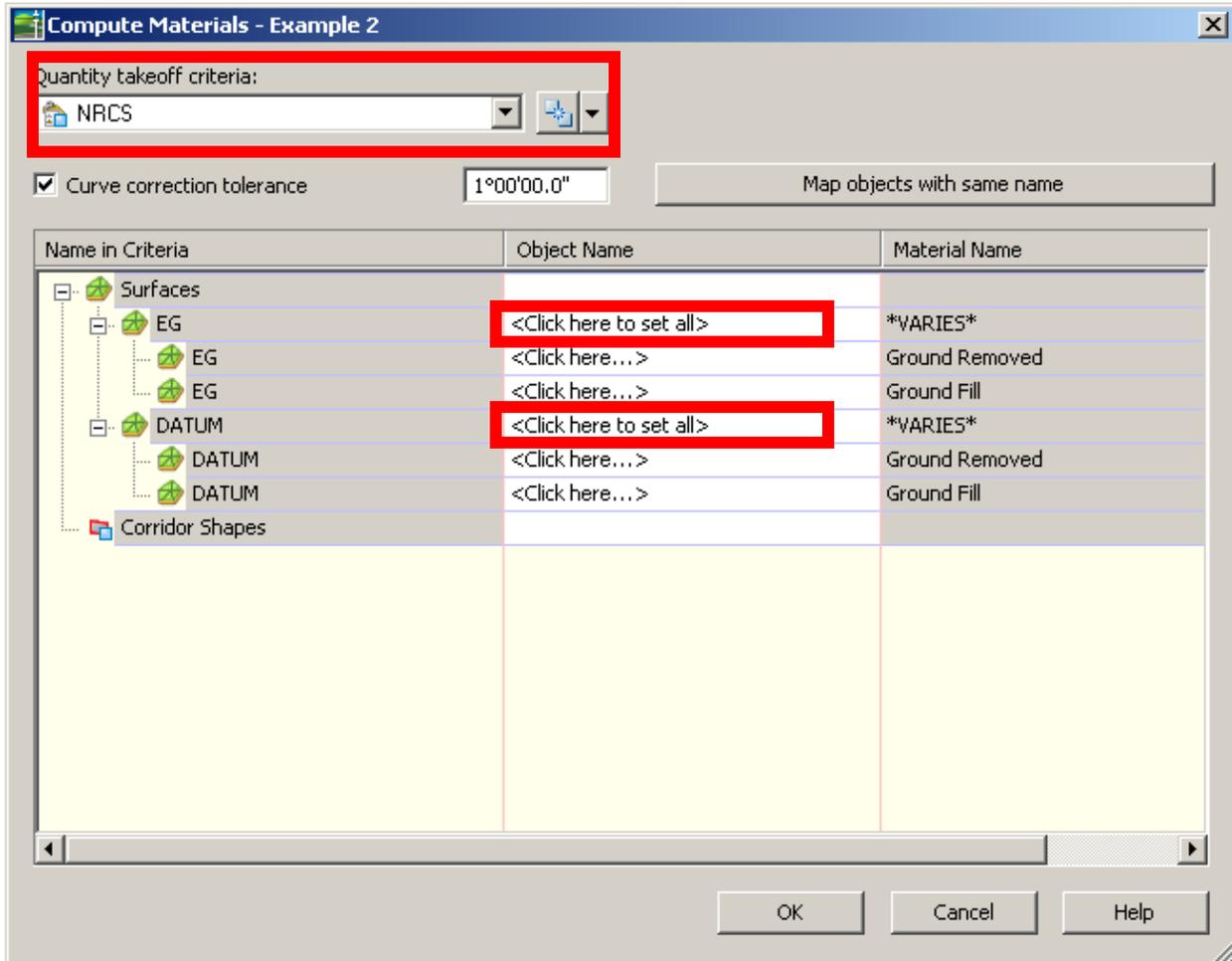
For the type of work we do, we are interested in “Earthwork Volumes” which represents the amount of cut or fill needed to reach our proposed design elevation. To do the calculation you will need the existing ground and your finished ground surface, as the calculation is taken between the Existing Ground and the datum of an assembly.

- 1) From the menu choose Sections > Compute Materials
- 2) Choose the correct Alignment and Sample Line Group
- 3) The “Compute Materials” dialog box will open.

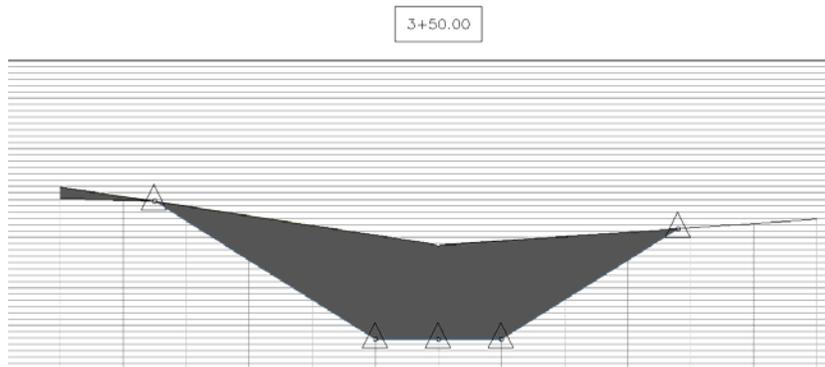


**CROSS SECTIONS**

You'll need to make sure your using the NRCS Style.  
 Set your target surfaces for EG and the correct Datum (most likely your finished ground surface).



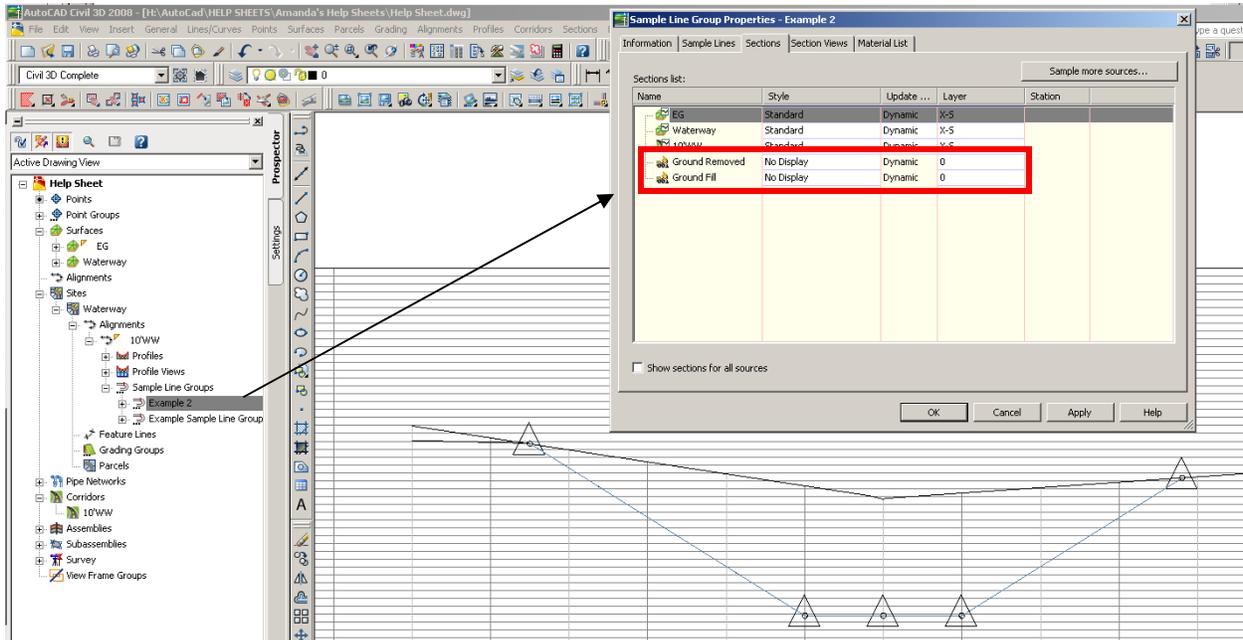
4) Zoom in to your Section Views. Your section views will now have a shaded area that represents cut and fill areas.



**CROSS SECTIONS**

To “hide” the shading:

- Right click on the name of the Sample Line Group (in Prospector).
- In the “Section” Tab change the Style of the Ground Removed and Ground Fill to “No Display”



**5) Generate a Table of the Earthwork Volumes**

- From the Menu Section > Add Table > Total Volume
- Make sure the correct Alignment and Sample Line Group are selected.

You can also generate a report by going to Sections > Generate Volume Report.

A web browser should open (if asked, click “YES” to run scripts)

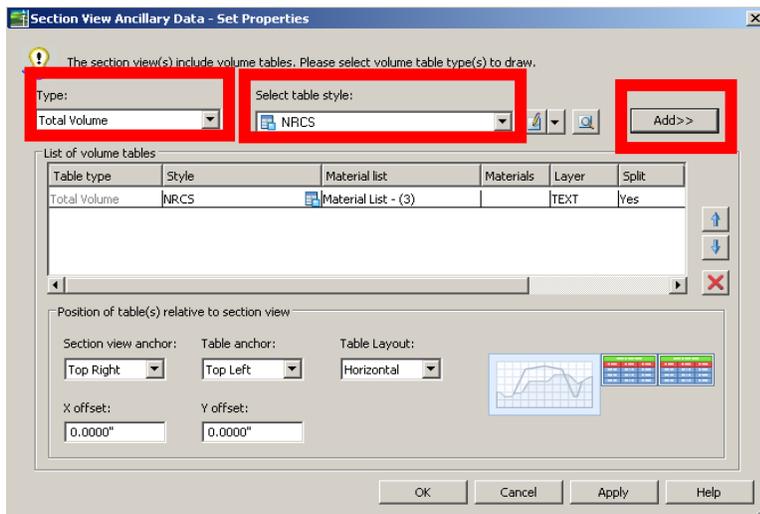
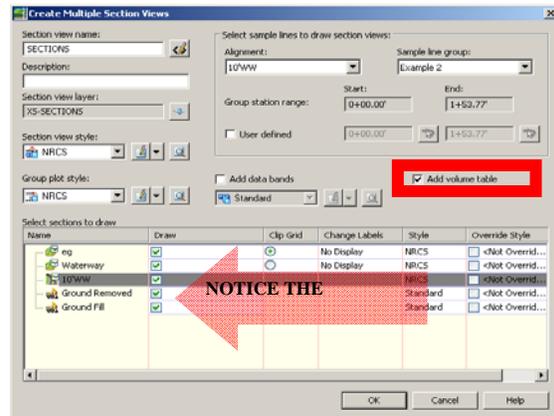
You can then print the report.

Total Volume Table							
Station	Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
0+00.00	1.99	1.56	0.00	0.00	0.00	0.00	0.00
0+25.00	8.13	0.86	4.69	1.12	4.69	1.12	3.57
0+50.00	39.14	0.00	21.89	0.40	26.58	1.52	25.05
0+75.00	21.25	0.00	27.96	0.00	54.54	1.52	53.01
1+00.00	8.79	0.00	13.91	0.00	68.44	1.52	66.92
1+07.01	0.00	0.00	1.14	0.00	69.58	1.52	68.06

### CROSS SECTIONS

#### Placing Cuts and Fills at EACH Station (vs. one large table)

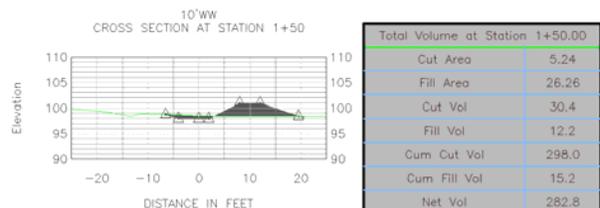
- 1) You MUST run the “Compute Materials” first.
- 2) Once you run the Compute Materials, create Multiple Section Views.
- 3) (Notice the Computed Materials displayed in the Name column.)
- 4) Most important: check the “Add Volume Table” box
- 5) Click “OK.”



6) In the next Dialog Box (Section View Ancillary Data-Set Properties) you will need to select the Type (Total Volume) and Table Style (NRCS), Select “ADD” then “OK”

The Multiple Section Views will then be added with the Volume Tables.

If the table doesn't automatically get placed in a good location, you can move it by clicking on the table, and dragging it.



## CROSS SECTIONS

The Wisconsin Template uses the following units:

Area is set to Square Feet

Volume is set to Cubic Yards

You can check your units by going to:

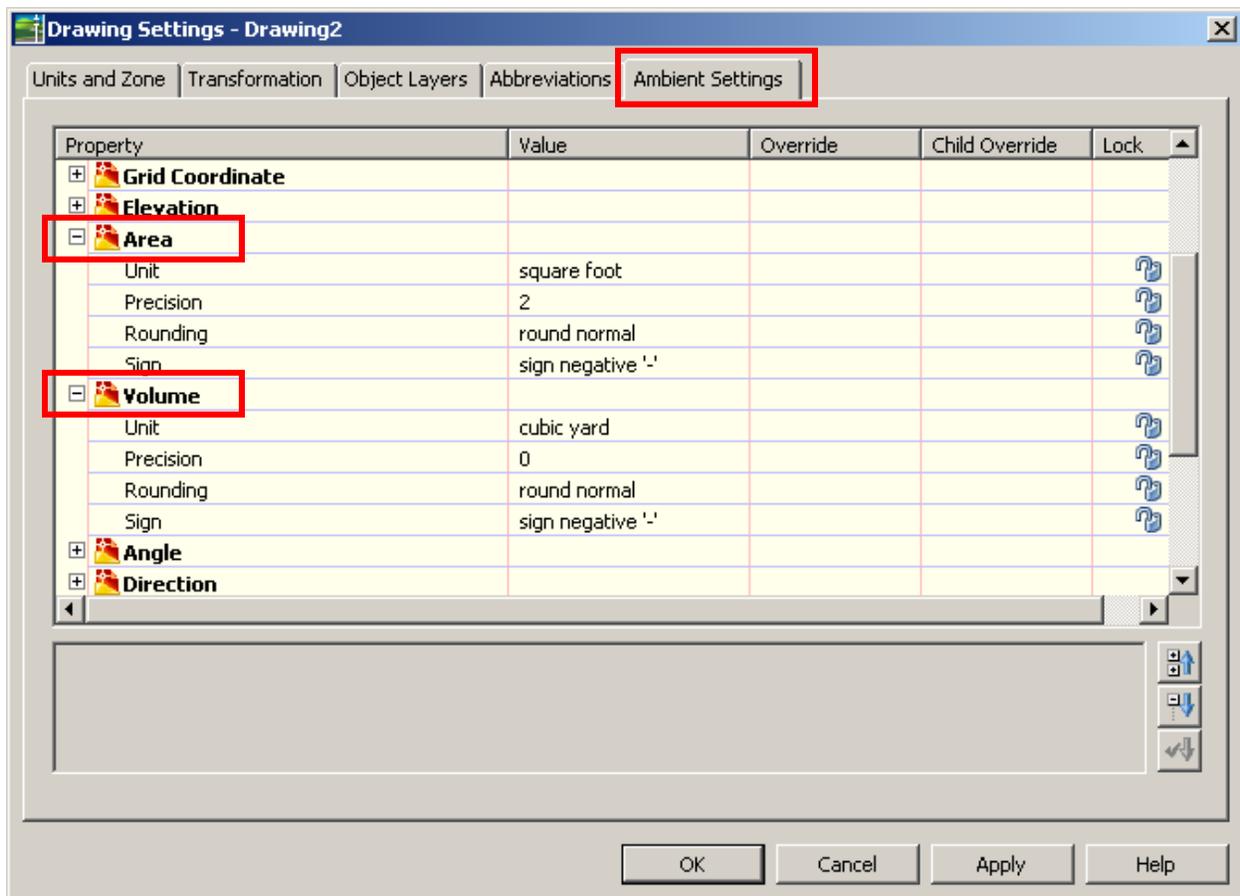
In Toolspace > Settings Tab

Right click on the name of your drawing

“Edit Drawing Settings”

Go to the Ambient Settings Tab

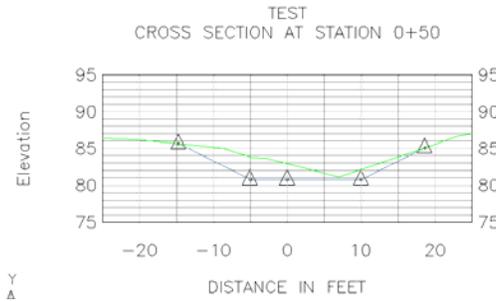
Scroll down and click the + next to Area and Volume



### CROSS SECTIONS

## PRINTING YOUR SECTIONS

Similar to how corridors have extra lines that you don't want to show when you print, Sections that have a corridor in them have extra triangles that you probably don't want to show when you print. You'll want to "no display" these markers to have a clean section for printing.



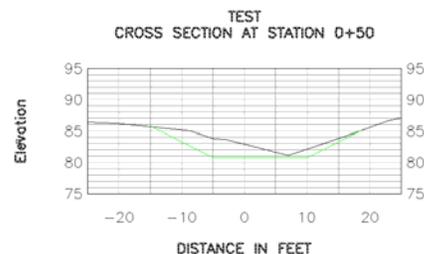
In Prospector > +Alignments > +name of the Alignment > +Sample Line Groups > RIGHT Click on the appropriate sample line group > Properties.

In the Sections Tab set the style of the appropriate Corridor to "No Display"

The image shows the Prospector pane on the left with a tree view containing 'Alignments', 'TEST', 'Profiles', 'Profile Views', and 'Sample Line Groups'. Under 'Sample Line Groups', 'SLG-11' is selected. A red arrow points to 'SLG-11' with the text 'Right Click'. To the right, the 'Sample Line Group Properties' dialog box is open, with the 'Sections' tab selected. A table lists various sections with their styles. A red arrow points to the 'NO DISPLAY' style in the 'Style' column for the 'Corridor' section.

Name	Style	Update Mode	Layer	Station
EG	NRCS	Dynamic	XS-SL...	
Corridor	NO DISPLAY	Dynamic	XS-SL...	
Corridor Corridor S...	Standard	Dynamic	**Vari...	
Ground Removed	Standard	Dynamic	XS-M...	
Ground Fill	Standard	Dynamic	XS-M...	

A 'Code Set Style' dialog box is also visible, showing 'NO DISPLAY' selected in the style list.



You should now be ready to print your sections!