LUCAS COUNTY ENGINEERS

CAD Procedures Manual

AutoCAD Civil 3D® Procedures

CHAPTER 1 – CD, New DWG, Survey, Points, Alignment & Sta. Offset

CHAPTER 2 – Profiles and Cross Sections

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Chapter

1

Startups for AutoCAD Civil 3D®

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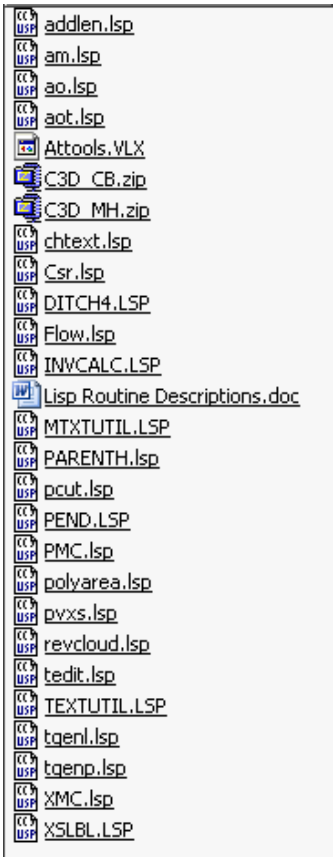
SEE THE LCE CAD STANDARDS AND SPECIFICATIONS MANUAL FOR CAD DRAFTING SPECIFICATIONS

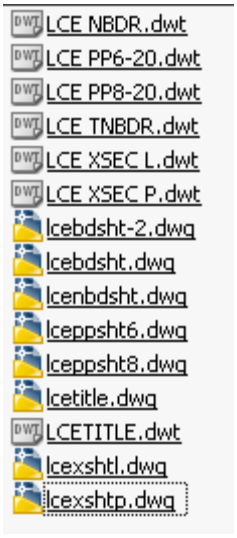
WHAT'S ON THE CD?

All manuals are on the root of the CD. The following are sub-folders of \CadStds\

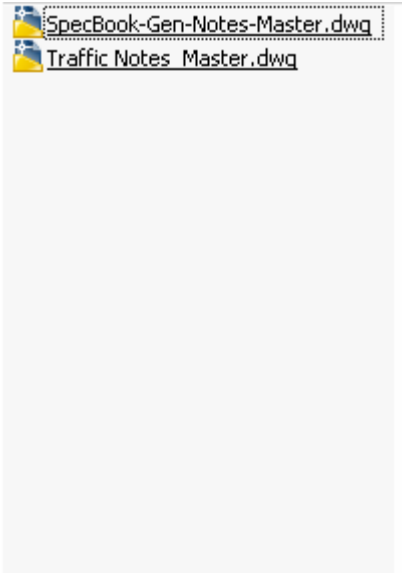
\Lisp:



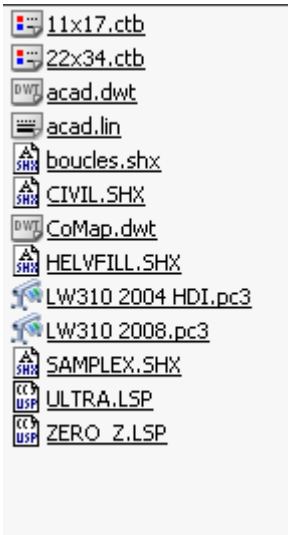
\Plan Production Sheets:



\Specs & Notes:

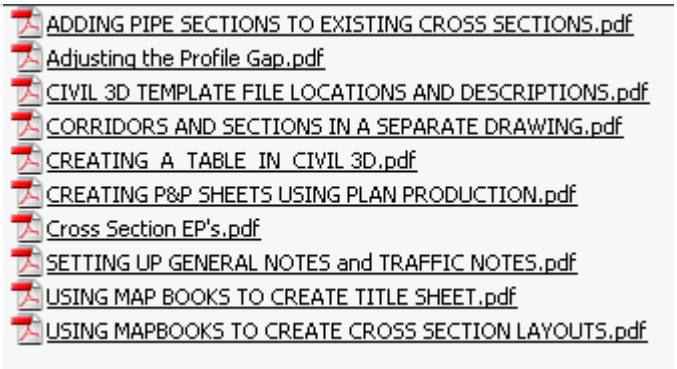


\Support:



\Symbols:

\C3D Tip Extras



STANDARD DRAWING NAME CONVENTIONS, LAYOUT AND SCALES

DRAWING TYPE(S)	NAMING CONVENTION	DOCUMENTS CONTAINED IN DRAWING	LAYOUT OR VIEW MODE
TITLE	TITLE_SHEET.DWG	TITLE SHEET	MAP IN MODEL SPACE - TITLE BLOCK IN LAYOUT
GENERAL NOTES	GEN_NOTES.DWG	MASTER GENERAL SPEC. NOTES	NOTES IN MODEL SPACE - SHEETS IN LAYOUT
DETAILS AND SUMMARIES	DET_SUM.DWG	DETAILS AND SUMMARY TABLES	DETAILS/SUMMARIES IN MODEL SPACE - SHEETS IN LAYOUT
PLAN & PROFILES	MASTER.DWG	OVERALL PROJECT PLAN, OVERALL PROFILE, PLAN AND PROFILES	OVERALL PLAN/PROFILE IN MODEL SPACE - SHEETS IN LAYOUT
CROSS SECTIONS	MASTER.DWG	EX. & PROP. CROSS SECTIONS AND CROSS SECTION SHEETS	EX. & PROP. CROSS SECTIONS IN MODEL SPACE - SHEETS IN LAYOUT

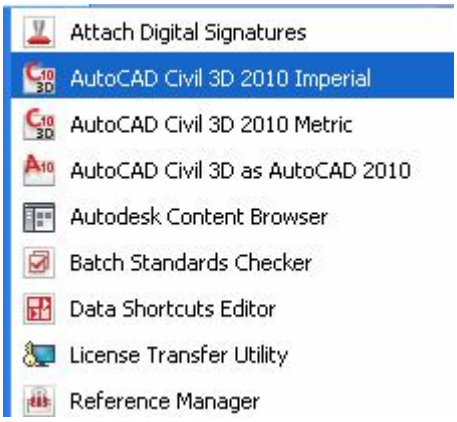
SCALES:

DRAWING TYPE(S)	DRAWING LTSCALE	PLOT SCALE	VIEWPORT SCALE
TITLE	1	1	N/A
GENERAL NOTES	1	1	1
DETAILS AND SUMMARIES	1	1	DETAIL DEPENDENT
PLAN & PROFILE SHEETS	1	20	1
CROSS SECTIONS	1	5	1

STARTING A PROJECT / NEW DRAWING

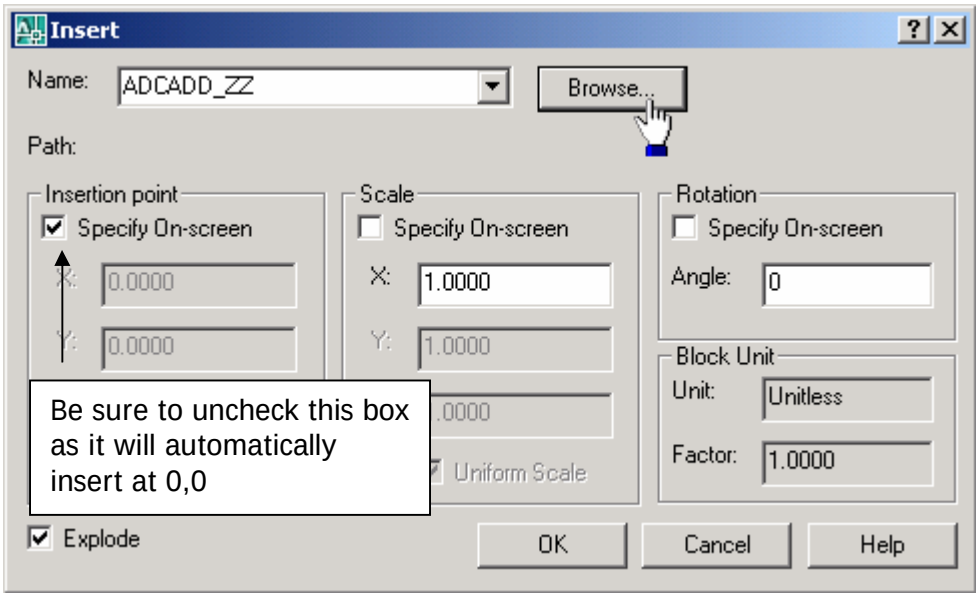
In this exercise, you will start a new drawing.

To begin, start Civil 3D:

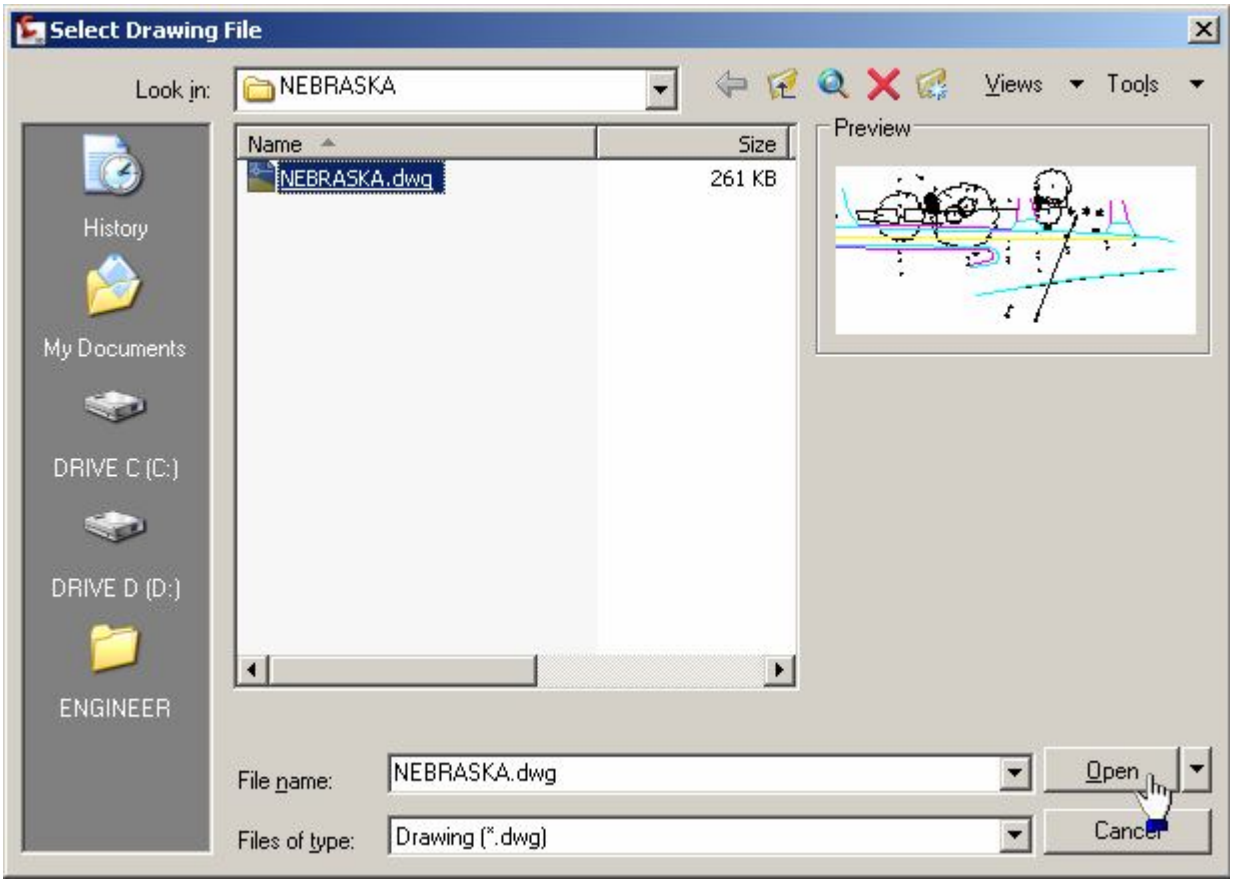


Or

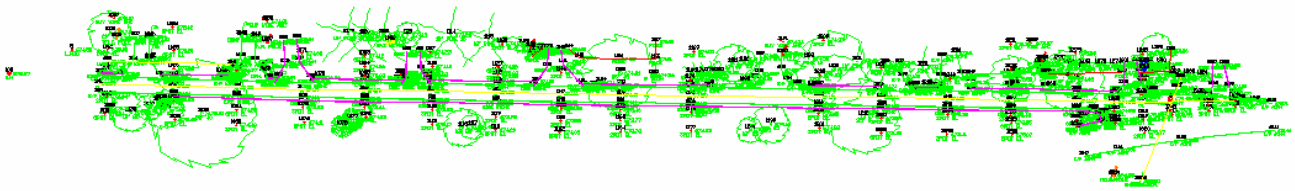
To begin your project, simply insert the .dwg you received from the Survey Dept., being sure to explode it on insert. Use 0,0 as your insertion point. Use the Insert pull down>Block or type in INSERT and Click the Browse button:



Browse to the project folder where the drawing is located, highlight it and click Open:



Click OK and type 0 , 0, then zoom, extents. Here is your new drawing :



Now save your new drawing in the project folder as

YOUR PROJECT NAME.dwg (Follow the standard naming conventions)

SURVEY FILES

This procedure is for the Lucas County Engineers Office; however, if consultants use the raw survey file format presented in this manual, they can also use the Stringer Connect program, downloadable free from http://www.civil3dtools.com/.

Below is an example of the files you should receive from the Survey Dept.:

The .crd, .dc and .raw files are not crucial to your project, they are; however, crucial to the Survey Dept. Please DO NOT erase them, as they can be used to reprocess a job if there are problems.

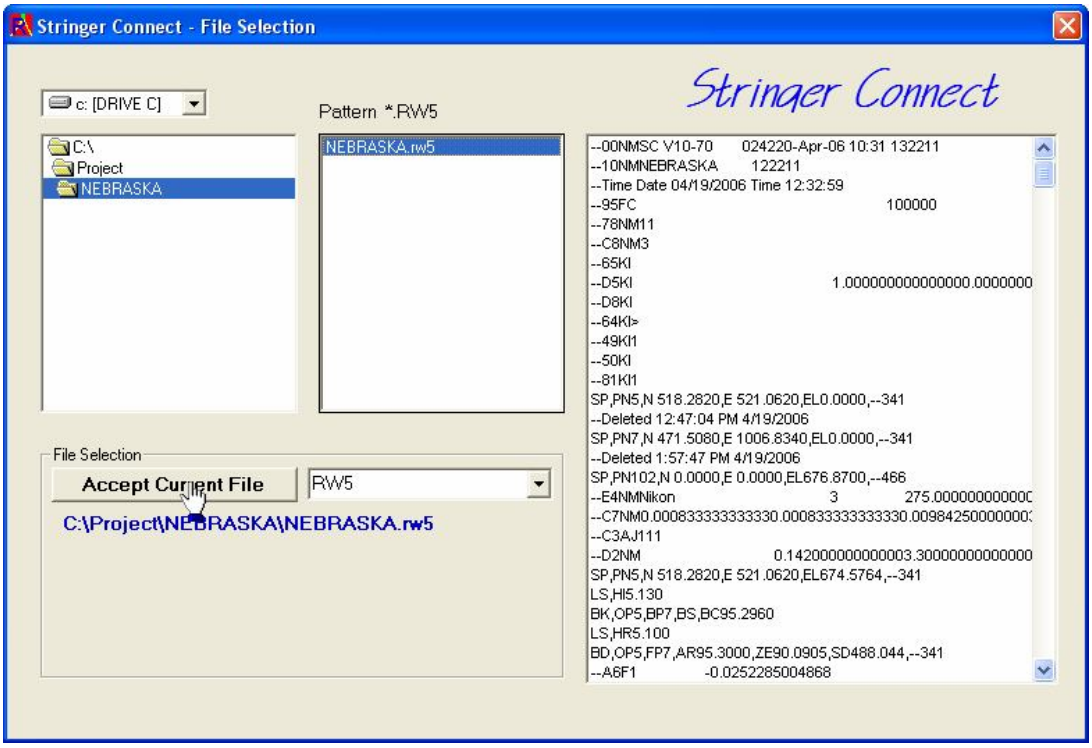
The files that you are interested in are the .dwg, .rw5 and the .txt file.

The .txt file is the point file you will import into your drawing to create your TIN.

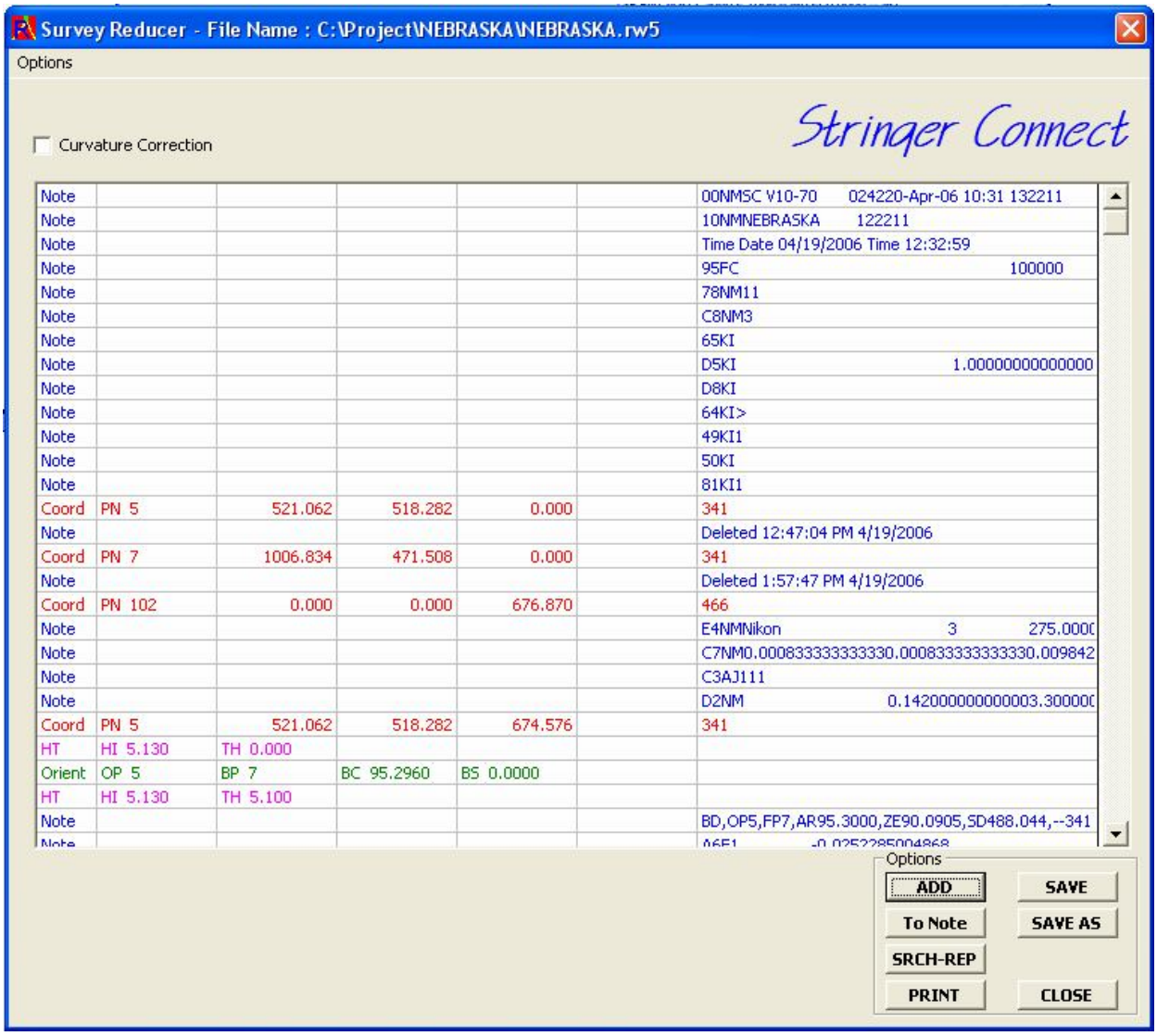
The .rw5 is the survey file that contains the survey data (note: it is not in coordinate format). The .rw5 file is viewable with the Stringer Connect program (freeware):

Start Stringer Connect. Click the “Click to Continue”.

Browse to the RW5 file you wish to open and click “Accept Current File”:



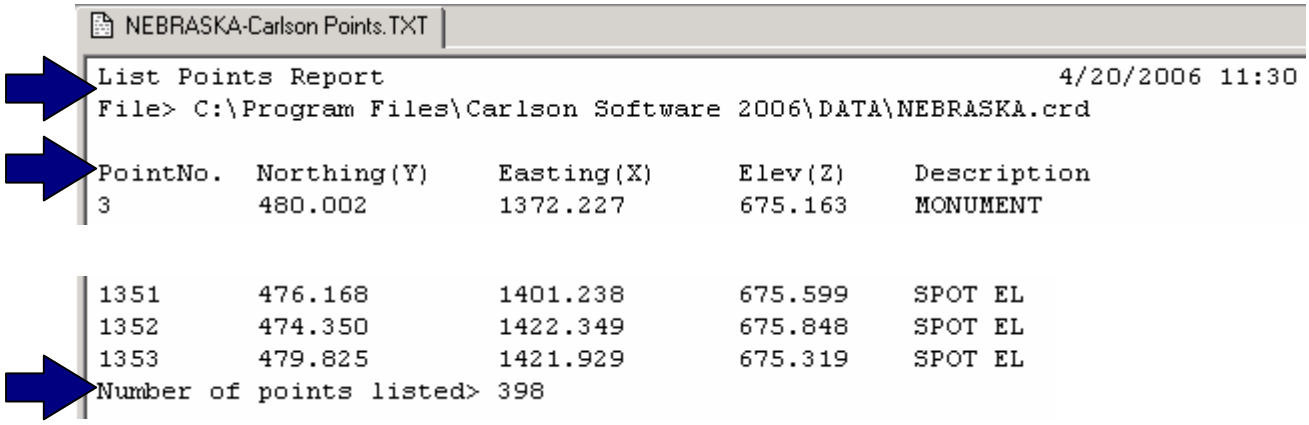
Here is how the RW5 file looks in the Stringer Editor. Everything is color coded. When you click on an item, be sure to click on the item in the very far left column. When an item is highlighted, the information of that item appears at the bottom of the application screen:



The sole purpose of this program is to allow you to check the setups and bench marks in this file against what the survey crew has written down in the field book for your project.

IMPORTING POINTS, MANAGE SURFACE SETTINGS AND CREATE BREAK LINES

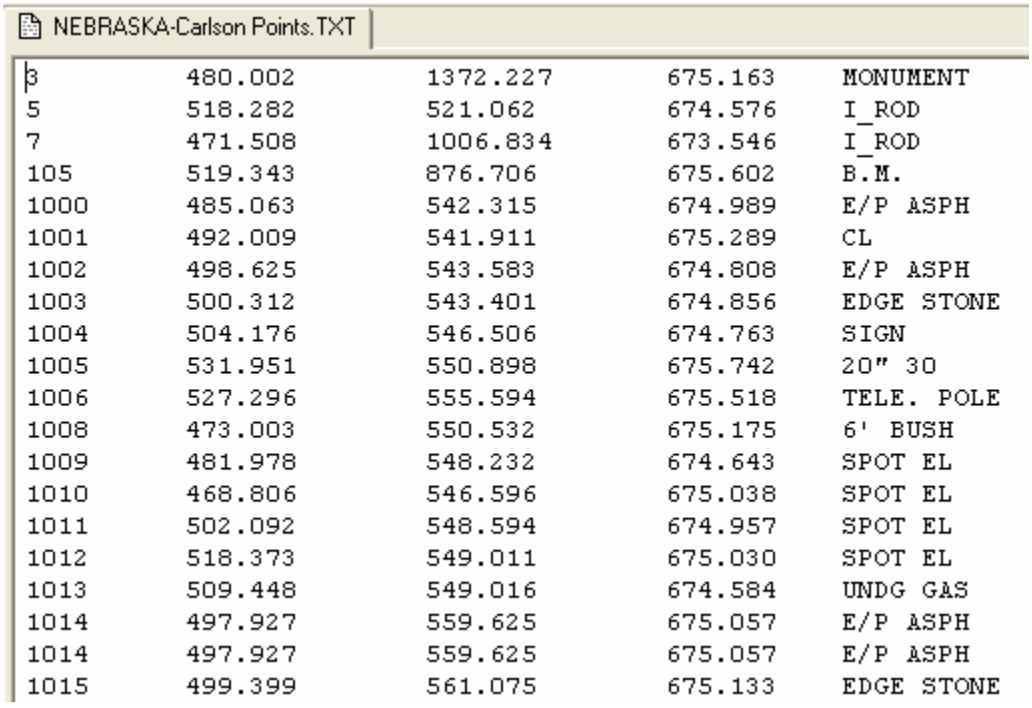
Before importing points, be sure to do the following to the point text file:



NEBRASKA-Carlson Points.TXT

```
List Points Report                                          4/20/2006 11:30
File> C:\Program Files\Carlson Software 2006\DATA\NEBRASKA.crd

PointNo.  Northing(Y)     Easting(X)      Elev(Z)     Description
3         480.002         1372.227        675.163     MONUMENT

1351      476.168         1401.238        675.599     SPOT EL
1352      474.350         1422.349        675.848     SPOT EL
1353      479.825         1421.929        675.319     SPOT EL
Number of points listed> 398
```

Delete the highlighted areas of text. Otherwise, they will interfere with the import process. The file should look like this when you're done.

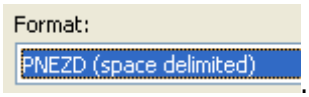


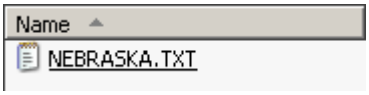
NEBRASKA-Carlson Points.TXT

```
3         480.002         1372.227        675.163     MONUMENT
5         518.282         521.062         674.576     I_ROD
7         471.508         1006.834        673.546     I_ROD
105       519.343         876.706         675.602     B.M.
1000      485.063         542.315         674.989     E/P ASPH
1001      492.009         541.911         675.289     CL
1002      498.625         543.583         674.808     E/P ASPH
1003      500.312         543.401         674.856     EDGE STONE
1004      504.176         546.506         674.763     SIGN
1005      531.951         550.898         675.742     20" 30
1006      527.296         555.594         675.518     TELE. POLE
1008      473.003         550.532         675.175     6' BUSH
1009      481.978         548.232         674.643     SPOT EL
1010      468.806         546.596         675.038     SPOT EL
1011      502.092         548.594         674.957     SPOT EL
1012      518.373         549.011         675.030     SPOT EL
1013      509.448         549.016         674.584     UNDG GAS
1014      497.927         559.625         675.057     E/P ASPH
1014      497.927         559.625         675.057     E/P ASPH
1015      499.399         561.075         675.133     EDGE STONE
```

In this procedure, you will import points from the point file of the project to the drawing.

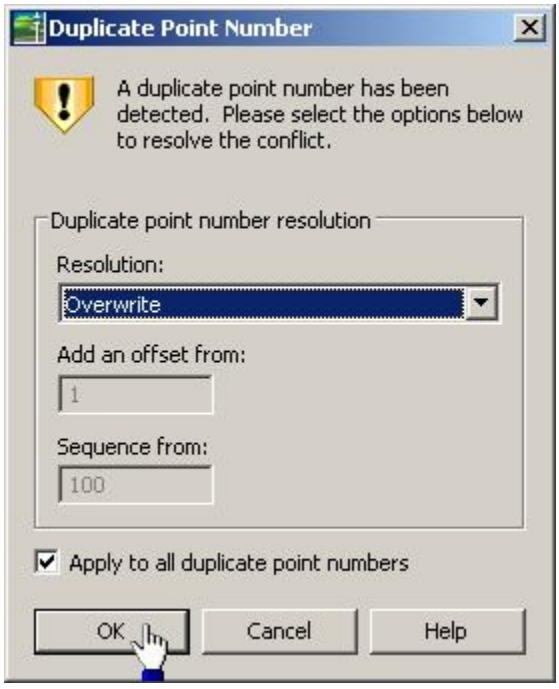
To import points from the project point file:

1. Start Civil 3D, browse to the Project folder, open drawing created previously.
2. In Toolspace, on the Prospector tab, right-click Points. Click Create.
3. In the Create Points dialog box, click  Import Points.
4. In the Format list, select 

.
5. Browse to the Source File  .
6. Click 

and click Open 

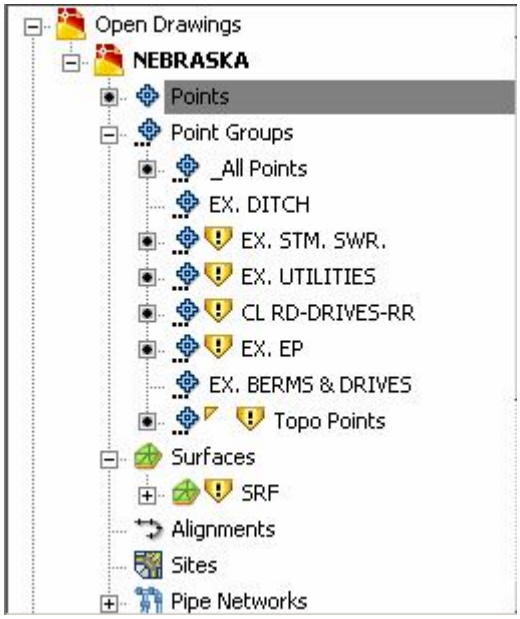
.
7. Click OK. You may get the following box. Select the overwrite option and click OK:



The points are imported.

Close the Points Dialogue Box.

The imported points should be under the Points and Point Groups. You'll notice that all the point groups are automatically grouped and filtered. Right click on each one that has the exclamation point in front of it and click update (including SRF under Surfaces):

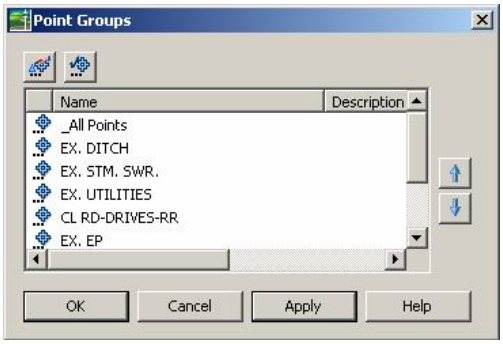


Here is the point listing under points:

Point Nu...	Easting	Northing	Point Elev...	Name	Raw Descri...
3	1372.2270'	480.0020'	675.163'		MONUMENT
5	521.0620'	518.2820'	674.576'		I_ROD
7	1006.8340'	471.5080'	673.546'		I_ROD
105	876.7060'	519.3430'	675.602'		B.M.
1000	542.3150'	485.0630'	674.989'		E/P ASPH

A Civil 3D Tip:

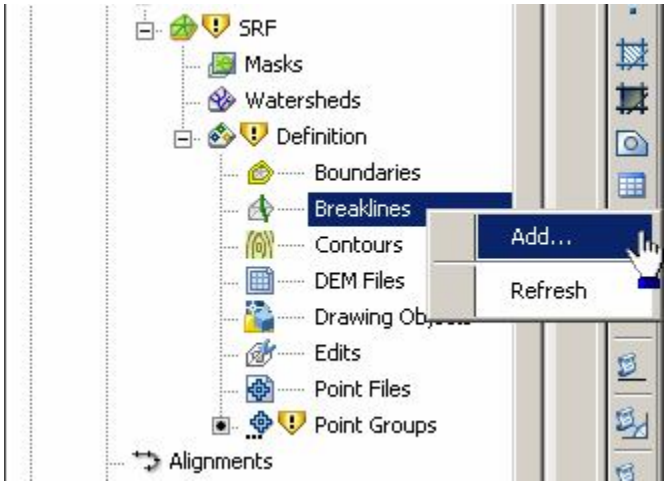
If you right click on point groups and click properties, you'll see this box:



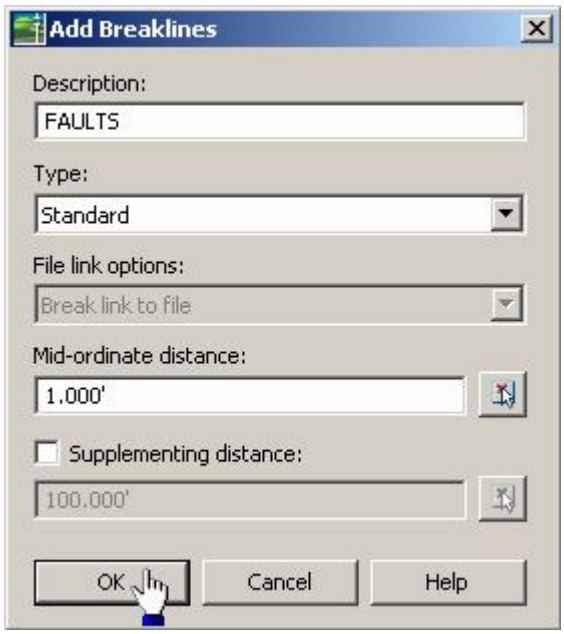
If you highlight a point group, and click the up and down arrows, this will put one point group over the other, hence, filtering which point group(s) you want to or don't want to see.

To create breaklines for your drawing, do the following:

Drill down through the SRF category, under Definitions and right click Breaklines and click Add…:

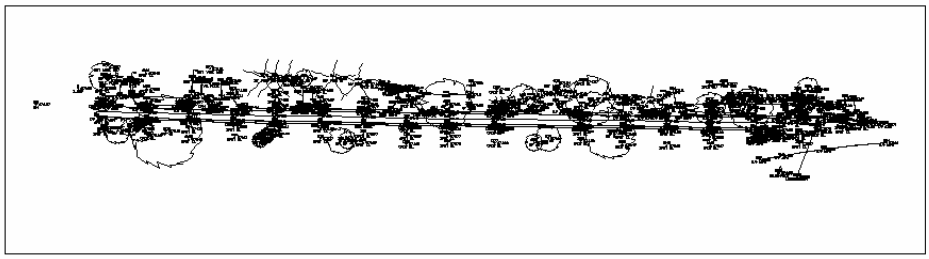


Give the Breakline group a name and click OK:



(NOTE: If you wish to add a boundary after creating your breaklines, create a polyline around your project site, right click on Boundaries in the Toolspace, click Add…, give your boundary a name, click OK, select the polyline you created and you're done.)

You will be prompted to Select objects. Window up all the topo items in the view and hit Enter:



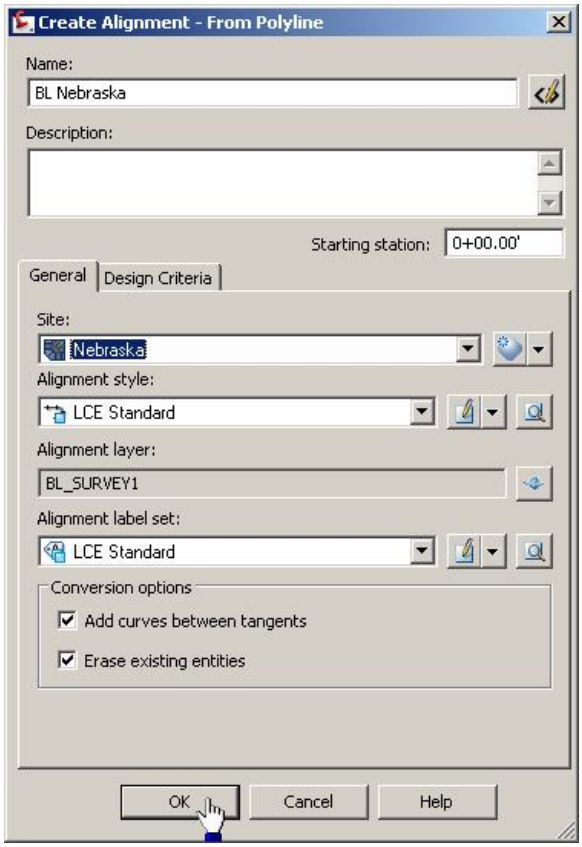
Right click SRF in Toolspace and rebuild your surface.

***Check Surface for anomalous elevations using 3D orbit or 3D View before proceeding further !**

CREATE AN ALIGNMENT

To define an alignment from a polyline

1. Draw a polyline in your drawing that represents the surveyed baseline that came from the Survey Department. When polyline is drawn, continue to next step.
2. Click Alignments menu. Create Alignment From Polyline.
3. Select the polyline.
4. In the Create Alignment - From Polyline Dialog Box, specify a Site or accept the default <None>.
5. Enter a unique name for the alignment.
6. Enter an optional description for the alignment.
7. Specify an alignment style or accept the default style.
8. Specify the object layer settings.
9. Specify an alignment label set or accept the default label set.
10. Specify the conversion options.
11. Click OK.



CREATE A STATION-OFFSET REPORT

In this procedure, you will create a station-offset report.

Type in staoff in the command prompt. Hit Enter.

```
Autodesk DWG.  This file is a TrustedDWG
or Autodesk licensed application.

Command: staoff
```

Type in SE for Settings and Enter:

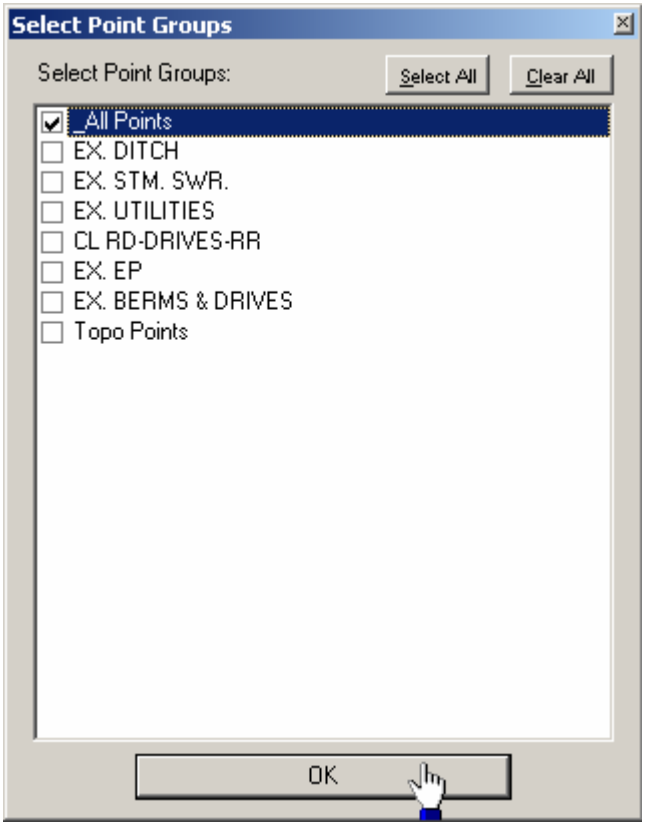
```
STAOFF
Site: Nebraska  Align: Alignment - (5)

Select points or [POintgroups/SEttings]:
```

Be sure to sort by Station, leave the rest as is. Click OK:

Type in PO for the Point Group:

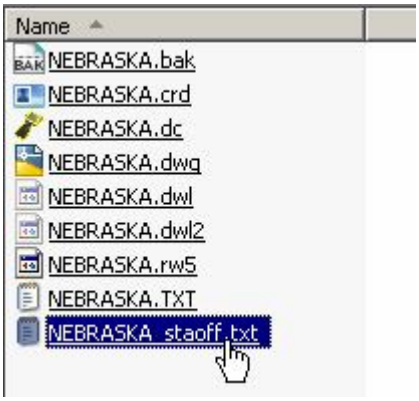
```
Site: Nebraska  Align: Alignment - (5)

Select points or [POintgroups/SEttings]: po
```

Check the box next to your point group and click OK:



Hit Enter.

Open up Notepad or Windows Explorer and open the report:



Here is the report:

NEBRASKA_staoff.txt

----Site: Nebraska Alignment: Alignment - (5) -----

PT NUM	STATION	OFFSET	ELEV	DESCRIPTION
1014	0+01.99	-1.279	675.057	E/P ASPH
1015	0+03.41	-2.782	675.133	E/P ASPH
1038	0+09.99	26.778	675.403	18" 25
1016	0+11.04	-13.336	675.051	E/P ASPH
1017	0+12.30	-32.249	675.232	E/P ASPH
1018	0+22.71	-32.088	675.245	E/P ASPH
1023	0+23.48	-30.499	675.211	ORN. LIGHT
1019	0+23.53	-14.684	675.045	E/P ASPH
1037	0+24.37	22.260	675.392	12" 20
1022	0+24.53	-15.528	675.092	ORN. LIGHT
1036	0+31.69	18.052	675.480	6' BUSH
1020	0+32.20	-2.405	675.061	EDGE STONE
1035	0+33.64	16.492	675.509	SIGN
1021	0+34.64	-0.214	674.996	E/P ASPH
1034	0+36.55	23.597	675.264	18" 25
1024	0+40.78	-39.983	675.423	SPOT EL
1025	0+41.97	-21.641	675.509	SPOT EL
1026	0+42.23	-8.153	674.816	SPOT EL
1028	0+42.41	-0.013	674.857	E/P ASPH
1029	0+42.41	5.818	675.169	CL
1027	0+42.43	-2.564	674.887	EDGE STONE
1031	0+42.64	13.206	674.893	EDGE STONE
1030	0+42.64	11.497	674.841	E/P ASPH
1032	0+42.78	15.869	675.224	SPOT EL
1033	0+44.38	31.496	675.484	SPOT EL
1039	0+66.49	26.241	675.213	50" 40
1040	0+79.27	-4.979	674.813	MAILBOX
1043	0+81.96	0.362	674.838	E/P ASPH
1044	0+84.84	-3.580	674.852	E/P ASPH

NOTE TO CONSULTANTS: THE STATION-OFFSET COMMAND IS NOT A CIVIL 3D COMMAND. IF YOU ARE INTERESTED IN USING THIS COMMAND ALONG WITH SOME OTHER USEFUL ONES, VISIT http://www.quux.biz/SincpacC3D.aspx . SINCPAC C3D SOFTWARE IS AN ADD-ON TO C3D. WHEN INSTALLED, IT INSTALLS THE TRIAL VERSION, AND LIMITS SOME OF THE COMMANDS AVAILABLE, BUT THE COMMANDS THAT DO RUN, RUN COMPLETE (INCLUDING THE STATION-OFFSET).

C3D DOES HAVE A BUILT IN STATION OFFSET REPORT, BUT OUR OFFICE PREFERS THE SINCPAC VERSION .

Chapter

2

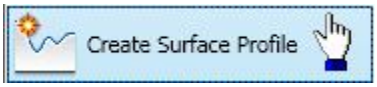
Profiles and Cross Sections

Table of Contents

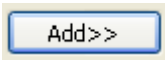
CREATE A PROFILE

To create a Profile (create profile in the Design.dwg)

1. **Under the Create Design Tab, click Profiles pull down ➤ Create Surface Profile.**



2. **In the Create Profile From Surface dialog box, in the Alignment field, select**

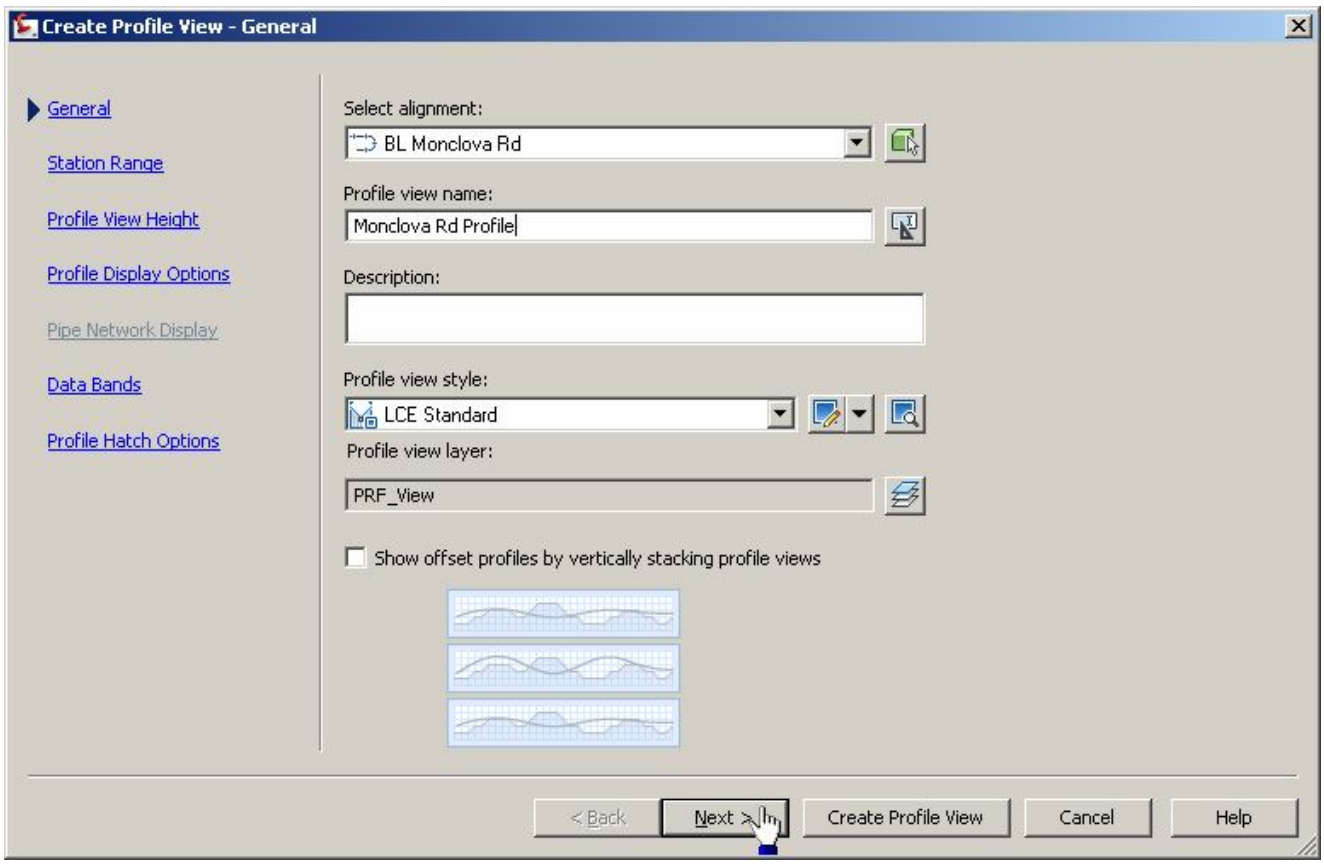
On the right side of the dialog box, click 

. A centerline profile is added to the Profile List.

3. **Click** 

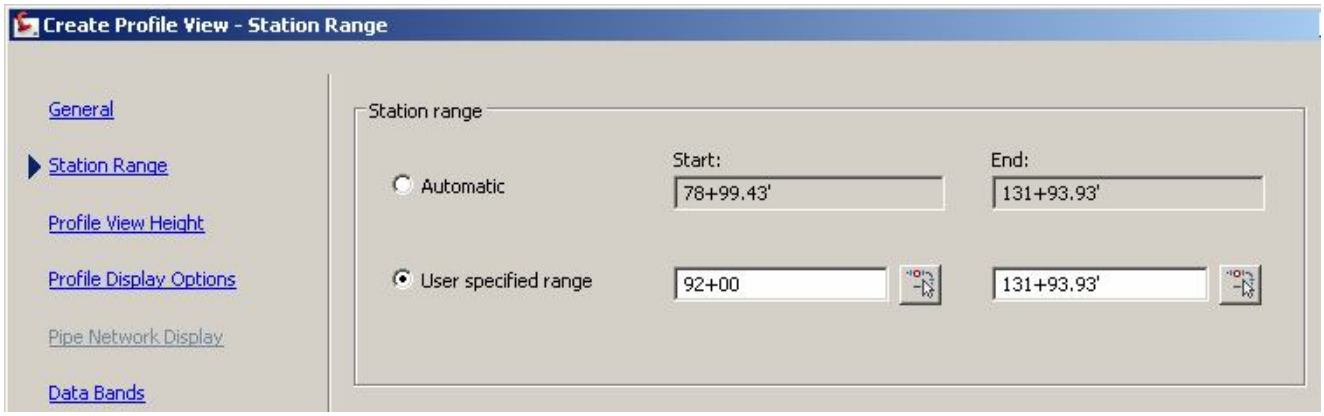
.

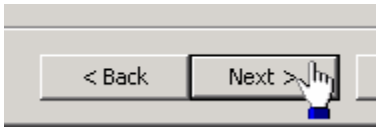
This is the Create Profile View Wizard. Give your profile view a name, check other settings, click Next:



Note: Most settings for the Profile and Profile View are preset.

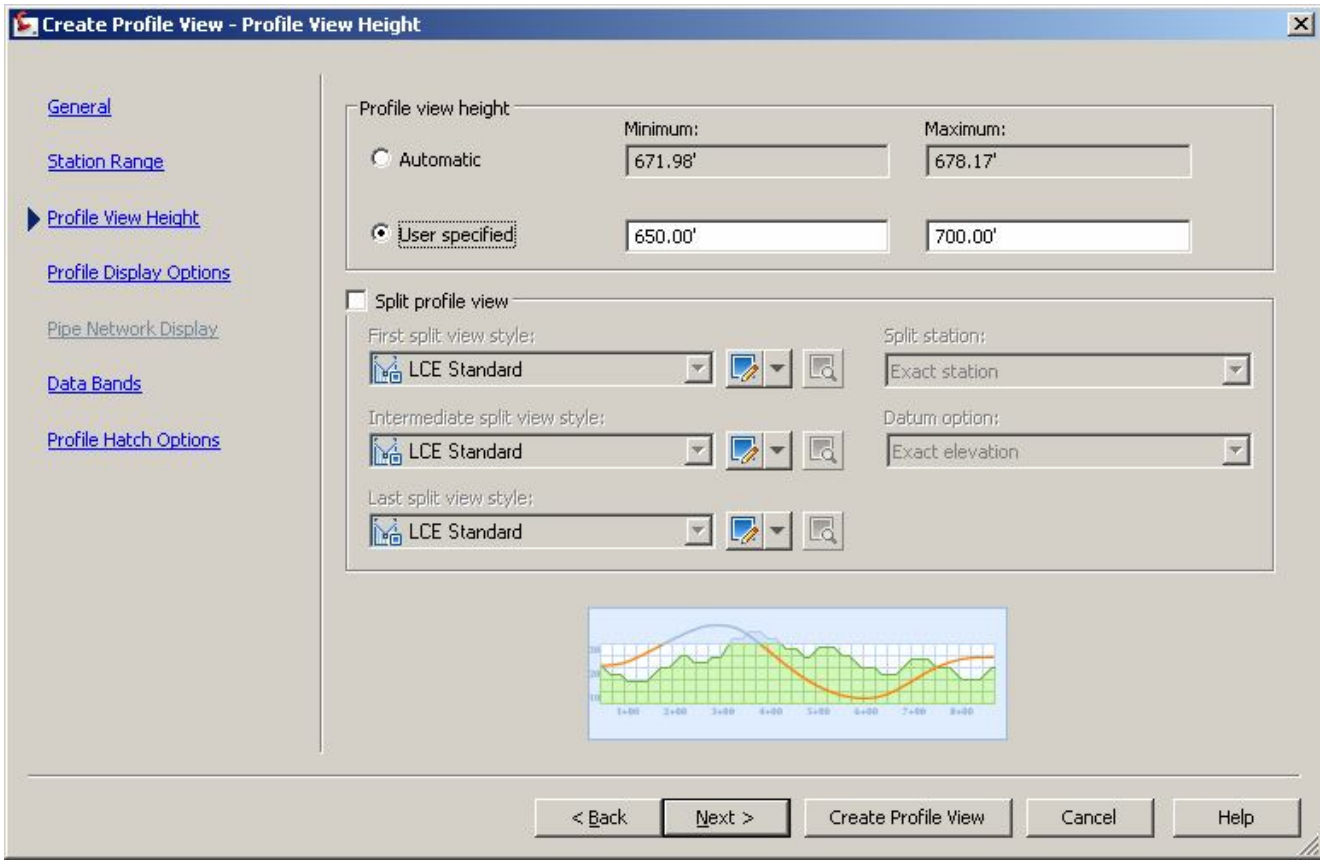
Keep your Station Range to Automatic or customize it to your project needs:





Click Next.

Adjust the Profile View height:



Here are the explanations of Split Profile Views:

Split Profile View

Specifies that the profile view will be split if the height of the profile extends beyond the User-Specified height value of the profile view.

First Split View Style

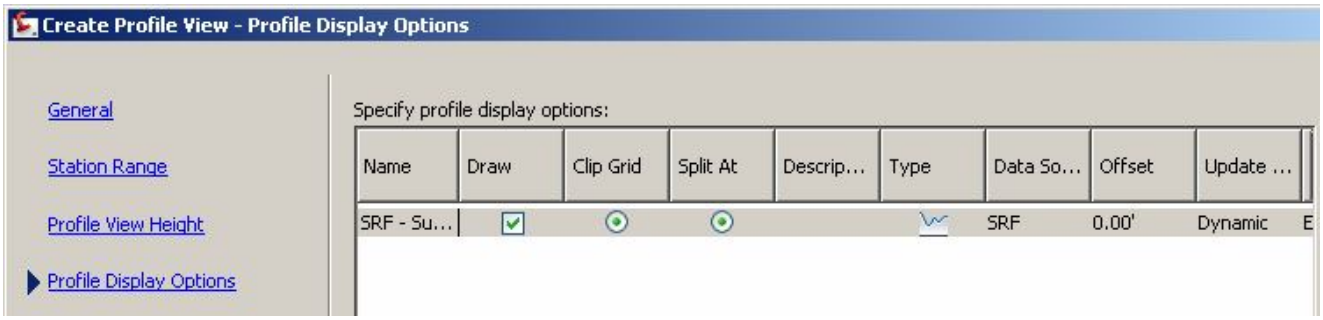
Specifies the profile view style to use for the first split profile view segment. Use the standard controls to edit the style or create a new one.

Intermediate Split View Style

Specifies the profile view style to use for the all split profile view segments between the first and last segments. Use the standard controls to edit the style or create a new one.

Click Next.

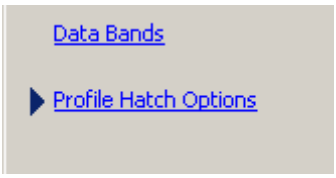
Profile Display Options (you shouldn't have to do anything to this):



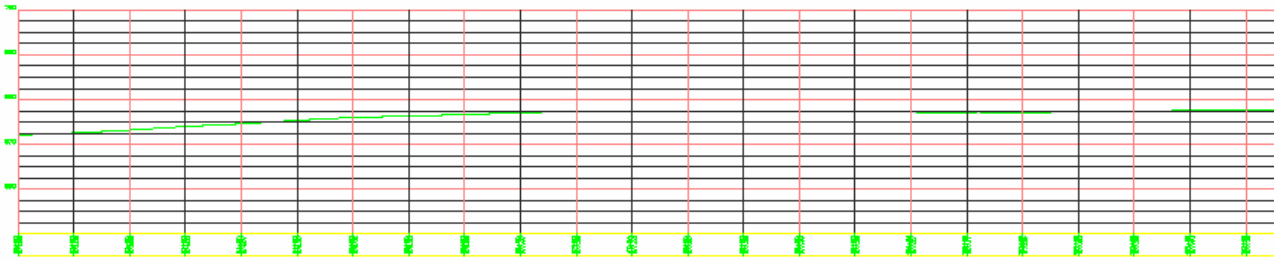
Click Next.

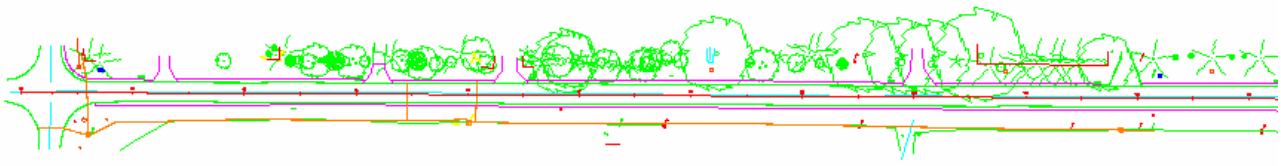
Data Bands (you shouldn't have to do anything to this either):

Profile Hatch Options (to be covered at a later time):



Click Create Profile View. Select your Profile View origin.

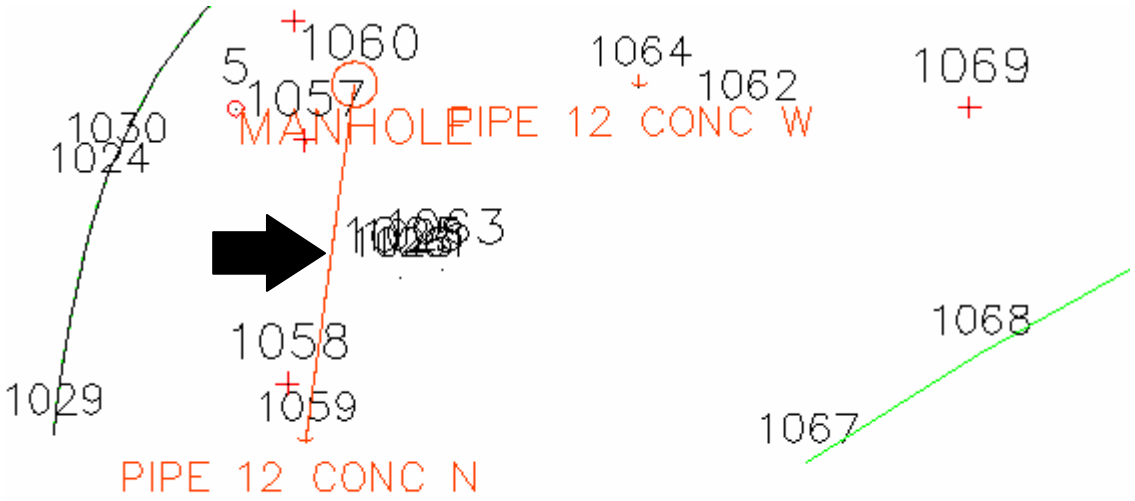




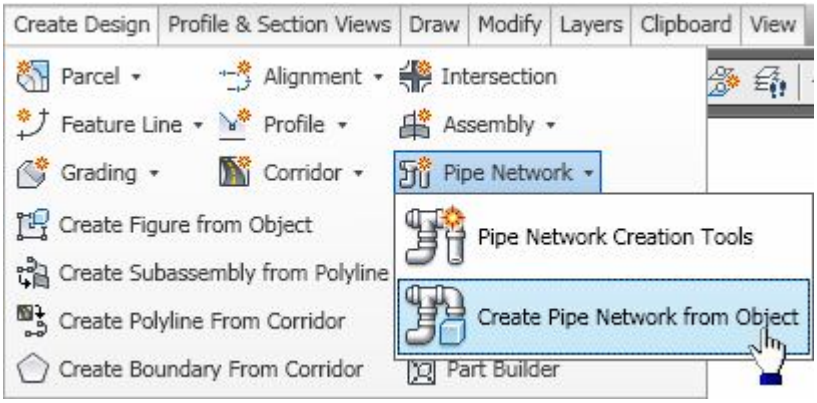
EXISTING PIPE NETWORKS

TO CREATE AN EXISTING PIPE NETWORK

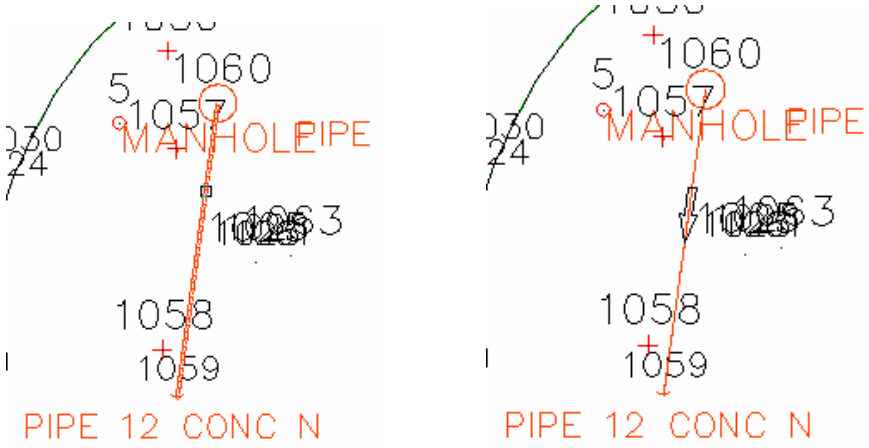
Draw in a pline either from a pipe end to a structure or from a structure to a structure. In this case, it's a pipe end to a structure:



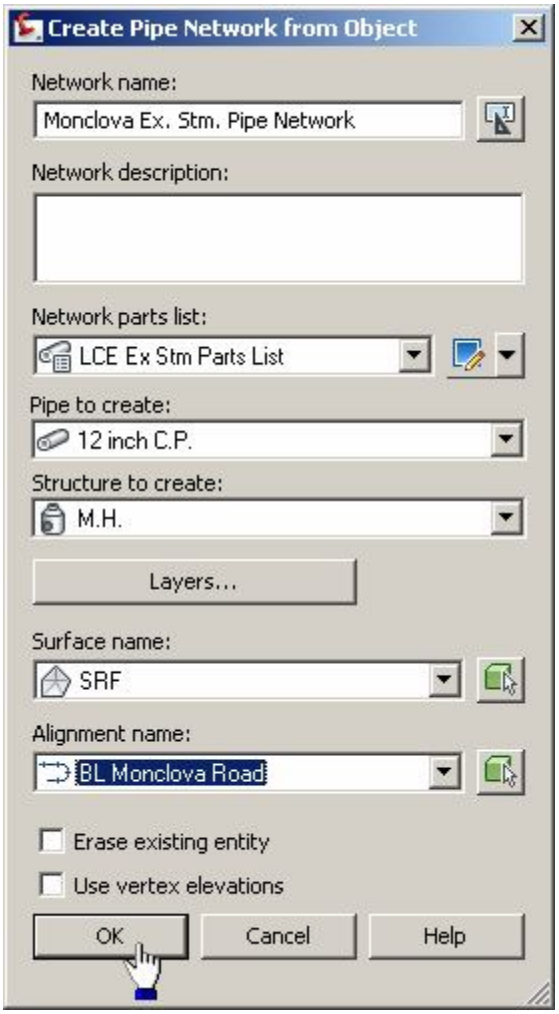
Now, go to the Create Design>Pipe Network>Create Pipe Network from Pipe network:



Select the pline you drew. When the flow arrow appears, if it's pointing in the right direction, just hit the Enter key. If not, just type R and hit enter and then enter again:

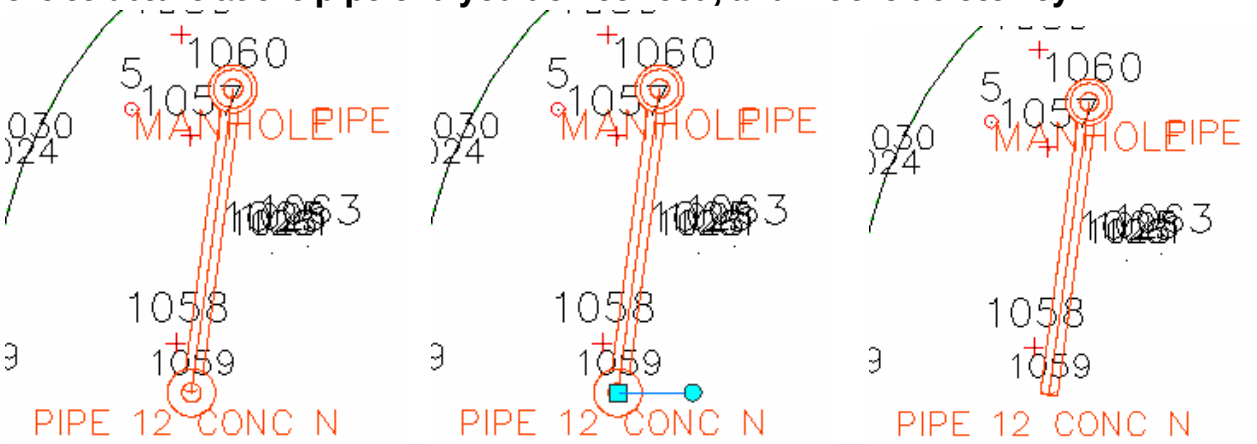


You should now have a box like this:



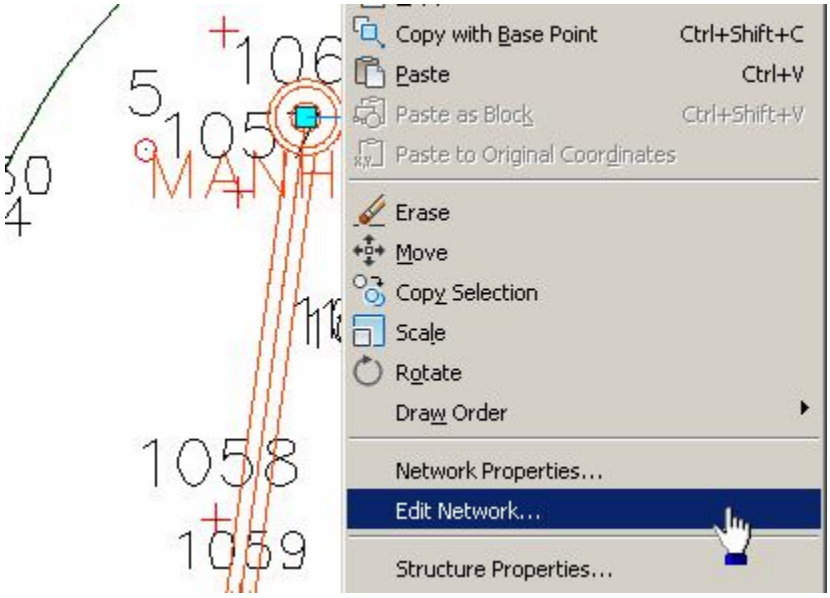
Be sure your settings are correctly set for this type of pipe network, then click OK.

You'll notice it put a structure in at both ends. This is typical, but the only time you will have to deal with this is when you are starting a new pipe network. Just select the structure at the pipe end you do not need, and hit the delete key.

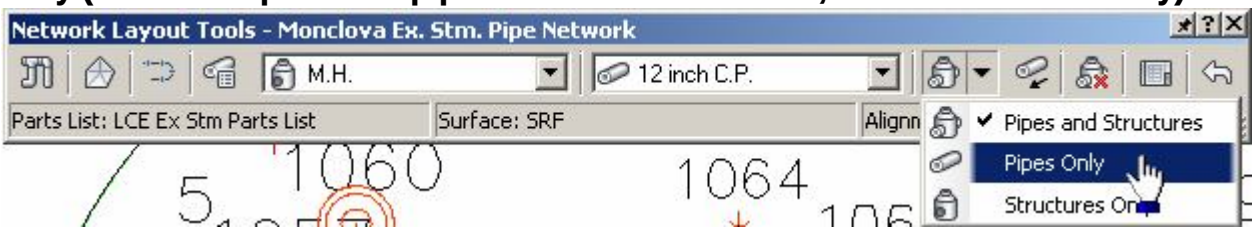


Now that you have an existing pipe network to begin with, you can now edit it to add other structures and pipes to this particular pipe network.

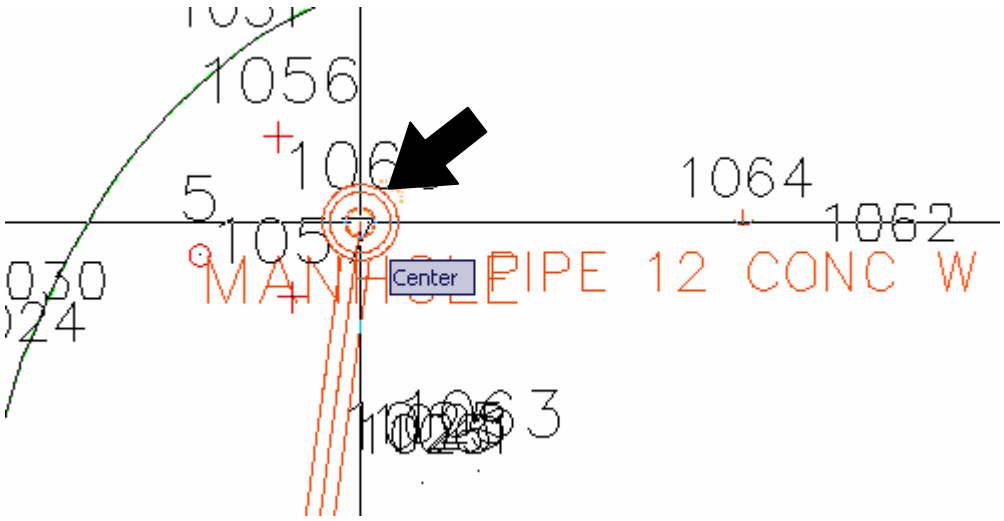
Click on the pipe and right click, then click Edit Network:



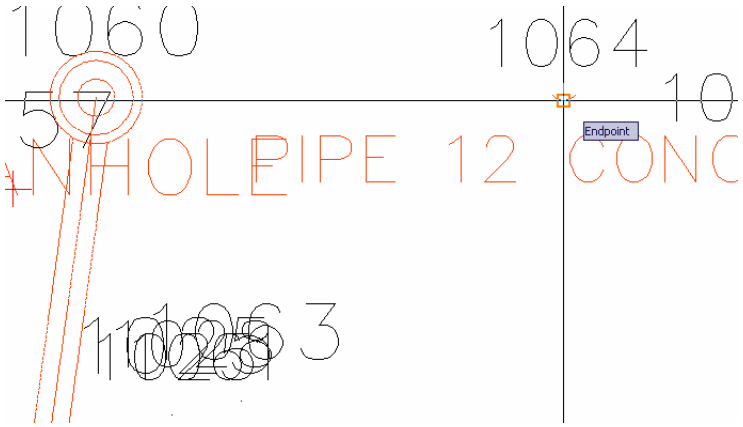
The Network Layout Tool appears for this pipe network. Change the mode to Pipes Only (if the next point is a pipe end-if it is a structure, select Structures Only):



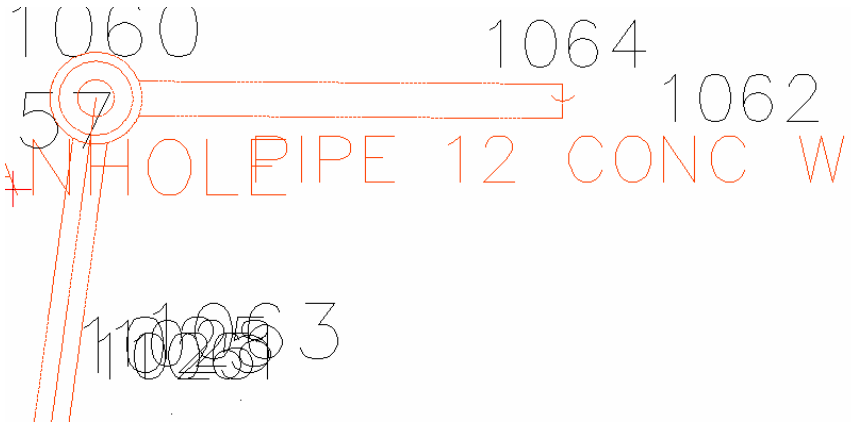
Select the Structure:



Then select the next point along the pipe run, whether it's a pipe end or the next structure:



If this is the end of the run, hit Enter. Here is your result. You can continue adding selective runs to this one network:

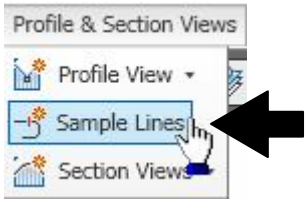


CREATING SAMPLE LINES

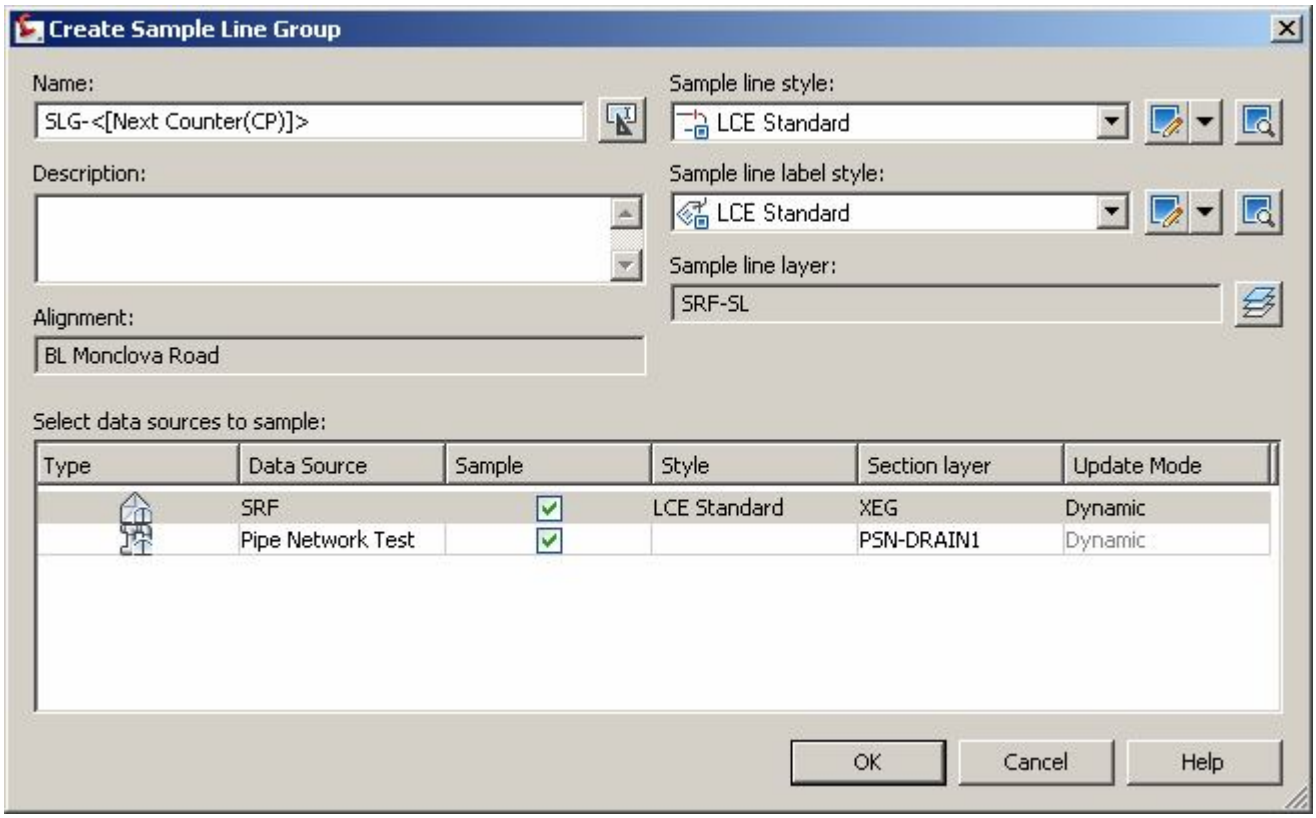
In this procedure, you will create a set of sample lines along the alignment. This is the first step in generating cross sections. Start up your Cross Sections drawing that you created from the previous section.

The sample lines define the stations at which the cross sections are cut, and also the width of the sections to the left and right of the alignment. A set of sample lines is stored under a Sample Line Group for the alignment. Each sample line group has a unique name. Each line within the group also has a unique name.

To create sample lines

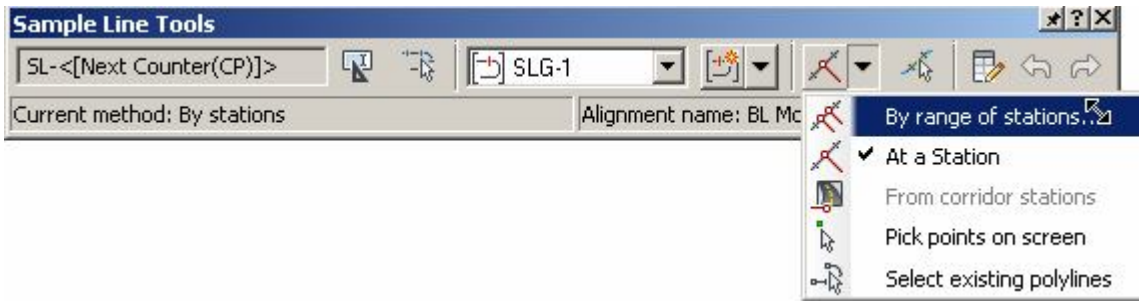


1. **Click the Profiles and Section Views ➤ Sample Lines.**
2. **At the Select an Alignment prompt, press Enter to display the Select Alignment dialog box.**
3. **Select your alignment. Click OK.**
4. **On the next dialogue box, <u>be sure to select the layers for Sample line layer and the Section sampling defaults layer.</u>**

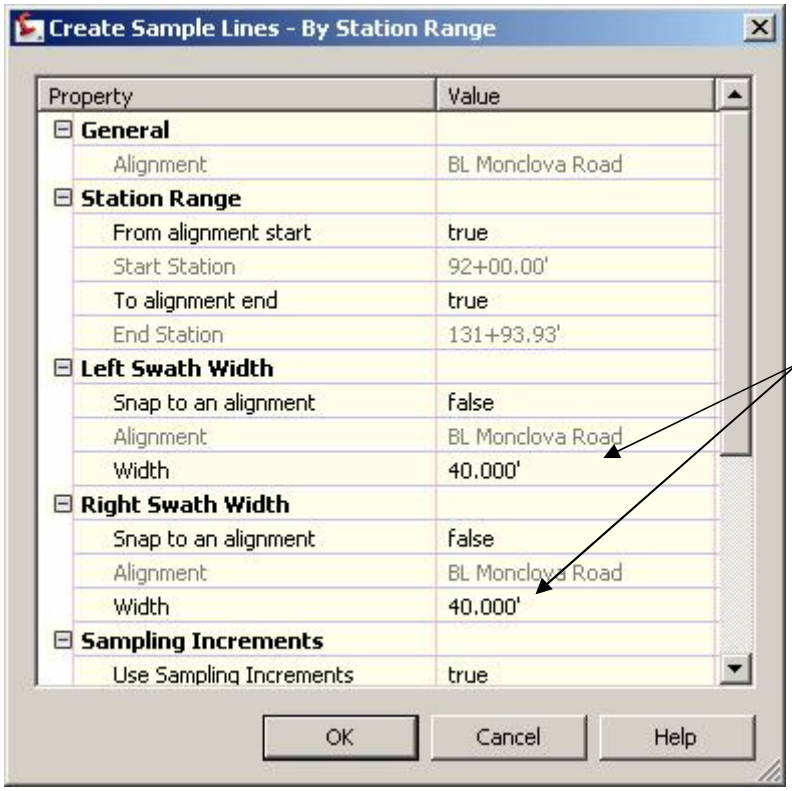


Click OK.

5. On the Sample Lines Tools bar, click this pull down to get the station range option:



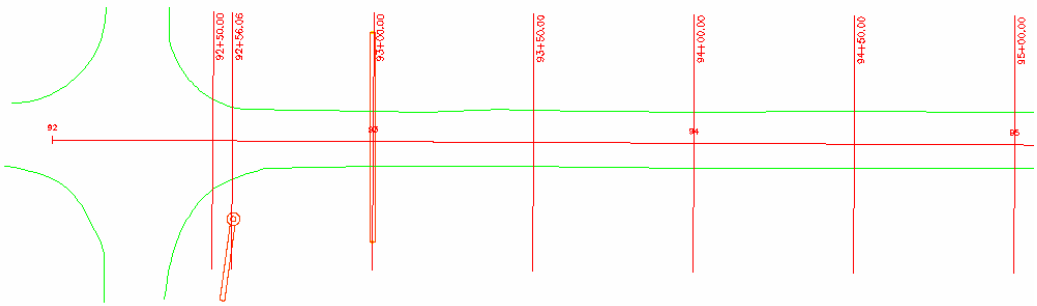
You should get this box. Fill it in as shown:



These are the right and left distances from CL – use own judgment for determining

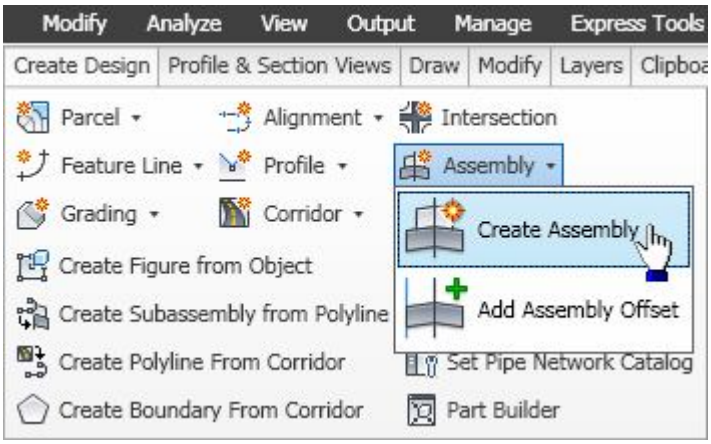
Click OK.

Now select specific locations along you baseline, (such as drive locations, existing storm drain structures, etc.) to include them with the sample line creation. Be sure to include the swath widths (Note: Consult your driveway summary to specify drive locations by stations):

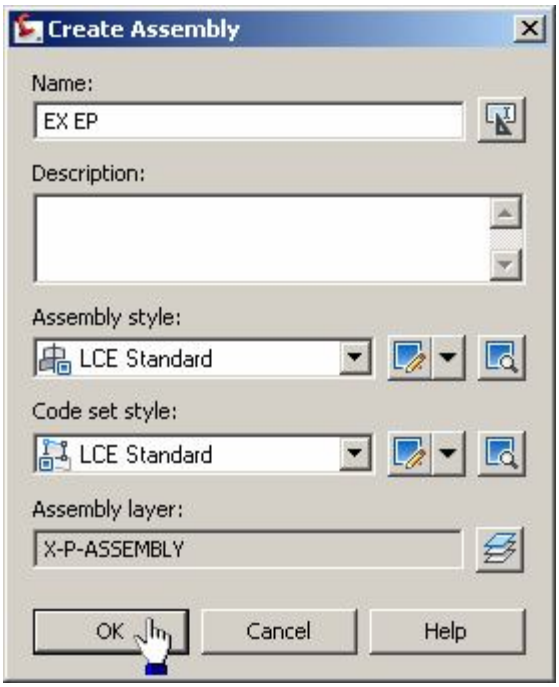


CREATE EX. EDGES OF PVMT. IN CROSS SECTIONS

In your Cross Section drawing, create an Assembly called “EX-EP”

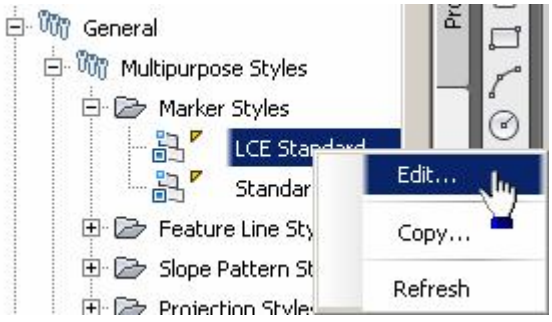


Be sure the settings are as follows. Keep the Code set style as Standard:

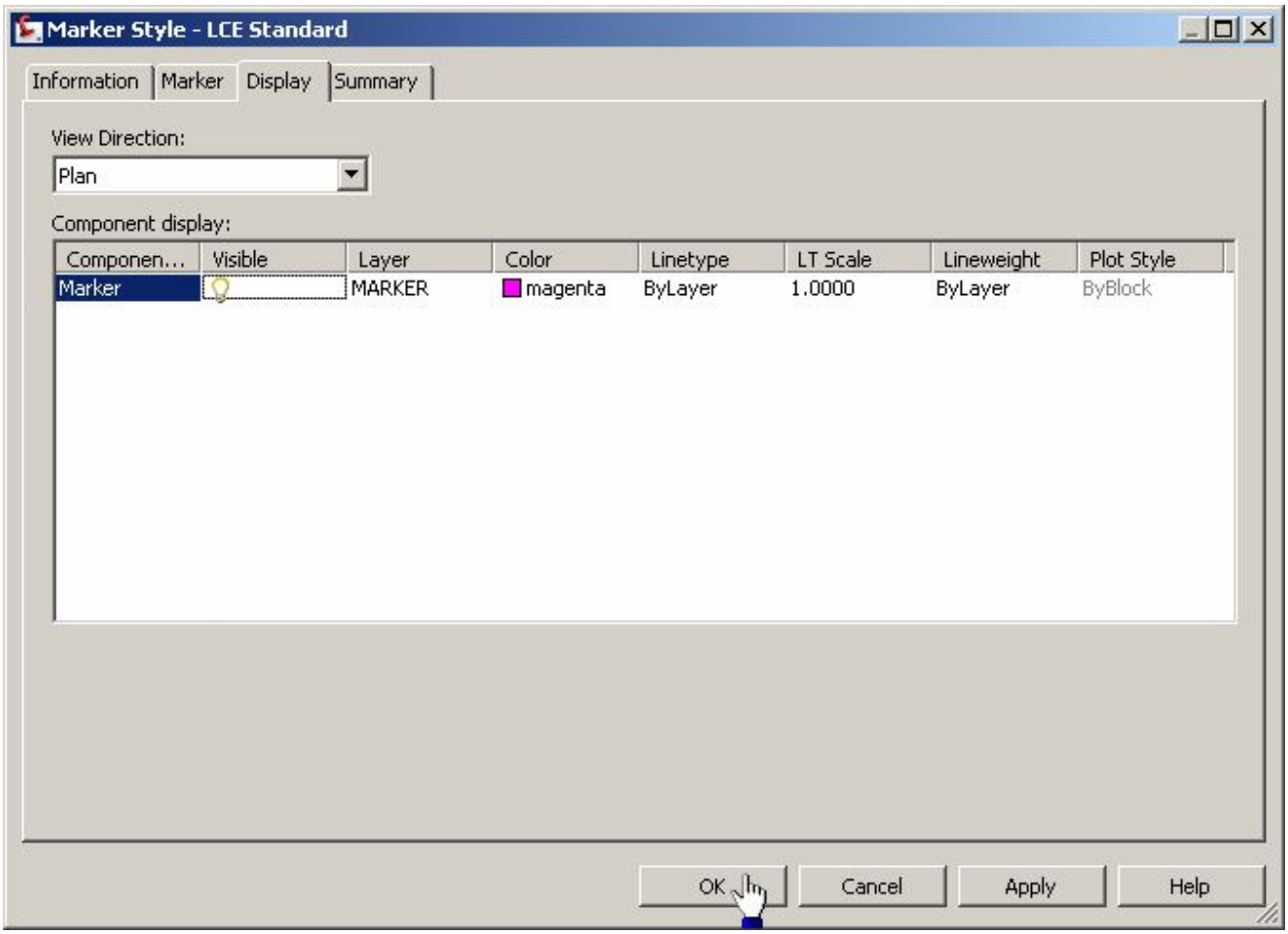


Pick a point to locate your new assembly:

Next, make sure your markers are on:



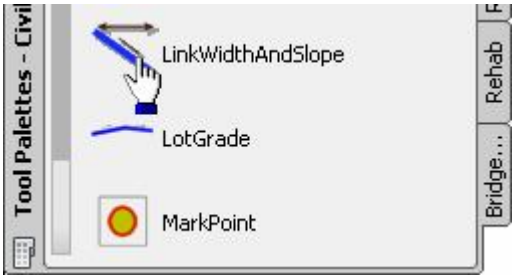
Click the light bulb to turn them on and click OK:



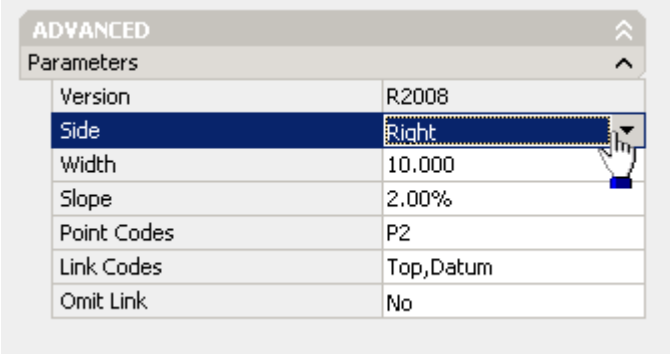
Make sure your Tool Palettes is up to see the assemblies:

Select the following assembly component under the Imperial – Generic Tab:

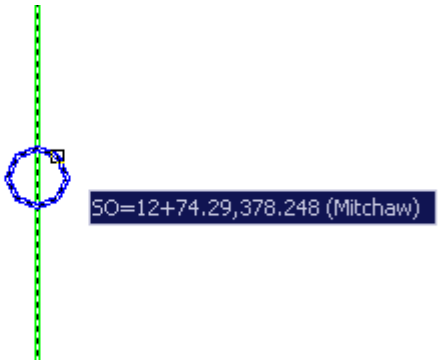
LinkWidthAndSlope



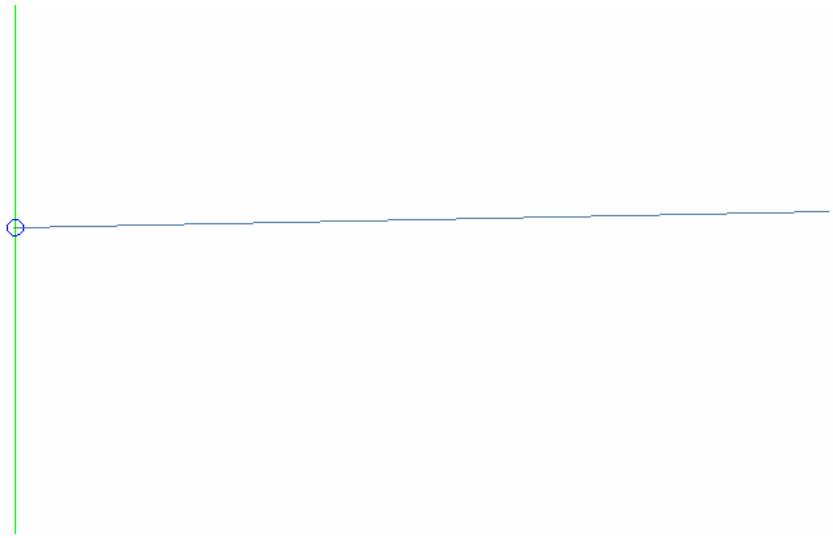
Next, go to your properties box and make sure the side is set to right:



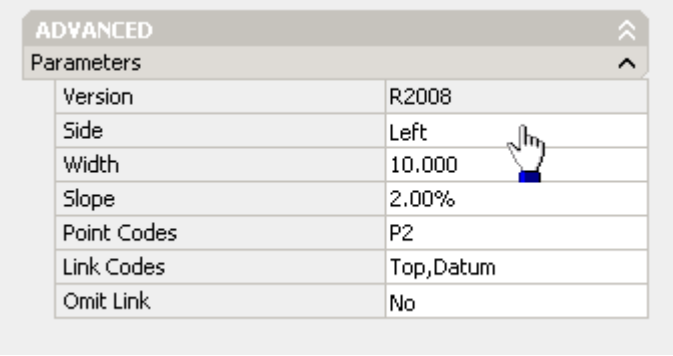
Now, select the assembly maker:



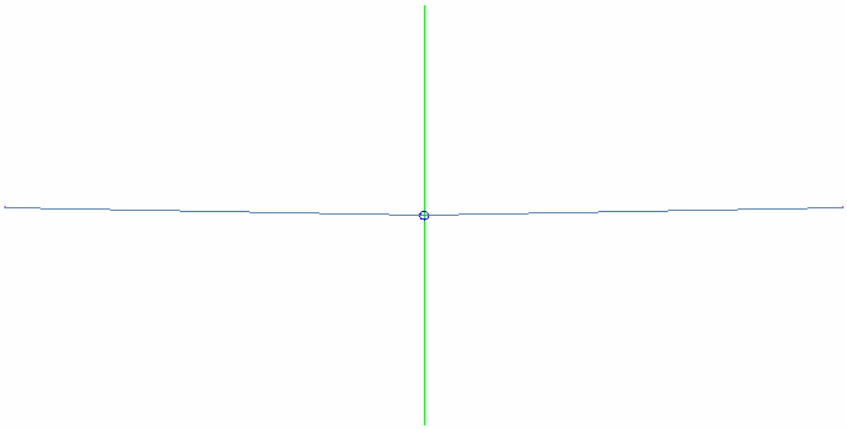
You should see this:



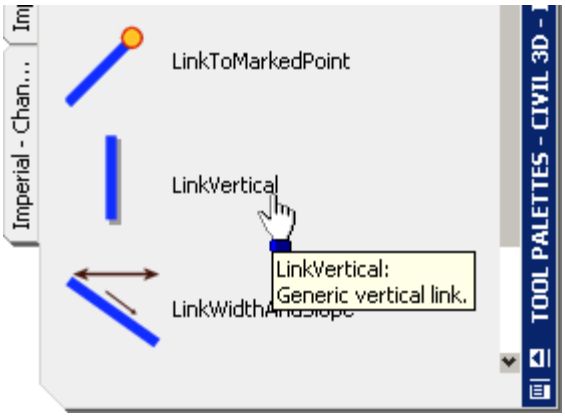
Go back to Tool Palettes and select the same component LinkWidthAndSlope, then go to properties and switch the side to Left:



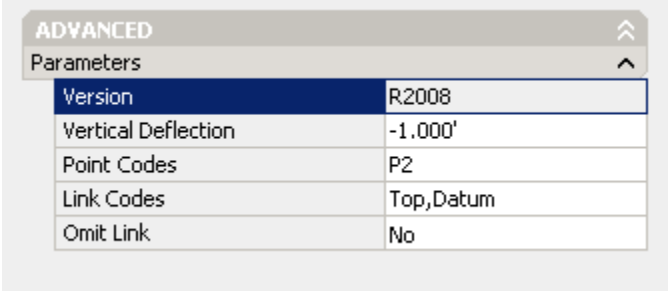
Now, select the assembly marker again and you should see this:



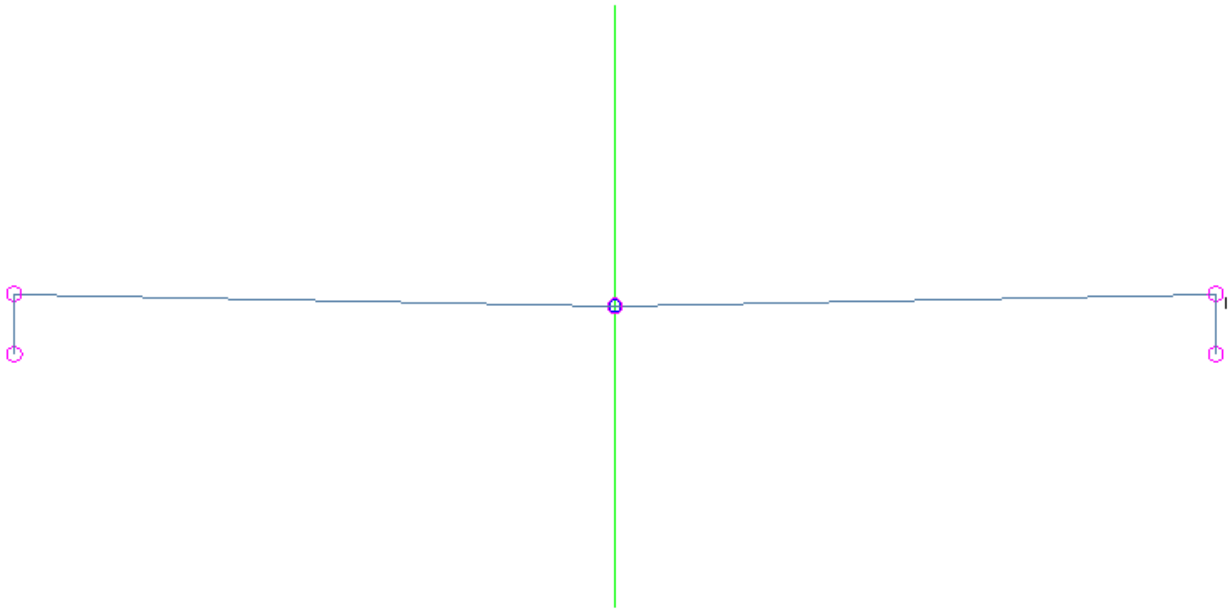
Go back to your Tool Palette and select LinkVertical:



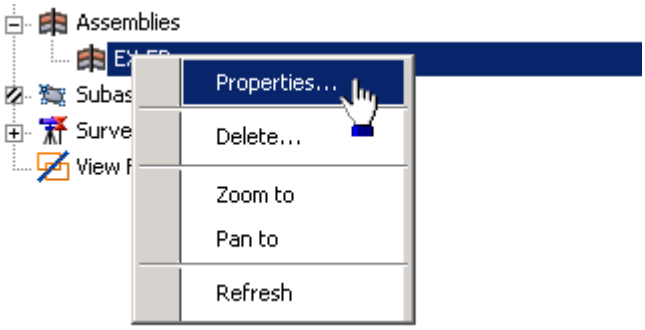
Go to properties and change the Vertical Deflection to -1:



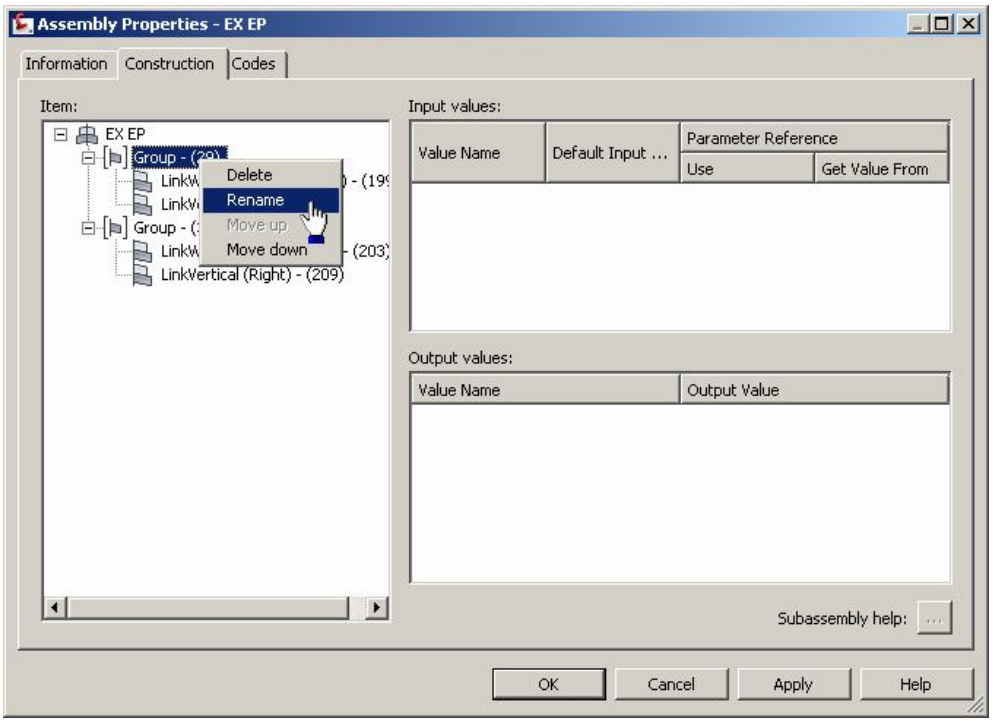
Now select one end marker and hit enter until you get the Command Prompt to insert the LinkVertical component. Repeat for the other side:



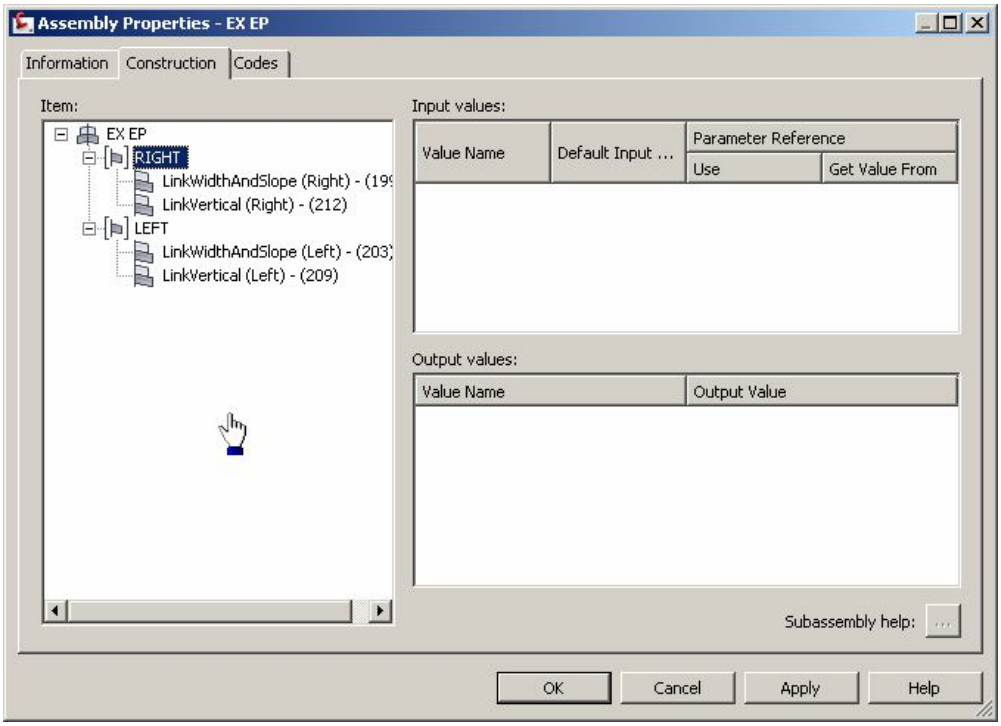
Now go to your Prospector Tab and right click your assembly called "EX-EP" and click properties:



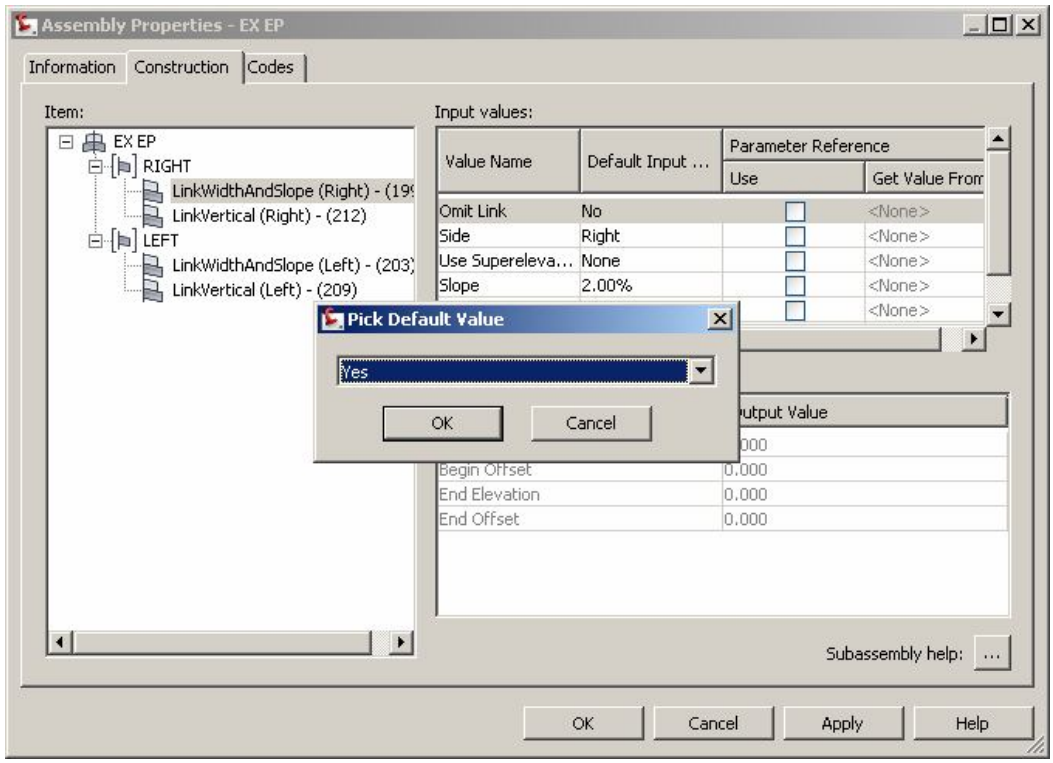
Make the Construction tab active, right click on the Group Names and rename them to something meaningful:



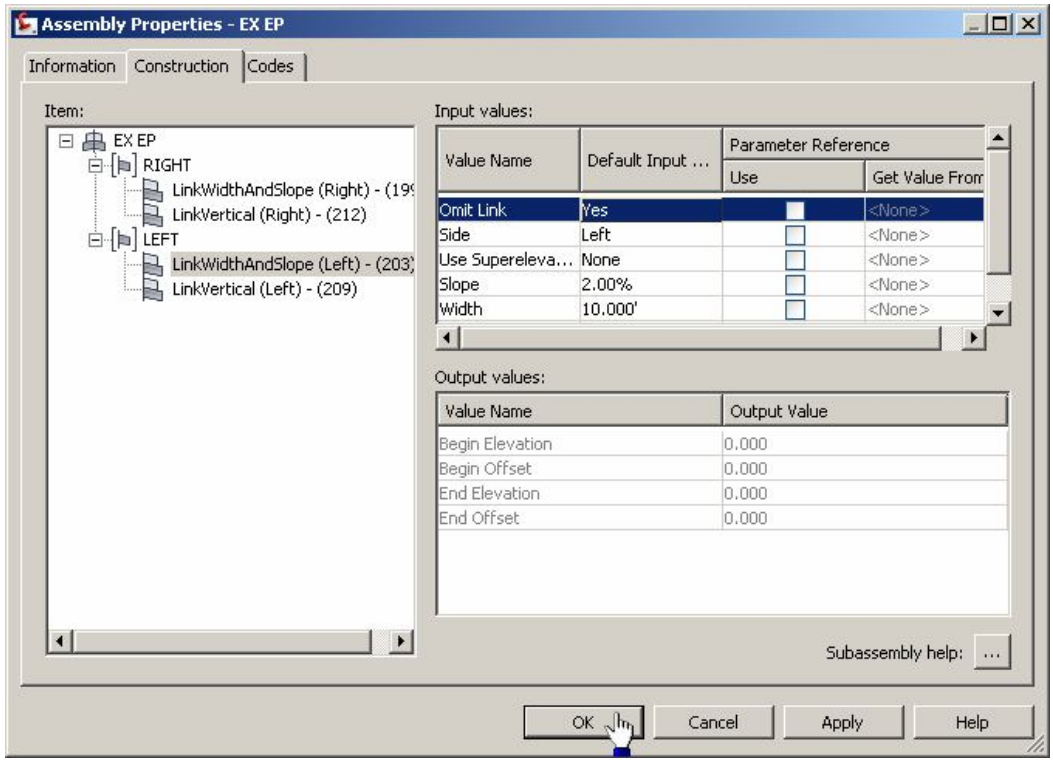
Like LEFT and RIGHT group:



Click on the Right LinkWidthAndSlope, and under the Default Input Value, change the Omit Link to Yes. Repeat for the LEFT side:

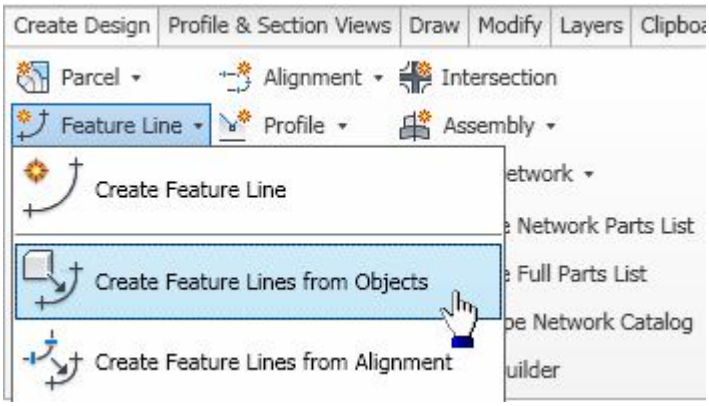


Now click OK:

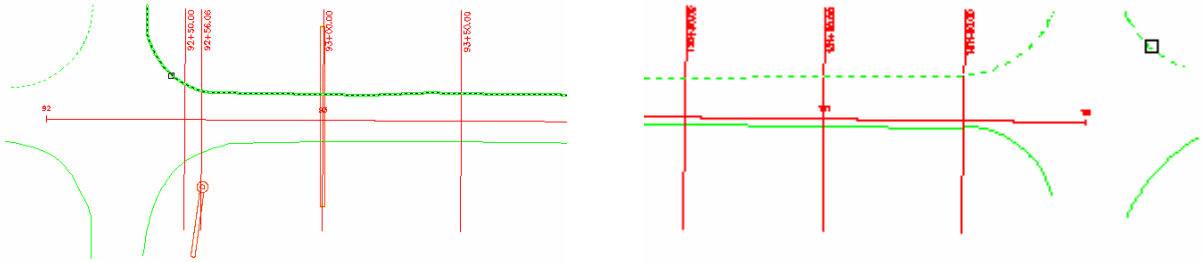


Go back and turn off your markers.

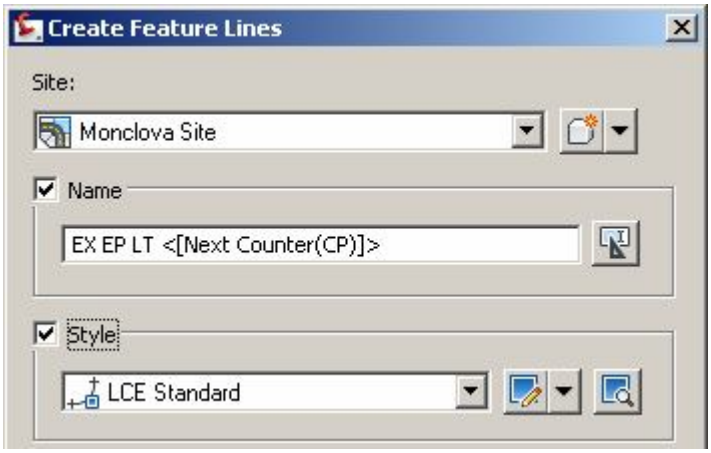
Now you are going to create Feature Lines from the 3D EP lines you inserted earlier. First, do this. Go to Create Design>Feature Line>Create Feature Lines from Pipe networks:



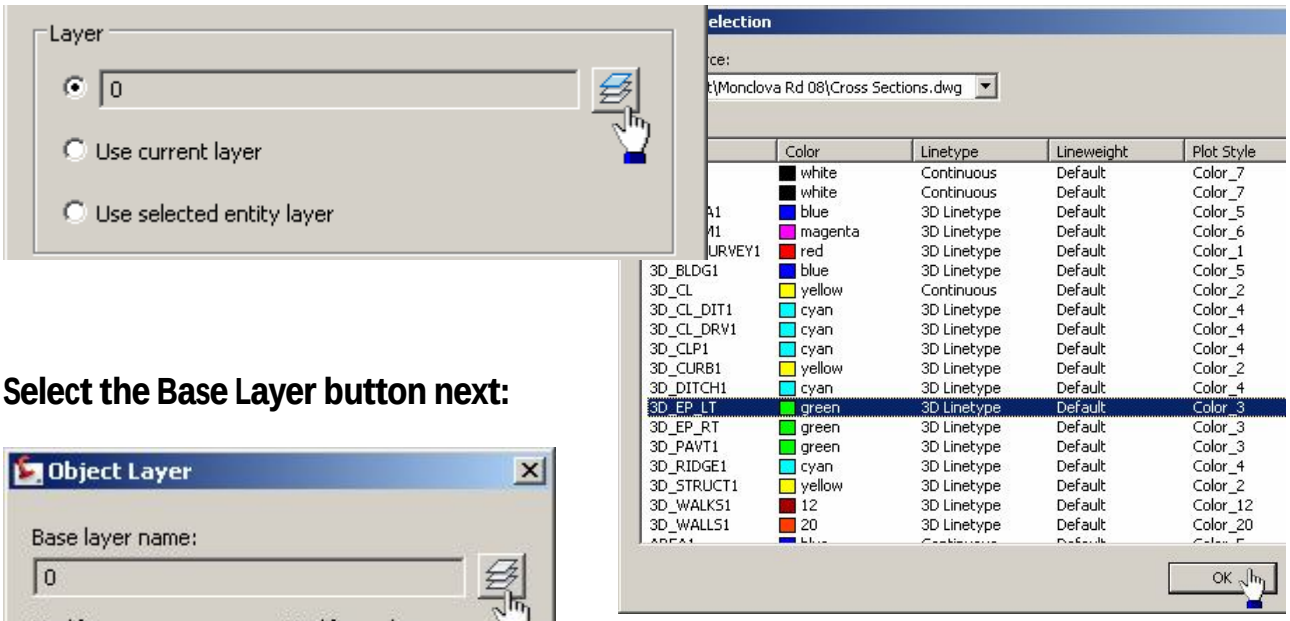
Start selecting either the right or left 3D EP lines:



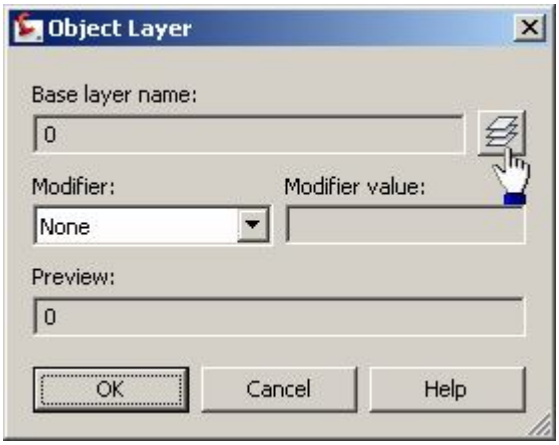
When one side is selected, hit Enter. Make the top settings as follows. Do not leave out <[Next Counter(CP)]> in the name:



For the Layer setting, do this. Pick the Layer button next to the first setting:

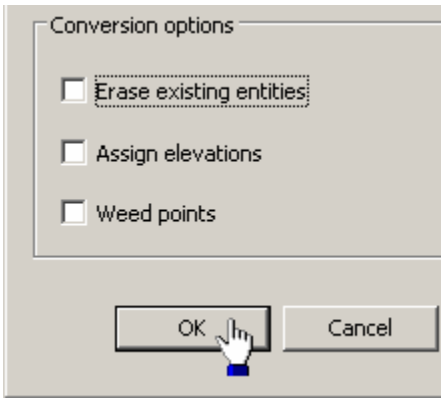


Select the Base Layer button next:



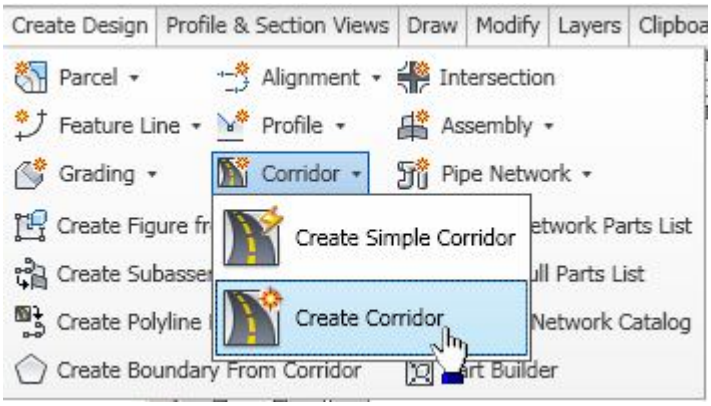
Make the selection (shown right) and click OK, then click OK again.

Uncheck the Erase existing entities box and click OK:

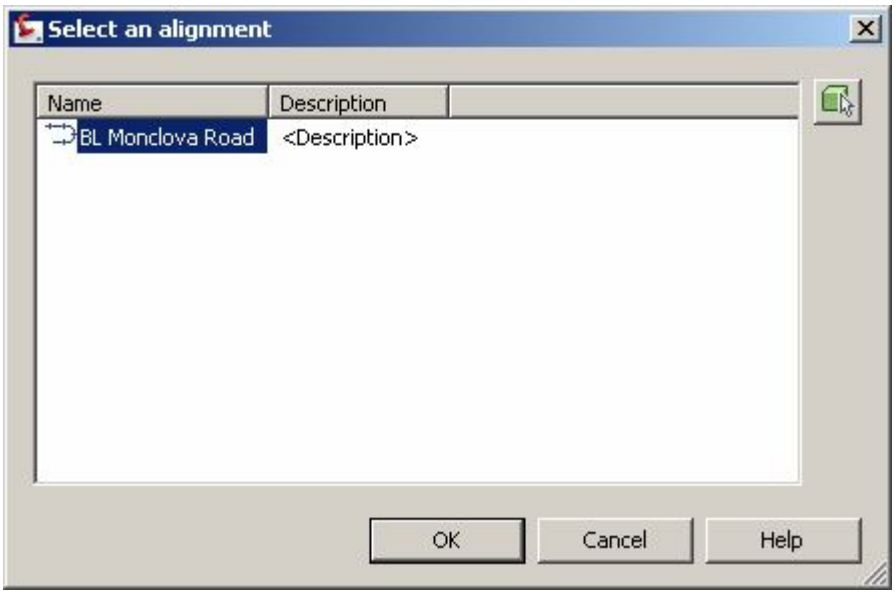


Repeat these steps on page 32-33 for the other side of the Edge of Pavement that you haven't created yet.

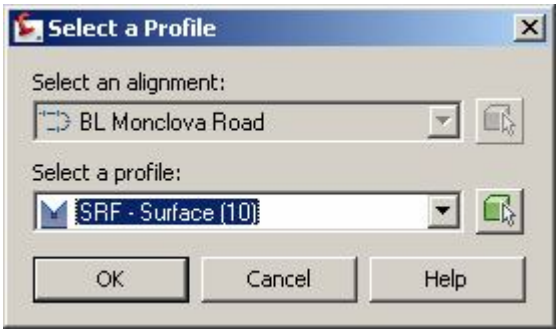
You are now going to create a new corridor for your new assembly. Click the Corridor pull down and click Create Corridor:



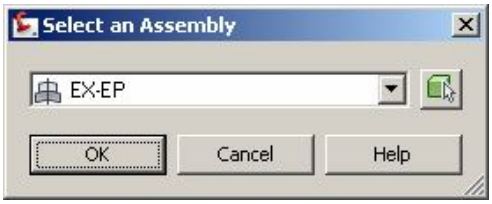
Hit Enter to select from a list. Select the project baseline. Click OK.



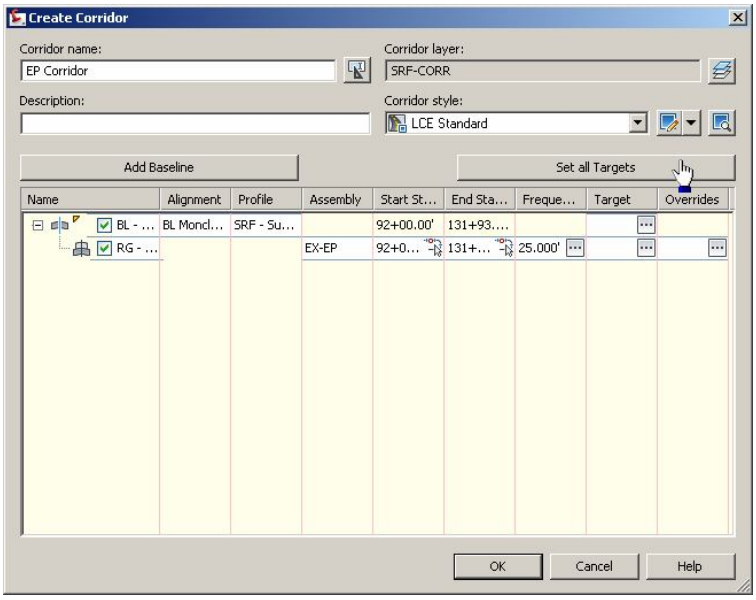
Enter and select profile by clicking OK:



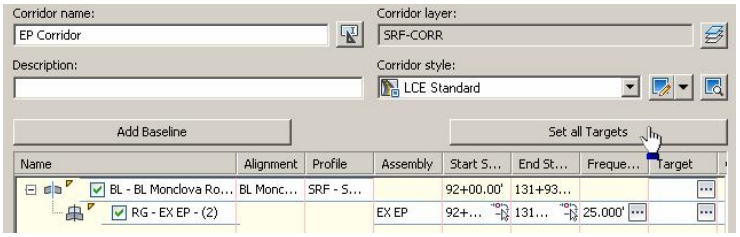
Enter and select the EX-EP assembly by clicking OK:

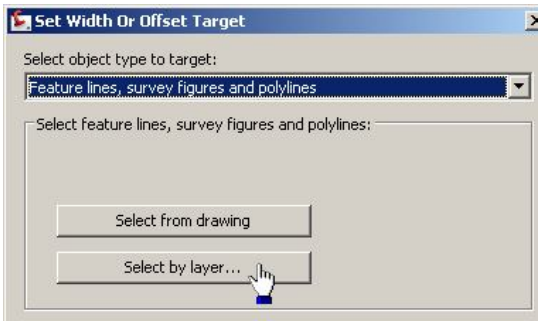


Give the corridor an appropriate name (description optional) and click Set All Targets:

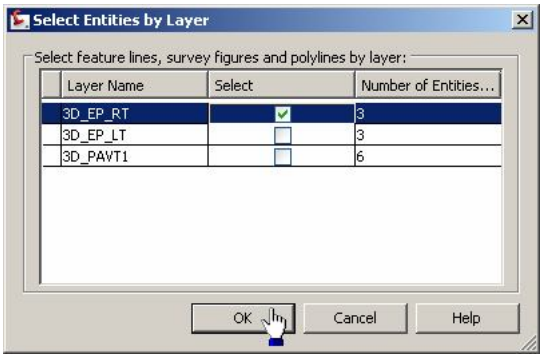


Click on the Right Assembly Group-Pipe network Name field to target the Alignment:

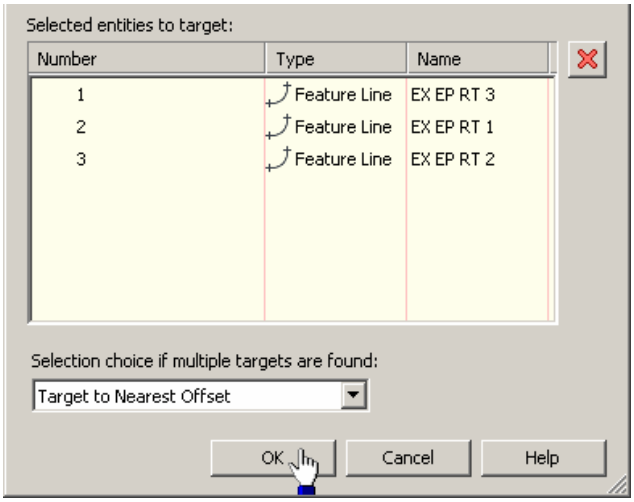




Set the Offset Target type to Feature Lines, etc. pull down (above) - click Select by Layer:

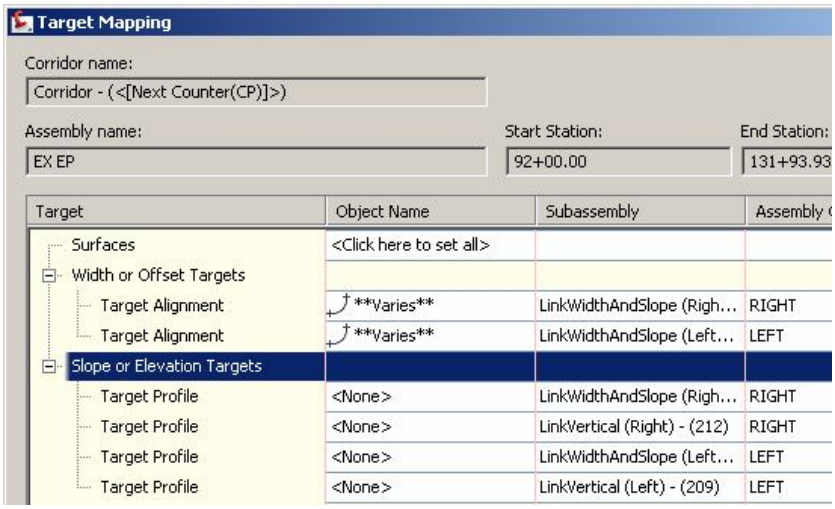


Select the 3D_EP_RT layer and click OK.

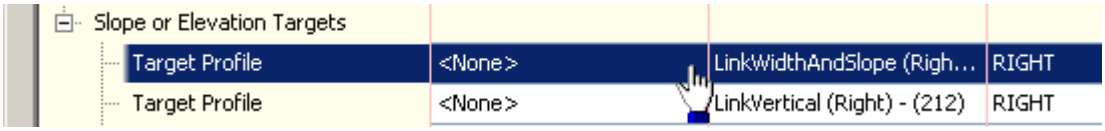


Your feature lines have been added as targets for the right side EP's.

Now repeat for the left side, and you should have a result shown below:



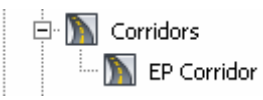
Now, click on the Target Profile Pipe network Name for the right side:



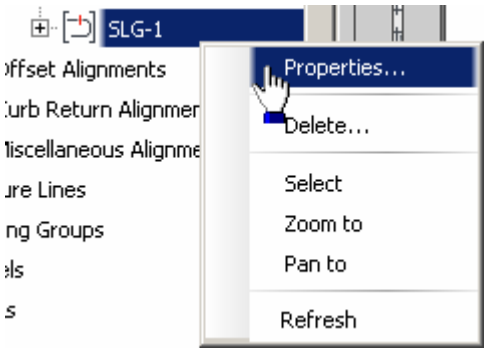
Again, following the same procedures as above, select the pull down to change to the Feature Line option, Select by Layer, click OK, then click OK again. Repeat the same steps for the left side. Do not target the Right and Left LinkVertical Subassemblies:

Target	Object Name	Subassembly	Assembly Group
Surfaces	<Click here to set all>		
Width or Offset Targets			
Target Alignment	**Varies**	LinkWidthAndSlope (Righ...	RIGHT
Target Alignment	**Varies**	LinkWidthAndSlope (Left...	LEFT
Slope or Elevation Targets			
Target Profile	**Varies**	LinkWidthAndSlope (Righ...	RIGHT
Target Profile	<None>	LinkVertical (Right) - (212)	RIGHT
Target Profile	**Varies**	LinkWidthAndSlope (Left...	LEFT
Target Profile	<None>	LinkVertical (Left) - (209)	LEFT

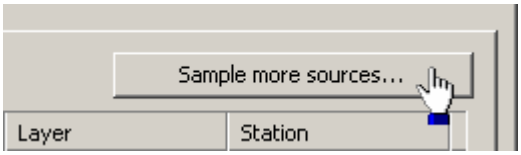
Click OK...and OK again and your Corridor is created.



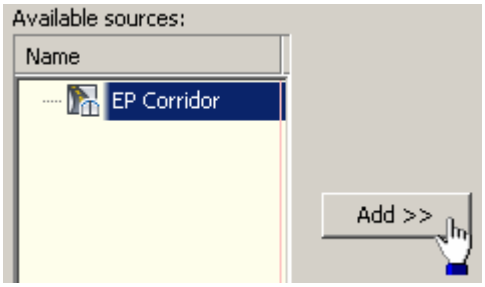
Now add your new corridor to your sample line group:



Right click on the Sample Line group and click Properties.



Click Sample more sources...

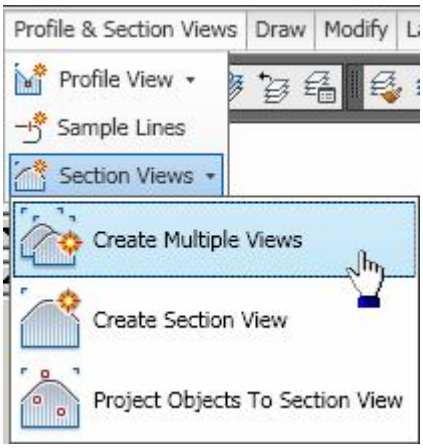


Highlight your corridor and click Add>>.

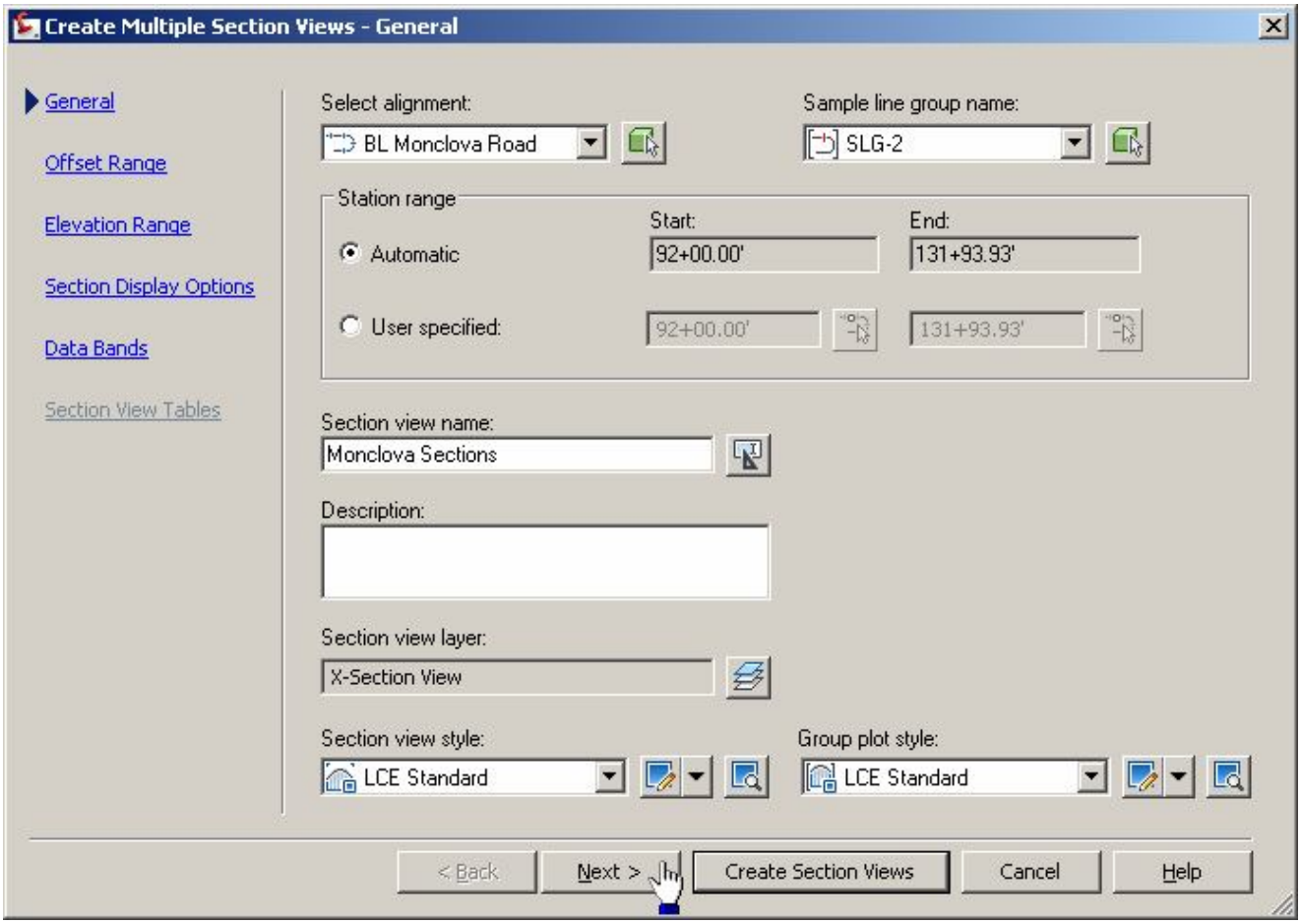
Click OK, then click OK again.

CREATING SECTION VIEWS

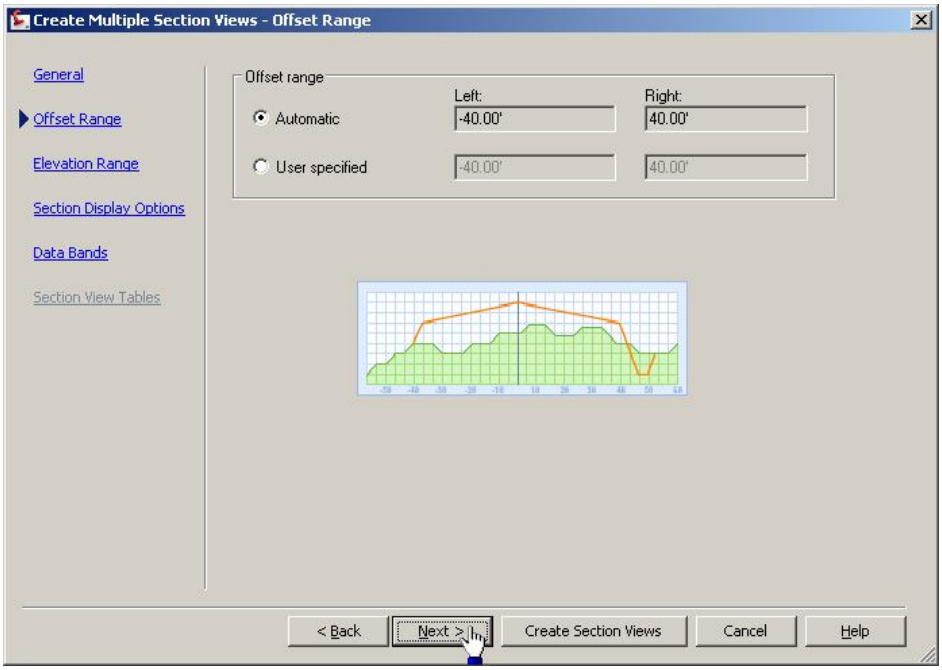
Go to Profile & Section Views, and click Create Multiple Section Views :



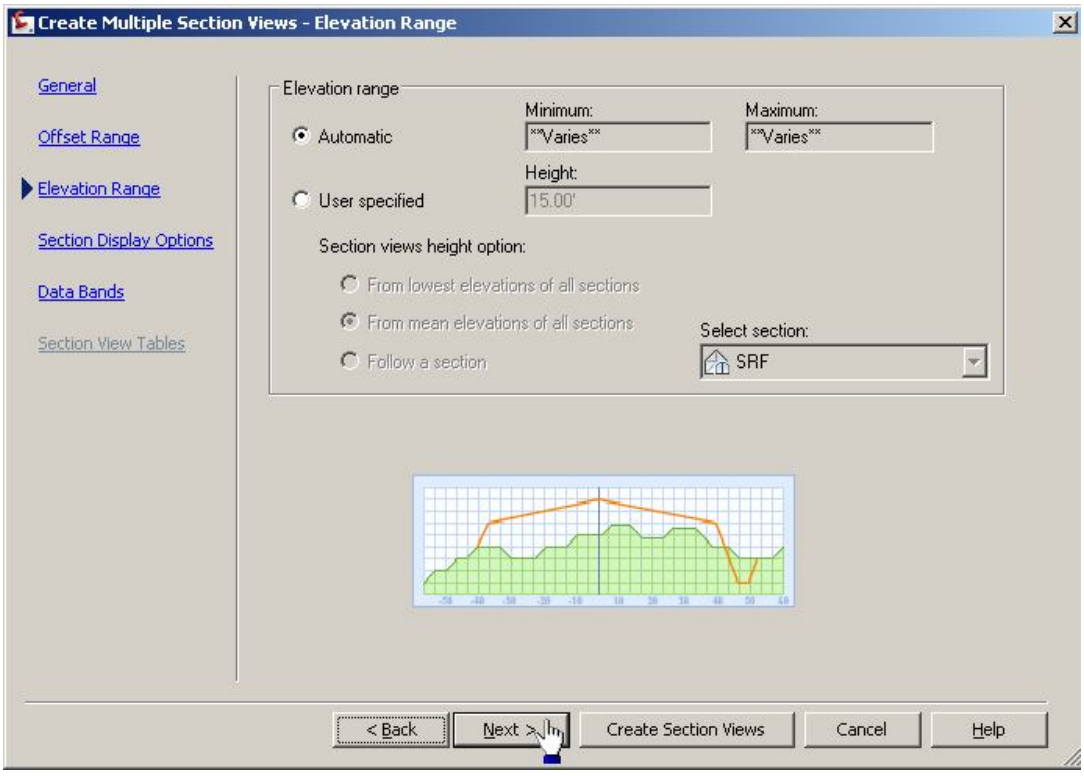
Give the Section View a name and click Next:



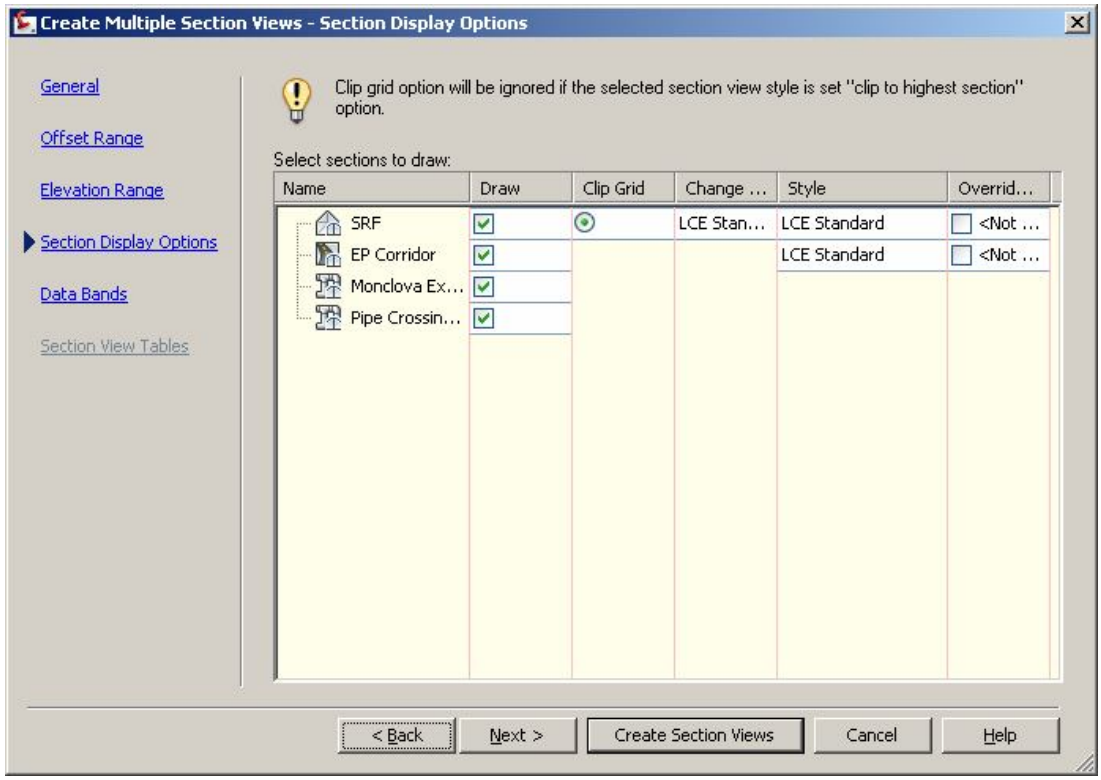
You can leave the Offset Range as is or change it. Click Next (Note-If you have sections that are cutting through pipe network crossings at a skewed angle, use the User Specified Offset range setting and make sure the left side is -40 and the right side is 40:



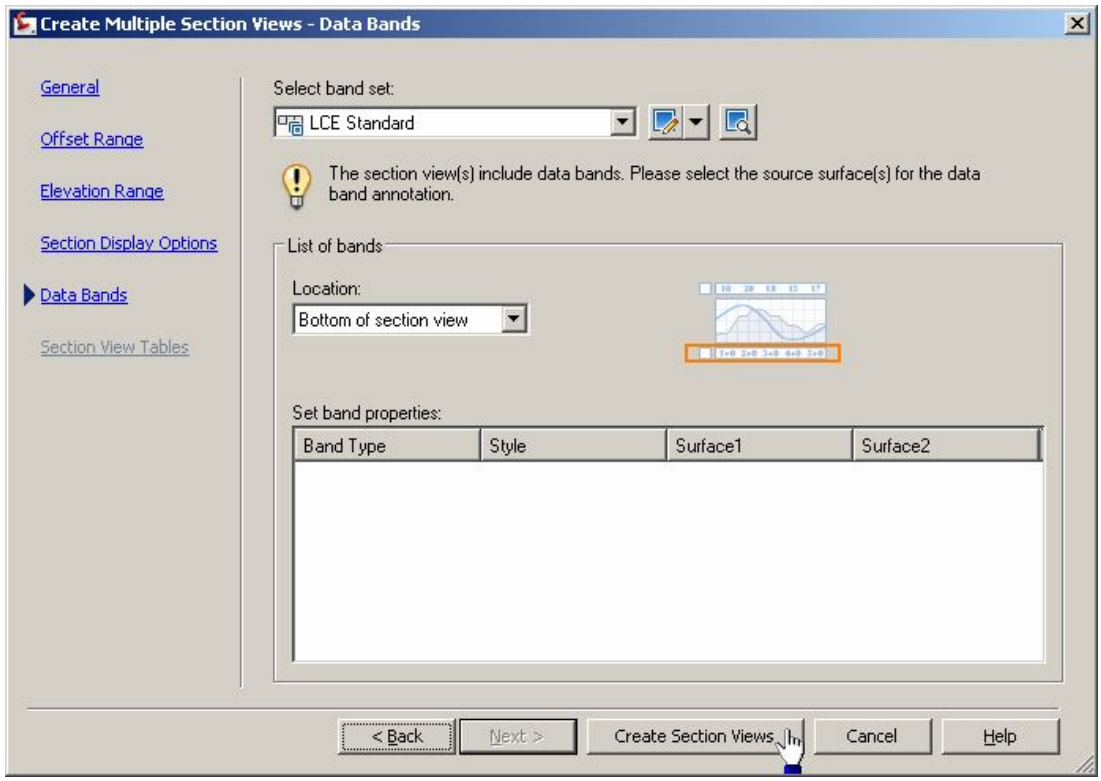
Leave the Elevation range settings as is:



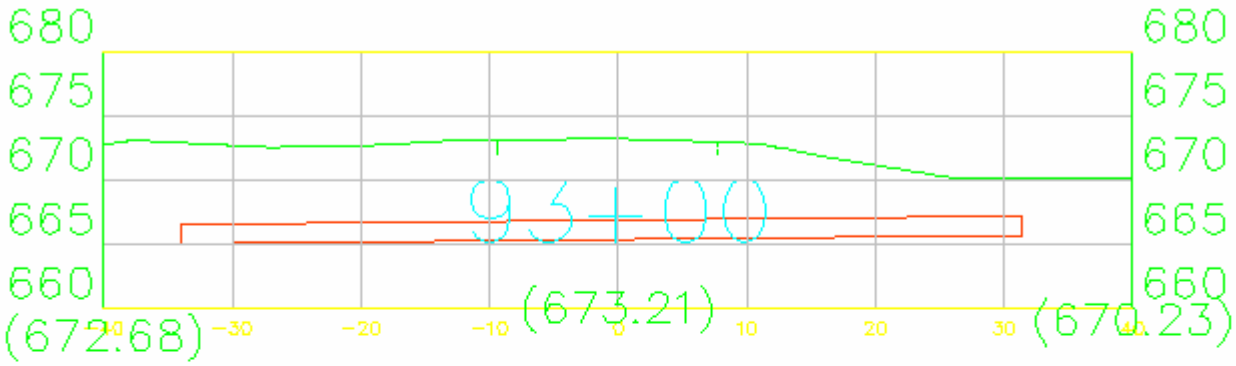
Section Display Options. Leave as is unless you want to exclude pipe networks from appearing in the sections. Click Next:

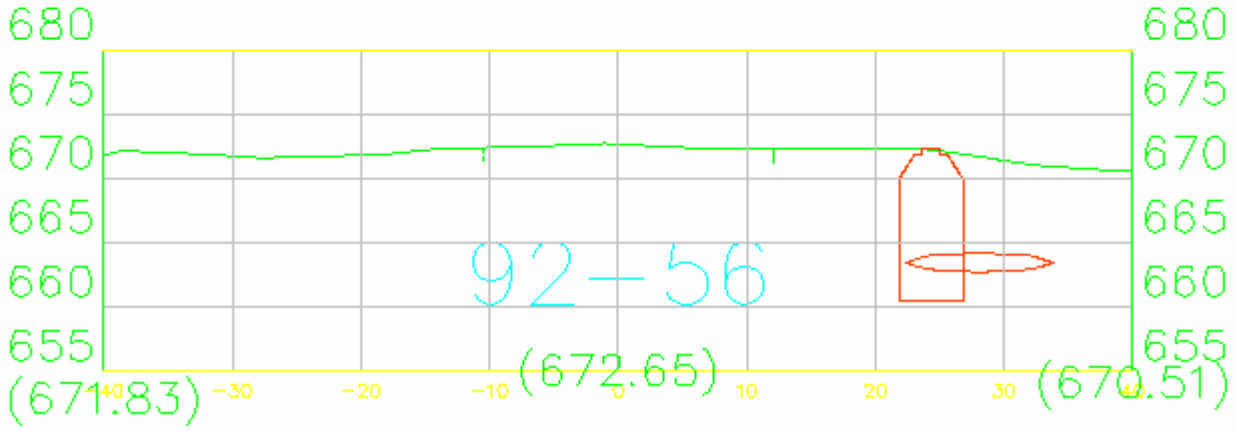


Again, leave this as is and click Create Section Views:



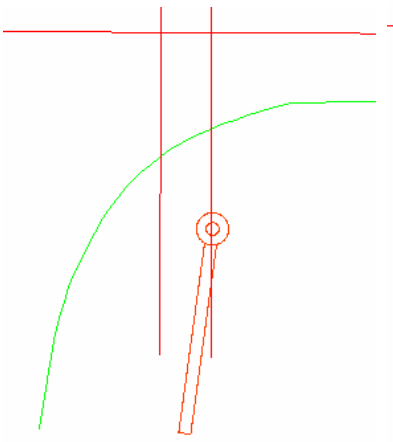
Here is the result:



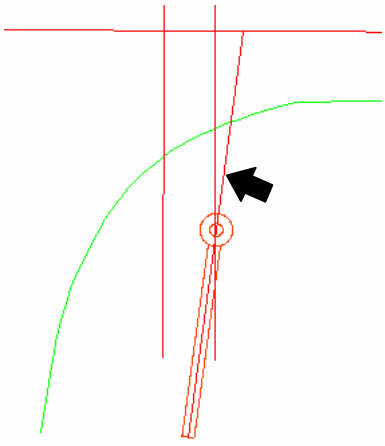


You'll notice that the pipe entering the structure does not look right. We can fix this.

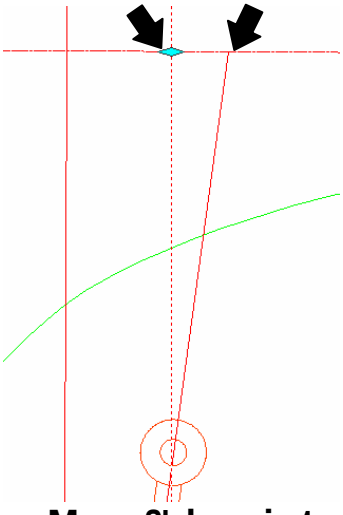
In your plan that shows your sample lines, you'll see that the sample line is cutting straight through the structure and because the pipe is at an angle to the sample line, the pipe is actually shown correctly in the section. We need to change how the sample line is cutting through the structure and pipe:



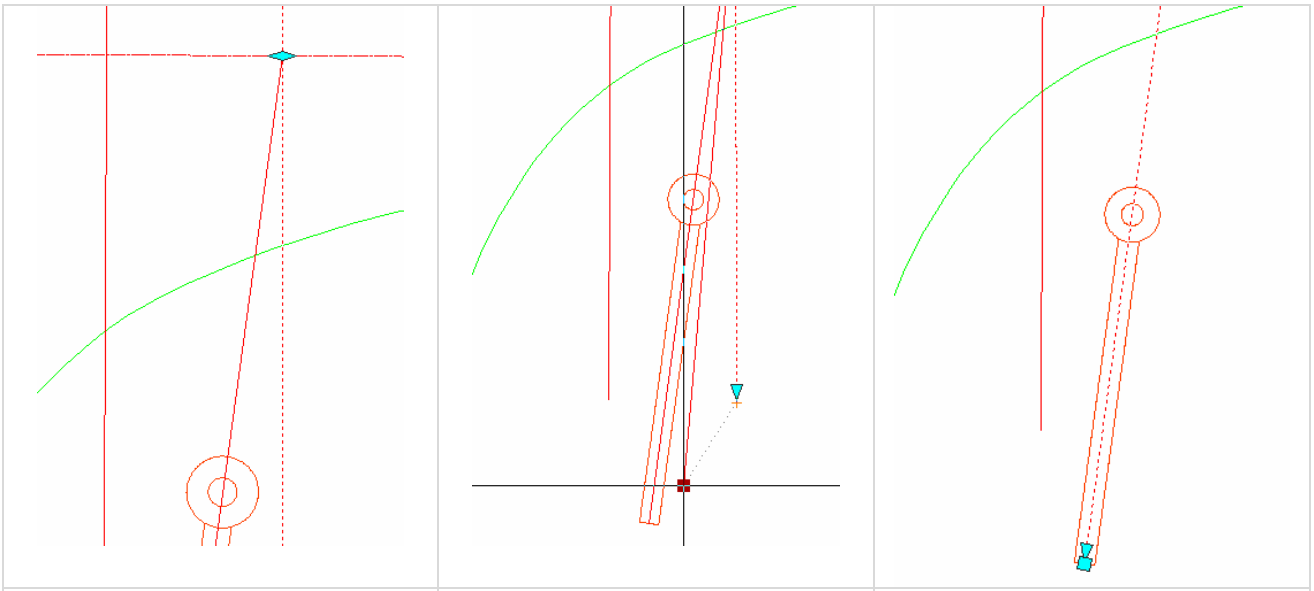
Straight Sample Line



Draw line thru run to BL

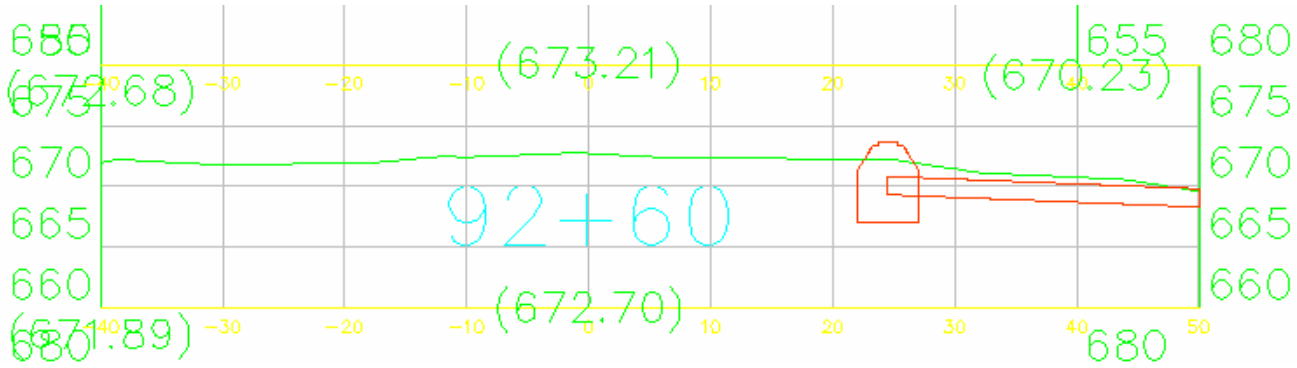


Move SL by grip to line

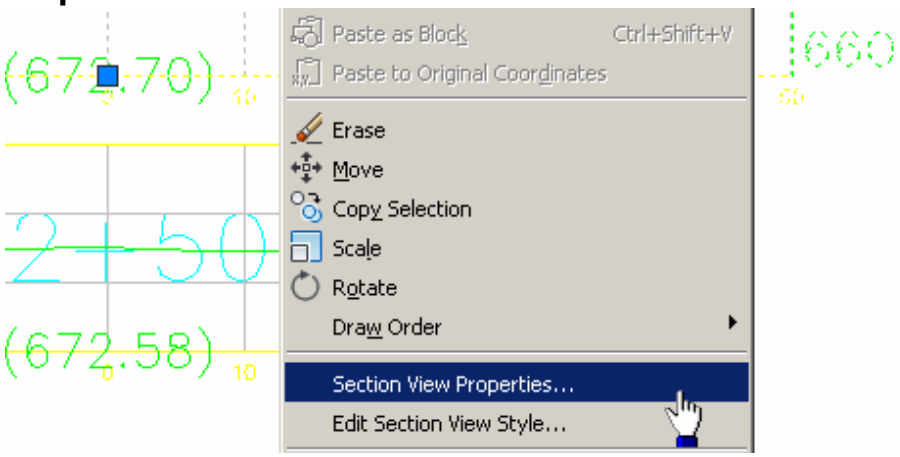


New Location	Drag Sample Line end to pipe end or structure	Finished dragged state

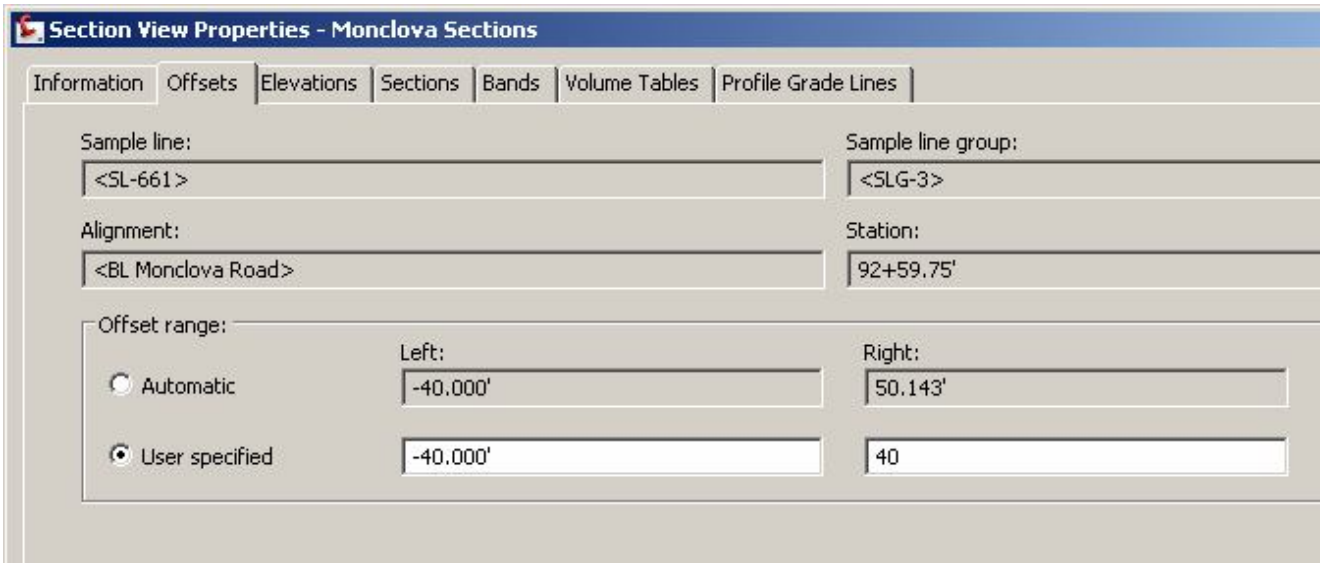
Hit Esc. You'll notice the section has extended out past the swath width of the sections. This may not happen all the time, depending on where the end of the sample line ends in relationship to the other sample lines.



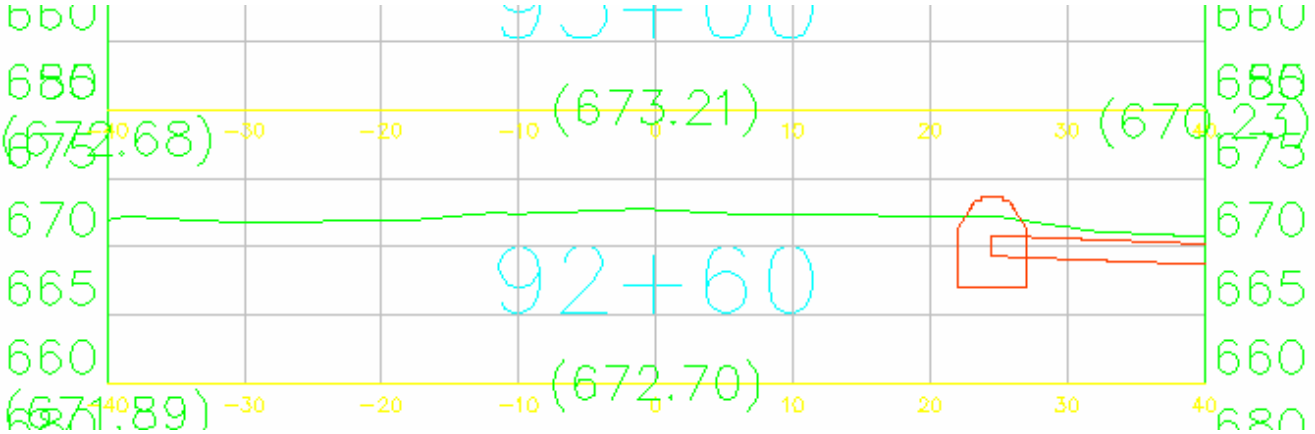
This is easily fixed. Just click the section view and right click and click Section View Properties:



Click the Offset Tab and change the Offset range by User specified settings, so that the left and right side are at an equal distance, which should be 40. Click OK:



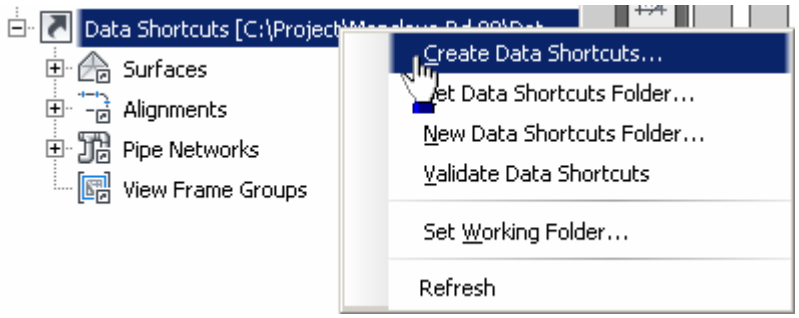
Now the section view looks correct:



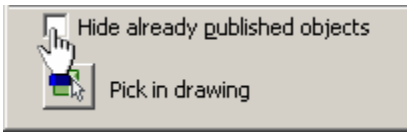
Remember, when you initially run the Create Multiple Section Views wizard, you can set the User Specified Offset range Settings to -40 Left and 40 Right and this will control any pipe networks or pipe crossing that goes beyond the sample line and section view limits.

ADDING ADDITIONAL PIPE NETWORKS IN SECTION VIEWS

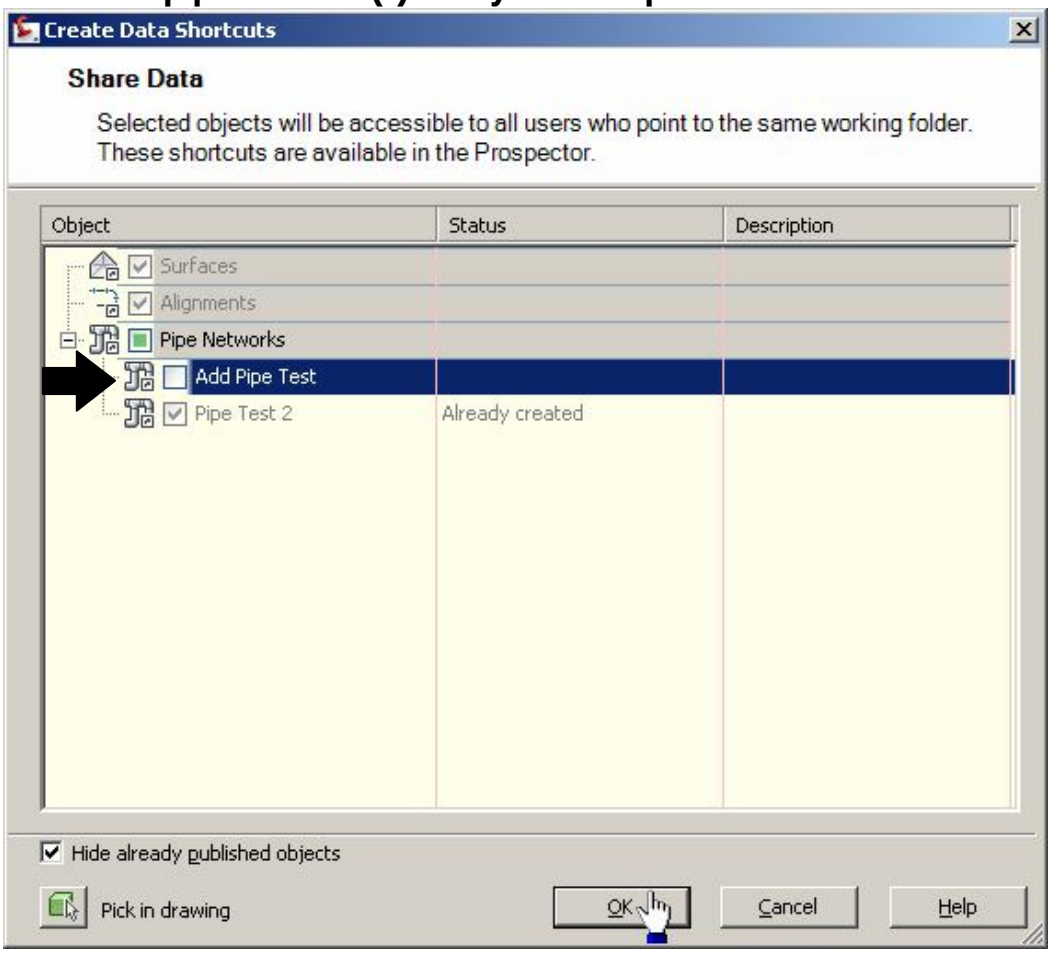
To add additional pipe networks to your section views, do this. After the pipe network has been created in your Topo drawing, be sure to add it as a data shortcut. Right click on the data shortcuts in Prospector and click Create Data Shortcuts:



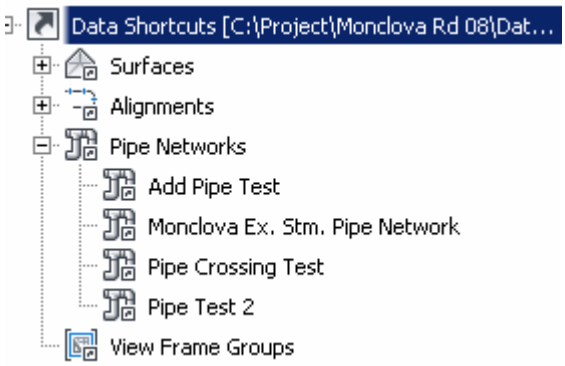
If you want, you can check the Hide already published pipe networks to show just the pipe networks that you want published.



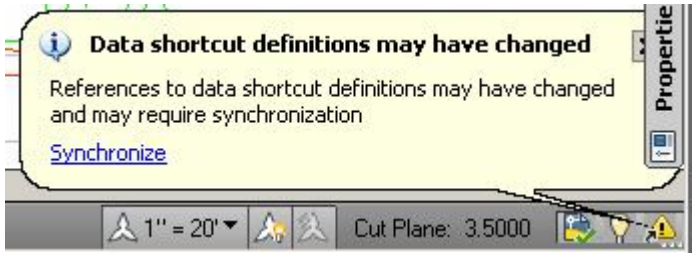
Check the pipe network(s) that you want published and click OK:



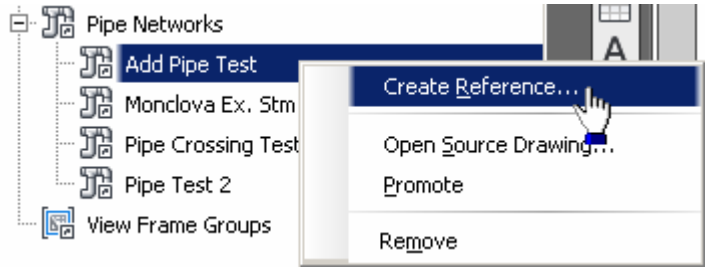
You see that this pipe network has been added as a data shortcut:



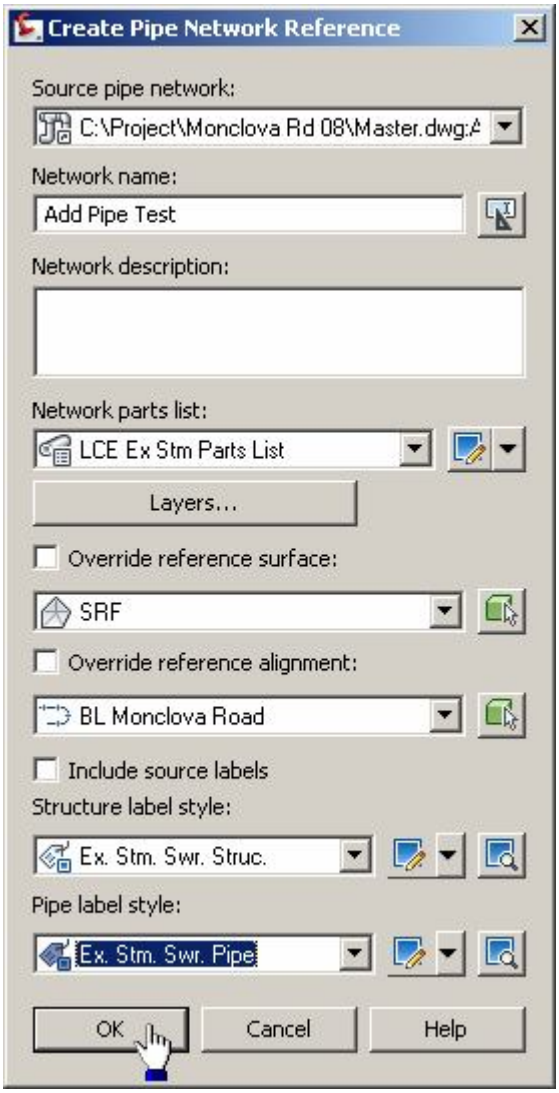
Click Save in your Topo drawing. Now open or switch to your Cross Section drawing. You will see the following balloon notification if you already had you Cross Section drawing opened:



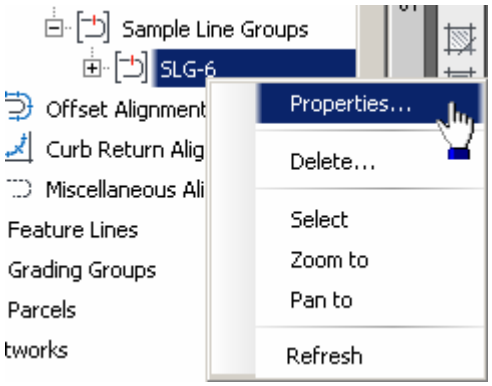
If you do see this, click the Synchronize. If you re-opened your Cross Section drawing, the new data shortcut will have synchronized automatically. You will still need to make a new reference to the new data shortcut. Do this...right click the new data shortcut and click Create Reference:



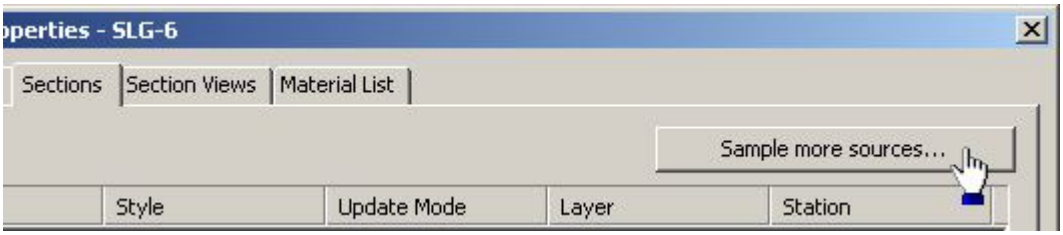
Depending on the type of pipe network you've referenced, be sure your settings are correct, then click OK:



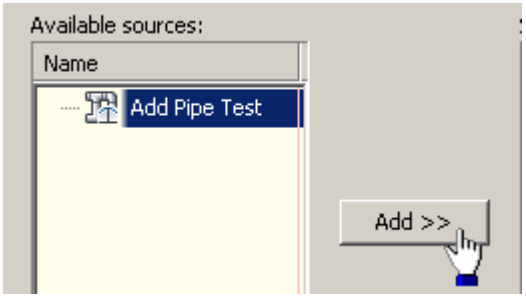
Now drill down in Prospector to your Sample Line group, right click and click Properties:



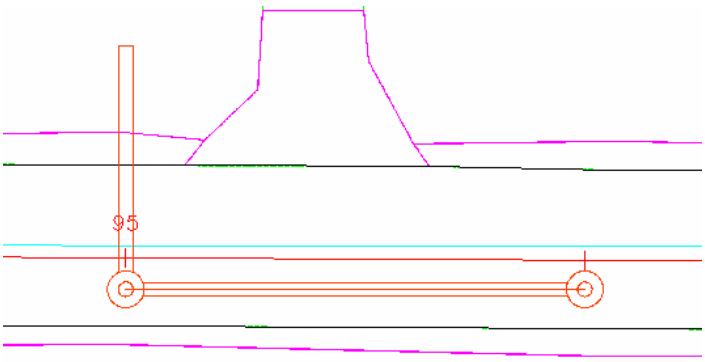
Be sure the Sections tab is active, click the Sample more sources button:



Click on the available source(s) you wish to add and click the Add>> button:

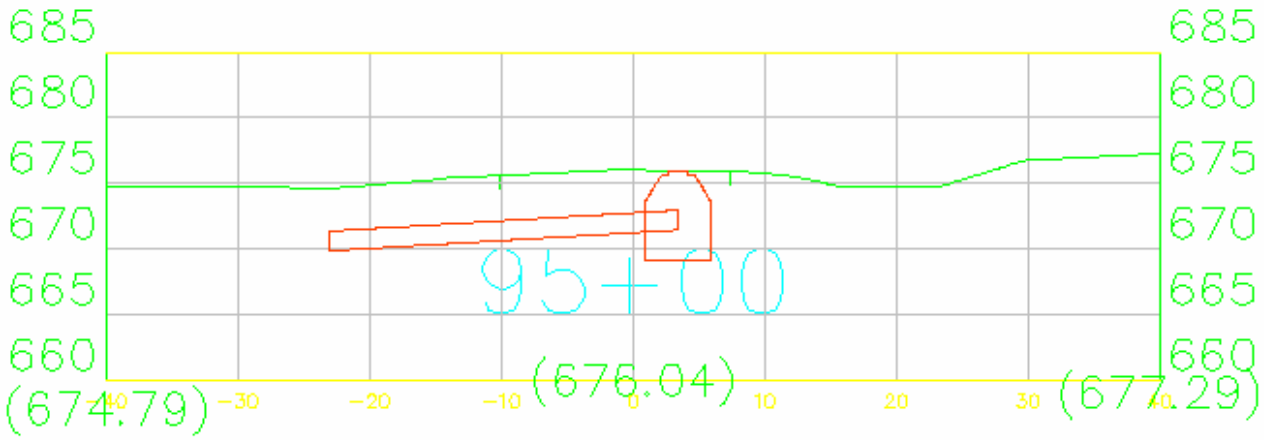


Then click OK, and click OK again.



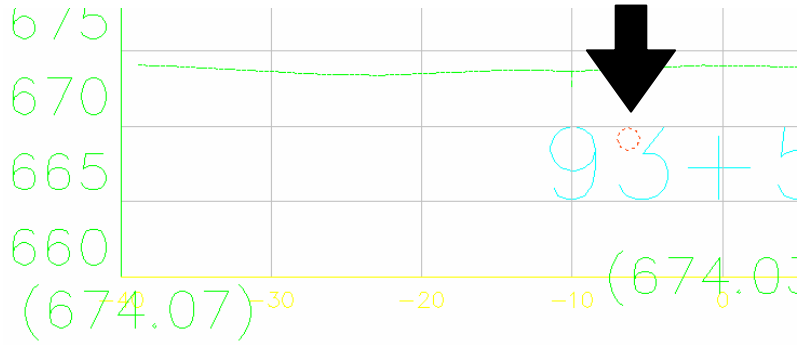
This is what was added to the Topo drawing...

And this is what has been updated in the Cross Section drawing:

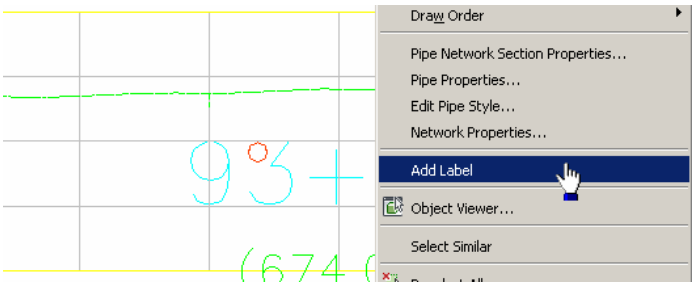


LABELING PIPES AND STRUCTURES IN SECTION VIEWS

Select the pipe or structure pipe network in the section and right click:

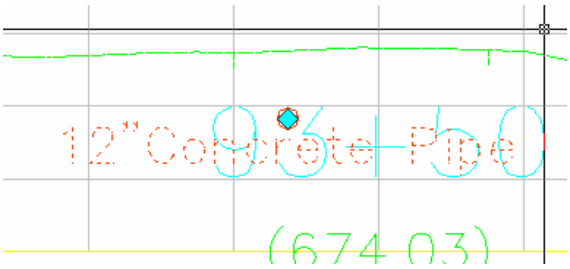


Select Add Label:

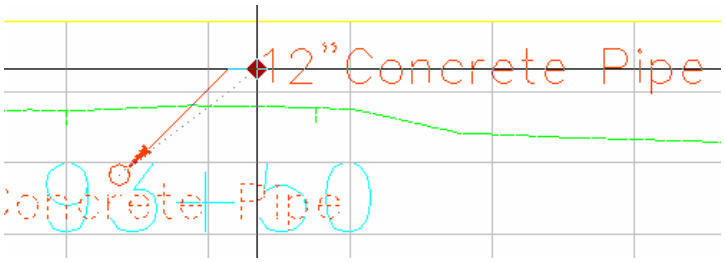


To move the label, just click it to highlight it and select the grip, move the label and pick a new location for the label:

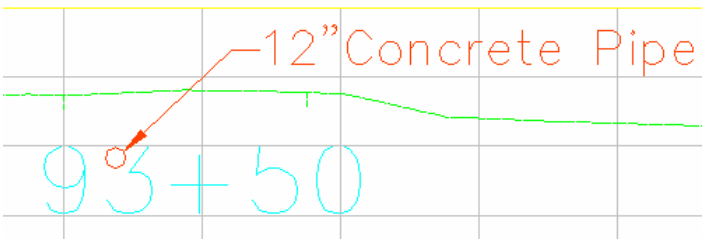
1)



2)



3)



Repeat procedure for structures.

Chapter

3

Sheet Management for AutoCAD Civil 3D®

Table of Contents

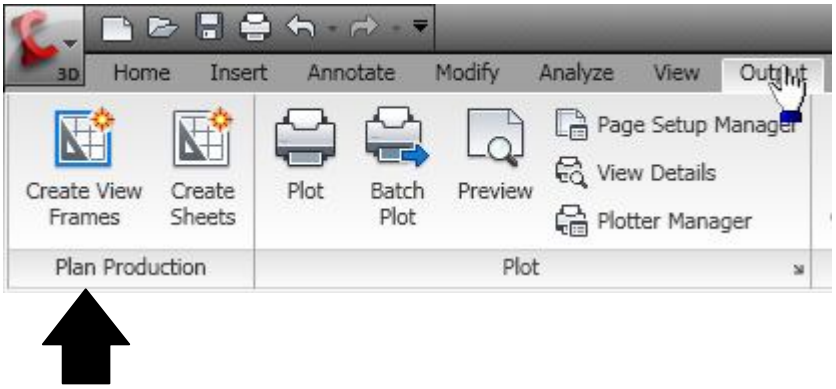
CREATING P&P SHEET LAYOUTS USING PLAN PRODUCTION

PLAN PRODUCTION – USING THE PLAN PRODUCTION TEMPLATE

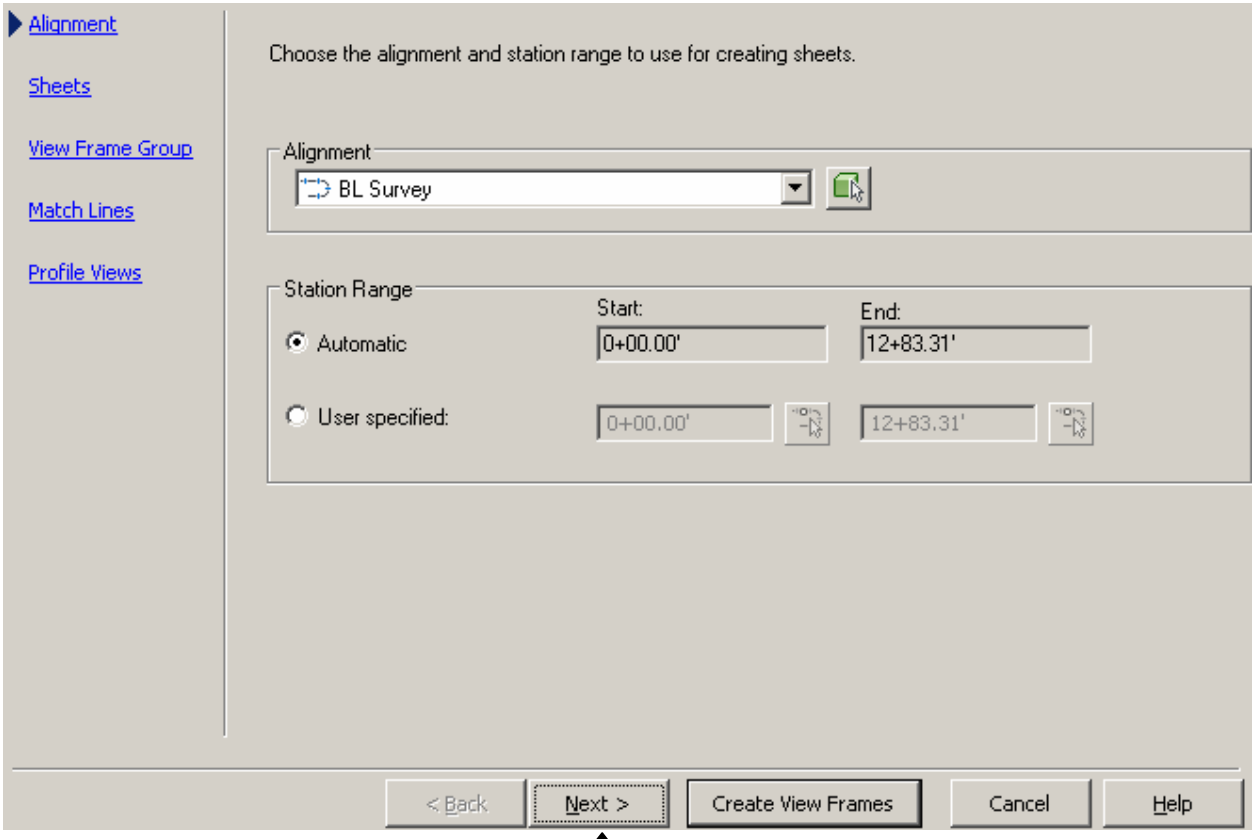
Typical Plan and Profile

When you are ready to create your sheet layouts, follow these steps.

Click on the Output Tab, then click Create View Frames:

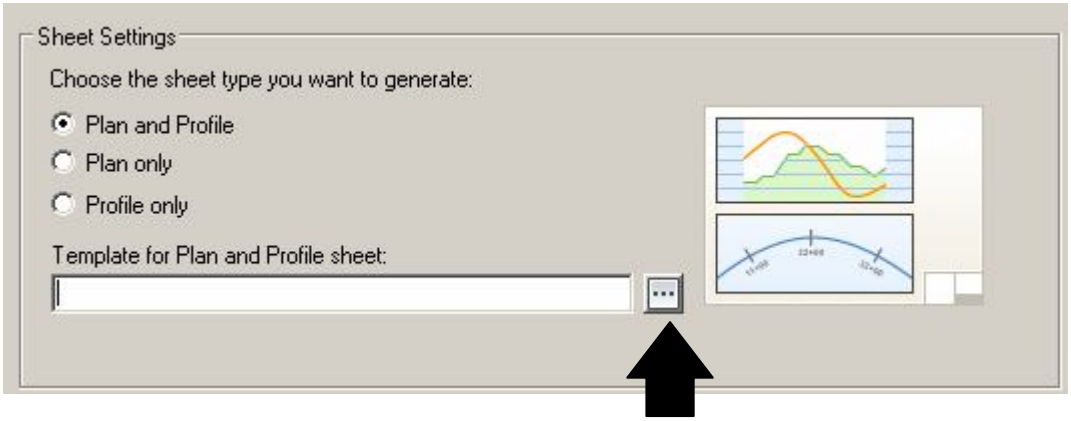


Make sure you have your proper Alignment chosen and specify the type of Station Range:

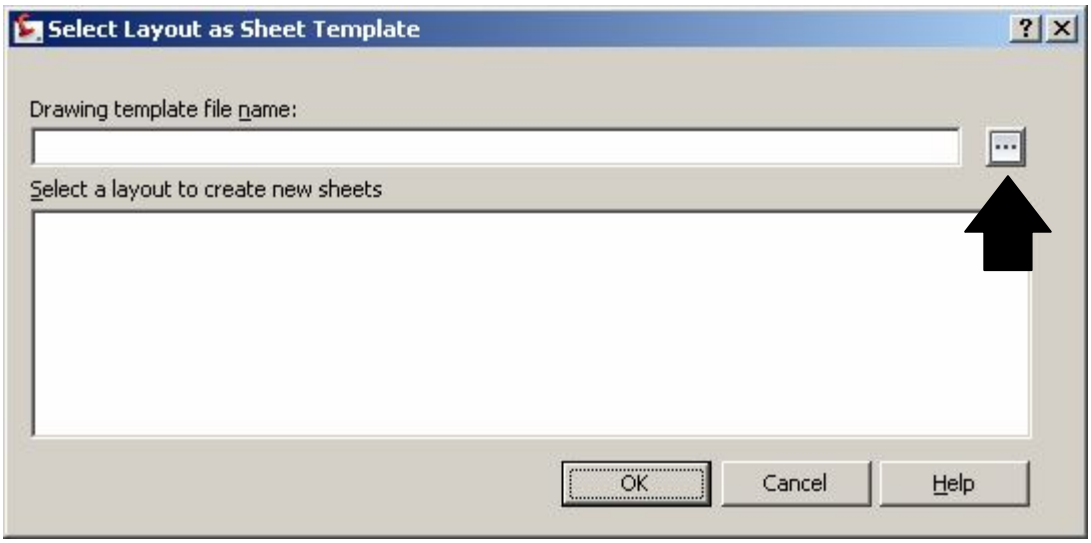


Click Next.

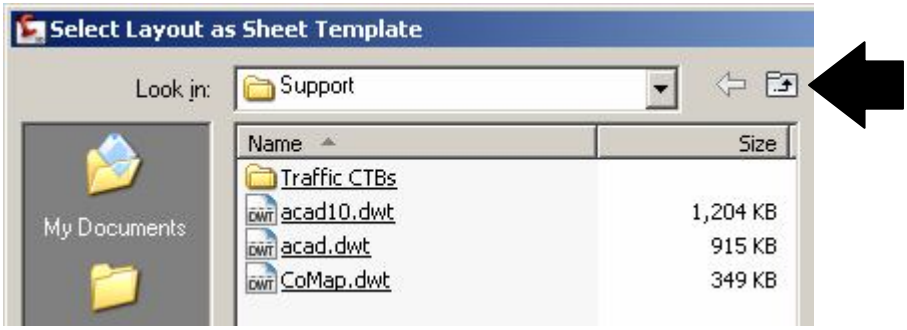
Under the Sheet Settings, click on the Browse button next to the Template for Plan and Profile sheet field (note-the template field may be already filled in with a default location-disregard this location):



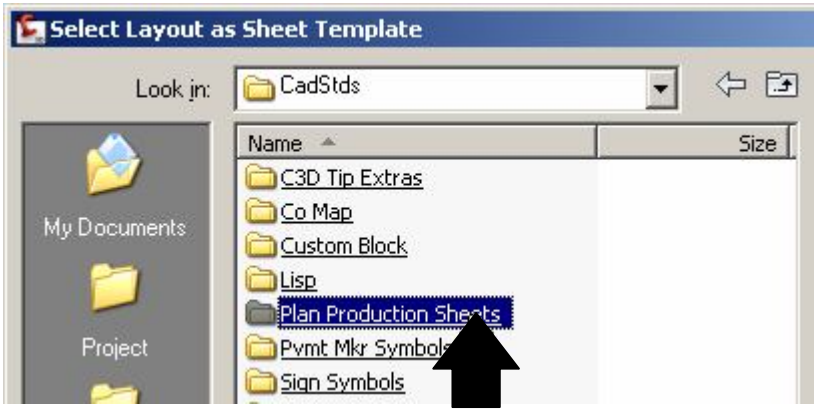
In this box, again select the Browse button to navigate to the LCE standard template file:



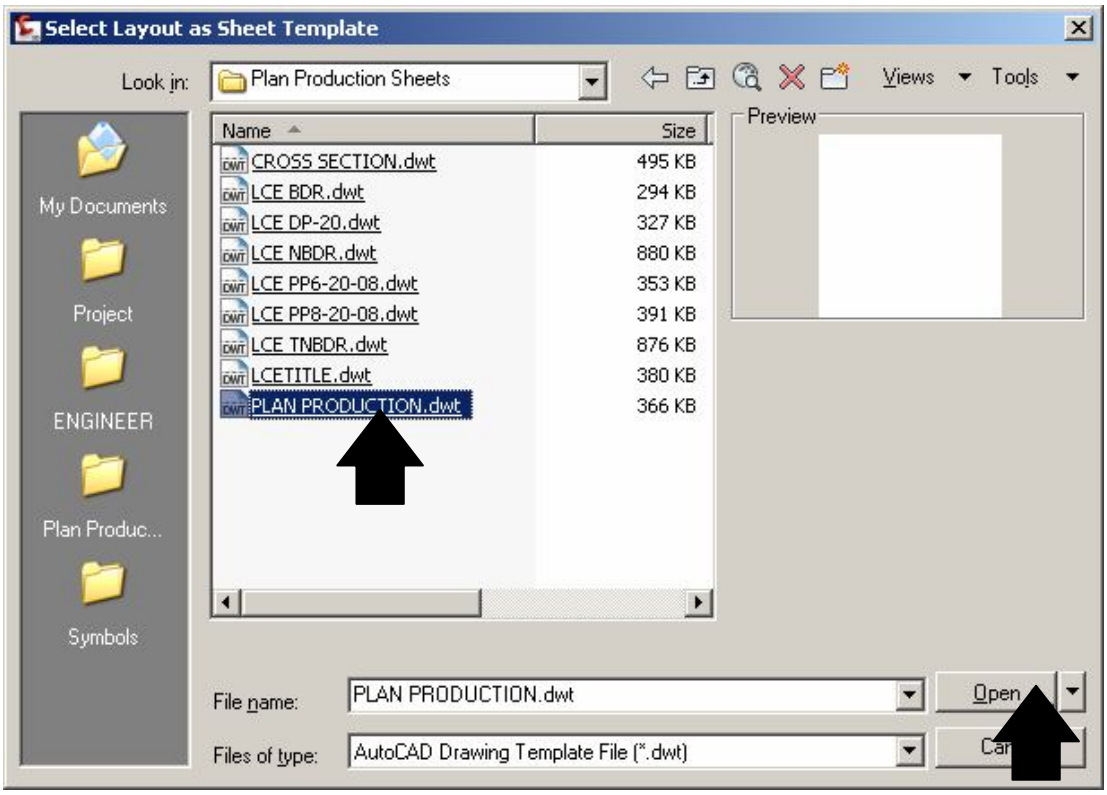
By default, the Open box should navigate to the Support folder out on the network. Click the Up Folder icon to go to the previous folder:



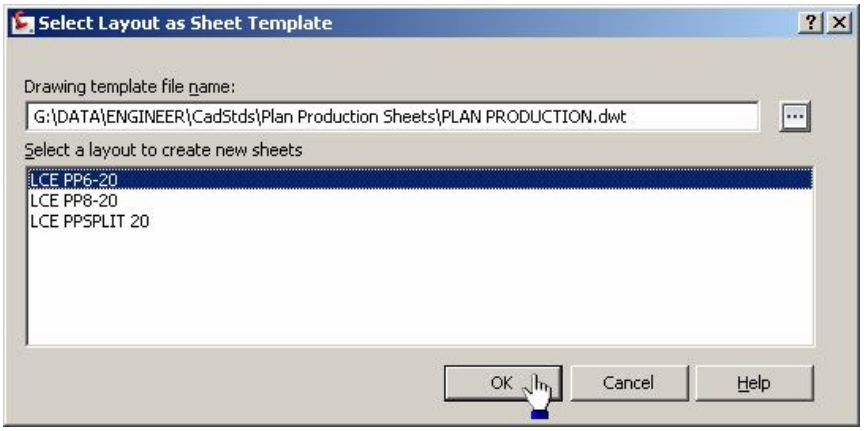
Select the Plan Production Sheets folder:



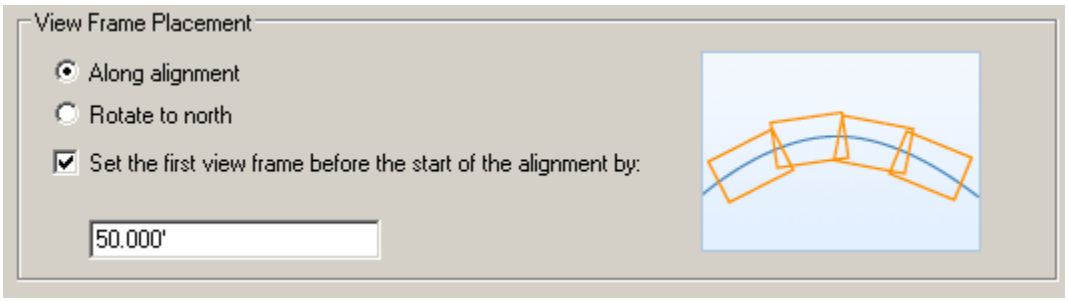
Select the PLAN PRODUCTION.dwt file and click Open:



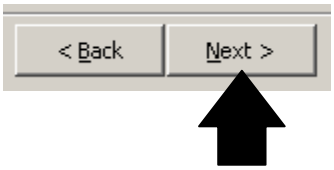
Now your selection becomes clear. Select the appropriate layout you wish to use. In this case, we will use LCE PP6-20:



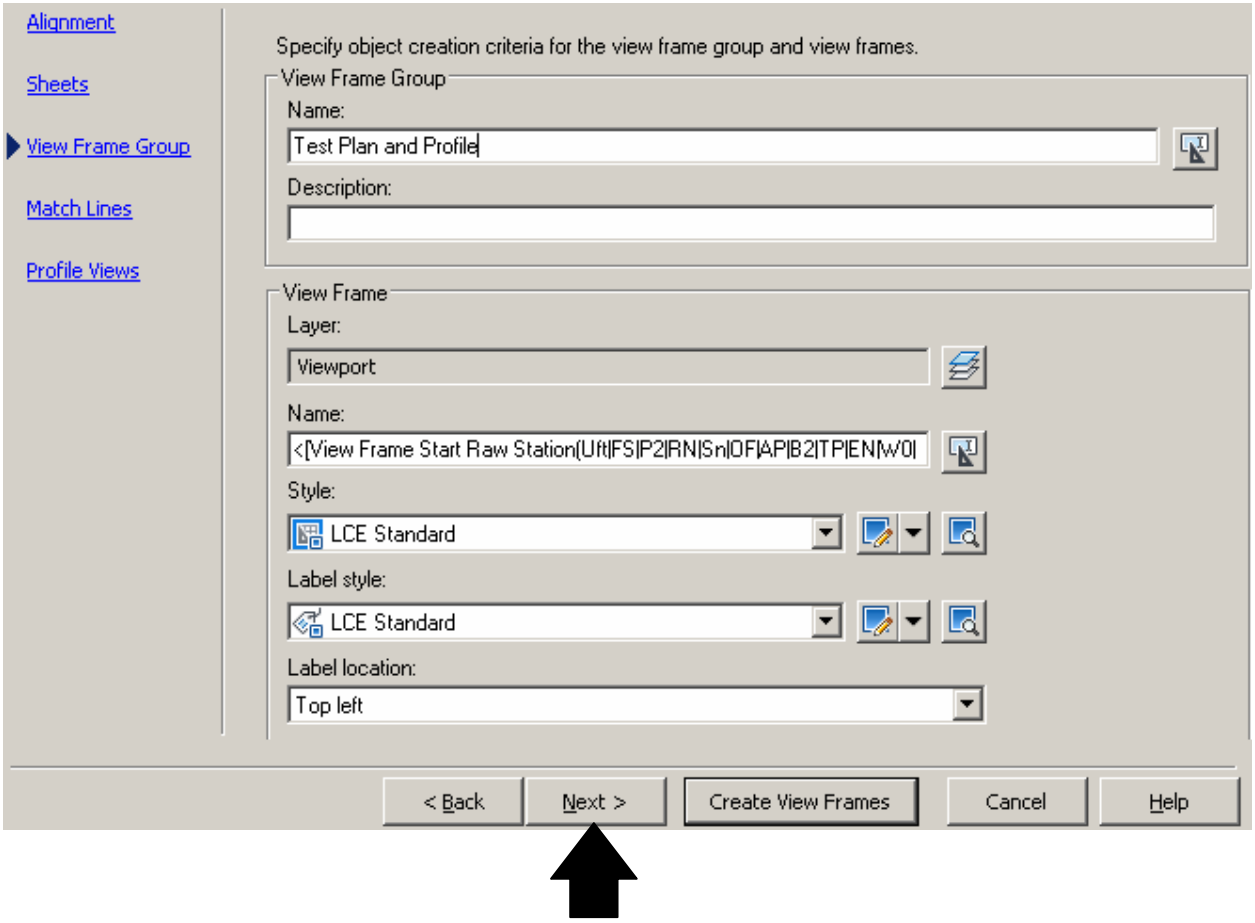
In the View Frame Placement settings, the default should be standard for our use. You may only need to change this setting in certain situations:



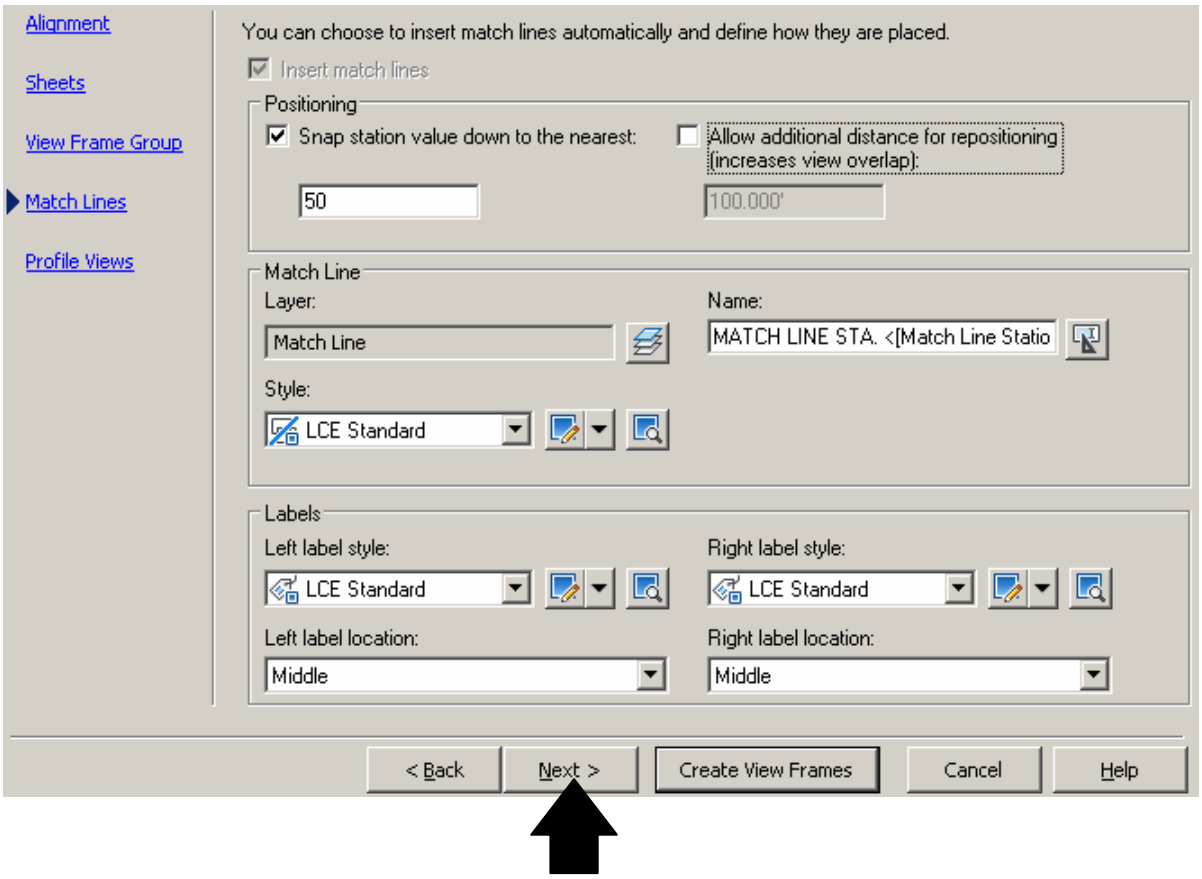
Click Next:



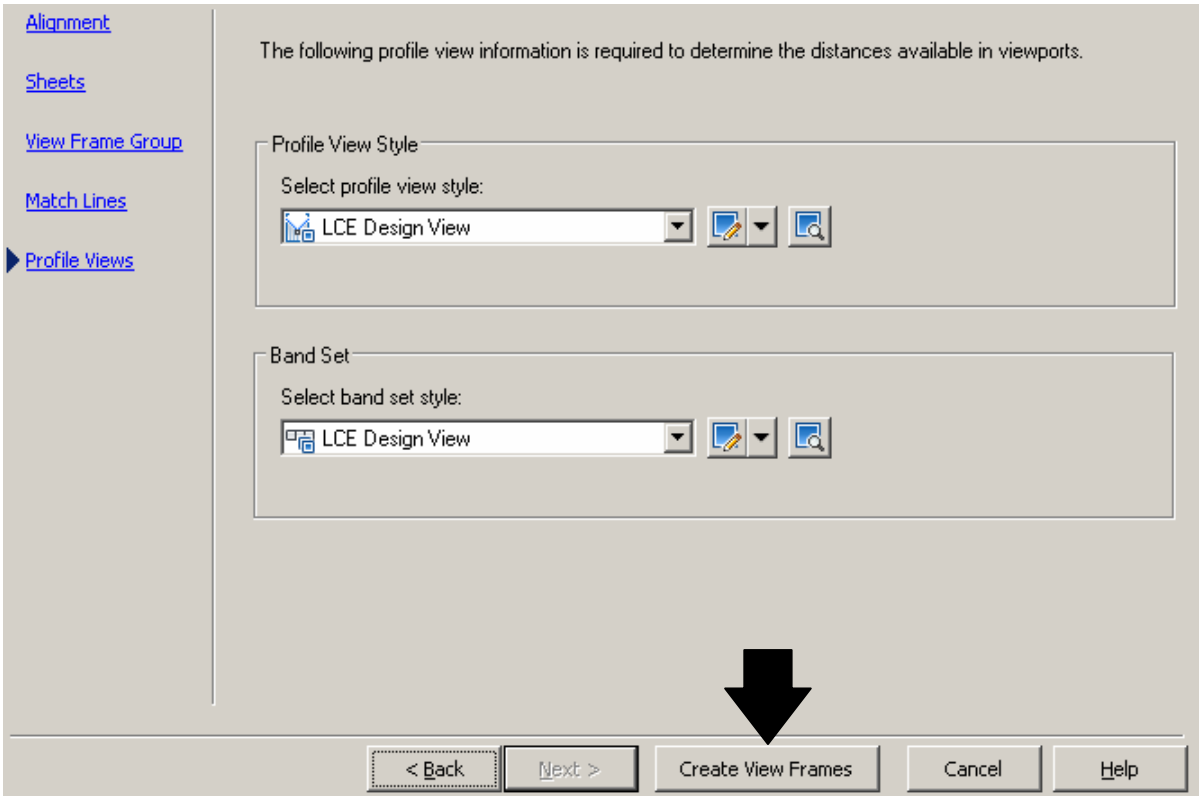
Give your View Frame Group an appropriate name and click Next:



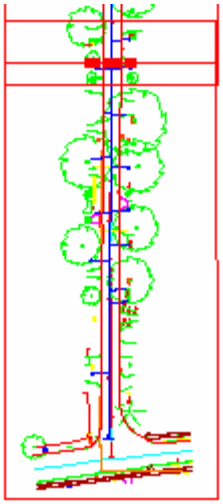
These settings are pre-set in the command settings or this wizard. You may change the Repositioning setting if for any reason you would need to reposition any of the match lines. Click Next:



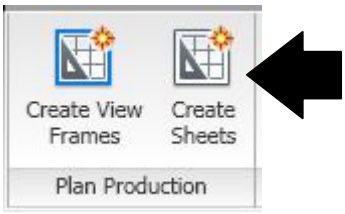
In this box, you can pre-set the type of display you wish to see when your profile views are created. For now leave these settings as is and click Create View Frames:



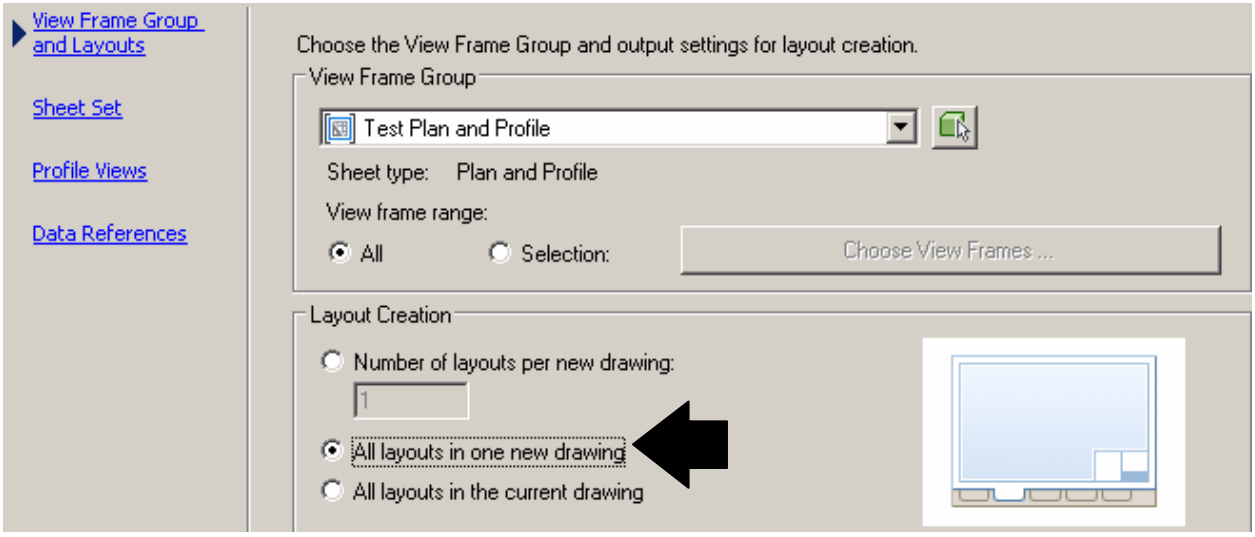
You see your View Frames:



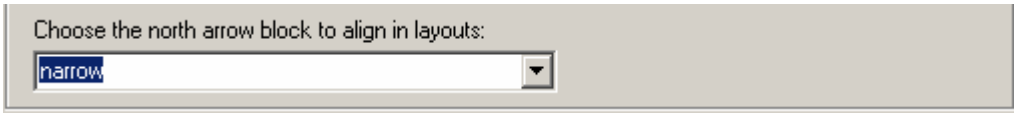
It's time to create your sheet layouts. Go back to the Ribbon and click Create Sheets:



As you can see, you have some control over what you can create here. In the Layout Creation, you will have to make the determination of where the layouts are going to go based on the type and length of the project you are doing. For this tutorial, I am putting them into a separate drawing (this coincides with the new work flow chart). Click Next:



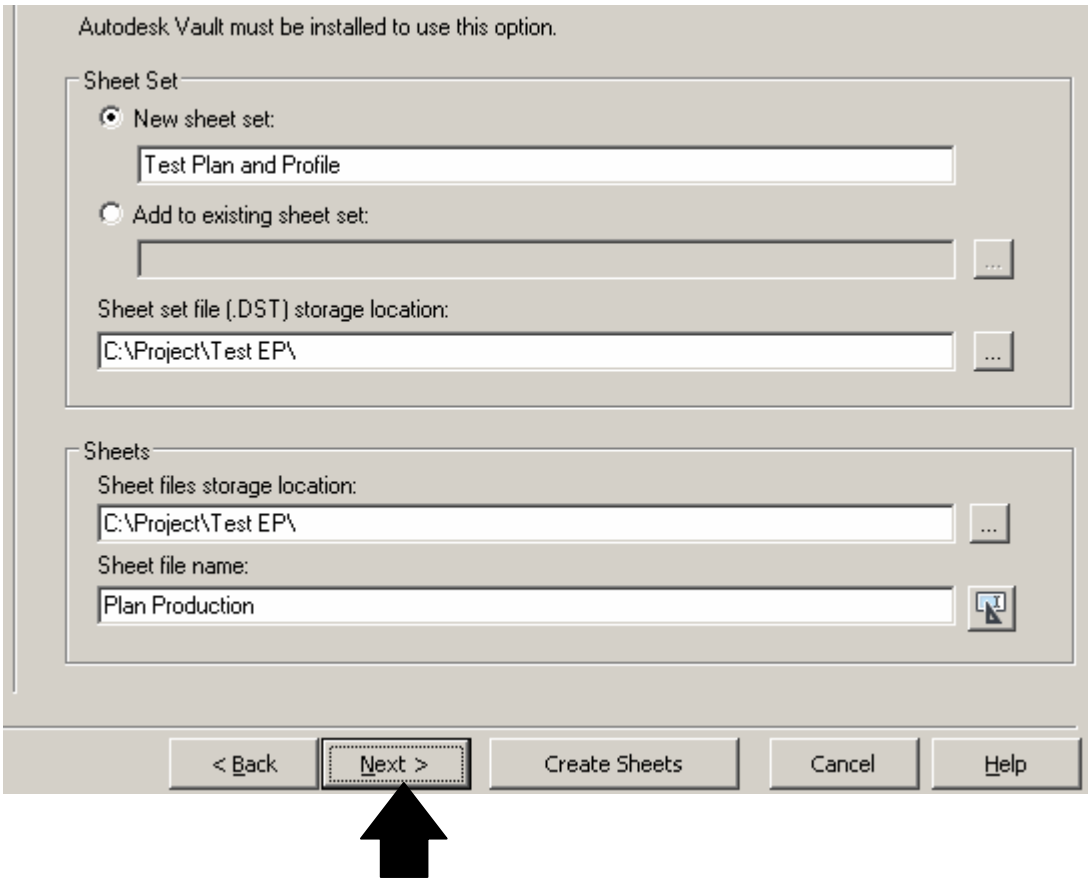
Now an explanation of the new north arrow block feature. Our north arrow is now a block that resides in each of the plan production layouts. By default, the wizard is automatically set to use our north arrow block called "narrow". When the sheet layouts are created, Civil 3D automatically orientates the north arrow to the orientation of the project. I specifically picked this test project to show exactly how this works, since this project is orientated from south to north:



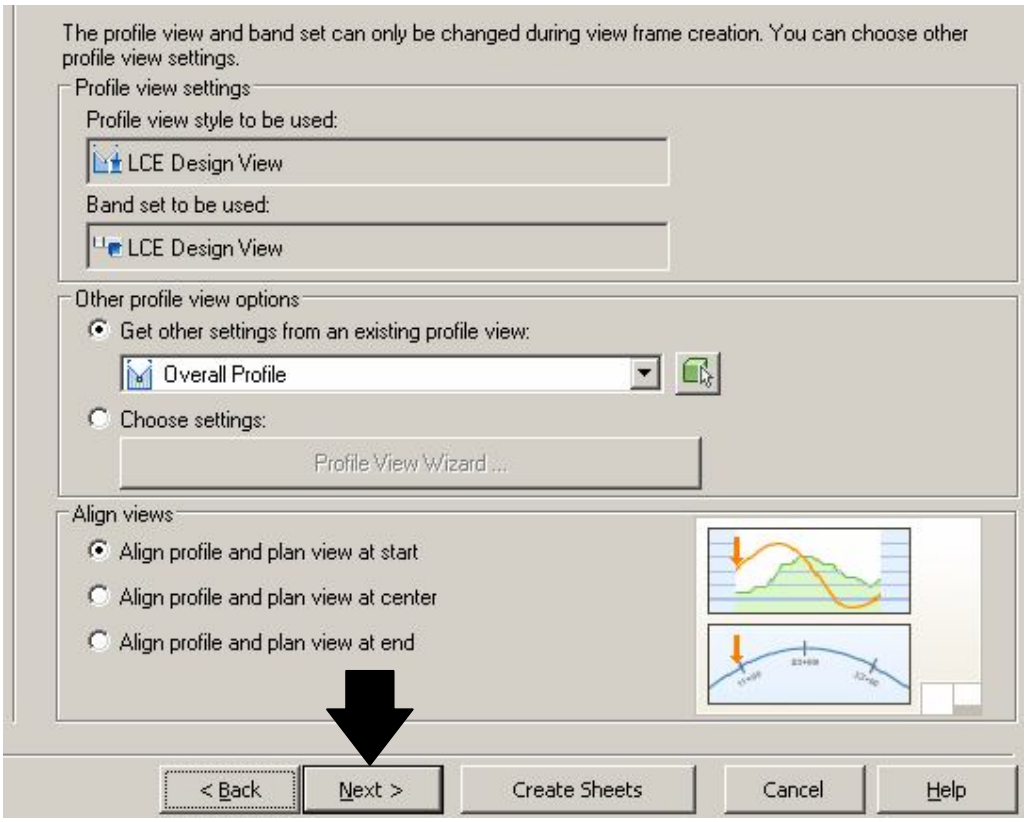
You will see this at the end of this tutorial.

Click Next:

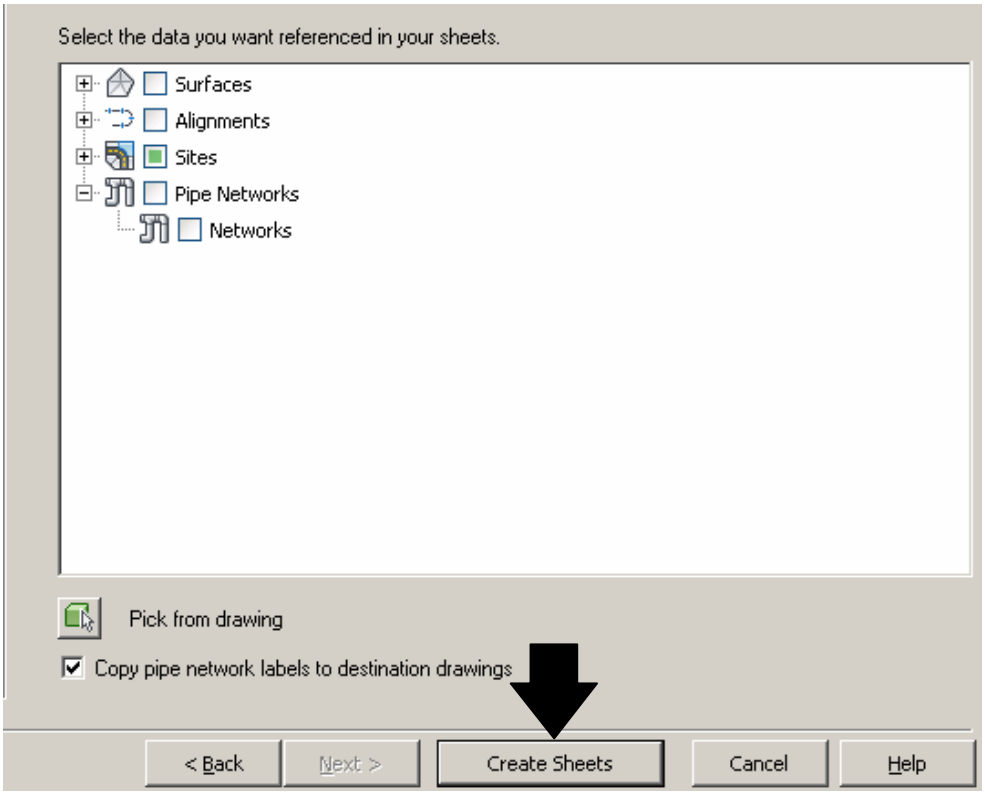
Here you can create a new Sheet Set or add what you are creating to an existing Sheet Set. Take note of the Sheet file name under Sheets. It is already set to be called Plan Production, again based on our new work flow chart. Do not change this. Click Next:



In this next box, it shows the Profile view settings styles that will be used, the profile view options. Notice that the profile I had created previous to the starting of this tutorial is called Overall Profile. I think this may be a good practice for all users in the future. Click Next:

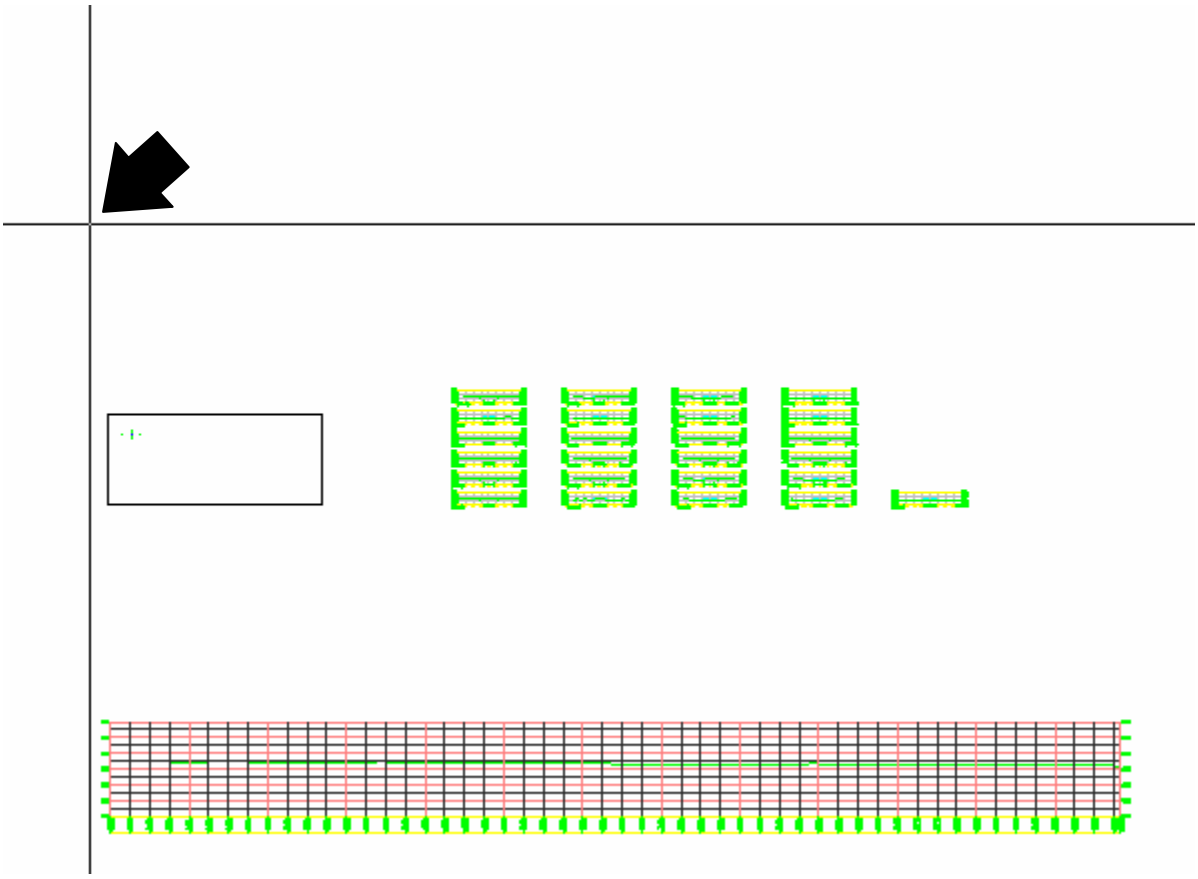


In this next box, since we are "transporting" the sheet layouts and the plan and the profile by x-ref over to a new drawing called "Plan Production", you can include any or all data shortcuts automatically just by choosing them here. Make your choices and click Create Sheets (notice you can copy your pipe network labels as well to your destination drawing):



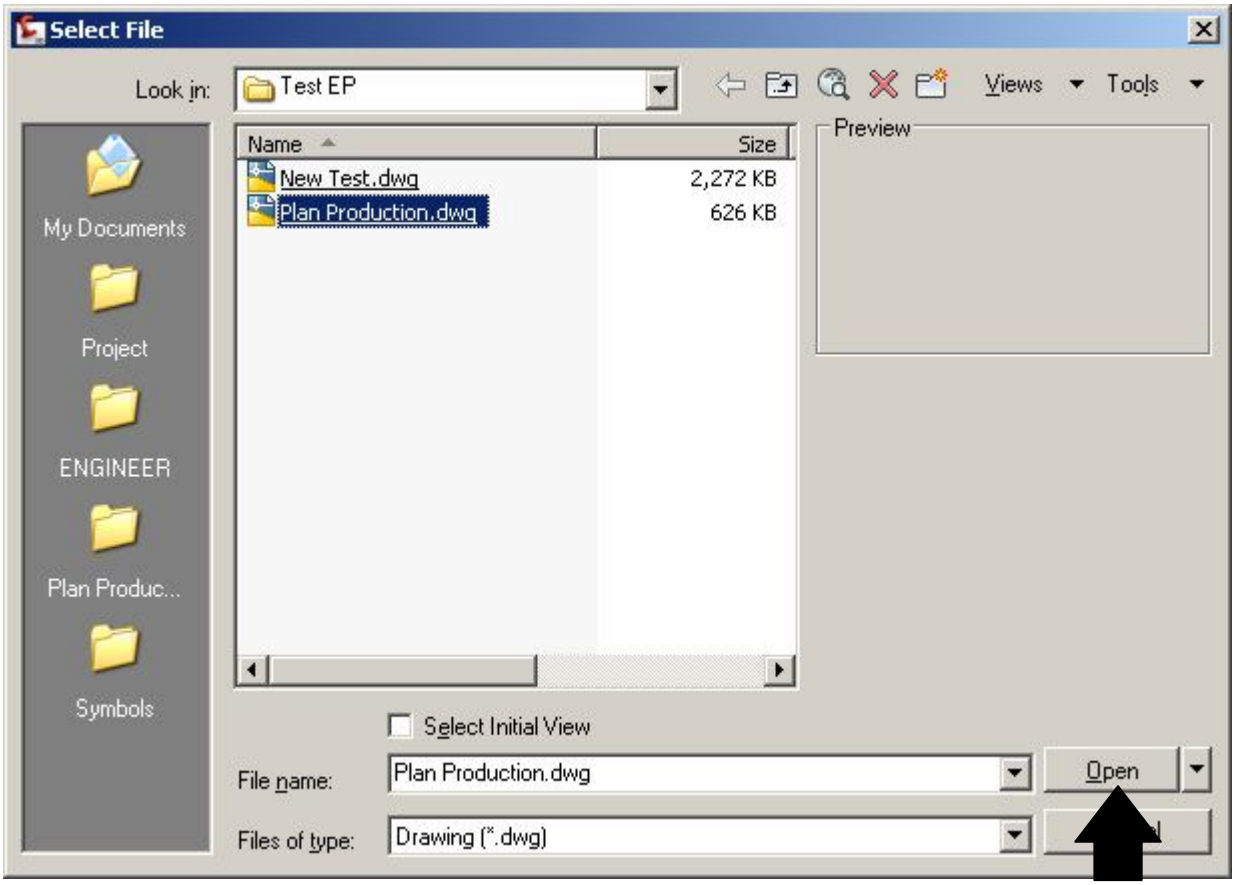
Click OK to this next prompt:

Select a location for your new profile views:

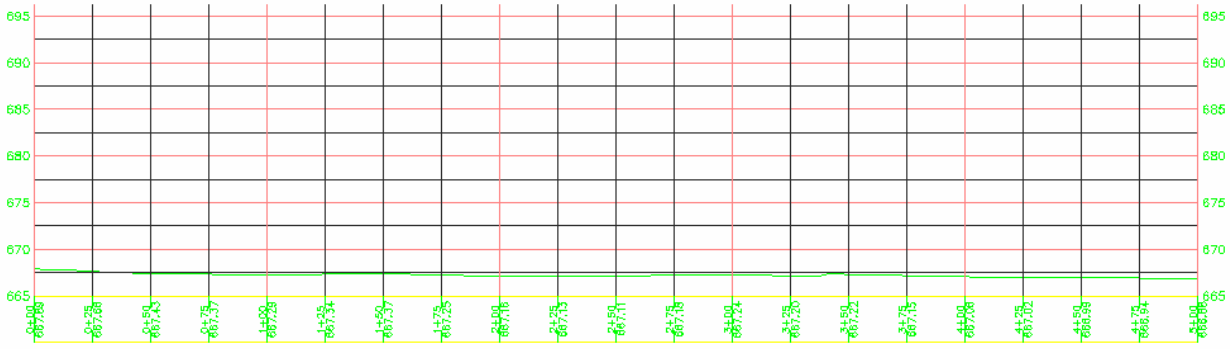


When the process is completed, if you have created the layouts in the current drawing, then the new profile views and the sheet layouts should of appeared in your current drawing. Since we told the wizard to create a separate drawing for the profile views and layouts, we need to open the drawing called Plan Production in the project folder. Let's do that, shall we?

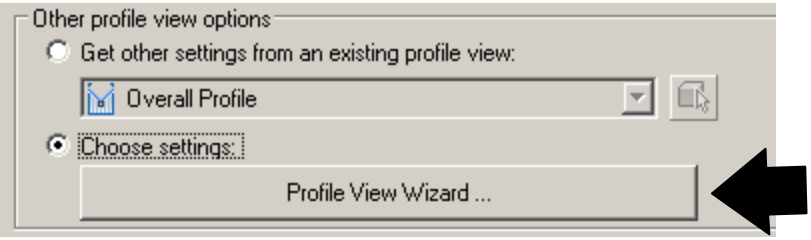
Go to the quick access toolbar, and click the Open folder icon. Select the Plan Production drawing file and click Open:



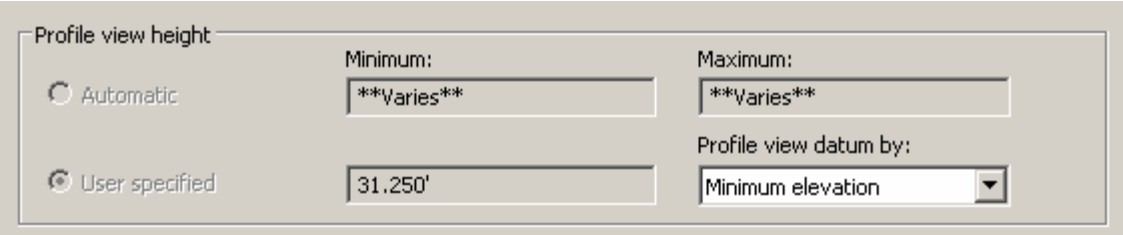
Once opened, if you zoom in on the first profile view, you will notice that the profile is riding low in the view.



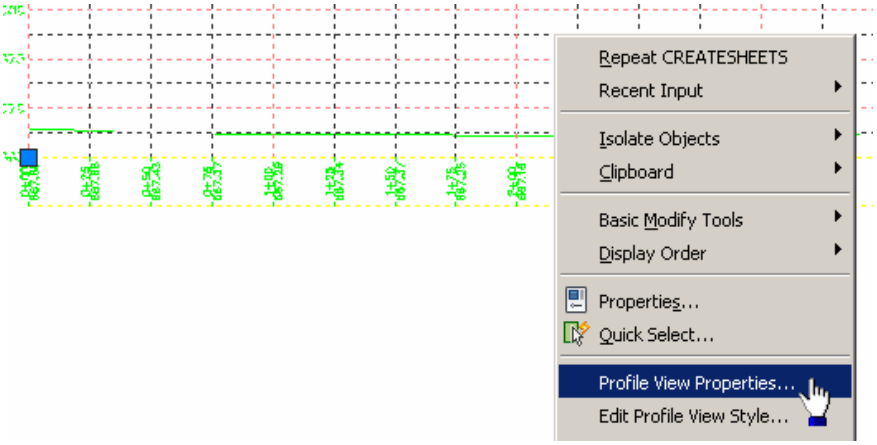
This is a small bug in the software. Back in the wizard, there was a step where you could base the profile views elevation range on the overall profile already created or you could manually enter in the elevation range that you wanted:



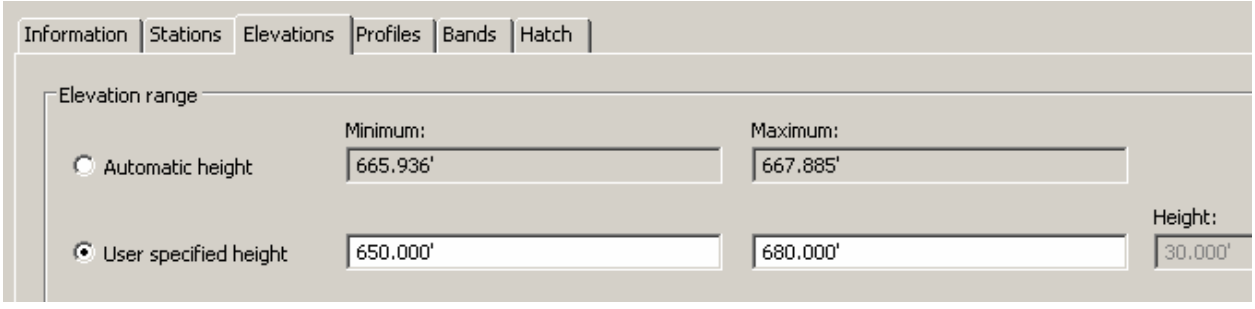
Had we selected the Profile View Wizard, this is what we would of seen:



As you can plainly see, there is no way to change the elevation range here, because it's grayed out. So we'll have to adjust each profile view as we go along. Here's the quick way.
Select and right click on the profile view. Click Profile View Properties:

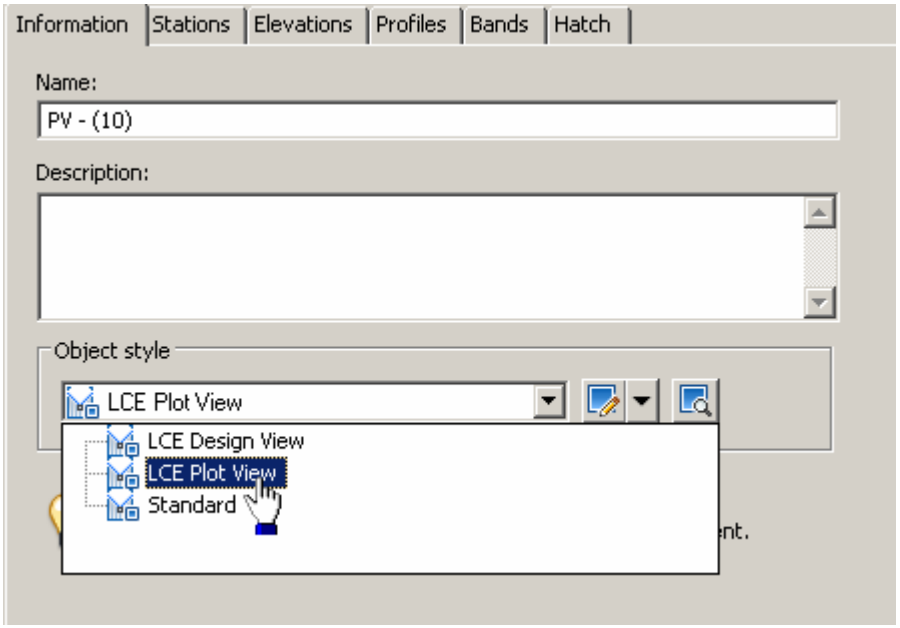


Click on the Elevations Tab, and put in a reasonable elevation range:

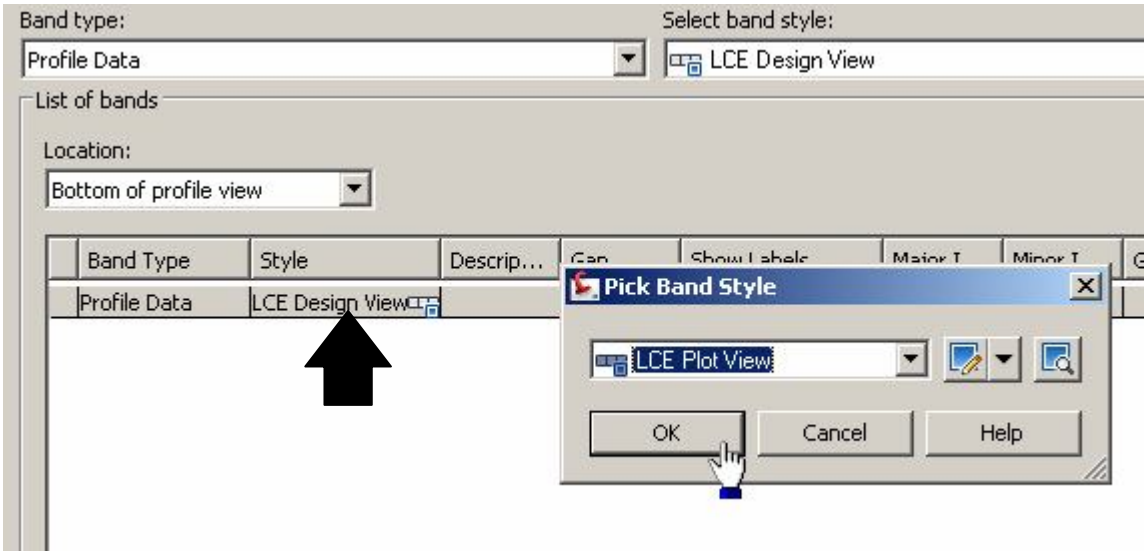


Now we are going to deviate a little from the current process to explain the two different grid styles. (Please refer to this section of this tutorial as a reference for any other plan production tutorials for switching between profile view styles and profile view band styles.) Ok, here we go.

By default, the profile view and the profile view band are set to what's known as the LCE Design View styles. We are going to change it to the LCE Plot View styles. Since you have the Profile View Properties still up, click on the Information Tab and click the Object style pull down and change the style to the Plot View style:

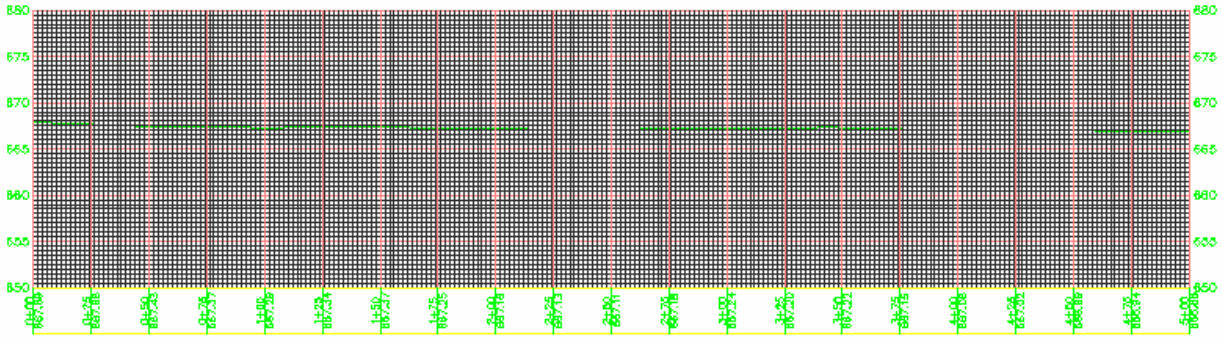


Next, click the Bands Tab, and double click the Style under the Bands List. Click the pull down And select the Plot View Style and click OK:

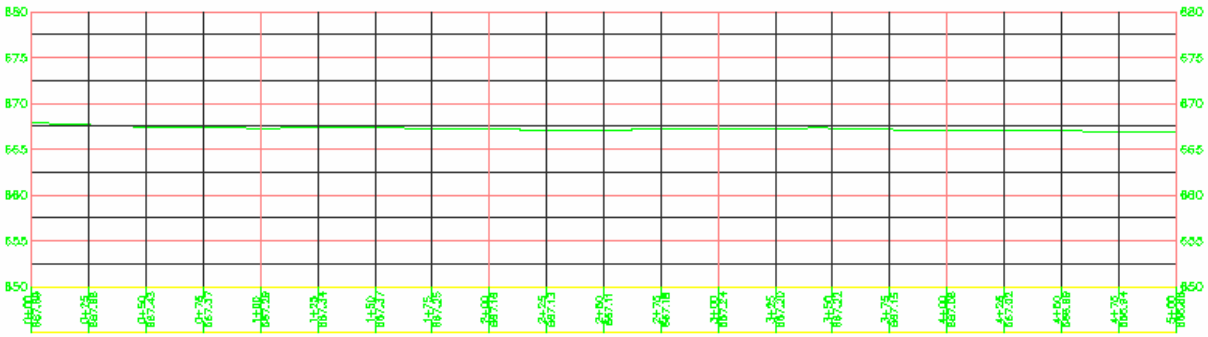


Click OK:

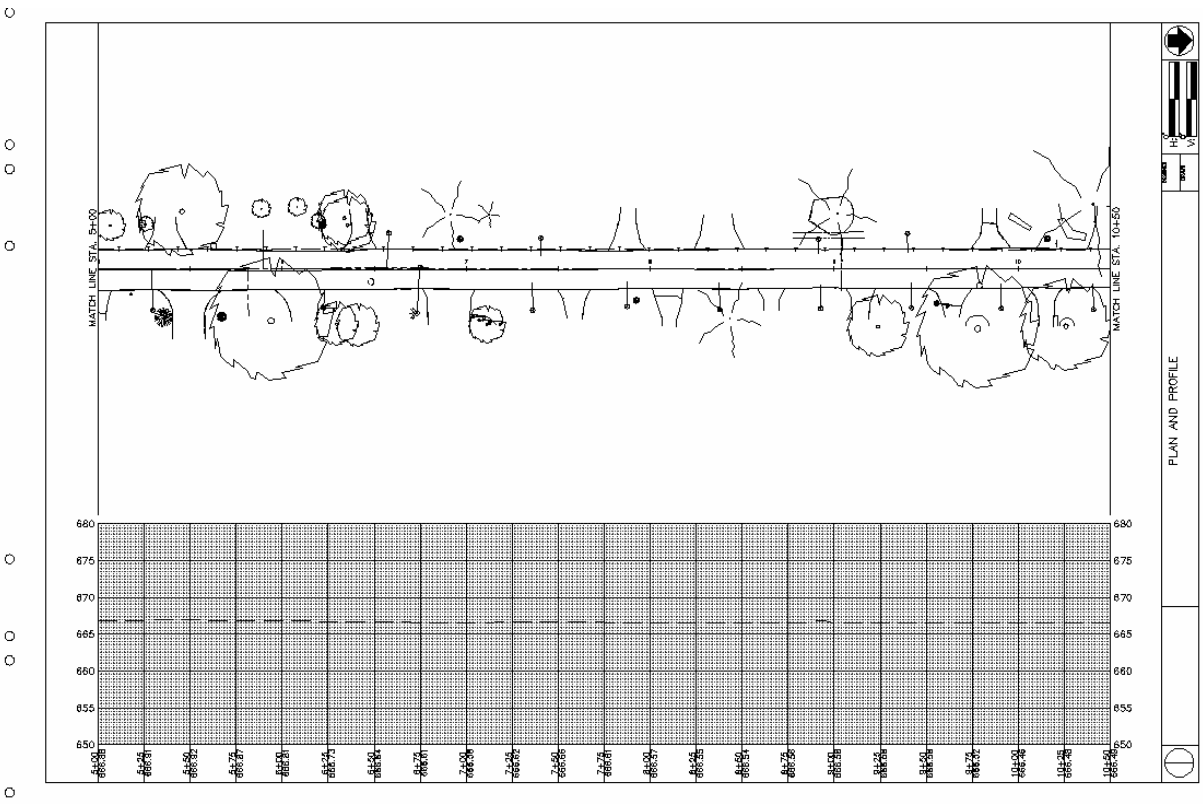
Notice the change in the view:



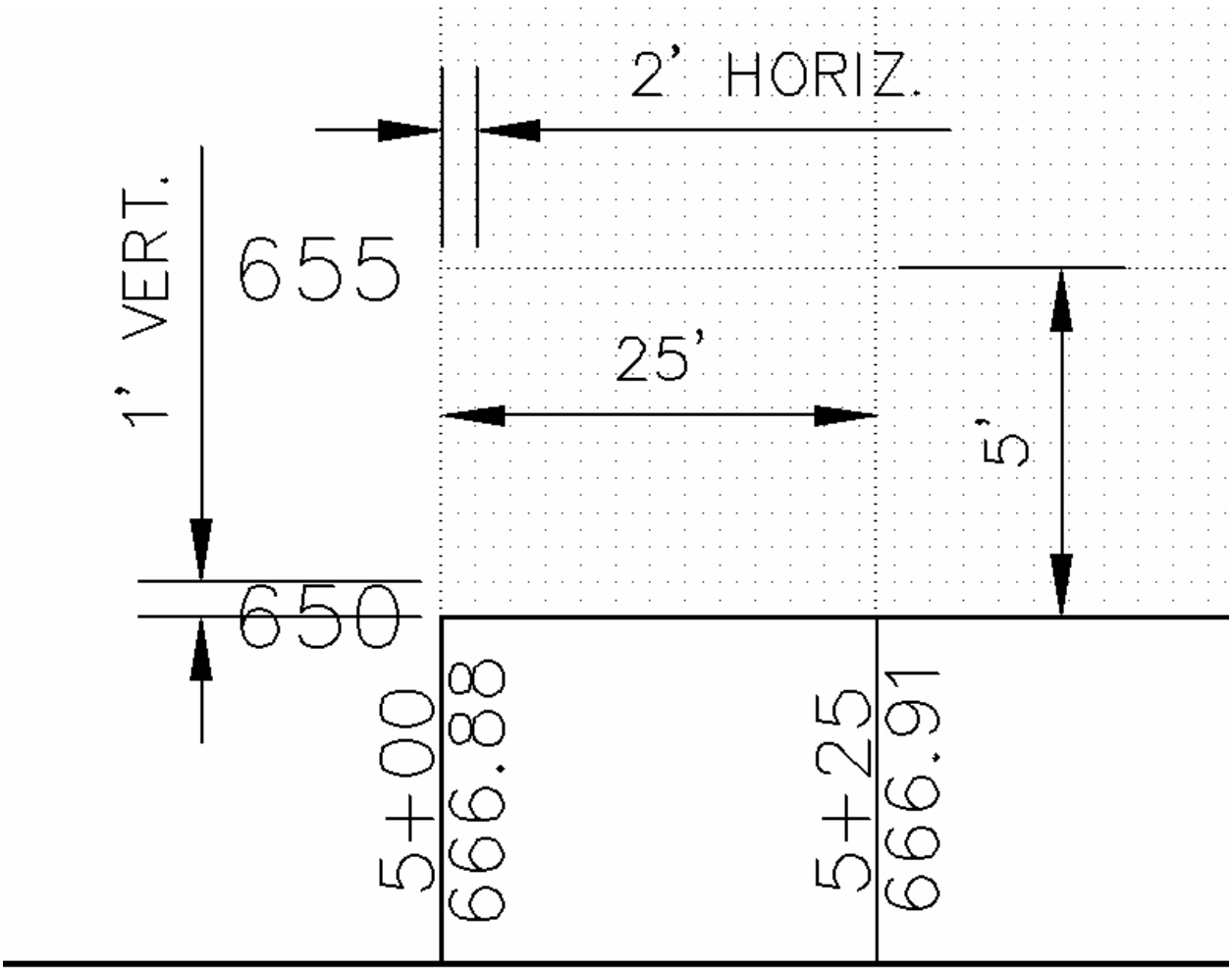
To reverse the display, just reverse the process. Select Profile View, right click, select Profile View Properties, Information Tab, change object style back to Design View, click Bands Tab, change the style under the Bands List back to Design View, and click OK and voila you're back:



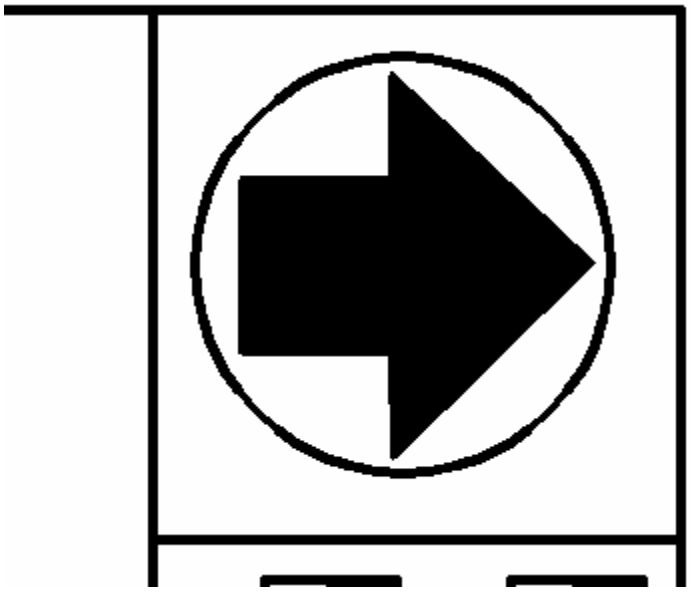
OK, back to the Plan Production drawing. Here is one of the layout sheets:



Now, just a bit of explanation to the Plan Production Layout Sheets, the grid and the north arrow block. As you may already know, the grid no longer resides with in the actual plan and profile block. We are now using the Civil 3D grid that is created with the Profile View. Here is the spacing details for the grid itself:



As for the north arrow, you no longer have to manually deal with this block. The Plan Production wizard does it for you:



This ends this tutorial.

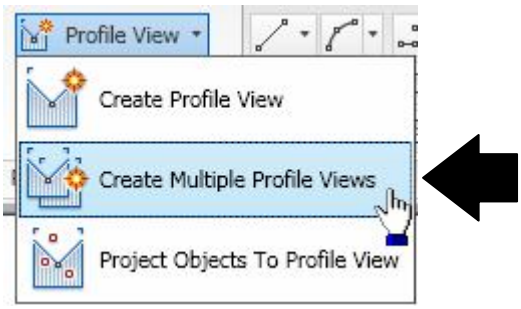
CREATING SPLIT PROFILE SHEETS USING PLAN PRODUCTION

PLAN PRODUCTION SPLIT PROFILE– USING THE PLAN PRODUCTION TEMPLATE
Typical Split Left and Right Plan and Profile

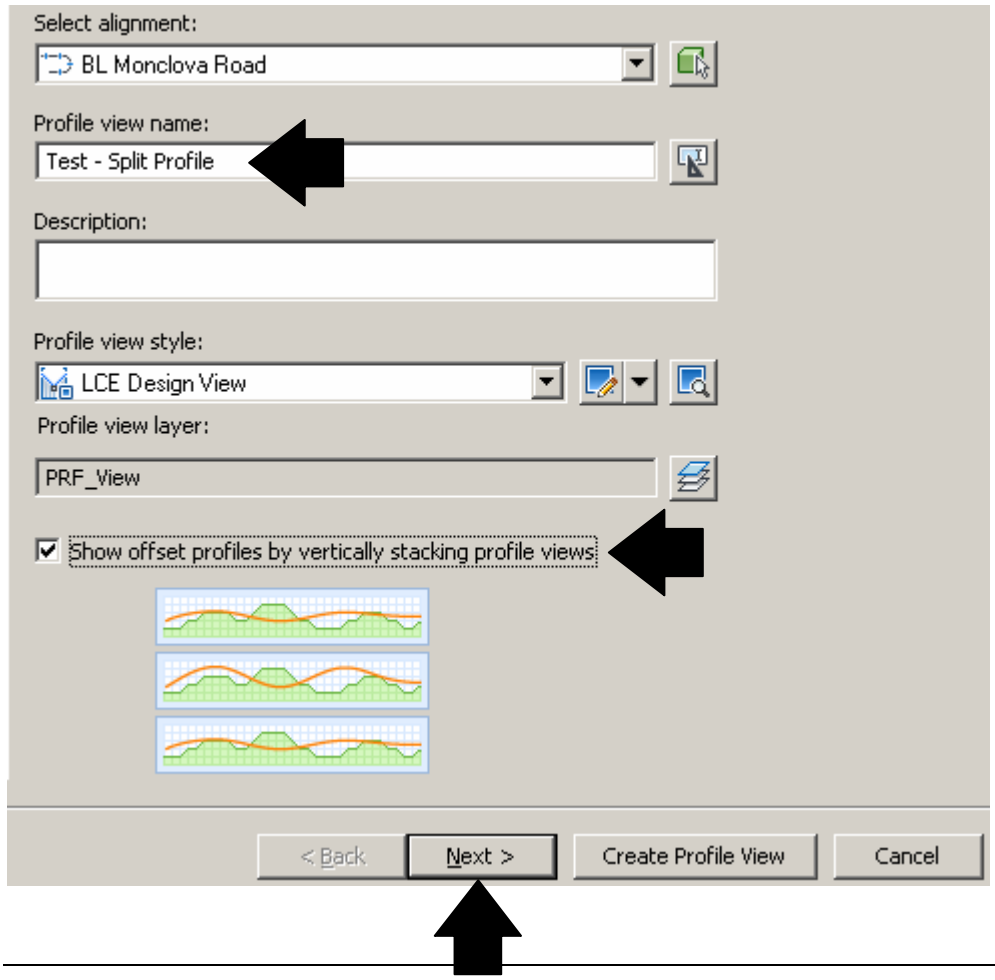
Before using this process, be sure that your pipe networks are separated by the left and right sides, because this process can take that into account and make adding your pipe networks to your split profiles that much easier.

When you are ready to create your overall profile and split profile layouts, follow these steps.

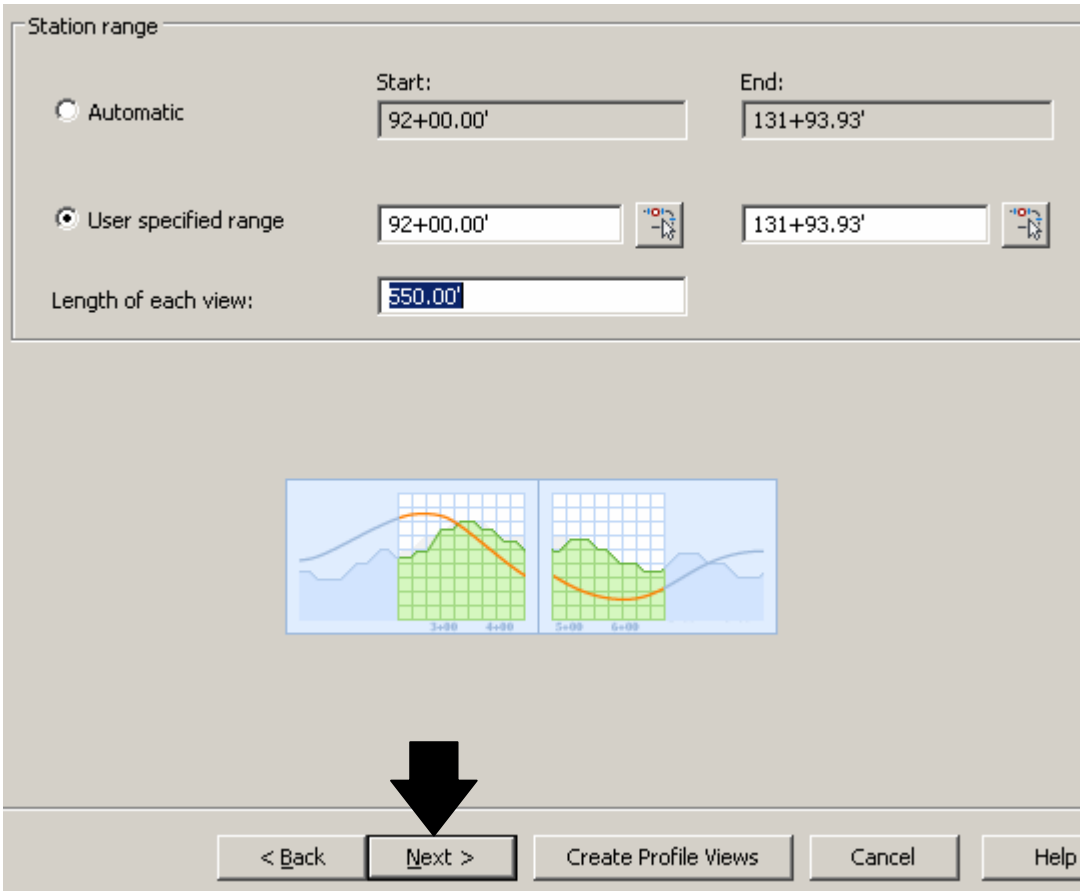
Be sure you are on the Home Tab, then click Profile View, then Create Profile View:



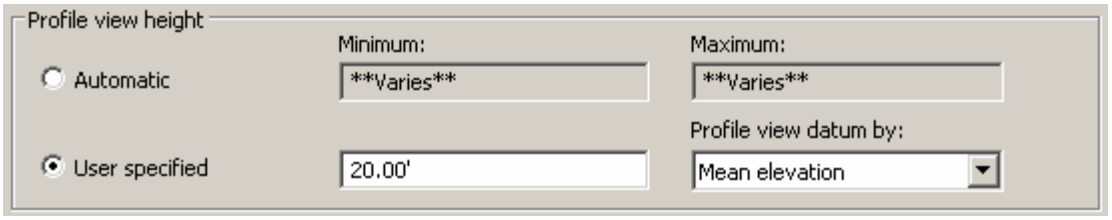
Next, give the Profile View an appropriate name, and make sure the stacked profile view is selected and click Next:



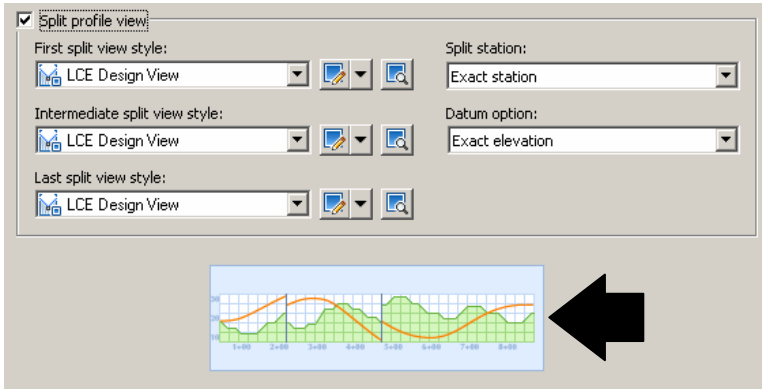
Specify your Station Range, give the length of each view as 550’ and click Next:



For Multiple Profile Views, C3D only allows specific height, not Elevation Range. Use default:

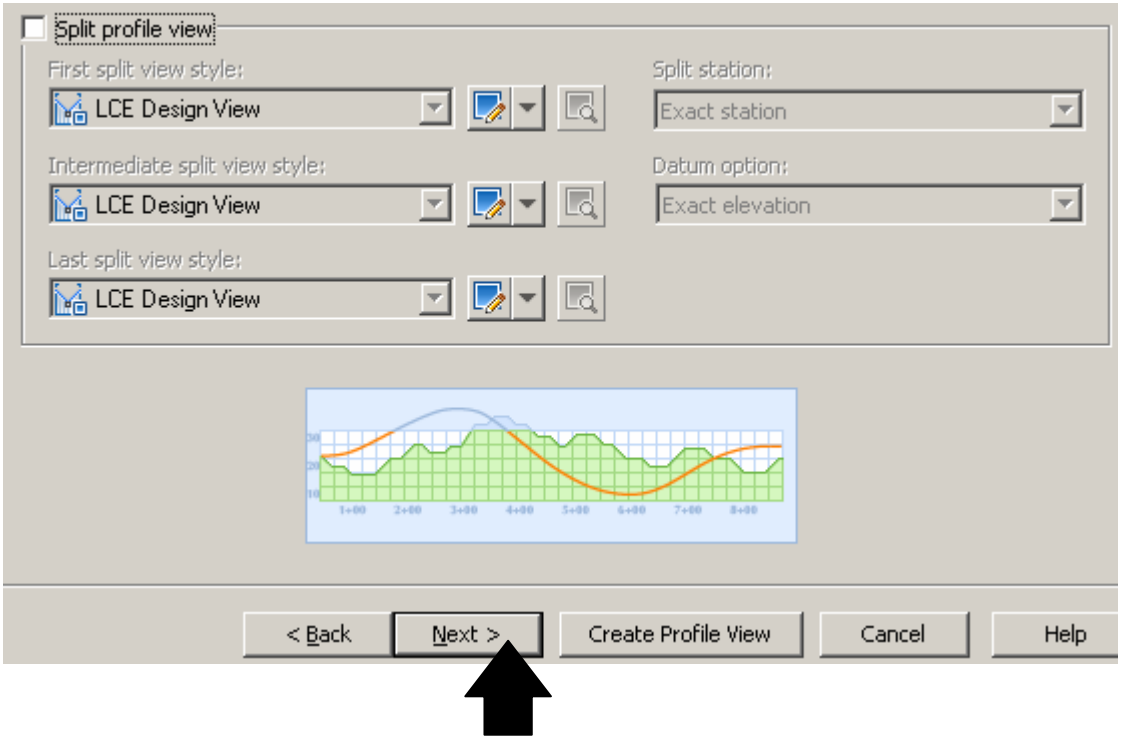


SPECIAL NOTE – The next section may be a bit confusing, but the best explanation is this. This section pertains to profiles that have larger elevation ranges where you would need to “split” the profile vertically across the profile view, just as it shows when you enable this feature:

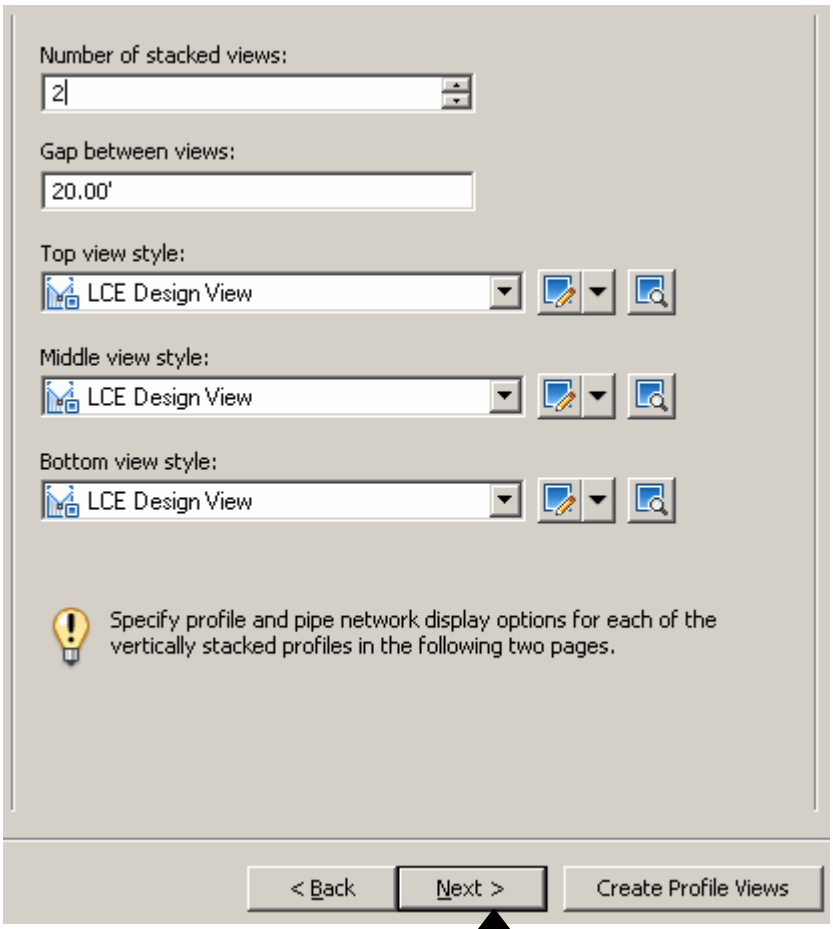


Do not use this feature unless your profile requires it. In most if not all cases, you will not need this feature. By default, it is not enabled. Leave the box unchecked.

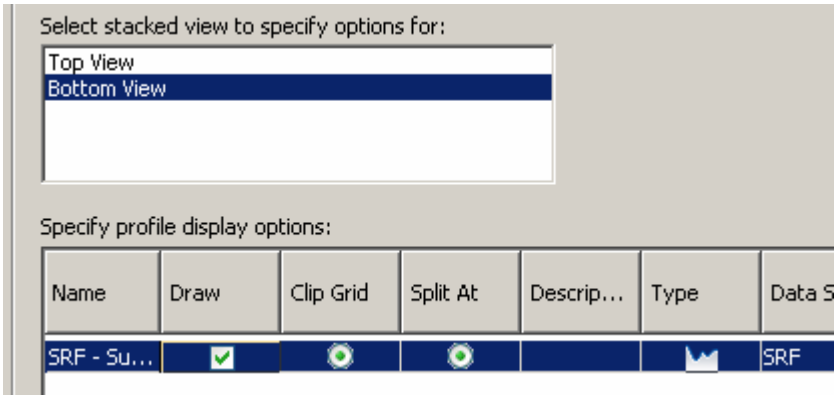
Click Next:



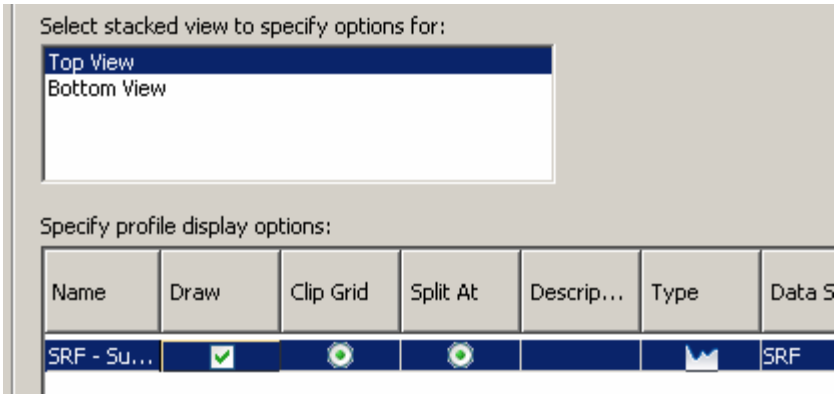
On the next screen, this is where the stacked profile settings are determined. The command settings for this feature are already set up for you. Click Next:



Here are the Profile Display options. In the Specify profile display options area, click the check box under Draw:

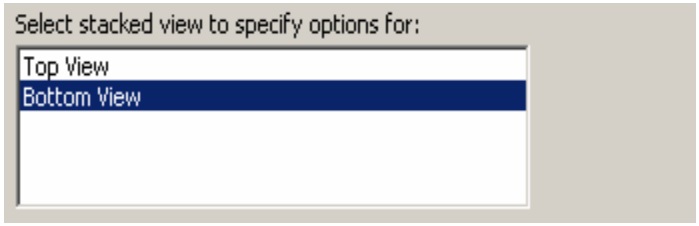


Now click the Top View and repeat the same step:



Click Next:

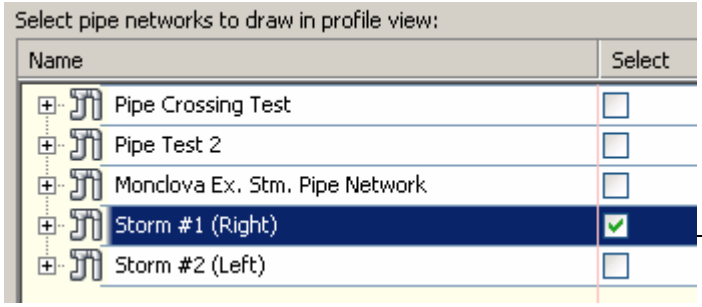
This next screen allows you to add your pipe networks to your split profiles.

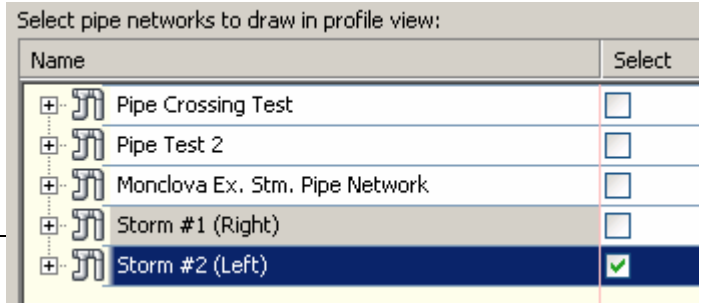


Be sure to assign the proper pipe network to the correct view. Any left side pipe network will be assigned to the Top View and any right side pipe network the Bottom View.

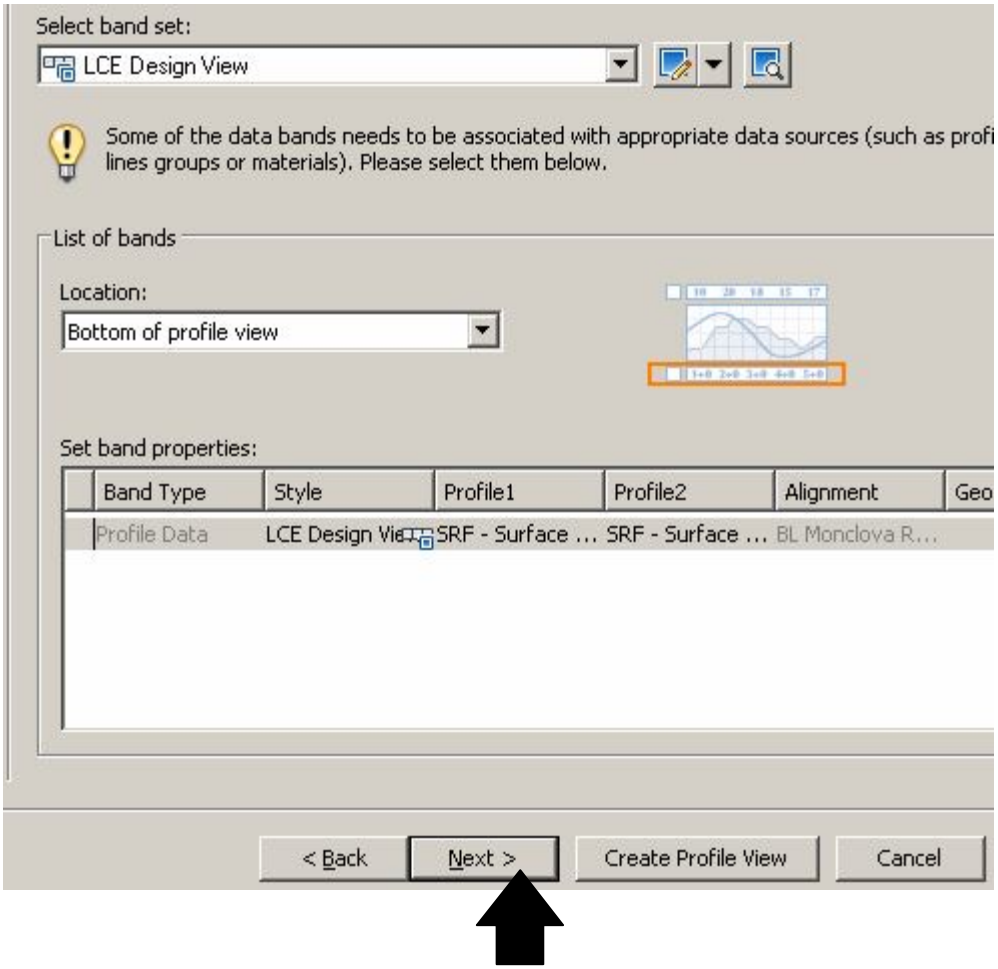
Top View:

Bottom View:

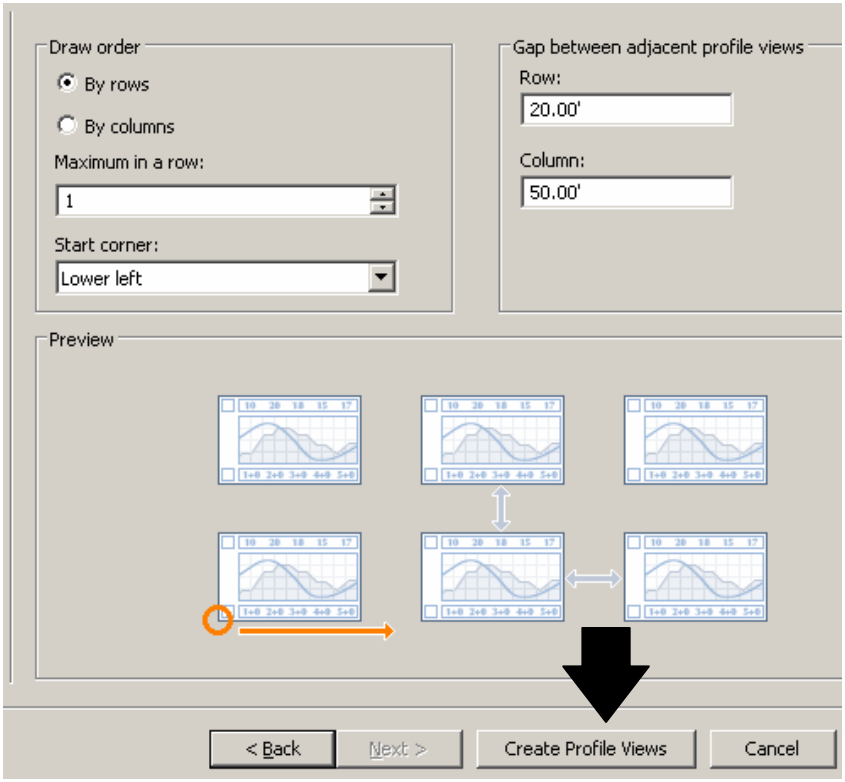




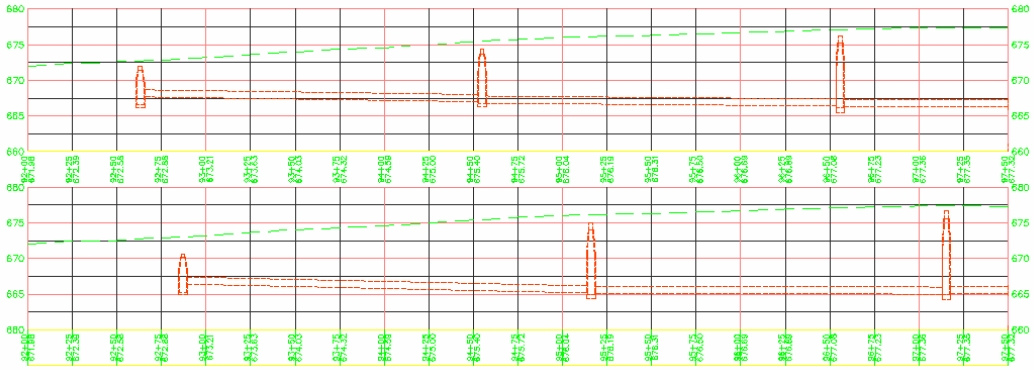
The next screen should not be fooled with, just click Next:



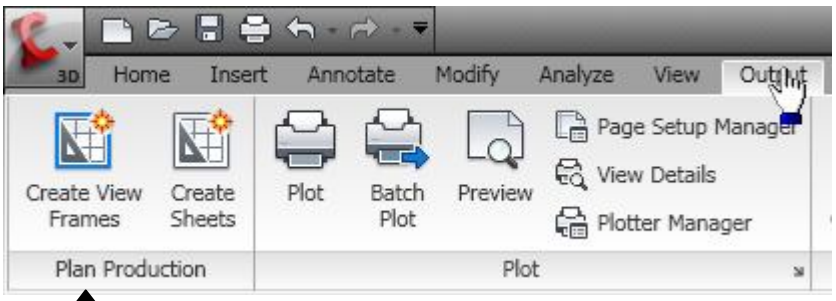
Again, do not worry about the next screen either and click Next. At the last screen, if the screen doesn't look like this, change the settings to the following, and click Create Profile Views:



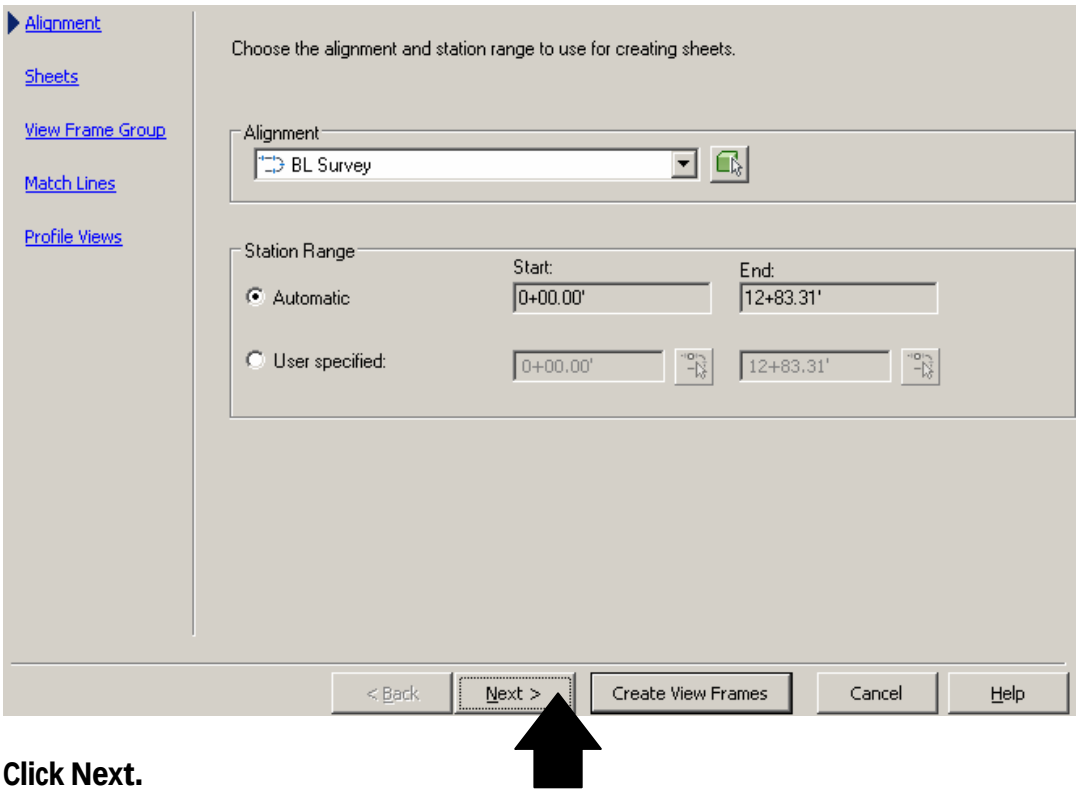
Here are the split profile views. Your Profile Views may look different in that the profiles will be lower in the profile view itself. Not to worry, we will fix this issue a little later:



Now, click on the Output Tab, then click Create View Frames:

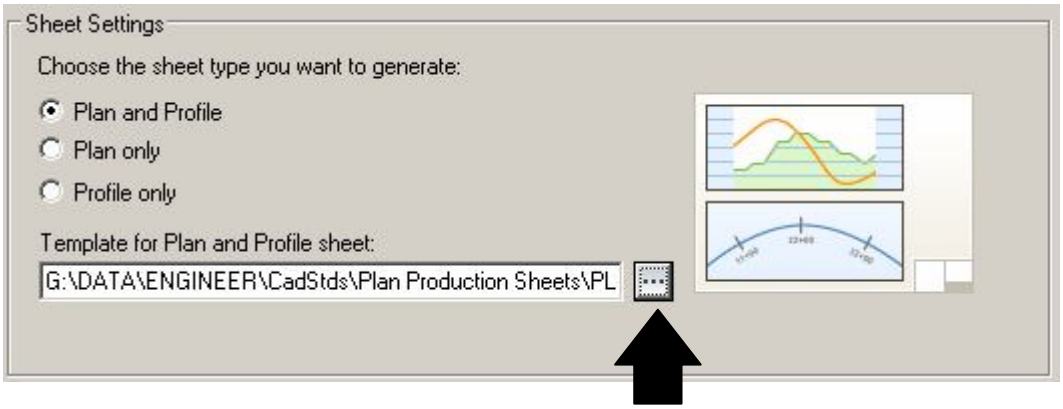


Make sure you have your proper Alignment chosen and specify the type of Station Range:

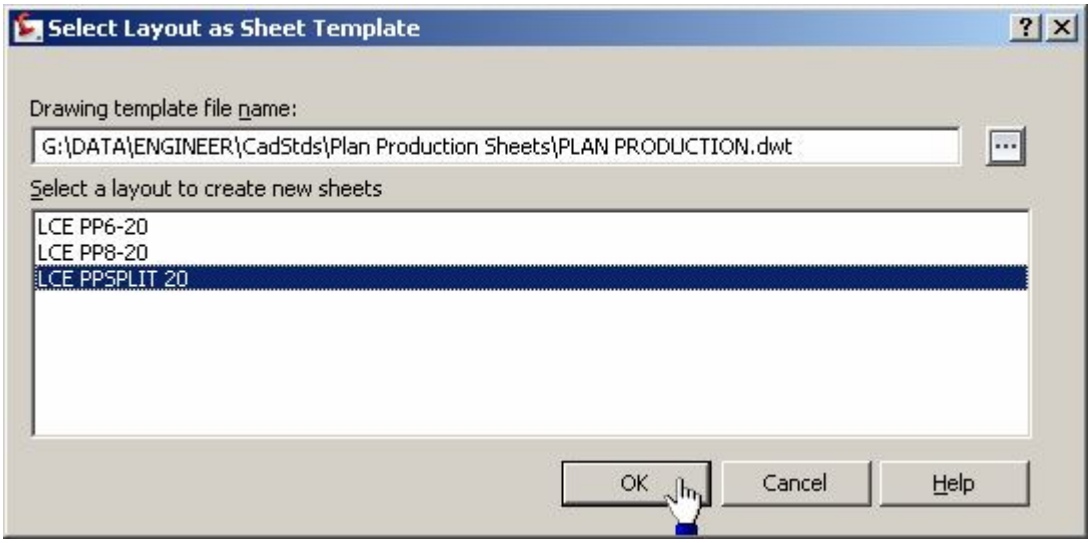


Click Next.

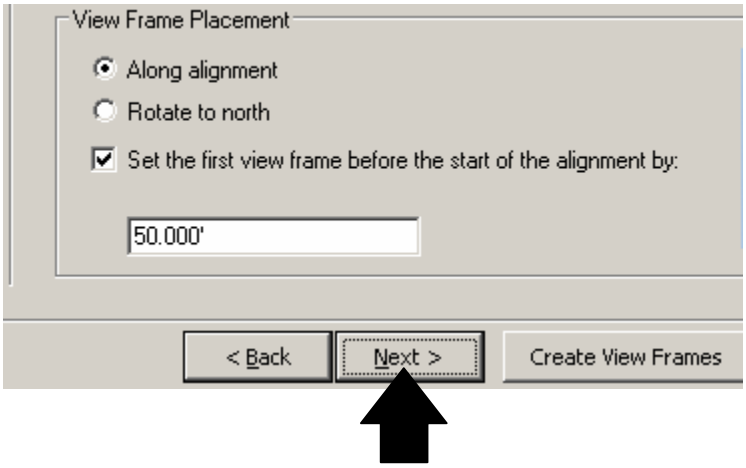
Under the Sheet Settings, the Template for Plan and Profile sheet field will probably already be set to the proper location. If not, see the Plan Production-Typical Plan and Profile tutorial to browse to select the Plan Production template. Select the Browse button next to the template field :



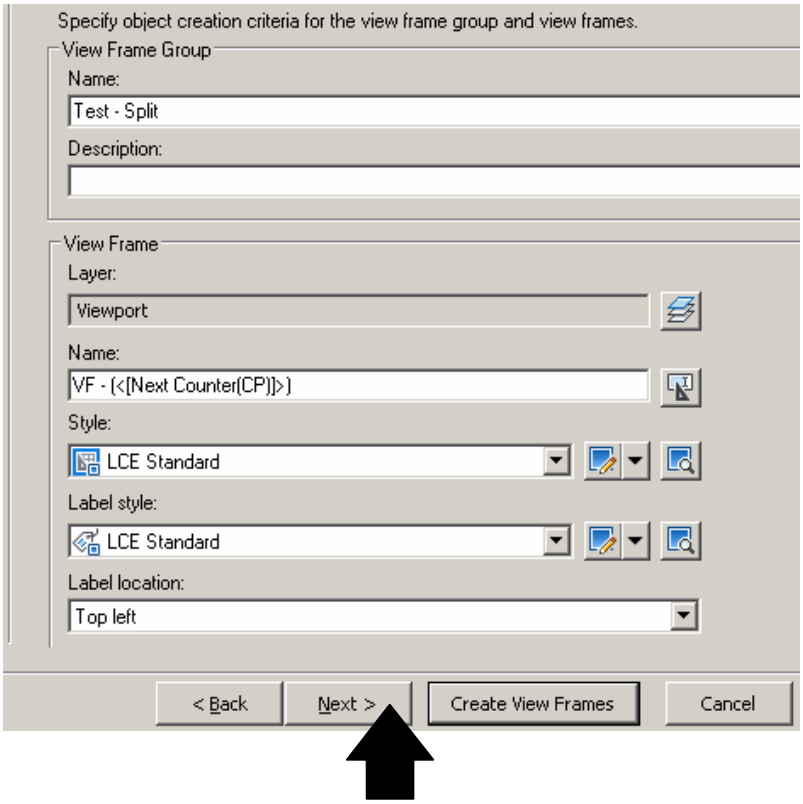
Select the LCE PPSPLIT 20 layout and click OK:



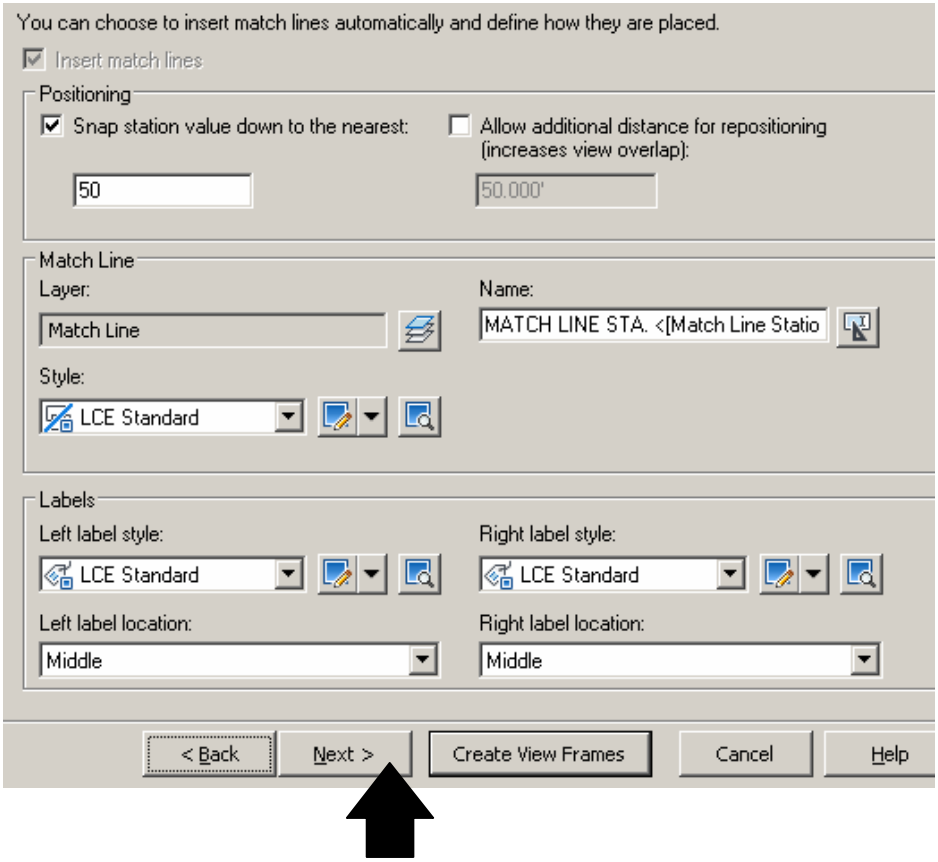
Be sure your offset distance is the way you want it and Click Next:



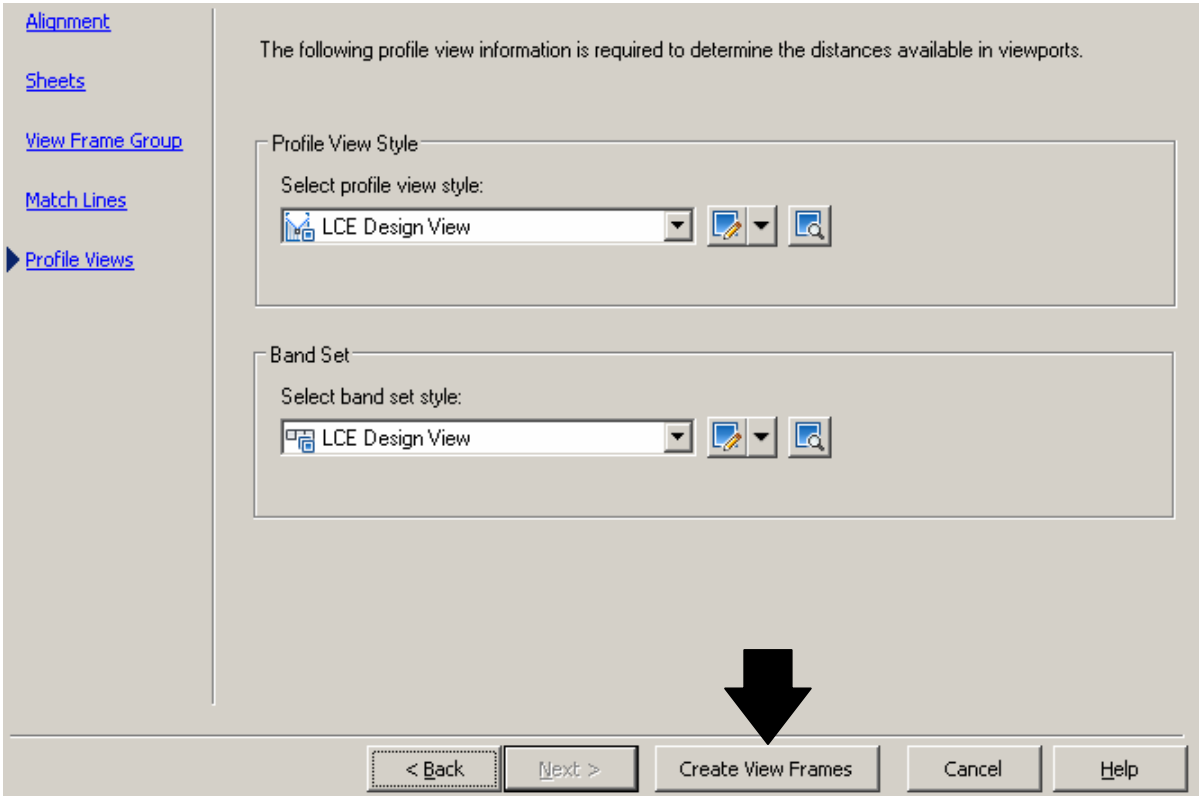
Give the View Frame Group an appropriate name and click Next:



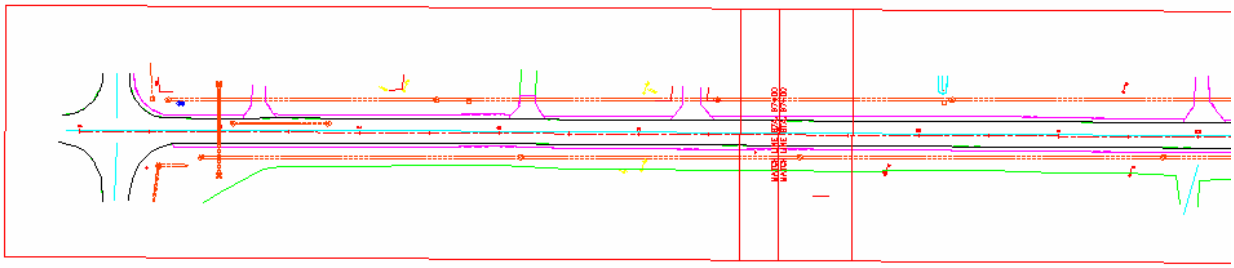
Just click Next:



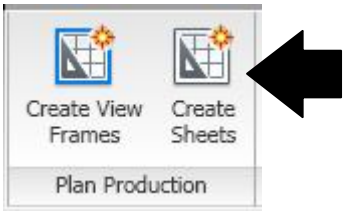
In this box, you can pre-set the type of display you wish to see when your profile views are created. For now leave these settings as they are and click Create View Frames:



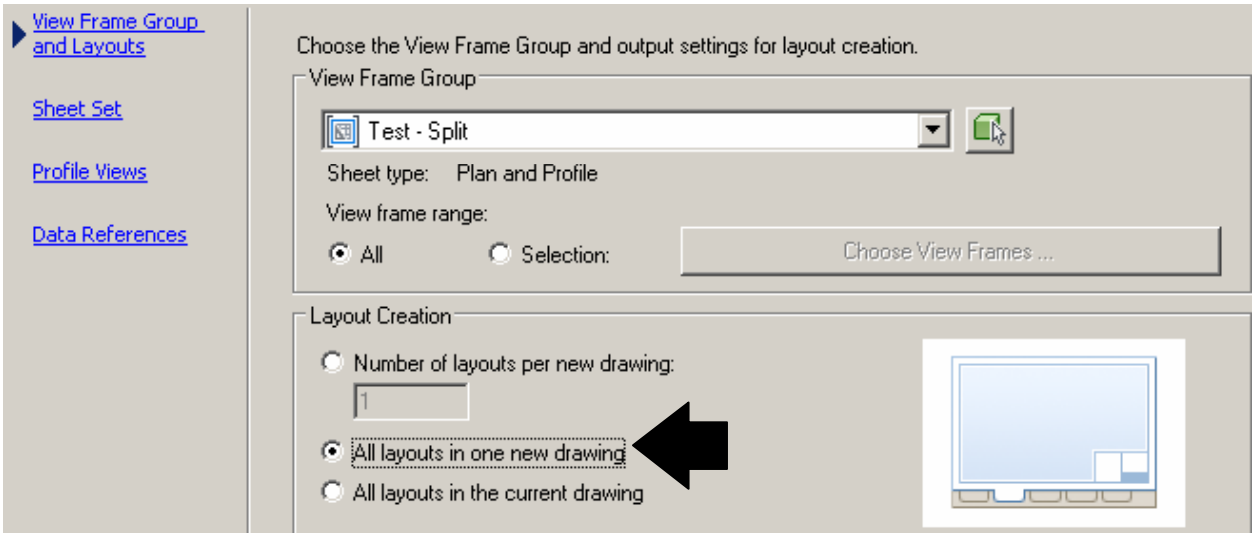
You should see your View Frames:



It's time to create your split profile sheet layouts. Go back to the Ribbon and click Create Sheets:

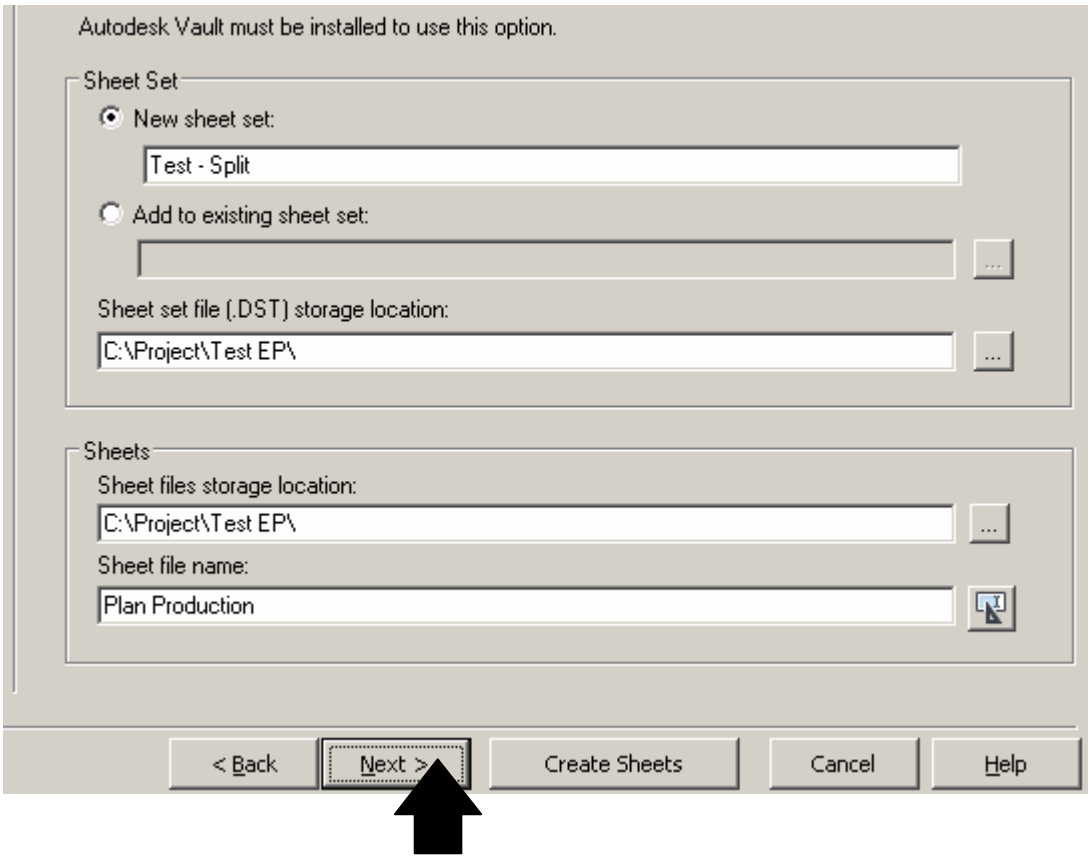


As you can see, you have some control over what you can create here. In the Layout Creation, you will have to make the determination of where the layouts are going to go based on the type and length of the project you are doing. For this tutorial, I am putting them into a separate drawing (this coincides with the new work flow chart). Click Next:

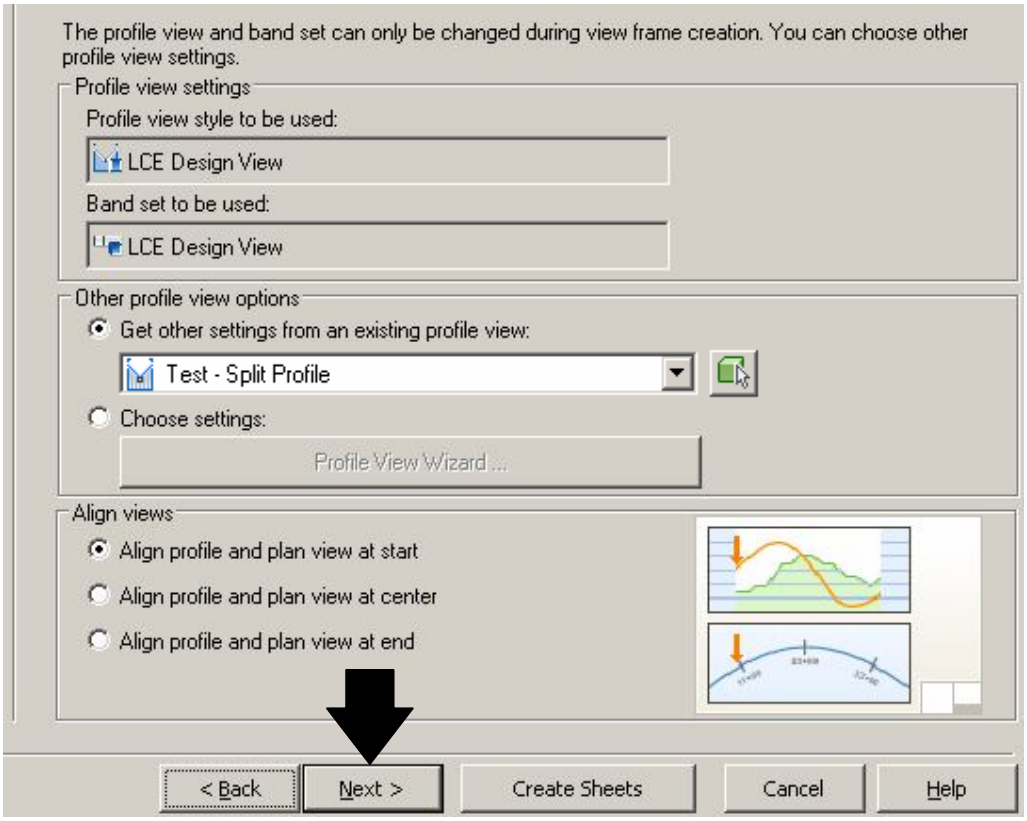


Click Next:

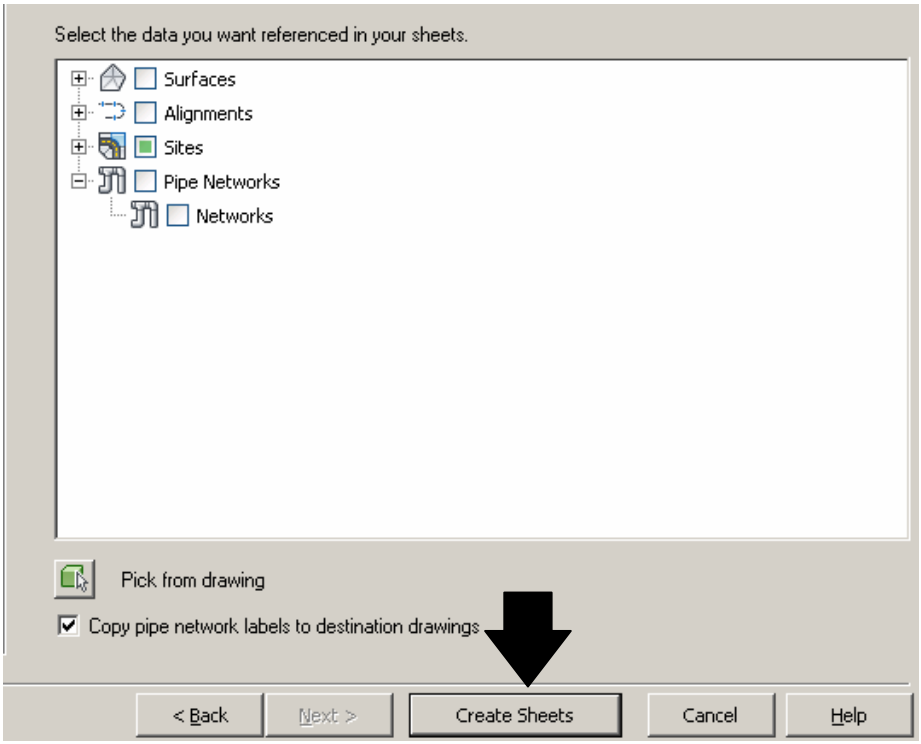
Here you can create a new Sheet Set or add what you are creating to an existing Sheet Set. Take note of the Sheet file name under Sheets. It is already set to be called Plan Production, again based on our work flow chart. Do not change this. Click Next:



In this next box, it shows the Profile view settings styles that will be used, the profile view options. Notice that the profile I had created previous to the starting of this tutorial is called Test - Split Profile. I think this may be a good practice for all users in the future to call these elements that mean something. Click Next:

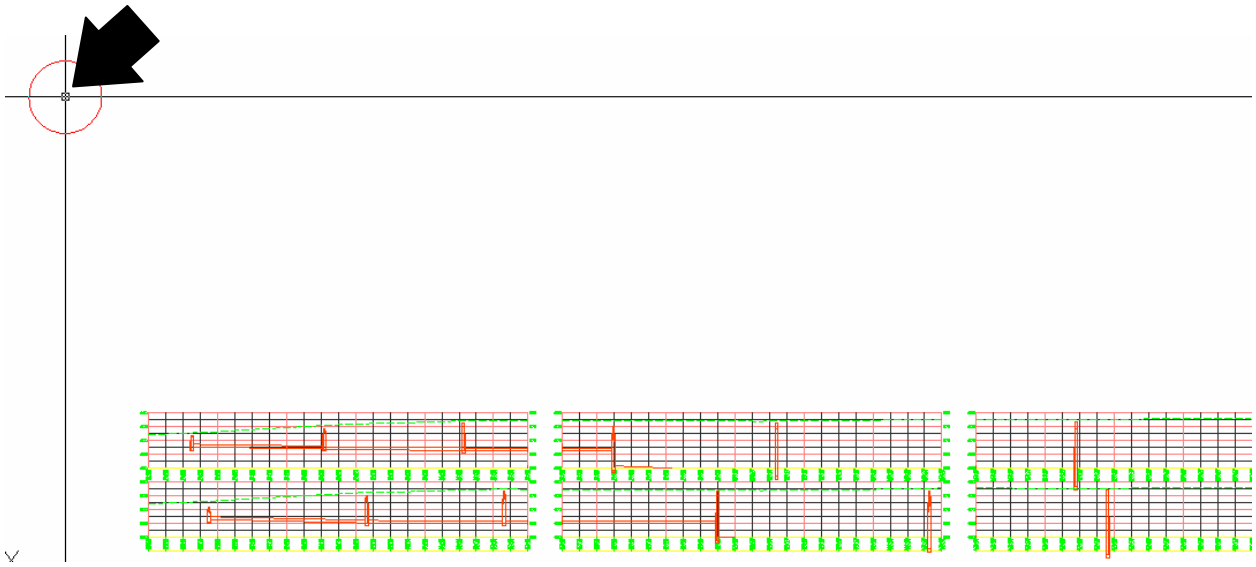


In this next box, since we are "transporting" the sheet layouts and the plan and the profile by x-ref over to a new drawing called "Plan Production", you can include any or all data shortcuts automatically just by choosing them here. Make your choices and click Create Sheets (notice you can copy your pipe network labels as well to your destination drawing):

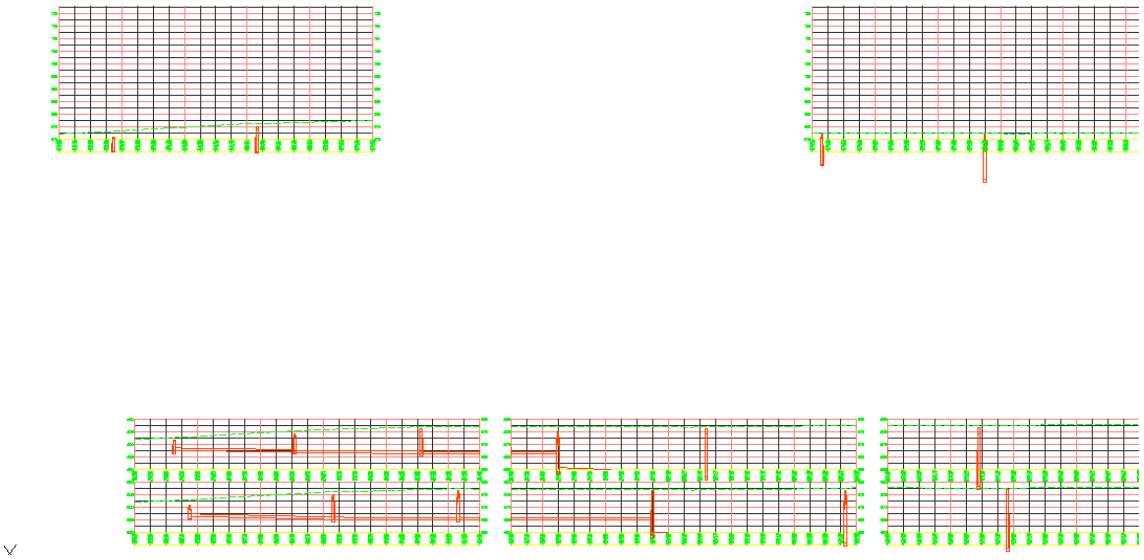


Click OK to this next prompt:

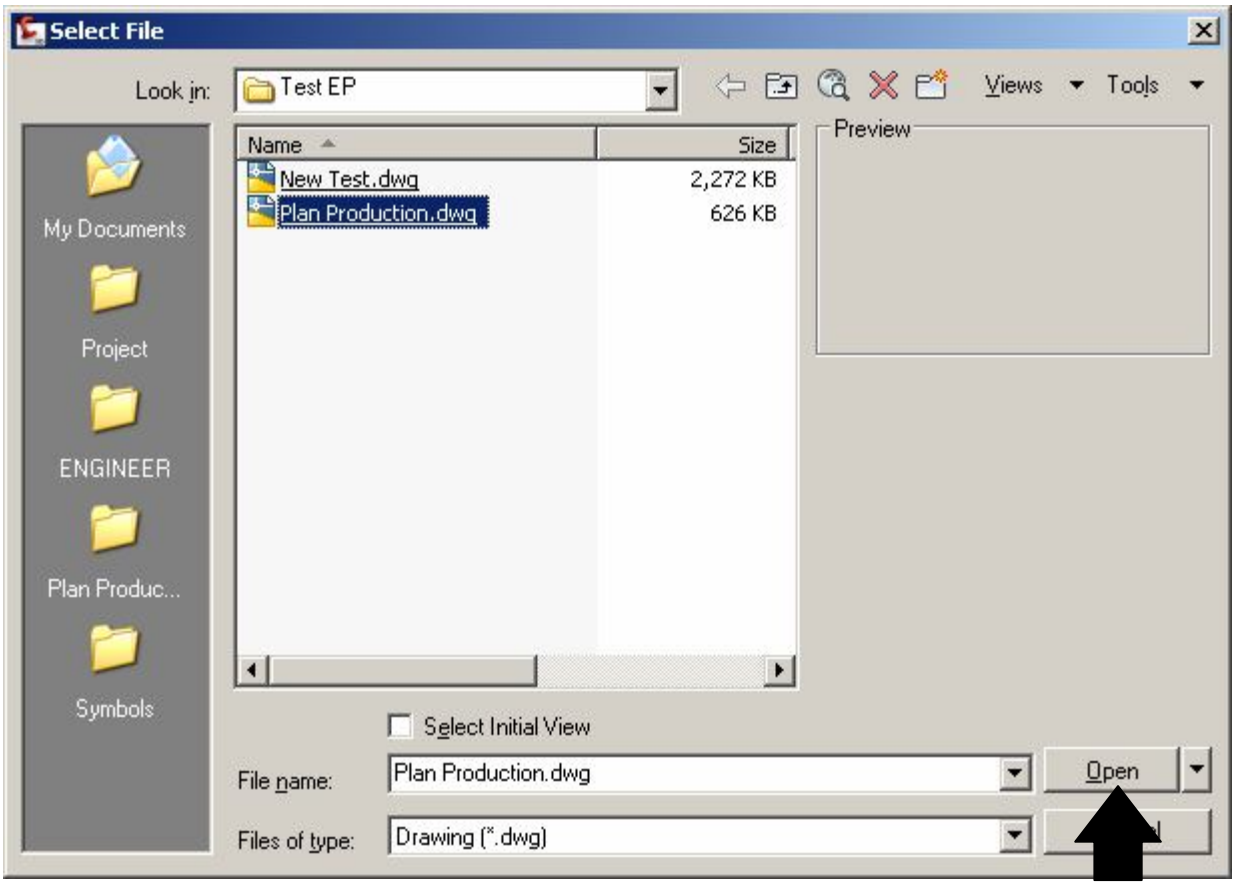
Select a location for your new profile views:



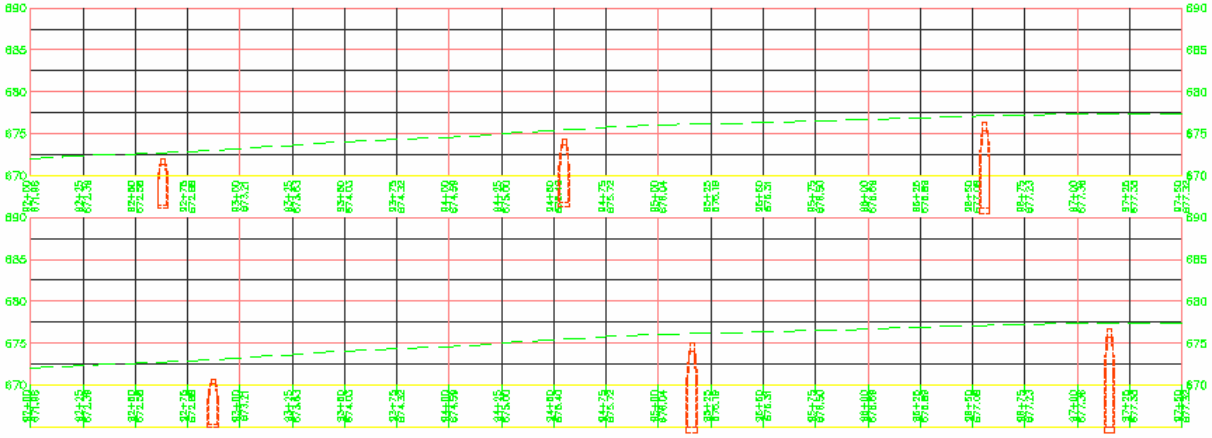
Here is the result. Notice the Profile Views it created are not split, but we're not going worry about that, as we are not going to use these Profile Views:



When the process is completed, if you have created the layouts in the current drawing, then the new profile views and the sheet layouts should appear in your current drawing. Since we told the wizard to create a separate drawing for the profile views and layouts, we need to open the drawing called Plan Production in the project folder. Let's do that, shall we?
Go to the quick access toolbar, and click the Open folder icon. Select the Plan Production drawing file and click Open:

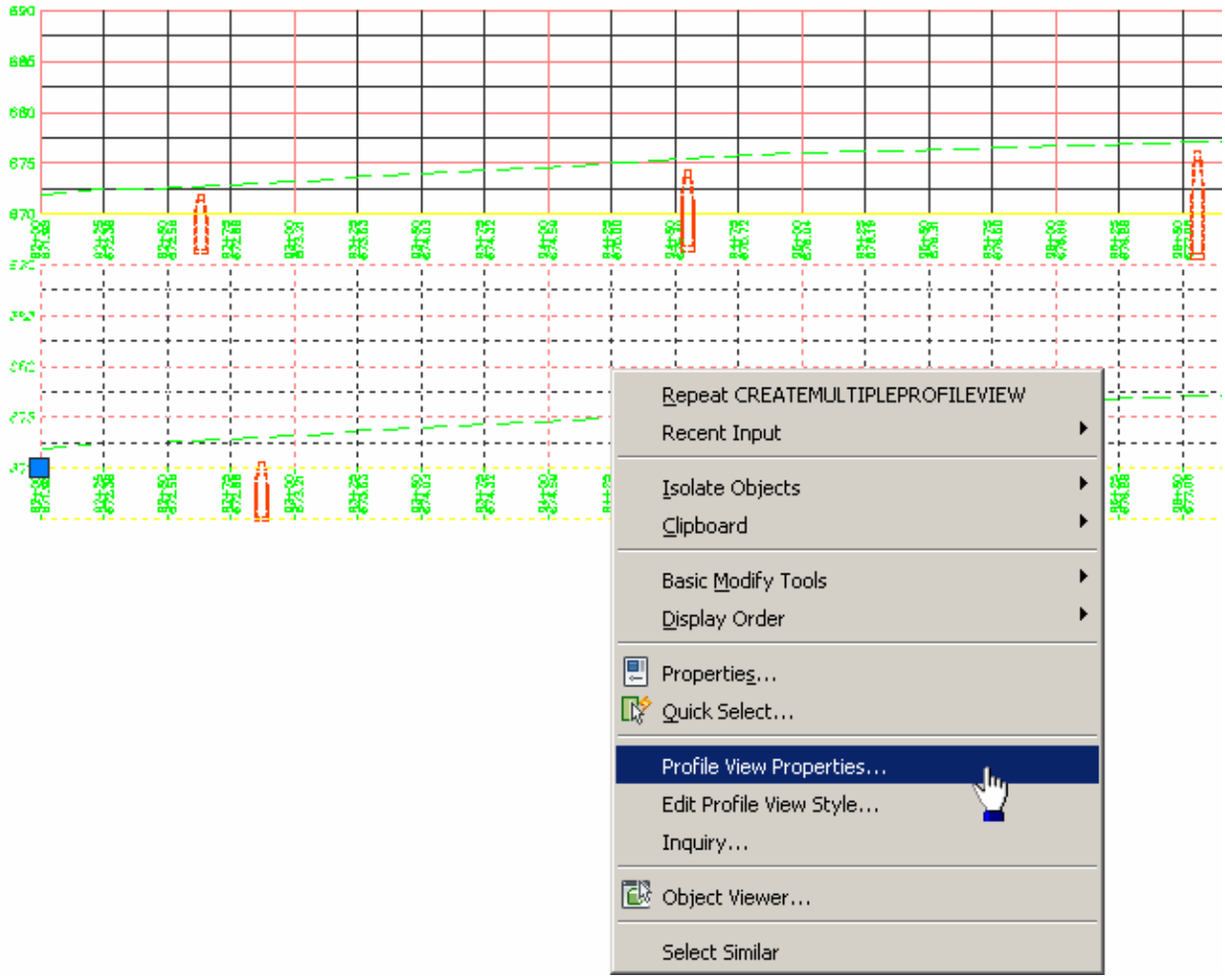


Once opened, if you zoom in on the first profile views, you will notice that the profiles are riding low in the views.

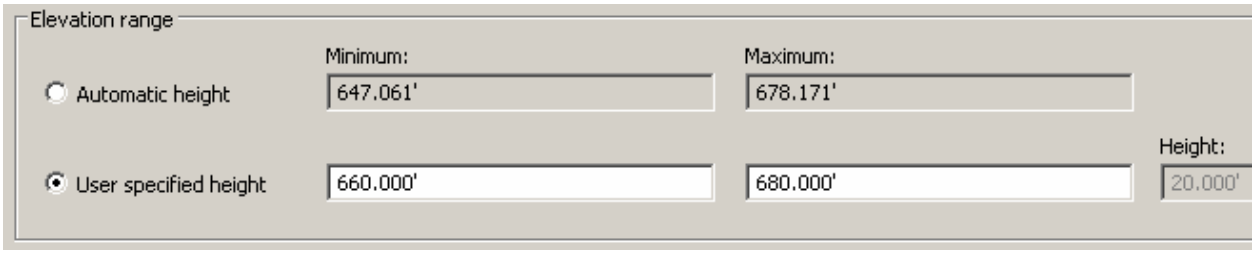


This is a small bug in the software.

So we'll have to adjust each profile view as we go along. Here's the quick way. Select and right click on the profile view. Click Profile View Properties:



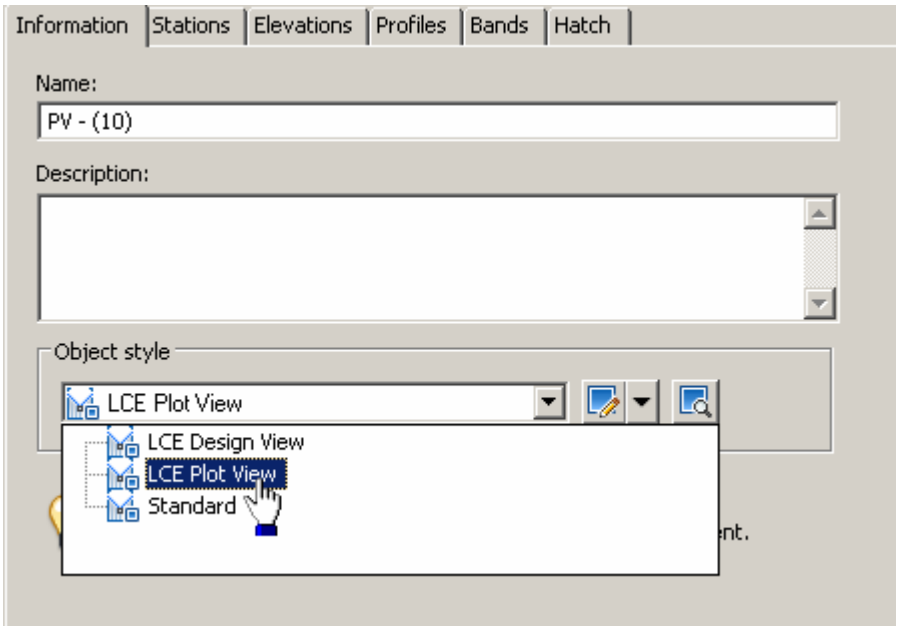
Click on the Elevations Tab, and put in a reasonable elevation range like the following:



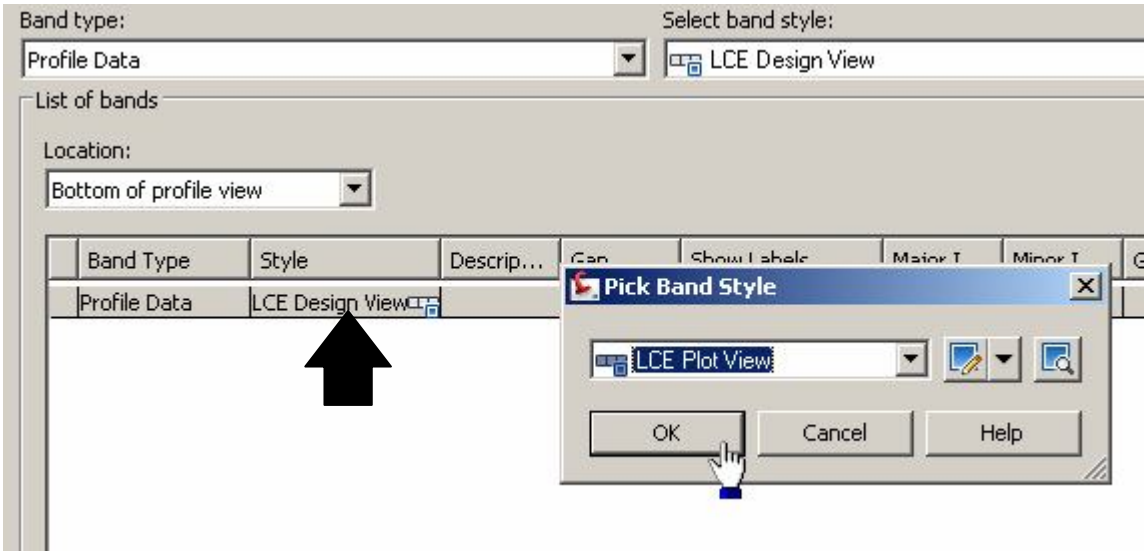
Again, you will have to do this for each profile view.

Now we are going to deviate a little from the current process to explain the two different grid styles. (Please refer to this section of this tutorial as a reference for any other plan production tutorials for switching between the two new profile view styles and the two profile view band styles.) Ok, here we go.

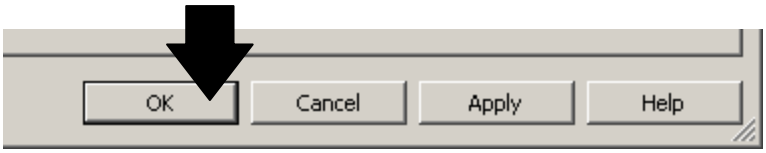
By default, the profile view and the profile view band are set to what's known as the LCE Design View styles. We are going to change it to the LCE Plot View styles. Since you have the Profile View Properties still up, click on the Information Tab and click the Object style pull down and change the style to the Plot View style:



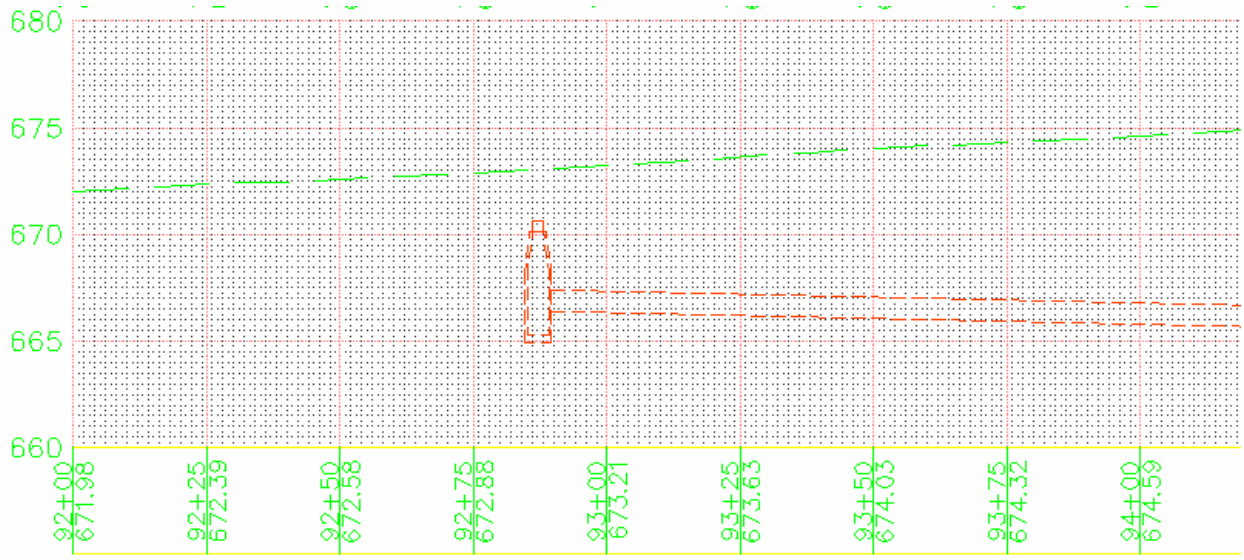
Next, click the Bands Tab, and double click the Style under the Bands List. Click the pull down and select the Plot View Style and click OK:



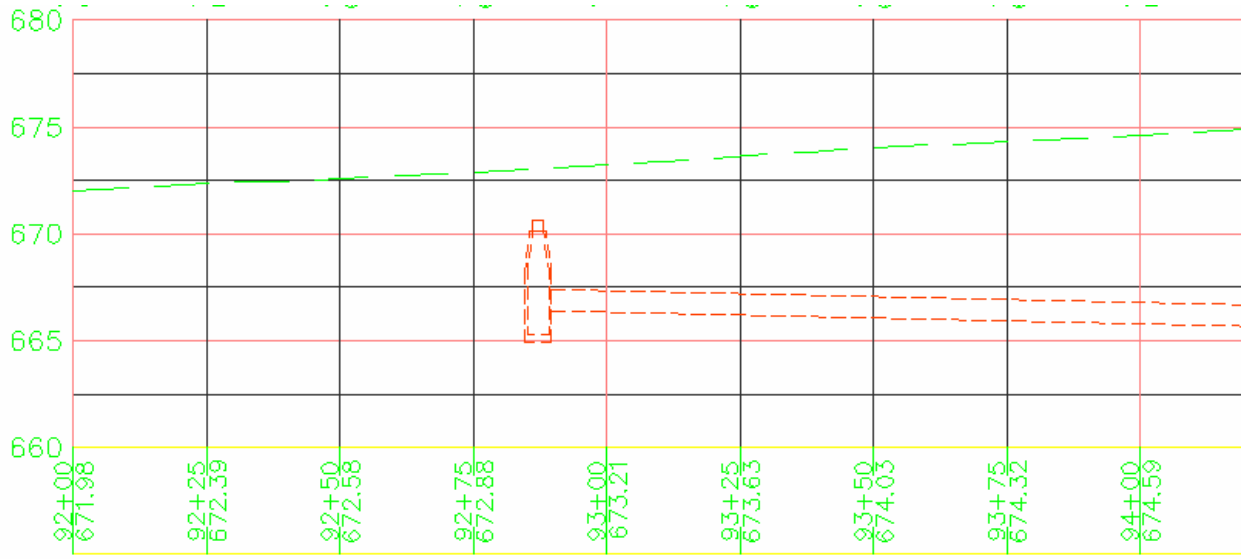
Click OK:



Notice the change in the view:

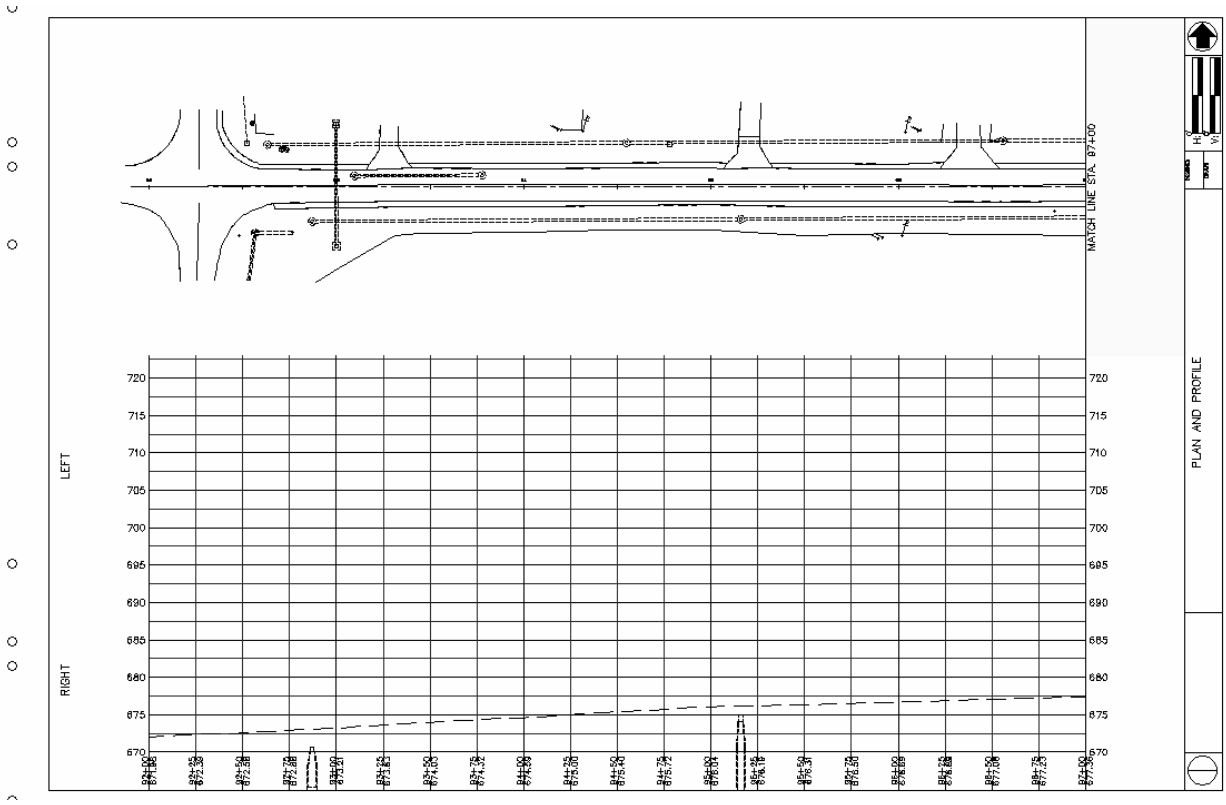


To reverse the display, just reverse the process. Select Profile View, right click, select Profile View Properties, Information Tab, change object style back to Design View, click Bands Tab, change the style under the Bands List back to Design View, and click OK and voila you're back:



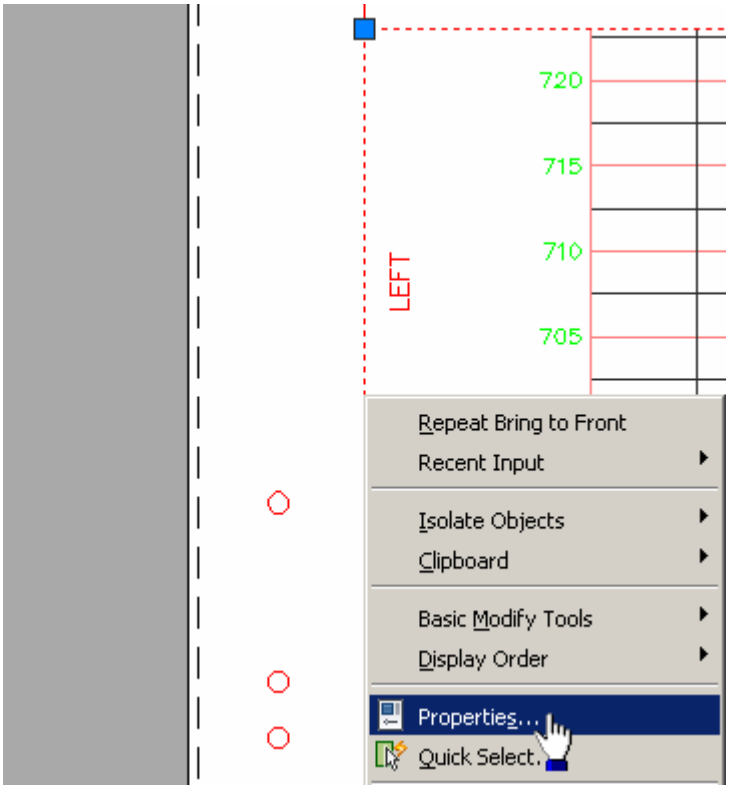
Change the Profile View settings back to Plot View or simply undo.

OK, back to the Plan Production drawing. Here is one of the layout sheets:

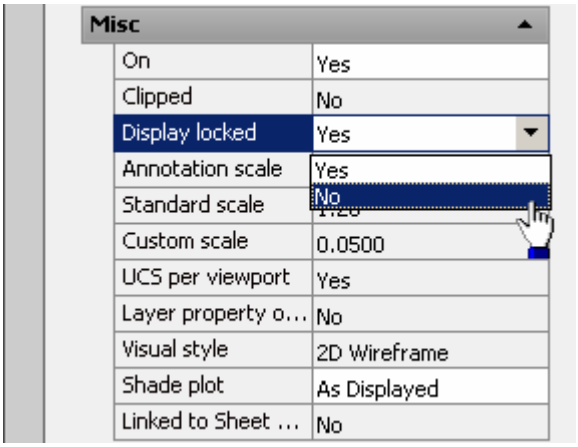


Obviously, this is not the right profile, so let's use the Align Space method to get to the split profiles we want to see (Note-you will have to use this procedure for each sheet layout.)

First, click and right click on the profile viewport and click Properties (Note-if you have troubles selecting the viewport, just select the border block and send it to the back using the Display Order command, by clicking the block, right click, Display Order, Send to Back):

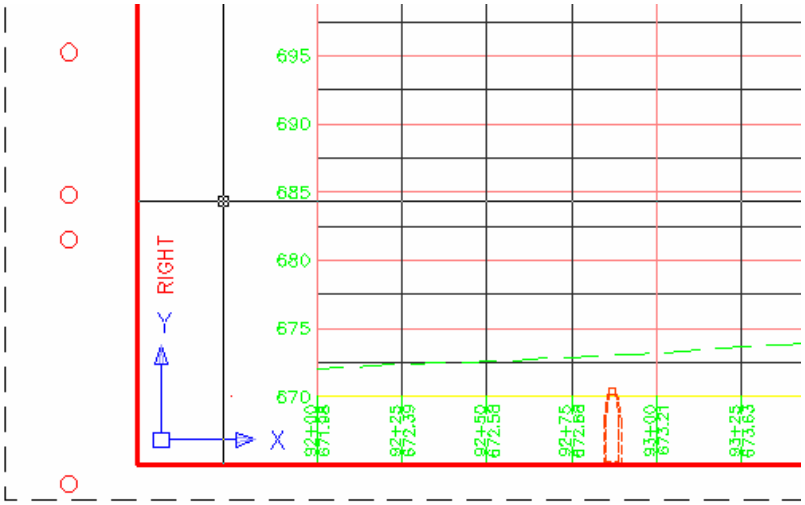


When the properties come up, change the locked setting to unlocked (No) :

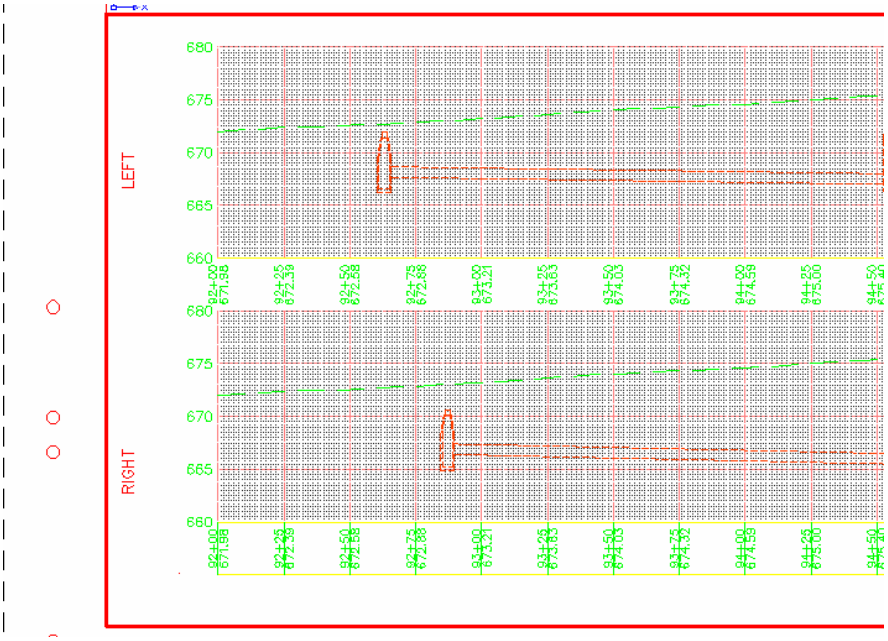


Hit the Escape key afterwards.

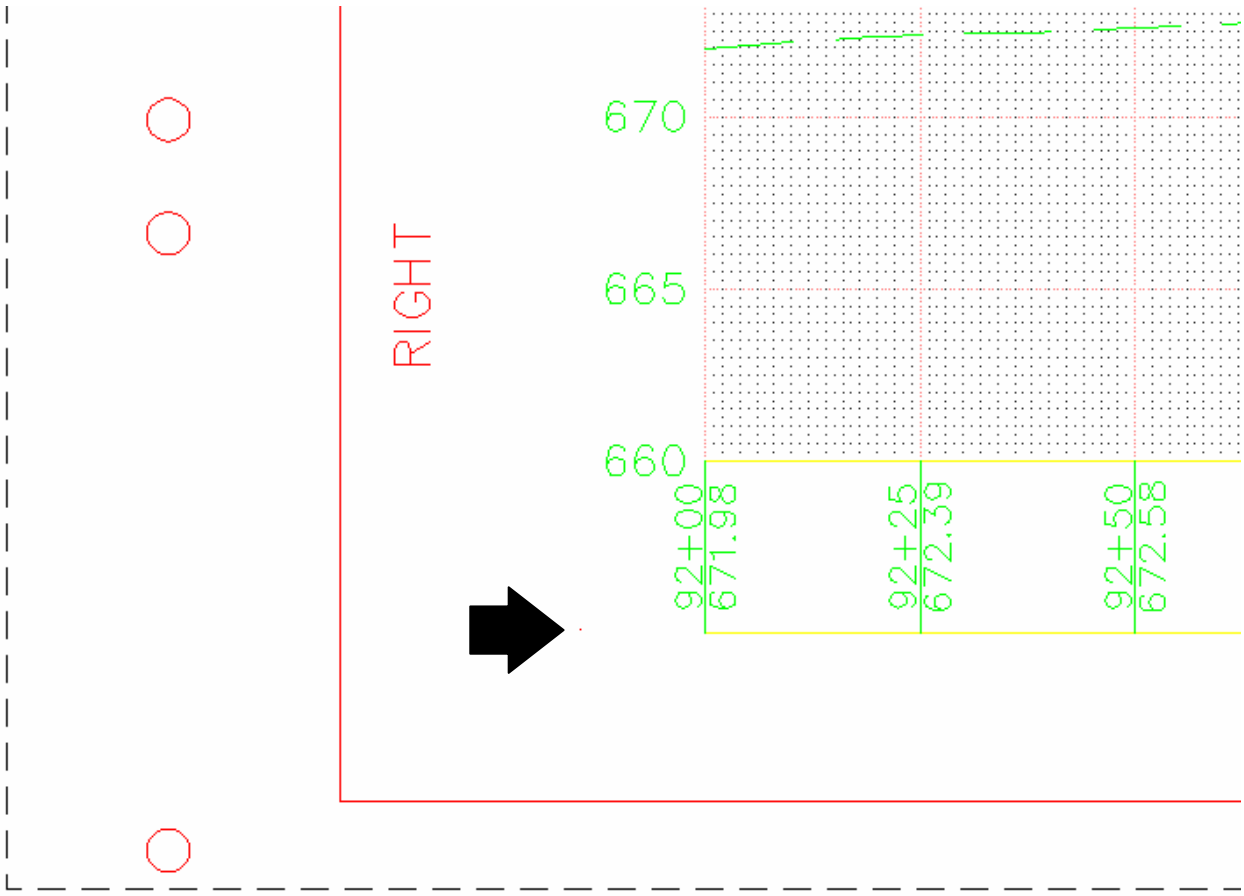
Double click inside the profile viewport:



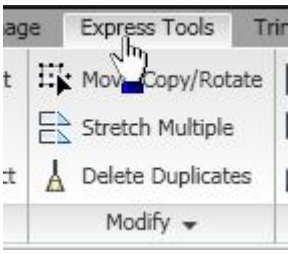
Now pan to the split profiles that are associated with this view:



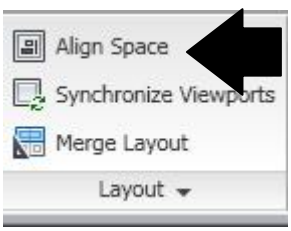
You should notice a point that's part of the border block. This will come in handy when you follow the next steps:



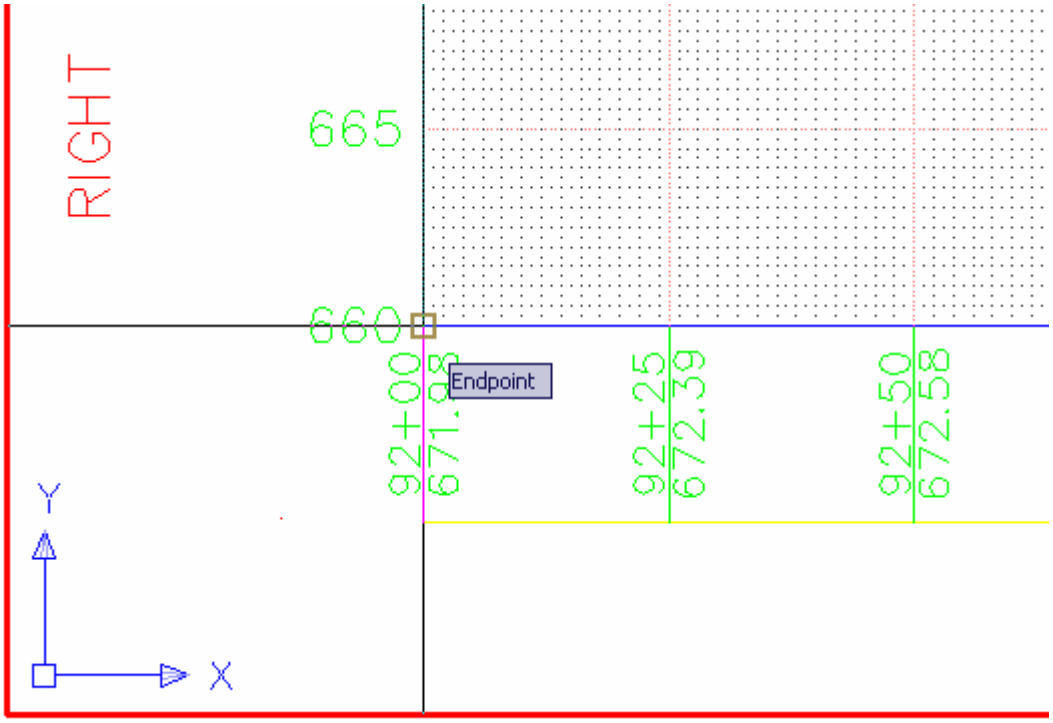
Click the Express Tools Tab:



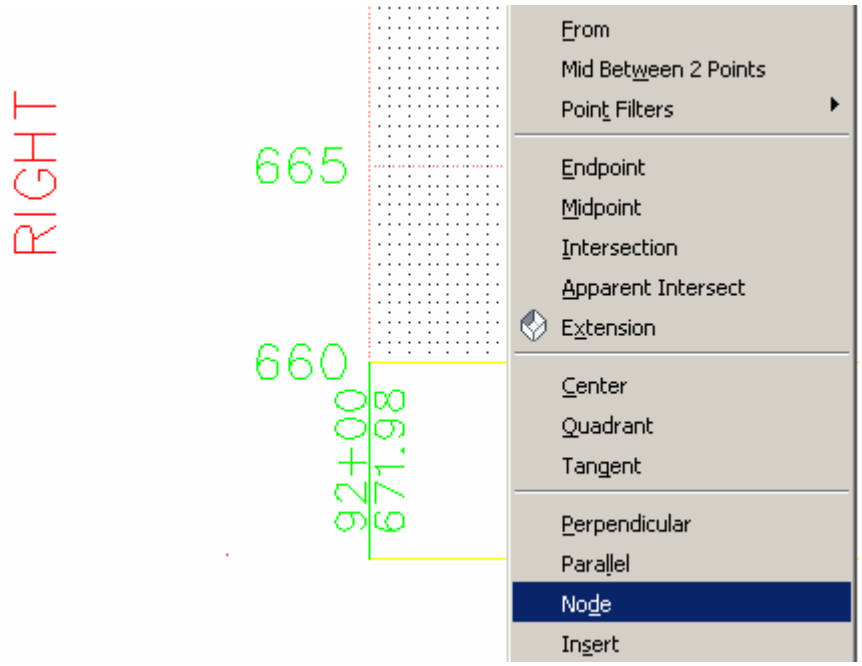
Click Align Space:



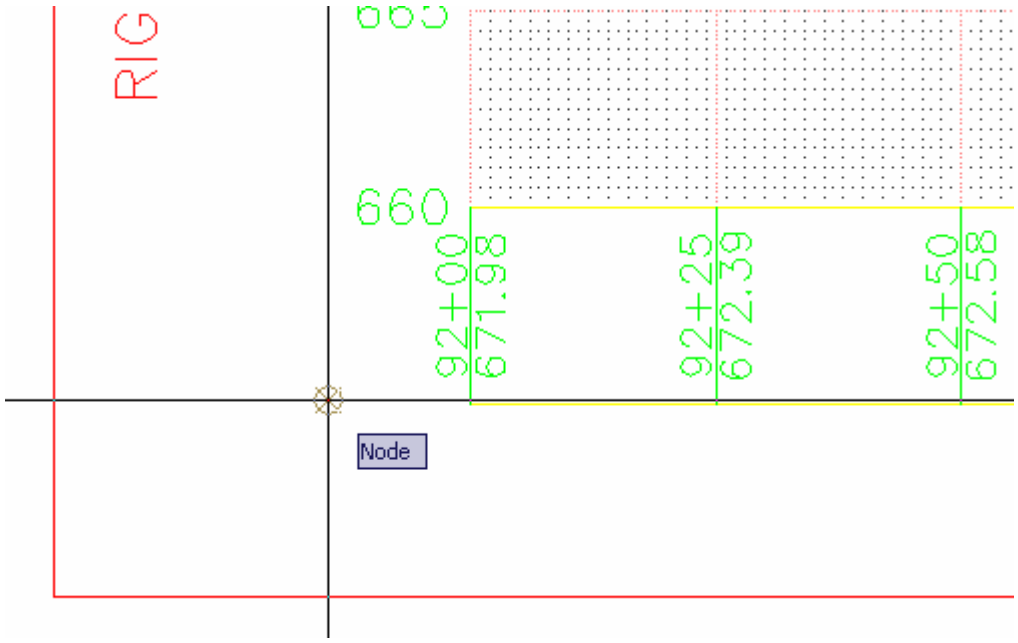
Snap by Endpoint to the location indicated:



Hit Enter. Then, holding the shift key on the keyboard, right click and select Node:

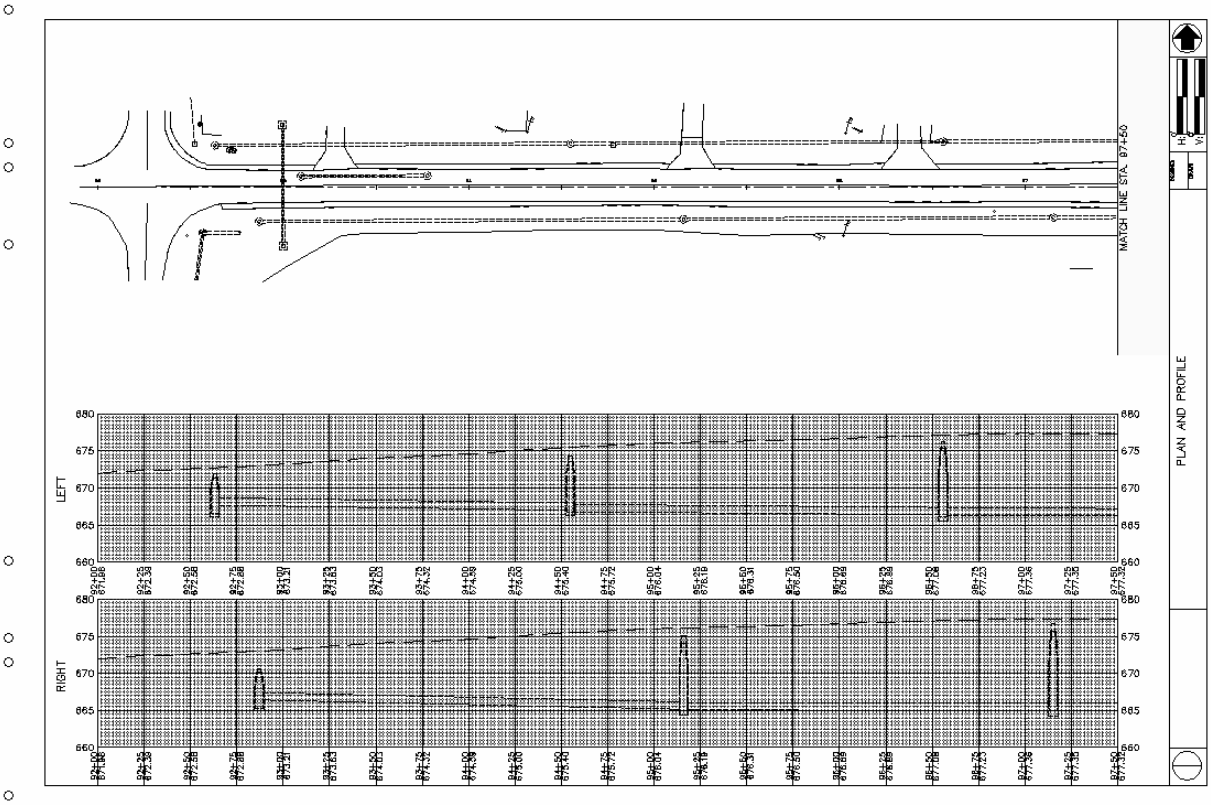


Select the point that was pointed out earlier:



Hit Enter.

Here is your Plan Production Split Profile Sheet:

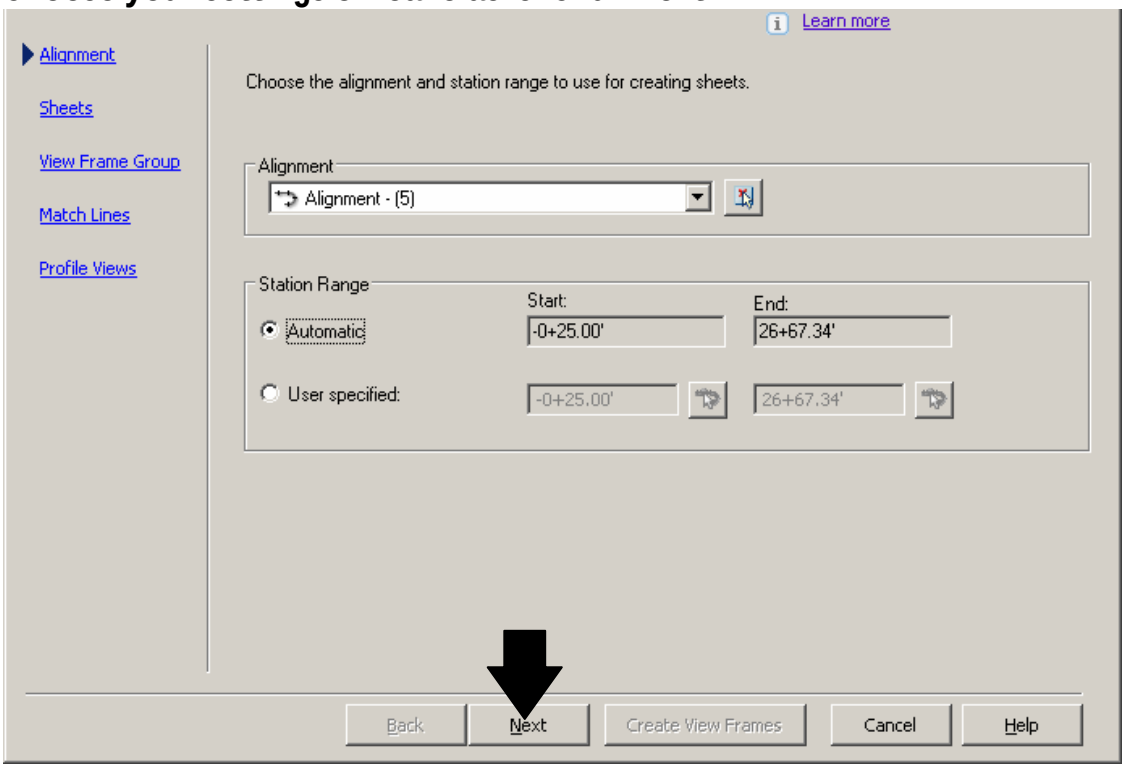


Proceed with re-aligning the rest of the sheet layouts. You can then delete the profile views that were created by the Create Sheets step of the Plan Production.

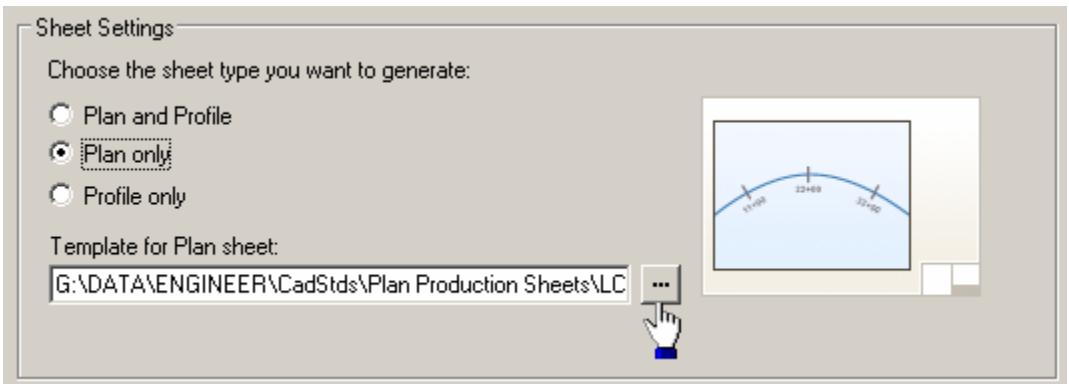
CREATING DOUBLE PLAN SHEETS USING PLAN PRODUCTION

To start, go to the Ribbon Output Tab > Create View Frames:

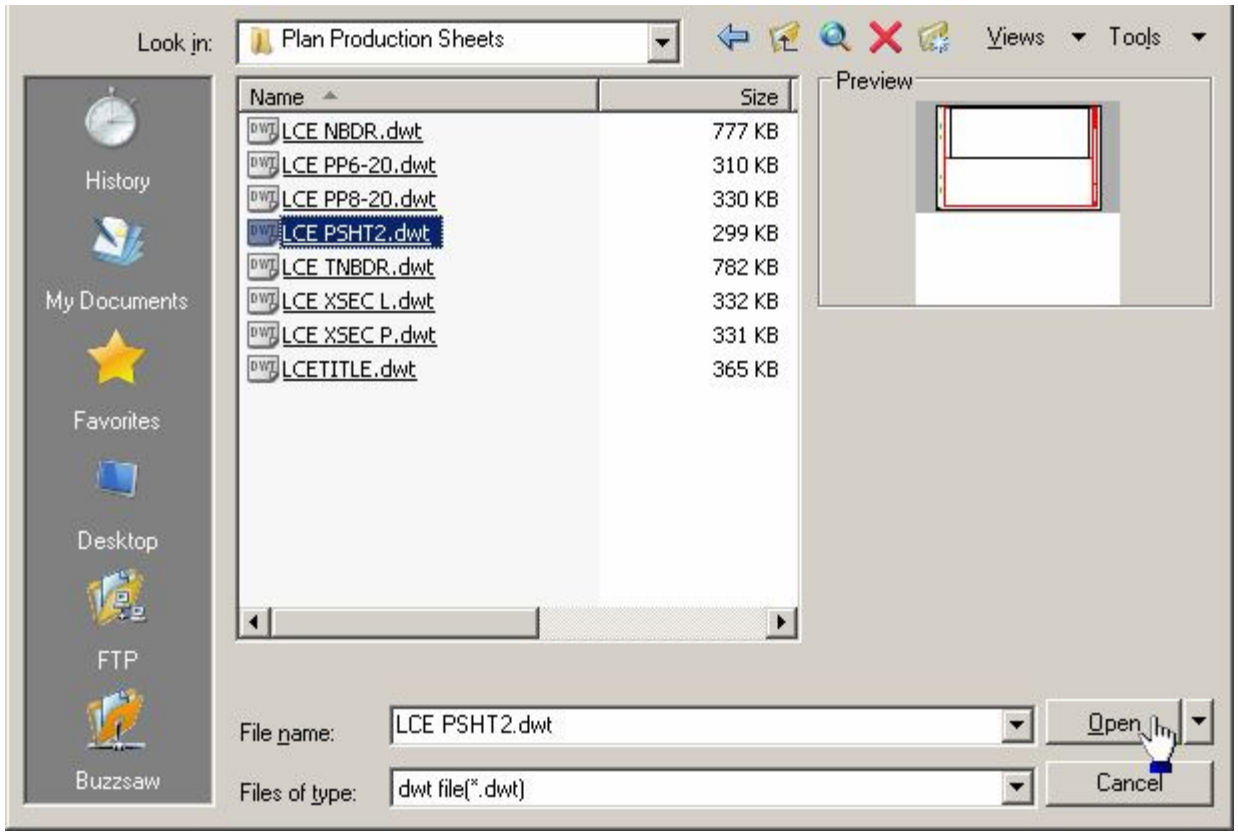
This will be similar to the process for the Plan and Profile sheet generation steps. Choose your settings or leave as is. Click Next:



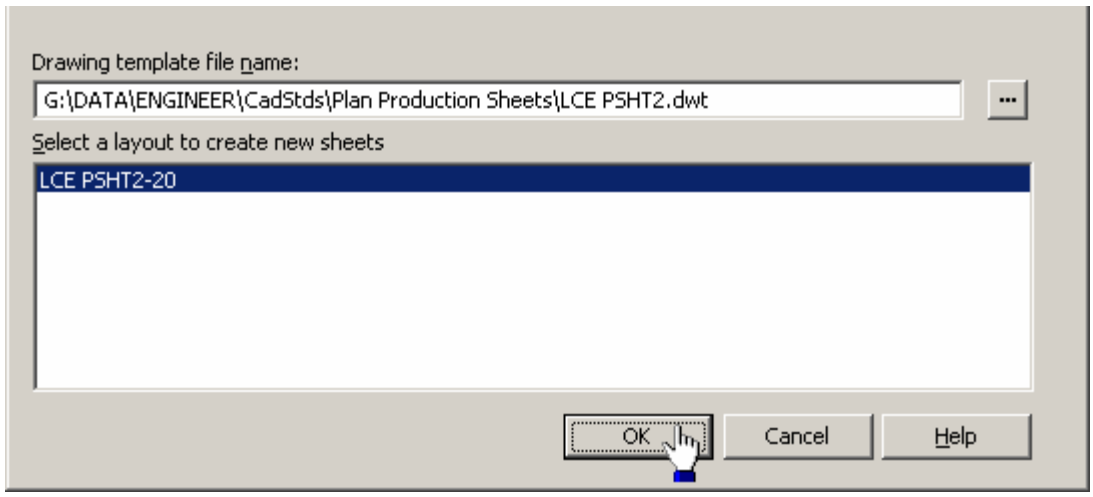
For this next setting, select Plan only and then click the Template for Plan sheet button:



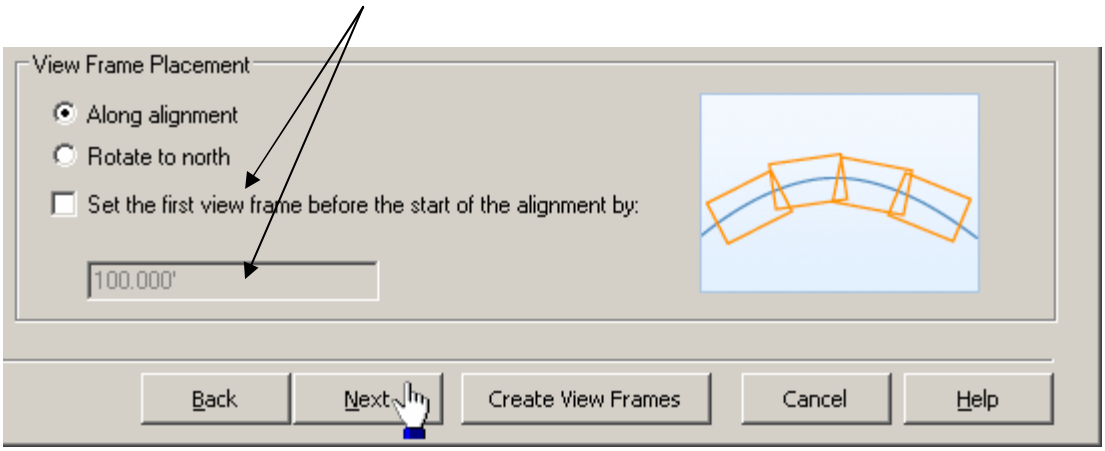
Browse to g:\data\engineer\cadstds\plan production sheets and choose LCE PSHT2.dwt and click Open:



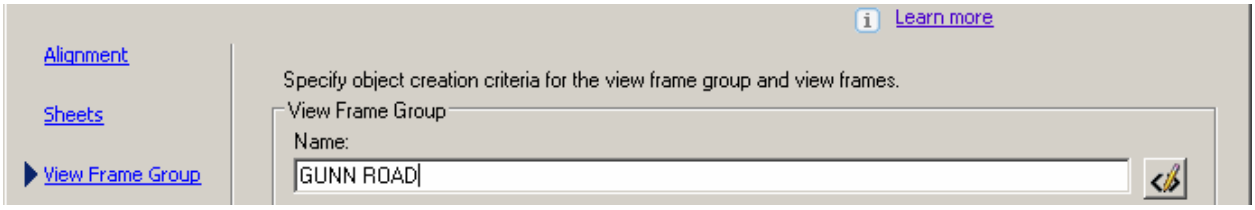
Now, just click OK:



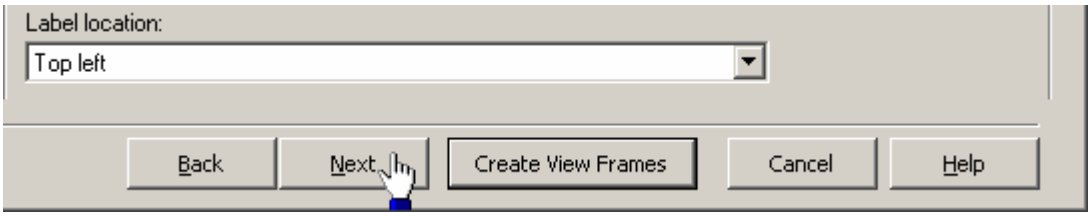
If you need to set the view frame before the start of the alignment, check the box and set the preferred distance value. Click Next:



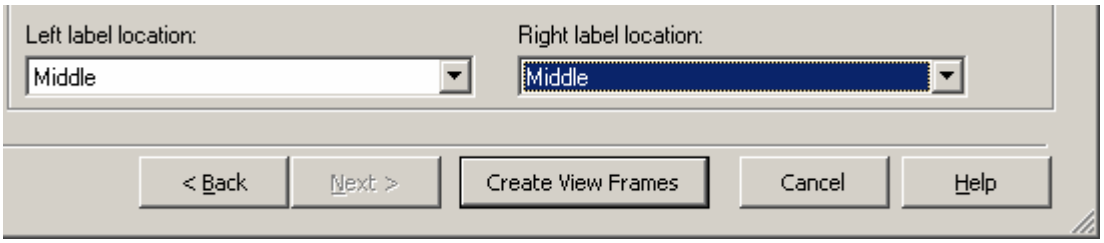
Give the View Frame Group a name:



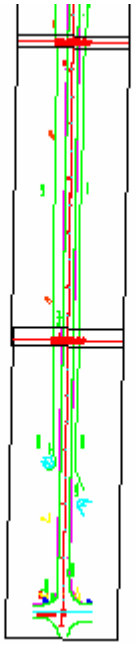
Click Next:



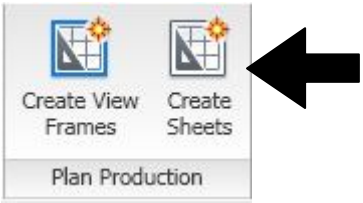
Click Create View Frames:



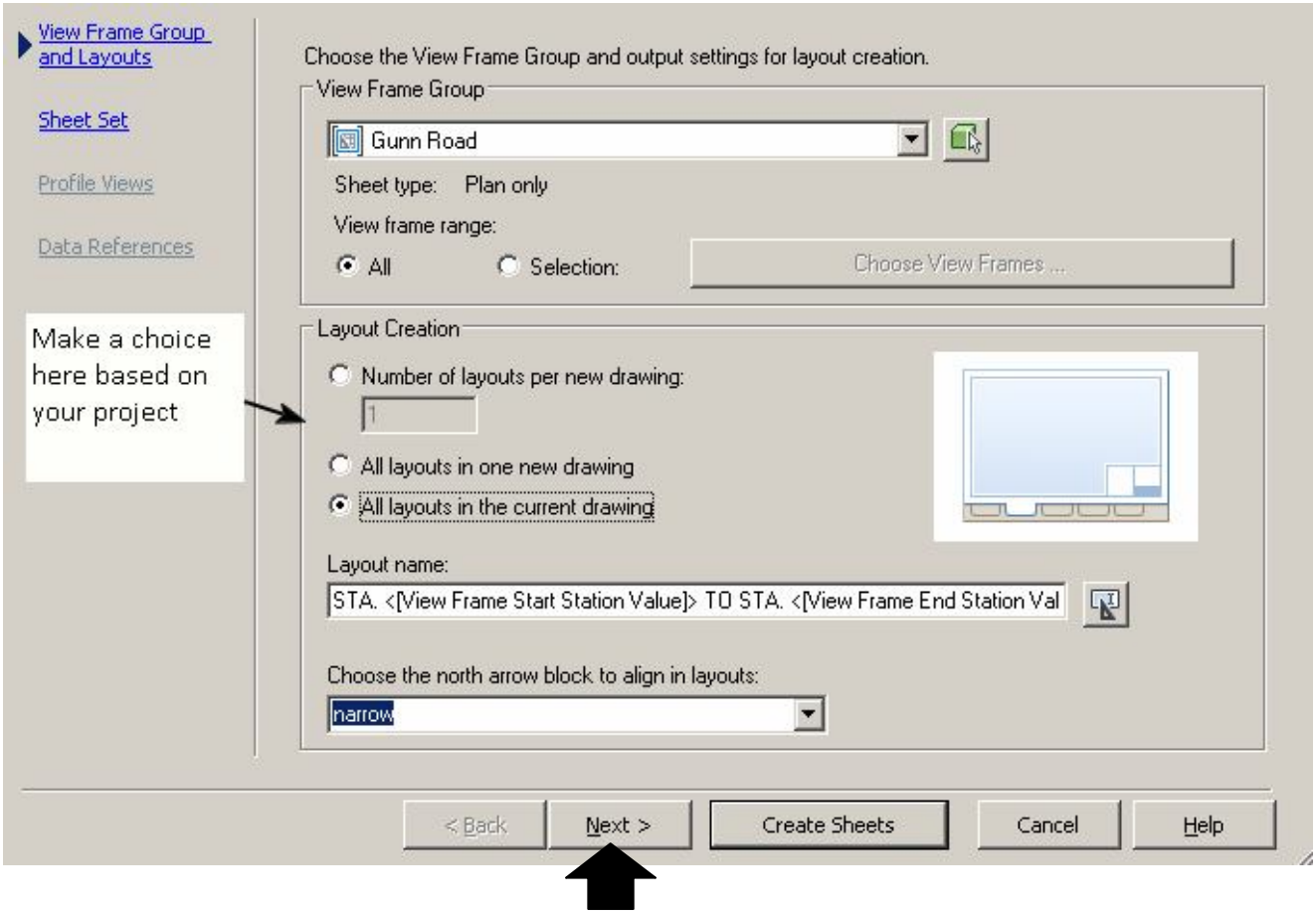
Here are your View Frames:



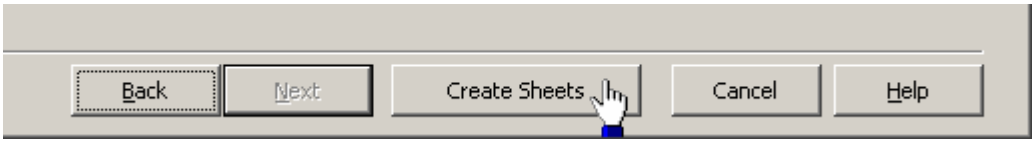
Next, go back to the Plan Production panel > Create Sheets:



Use the following settings, then click Next:

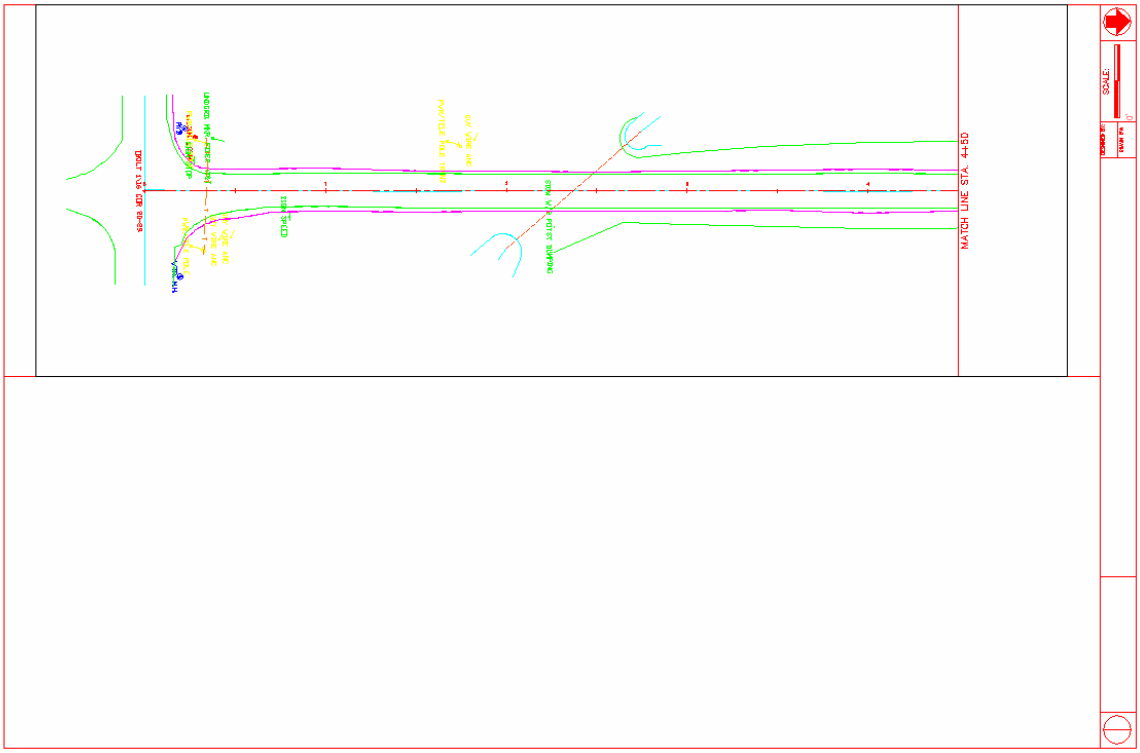


Click Create Sheets:

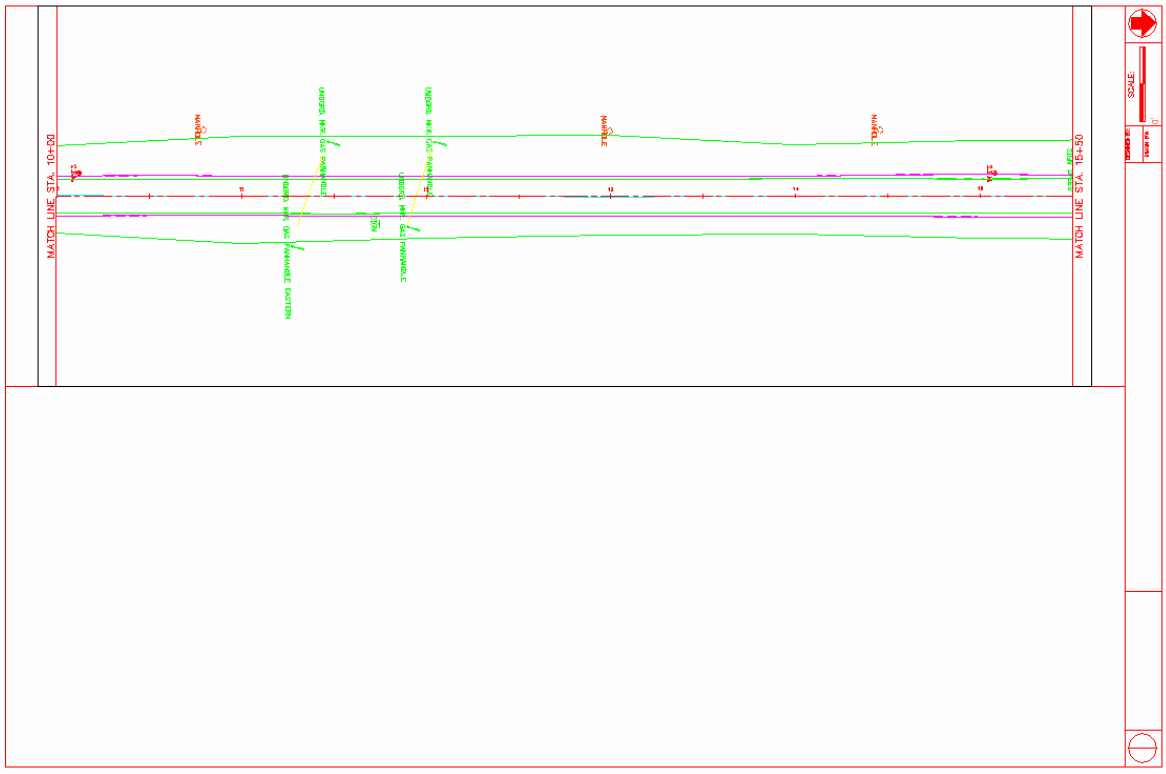


Click OK:

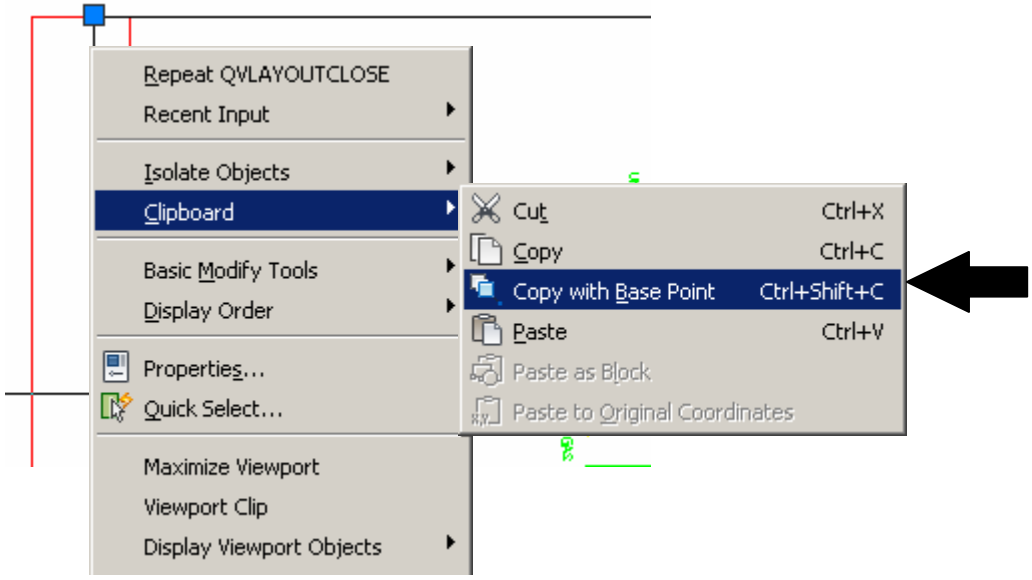
As you can see, only the top plan is created.



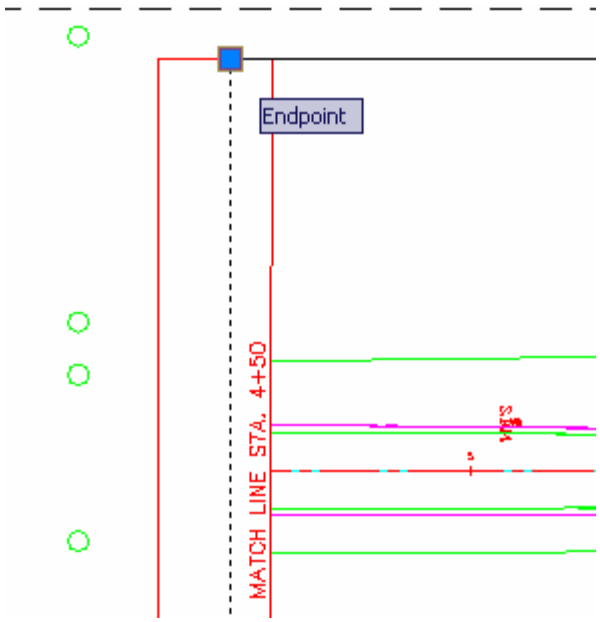
This was the only way to get this process to work; however, here is the quick workaround. Go to the quick View Layout and click on to the second layout:



Select the top viewport, right click, Clipboard and click Copy with Base Point:



Select the upper left hand corner of the viewport by endpoint of this layout:

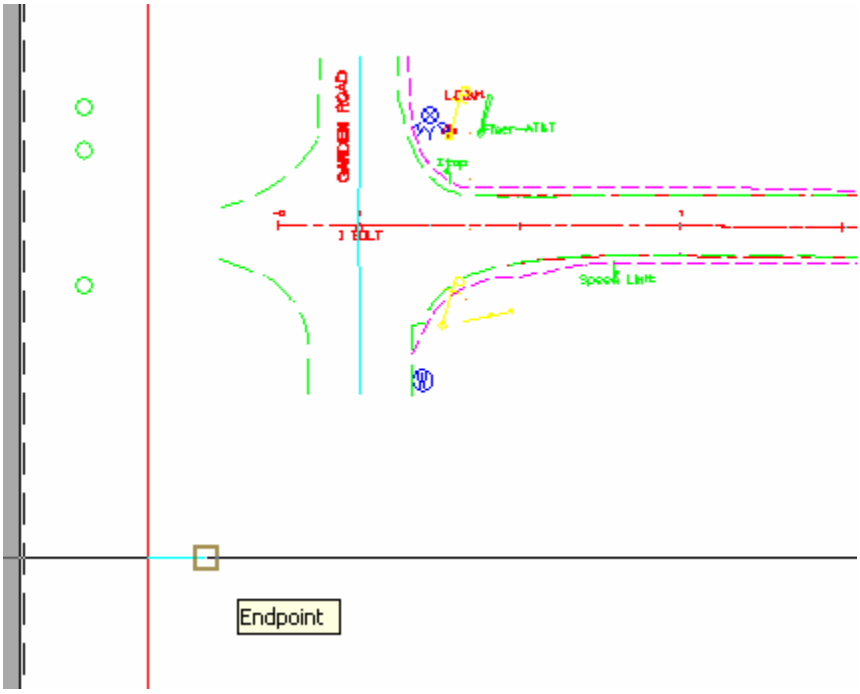


Hit Escape.

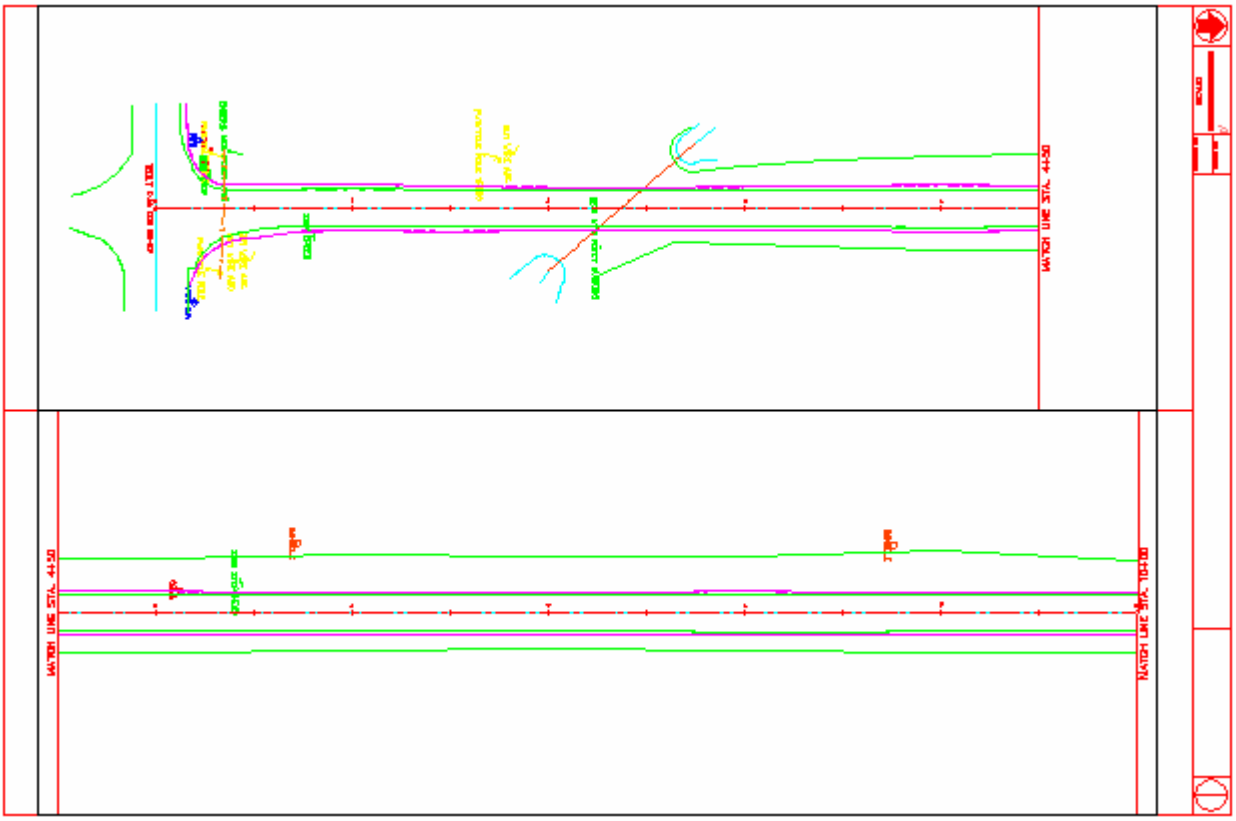
Click back on the first layout.

Hit the combo keys ctrl-v or right click>Clipboard>Paste.

Select the lower left hand corner of the upper viewport using endpoint:



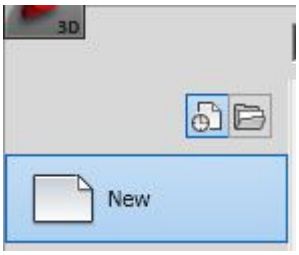
And there you are, your double plan sheet:



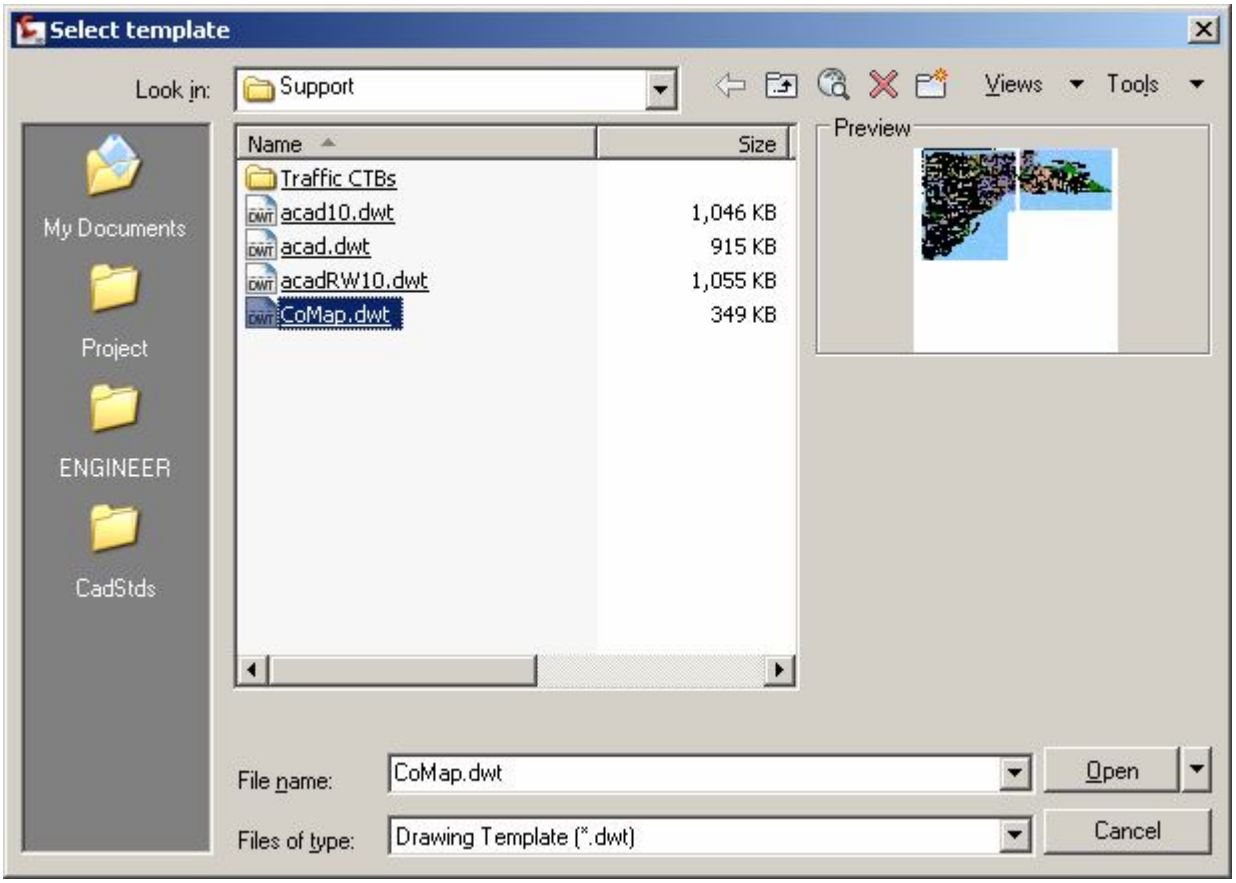
Now, using this technique, you should be able to move and copy the rest of your viewports into their respective layouts until you are done. Delete any layouts you have left over. You will have to rename your layouts to reflect the new stationing per layout.

USING MAP BOOKS TO CREATE A TITLE SHEET

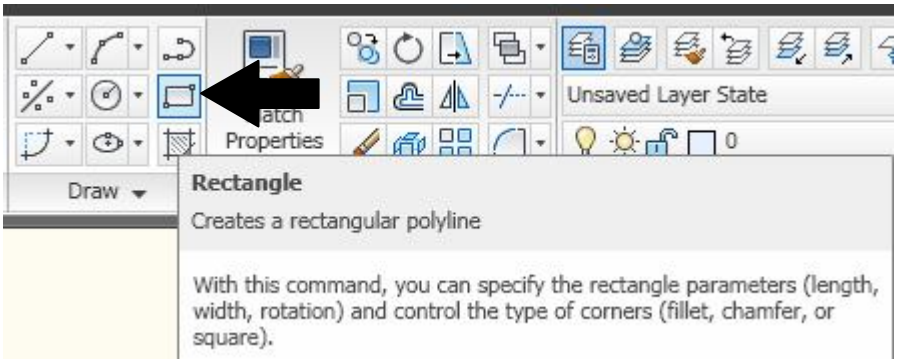
Click on the C3D Start a new drawing:



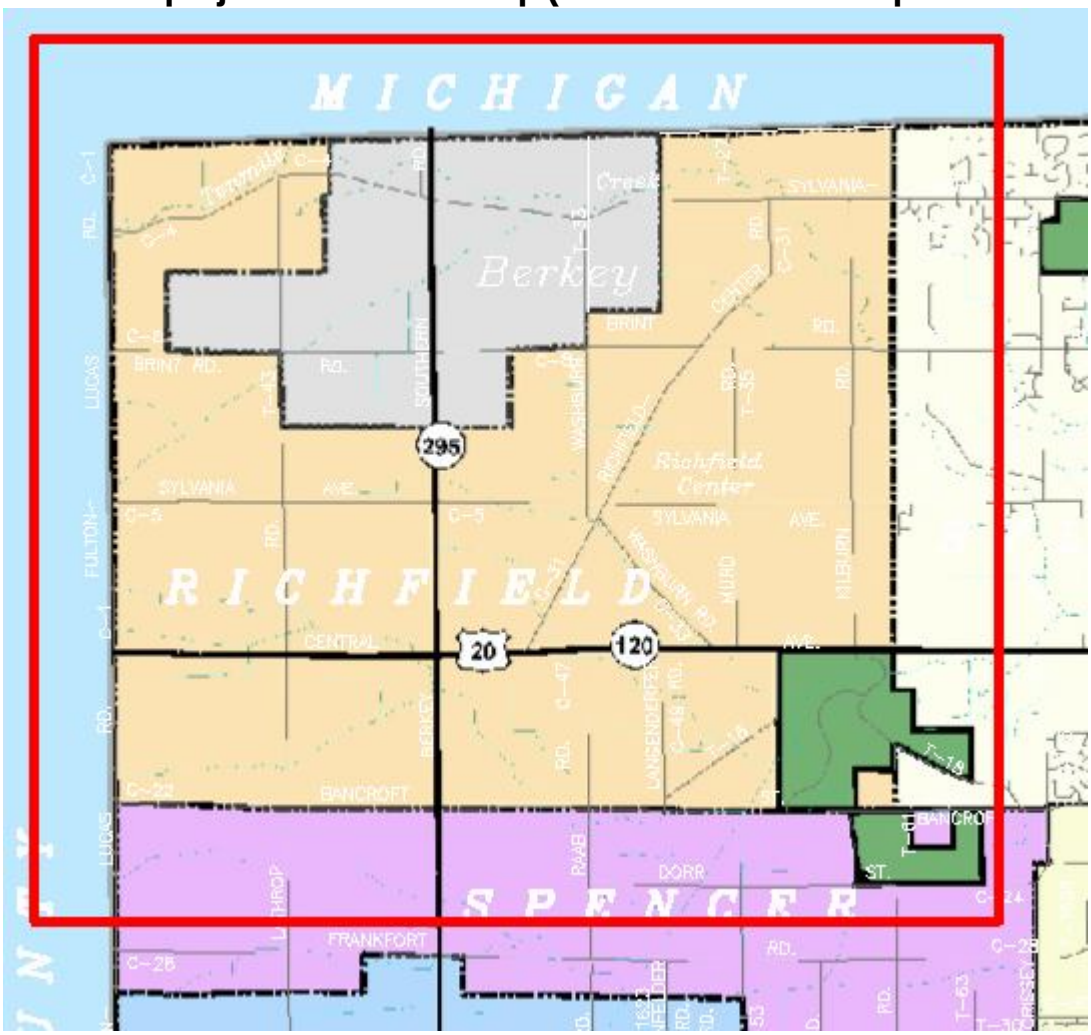
Select CoMap.dwt and click Open:



Now create a tile for the Map Legend window of the title sheet. Use the rectangle command:



Select the project area on the map (we'll use Richfield Twp. as an example):

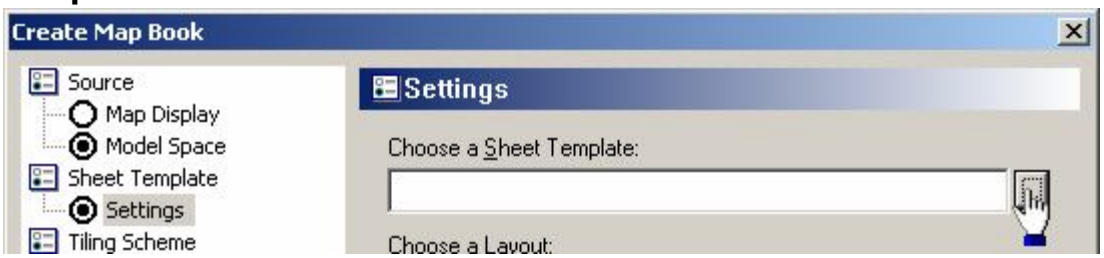


Note-the rectangle box is only thicker for clarity. Be sure this box is on layer viewport.

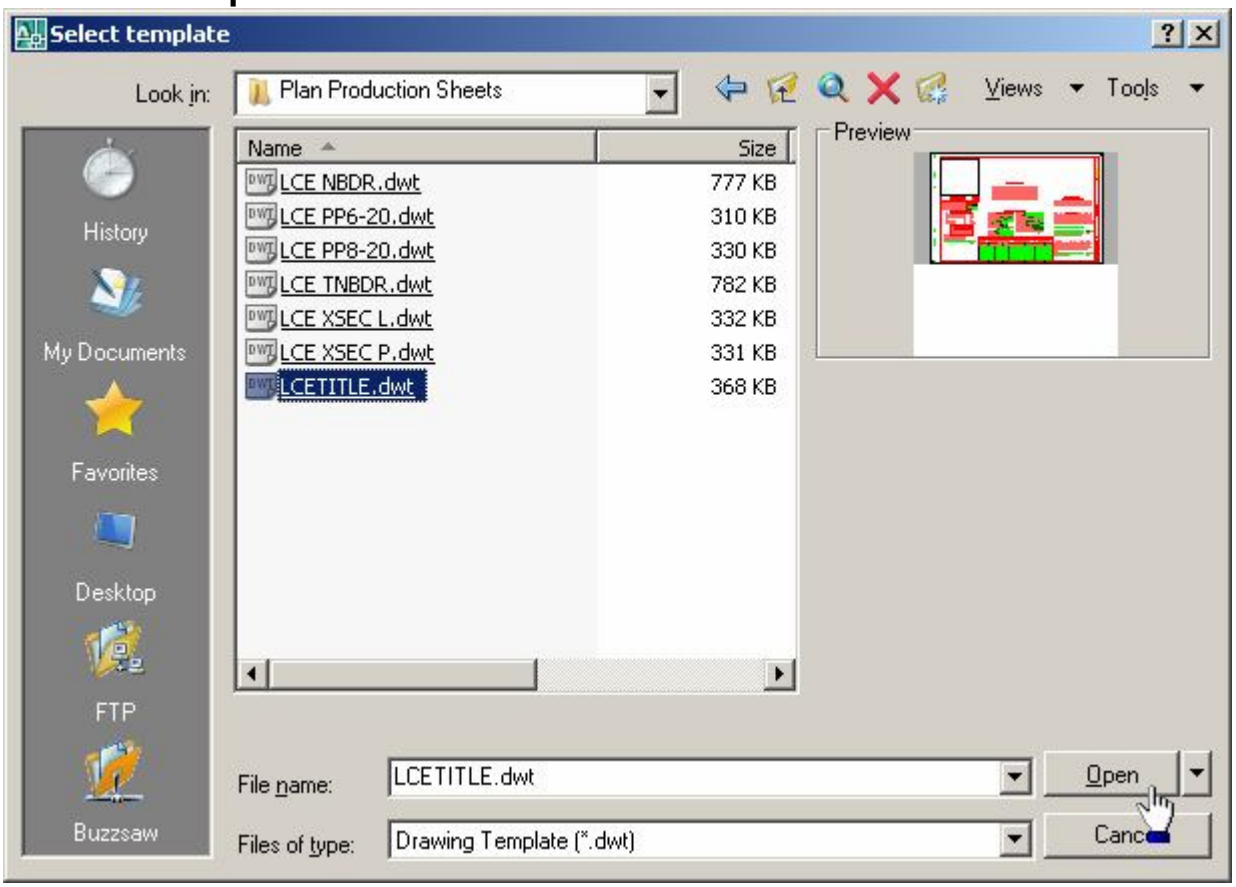
Type in the command MAPBOOKCREATE.

Follow these steps – give the Map Book a name:

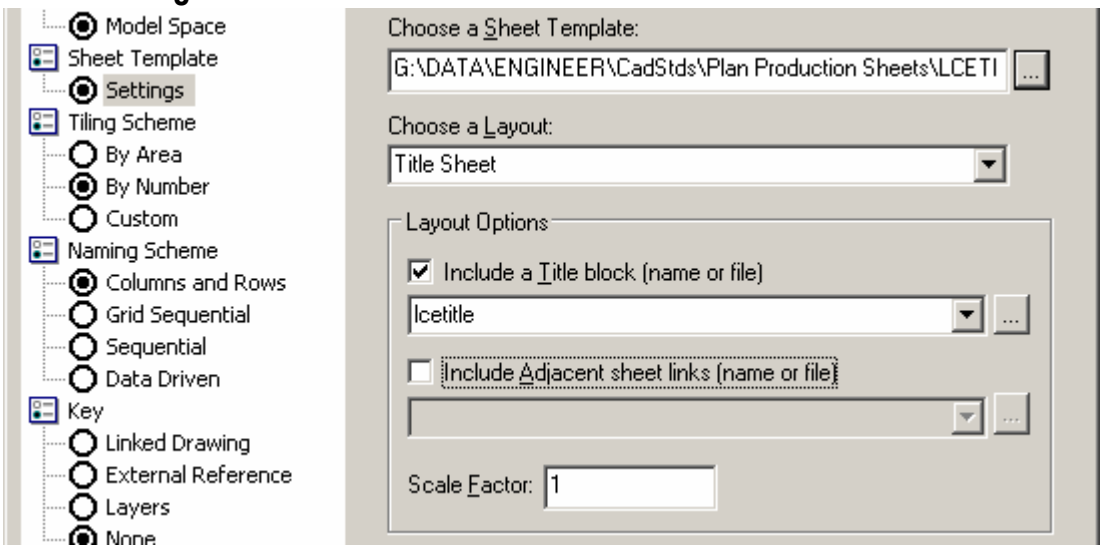
Click Settings under Sheet Template, then click the button next to the Choose Template sheet field:



Browse to g:\data\engineer\cadstds\plan production sheets. Click the LCETITLE.dwt file and click Open:

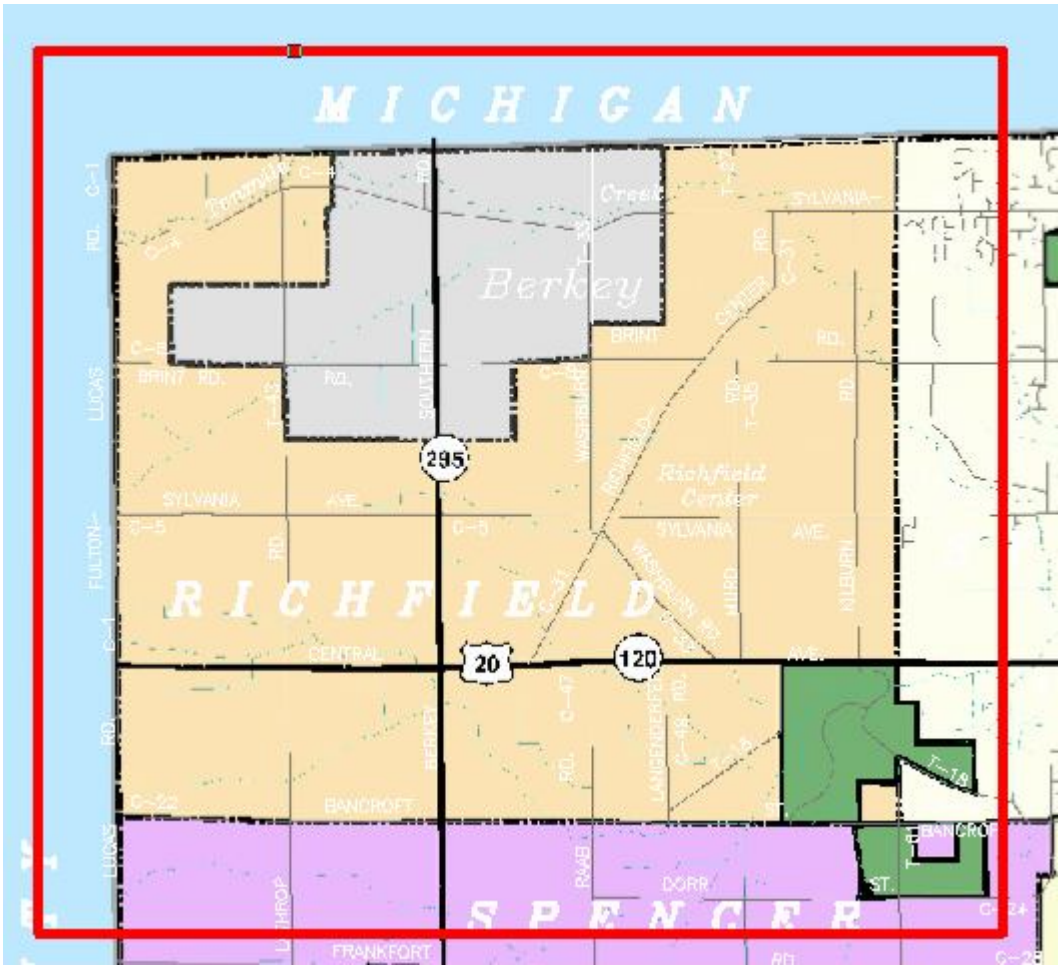


Your settings should be as follows:

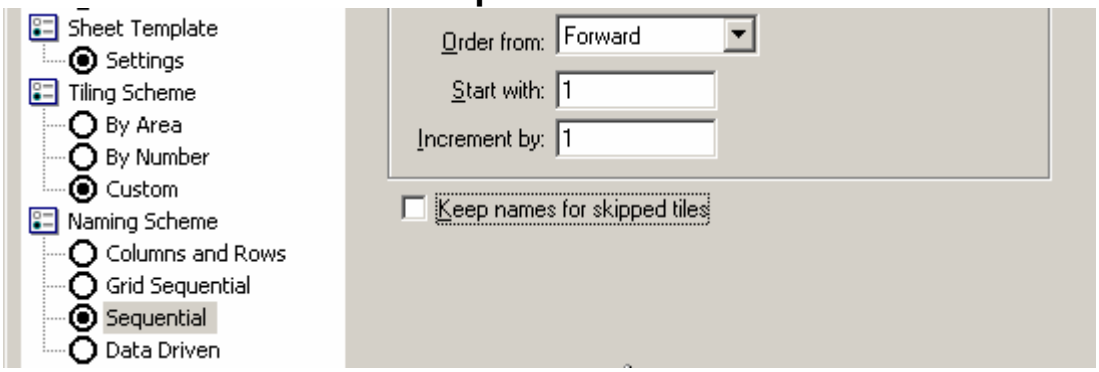


Click Tiling Scheme>Custom. Be sure the % overlap is set to 0 and then select the Select Tiles button:

Select the tile you created and hit enter:

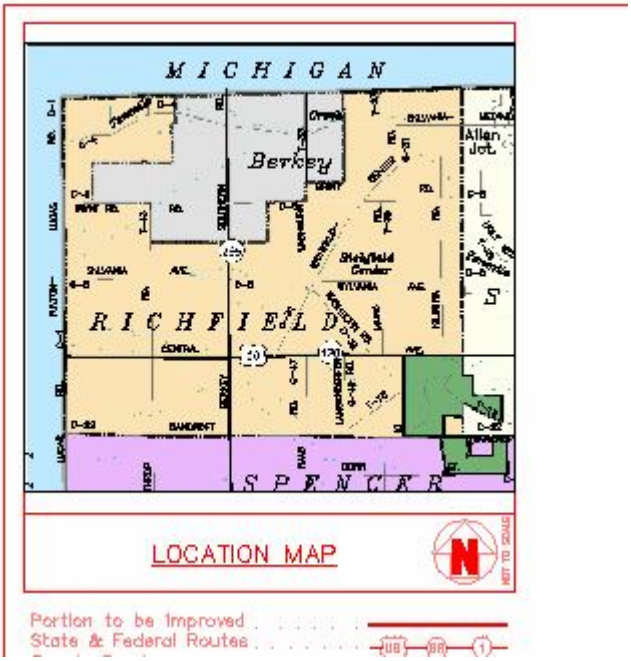


Click under Naming Scheme>Sequential. Change the Start with and Increment by both to 1 and uncheck the Keep names box:



Now click the Generate button at the bottom:

And voila...here's your map:


MICHIGAN
Berkley
Allen Jct.
RICHFIELD
SPENCER
LOCATION MAP
N
NOT TO SCALE
Portion to be Improved
State & Federal Routes

CREATE CROSS SECTION LAYOUTS (REFER TO CH. 4 UPDATE ALSO)

Open your Cross Sections drawing.

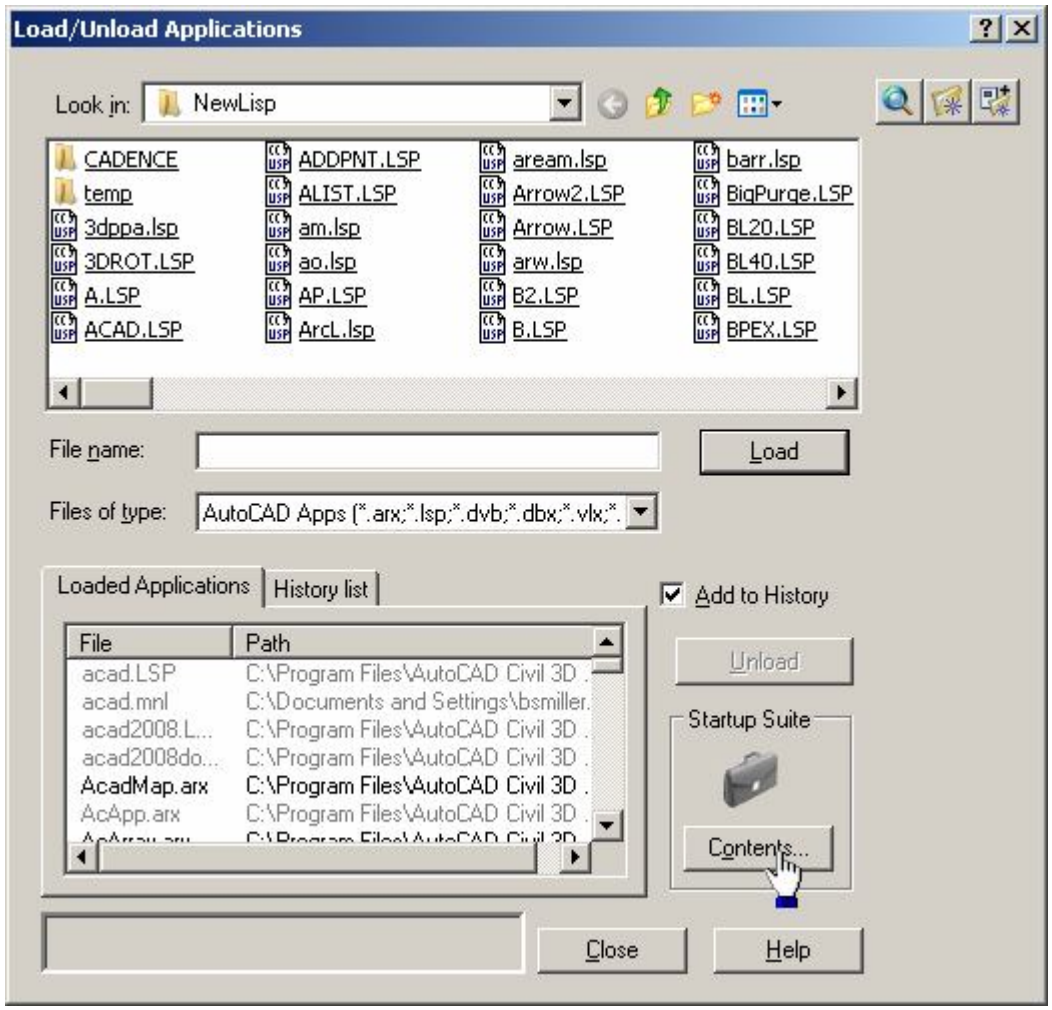
Portrait and Landscape Version

Before you get started with this, be sure that your current layer is set to Viewport.

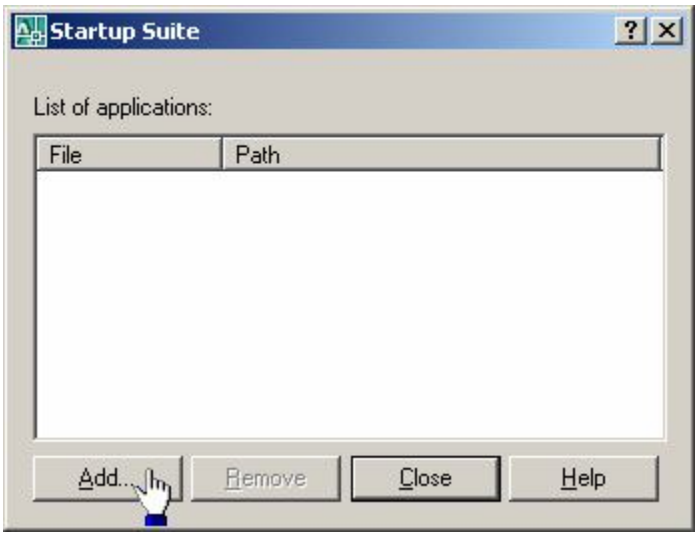
I have written two lisp routines that you will use to help create what are known as "Tiles". Essentially, tiles are polylines that represent the viewports for your cross sections in model space. The two lisp routines that you will use are tgenp.lsp (portrait) and tgenl.lsp (landscape).

To get these loaded, type in "appload" at the command prompt, hit enter.

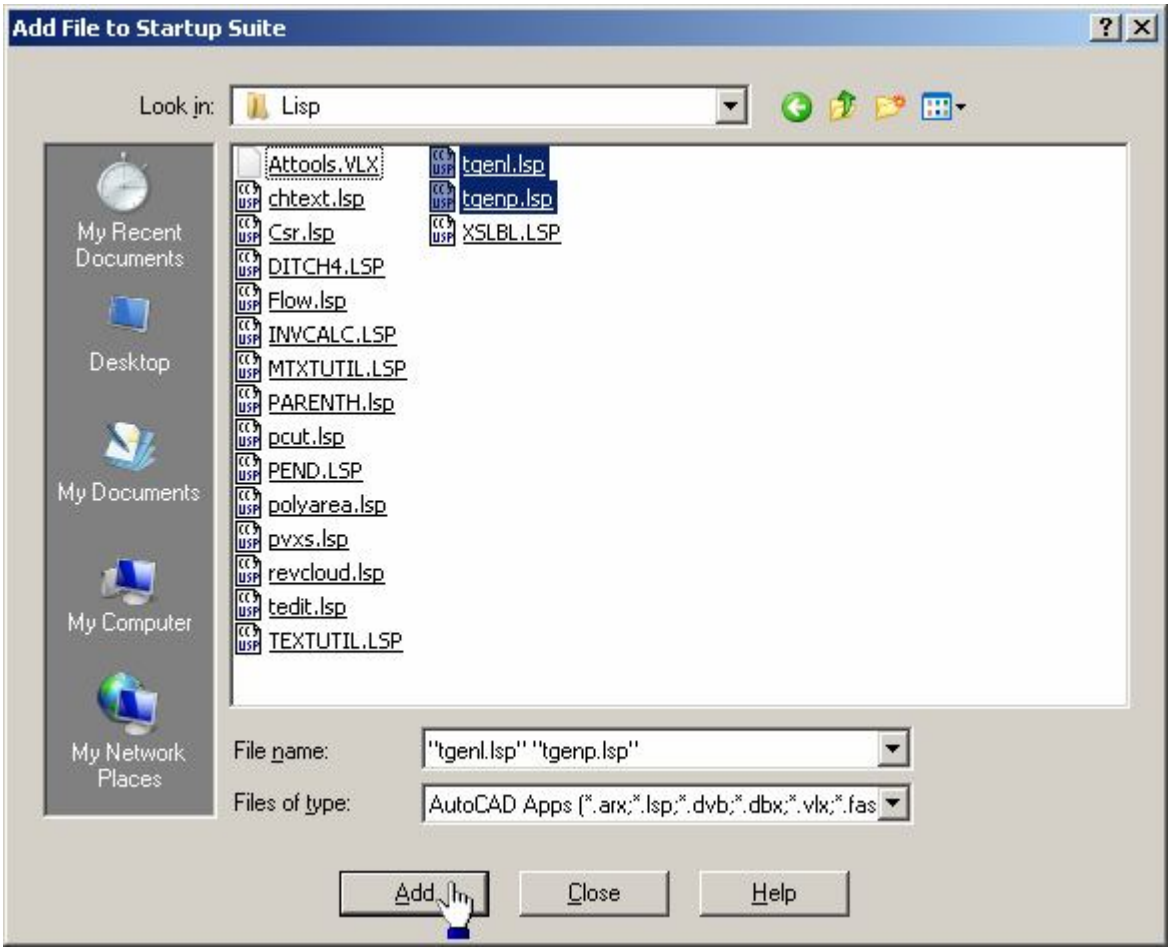
Click on Contents under the Startup Suite:



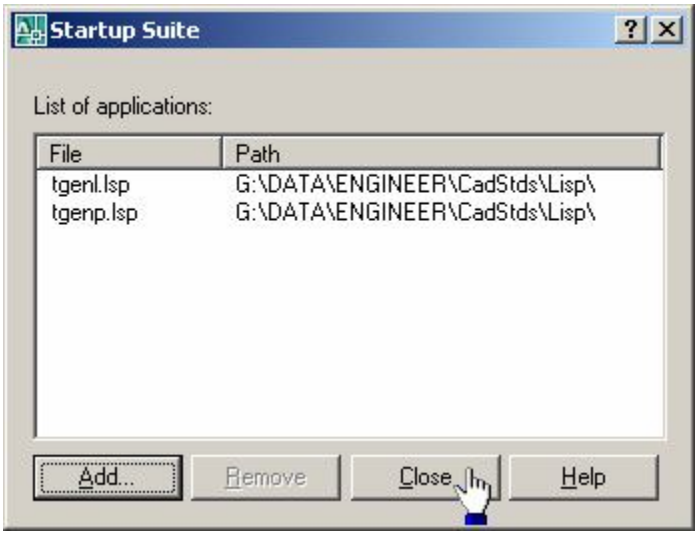
Next, click Add:



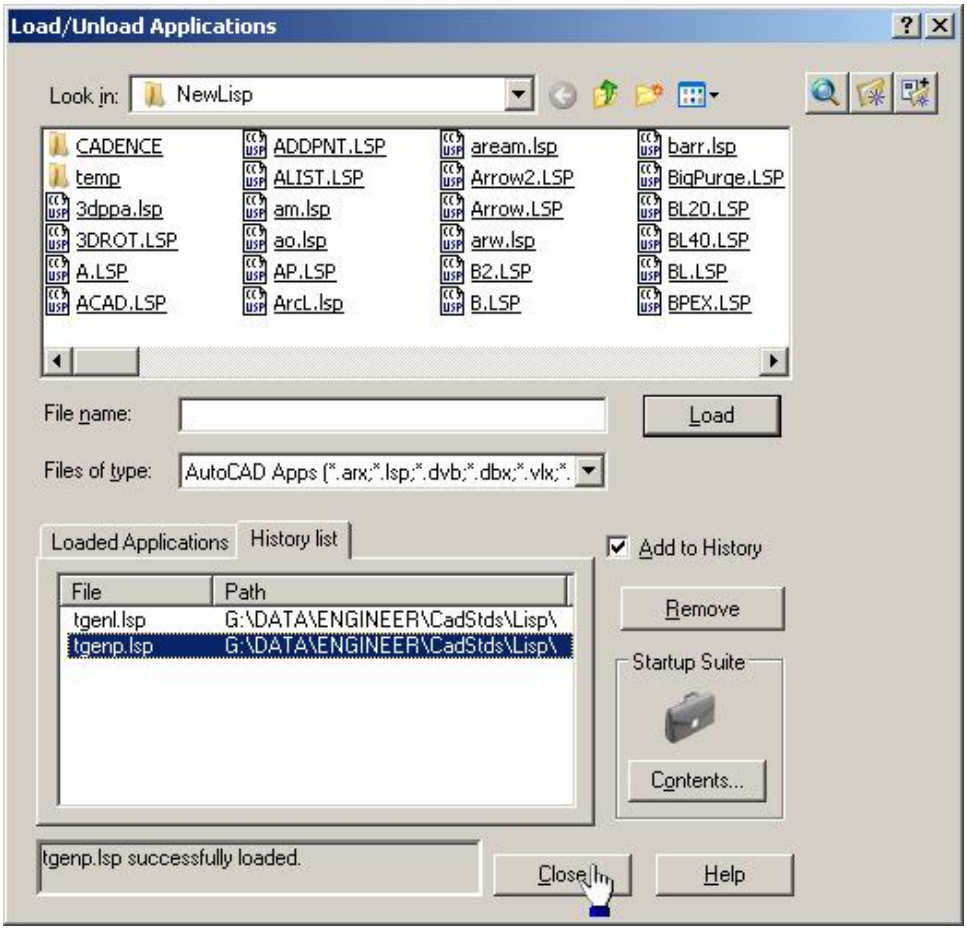
Browse to "g:\data\engineer\cadstds\lisp" and highlight these two files and click Add:



Click Close:



Double click each file to load them (every time you launch Civil 3D from this point, it will automatically load these files) – Click Close:



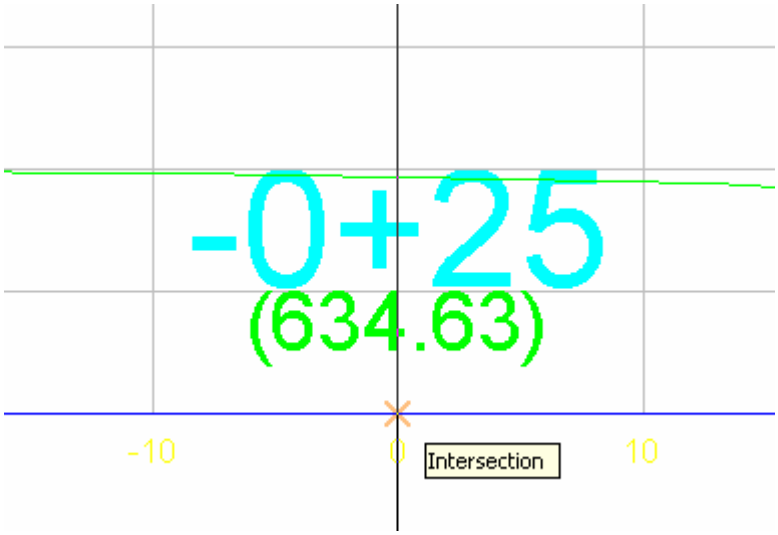
Now, we will start the process of creating tiles for the cross section layouts. We'll use the portrait version as this is the most commonly used one.

Type tgp at the command prompt and hit enter, then type in the number of columns of cross sections you have, hit enter:

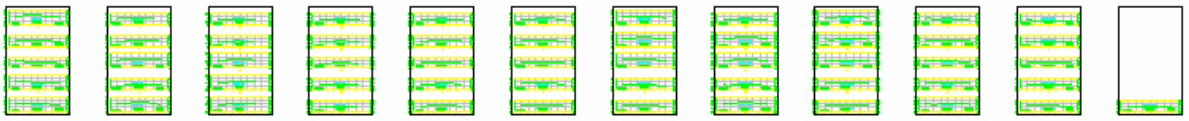
```
Command: tgp

No. of Cross Section Columns: 12
```

Next, you are prompted to select the tile point (the tile point is the intersection location of where this routine needs to start from to create the tiles, you will always use the intersection of the centerline and the bottom most grid line of the first cross section):

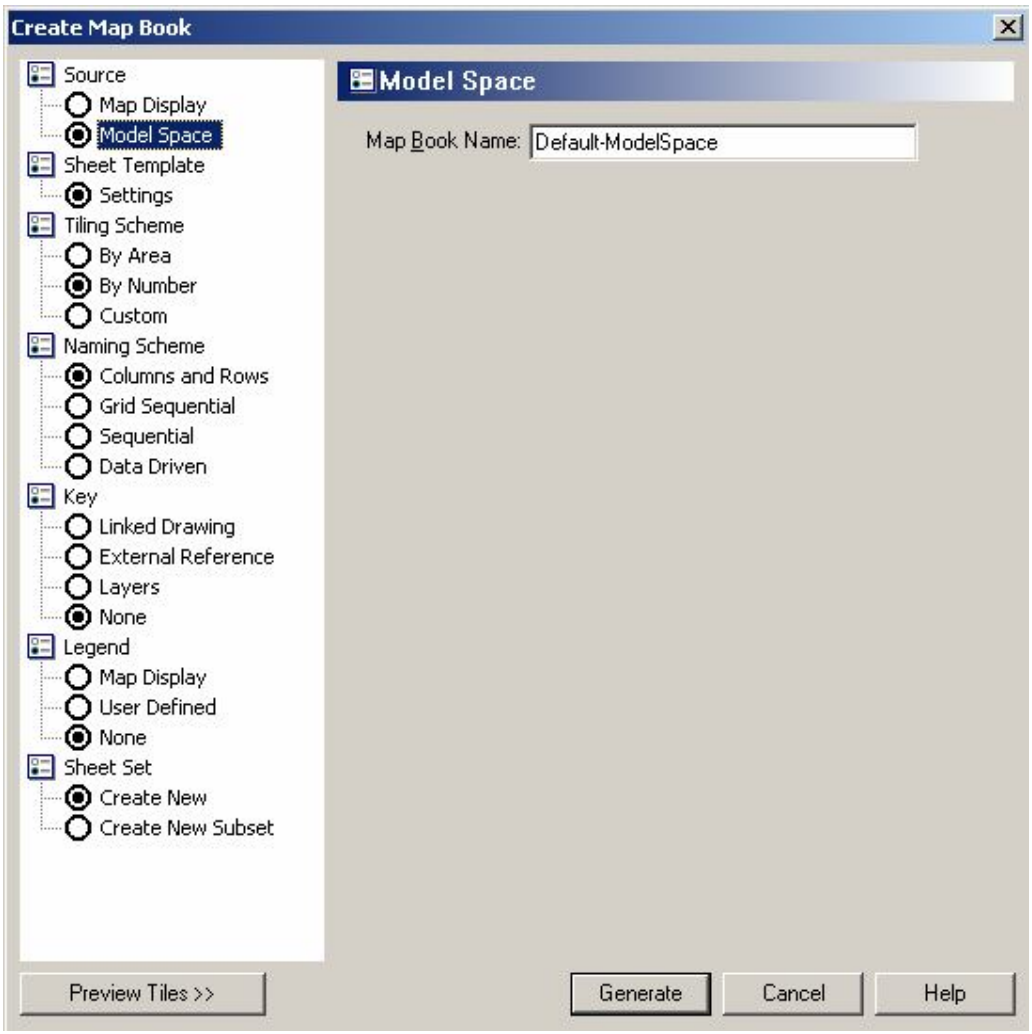
```
Select Tile Point - Intersection of 1st XS Base of Grid & CL:
```



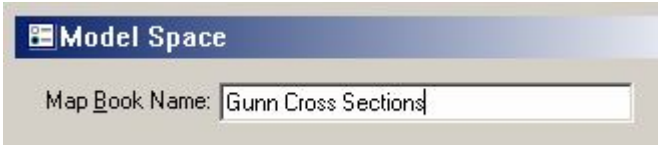
Here are the twelve tiles it created:



Type mapbookcreate. You should have a wizard box that looks like this. In this procedure, you will need to change the Source, Sheet Template, Tiling Scheme, Naming Scheme, and Sheet Set:

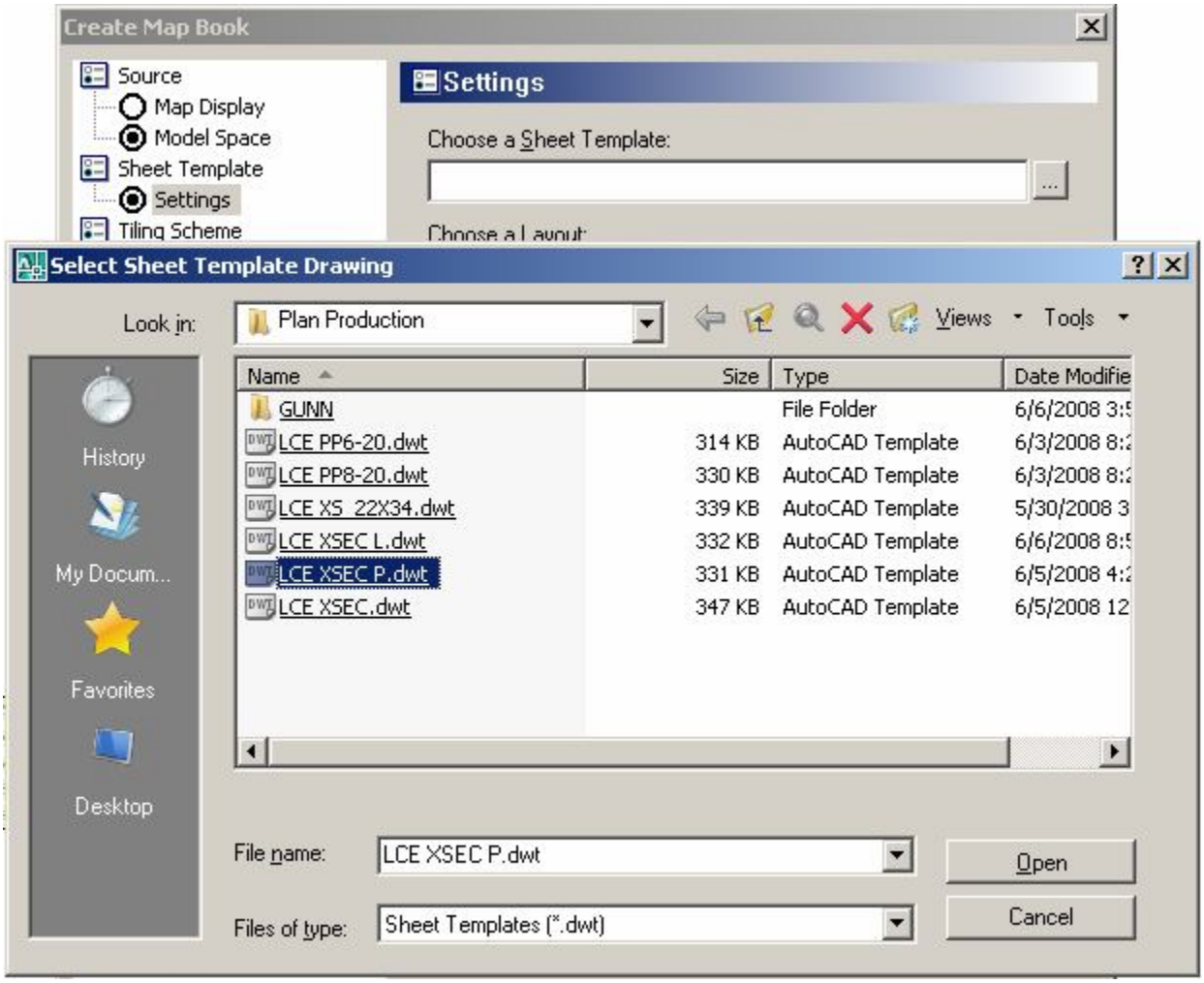


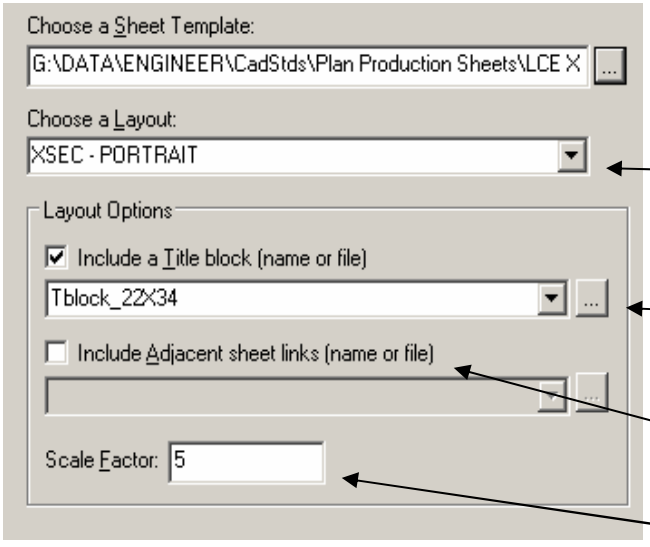
1) Source - In this first setting, give your map book name something appropriate:



(Note-You cannot use the same name again if you complete the wizard but want to do the map book again unless you go to the location of where the sheet set file (Sheet Set setting) is saved and erase the .DST file that bears the name you gave it. You can only erase this file if you save and close your drawing. You can add new Sheet Subsets to an existing .DST file.)

2) Sheet Template – Click Settings under Sheet Template. This setting is the .DWT file that has the Cross Section block in it. There is a portrait version and a landscape version. Browse to g:\data\engineer\cadstds\plan productions sheets – select LCE XSEC P and click Open:





Choose the rest of the settings for the template as follows:

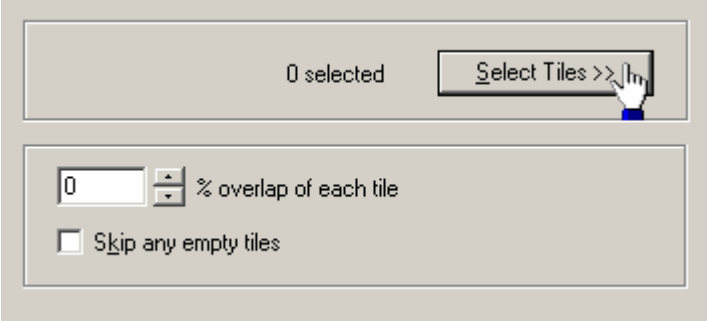
This should be the default

You will need to select this from the pull down

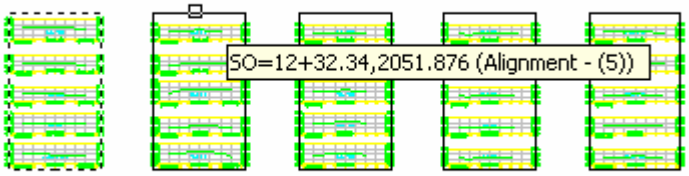
Uncheck this one

Change Scale Factor to 5

3) **Tiling Scheme – Click Custom as this is the best method for our purposes. Change the overlap from 5 to 0, then click Select Tiles:**

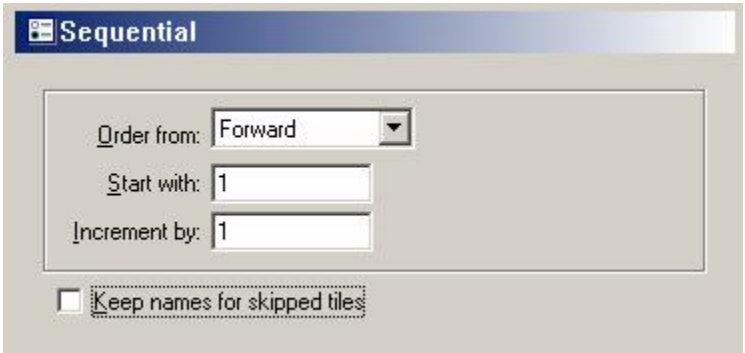


It is very important that when you select the tiles in the drawing, you select them one by one and in sequence, otherwise the sequence will be jumbled and you will have to re-organize and rename each layout that is created. Select the Tiles:



When you have finished selecting the tiles, click the right mouse button or hit enter.

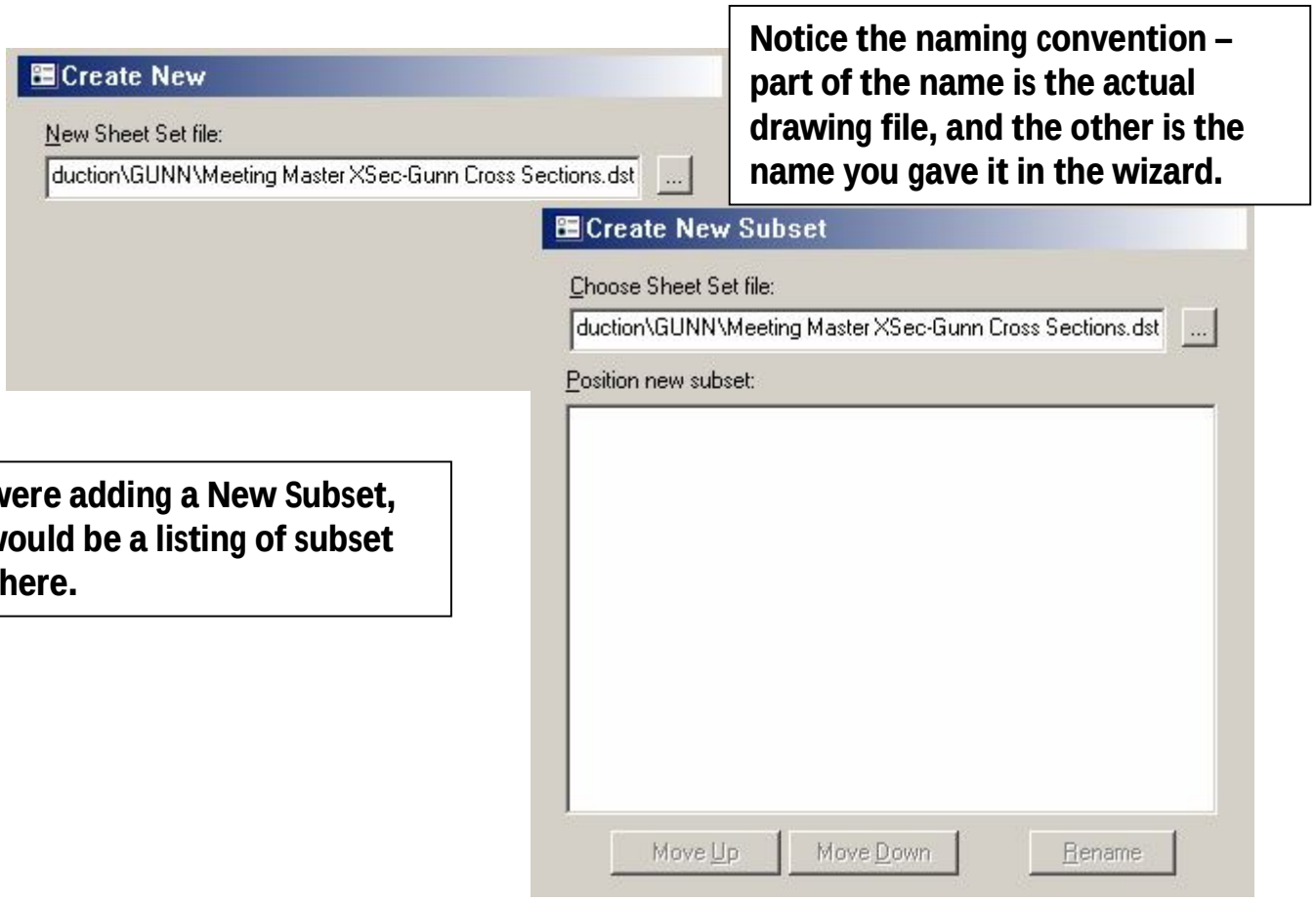
4) **Naming Scheme – Under the Naming Scheme, select Sequential:**



Change the Start with setting to 1 and the Increment by to 1. Uncheck the Keep names for skipped tiles.

<u>SKIP KEY AND LEGEND AS THESE DO NOT PERTAIN TO THIS PROCEDURE.</u>

5) **Sheet Set – Under this setting, you can choose to Create New, which will create a new .DST file in any location you choose or if you already have an existing .DST file, you can choose to add this set to the existing Sheet Set as Create New Subset:**



Notice the naming convention – part of the name is the actual drawing file, and the other is the name you gave it in the wizard.

If you were adding a New Subset, there would be a listing of subset names here.

At the bottom of the wizard, you have several options:

You can preview the tiles, generate the tiles, cancel or call on the help.

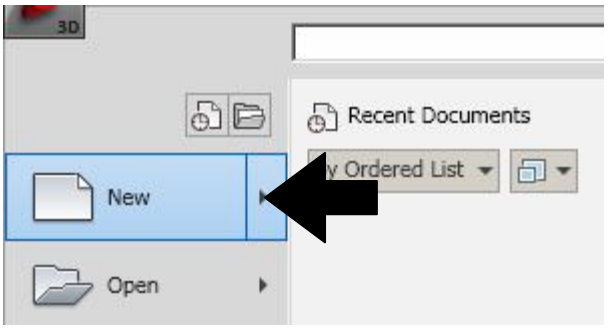
Click Generate to create your cross section layouts.

Your Cross Section layouts have been created.

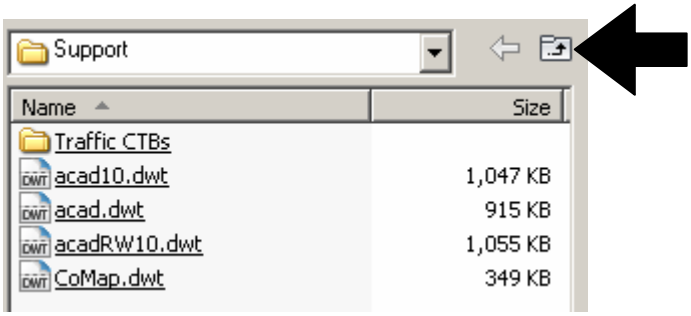
SETTING UP GENERAL NOTES AND TRAFFIC NOTES DRAWINGS

SETTING UP GENERAL NOTES OR TRAFFIC NOTES SHEETS

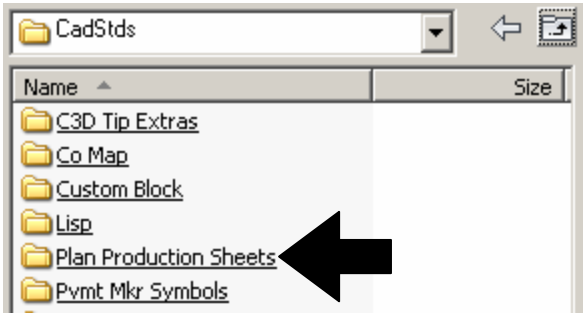
Start a new drawing. Click New:



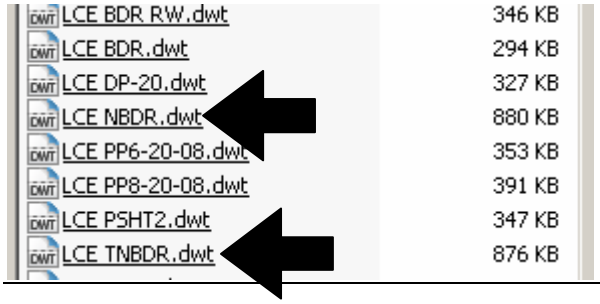
Click the indicated icon:



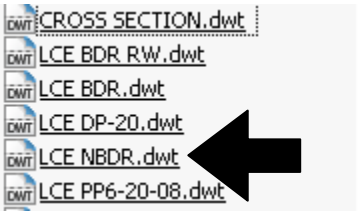
Click on the Plan Production Sheets folder:



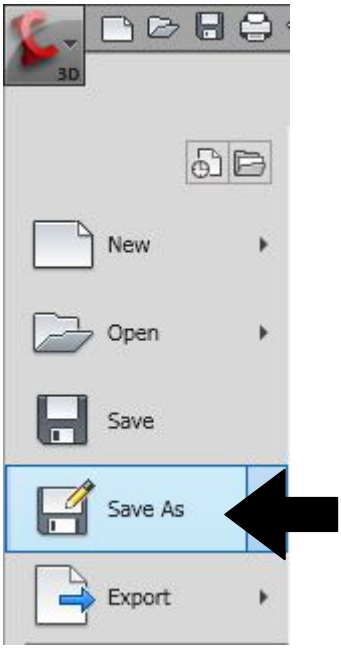
Click either of the indicated files (LCE_NBDR – General Notes or LCE_TNBDR – Traffic General Notes):

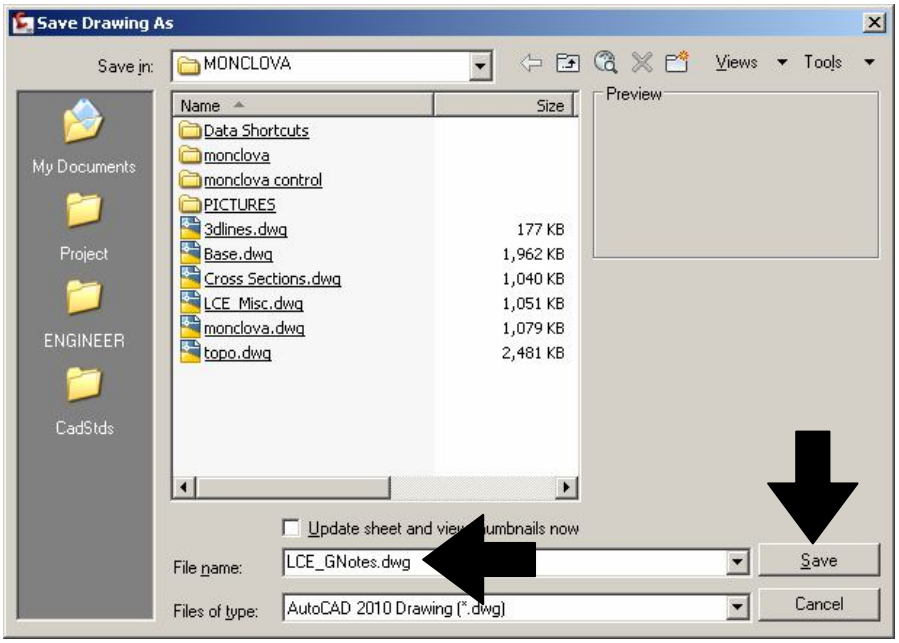


For this example, we'll use the LCE_NBDR.dwt. Click that file:



Click on the main pull down in the upper left hand corner of Civil 3D and click Save As:



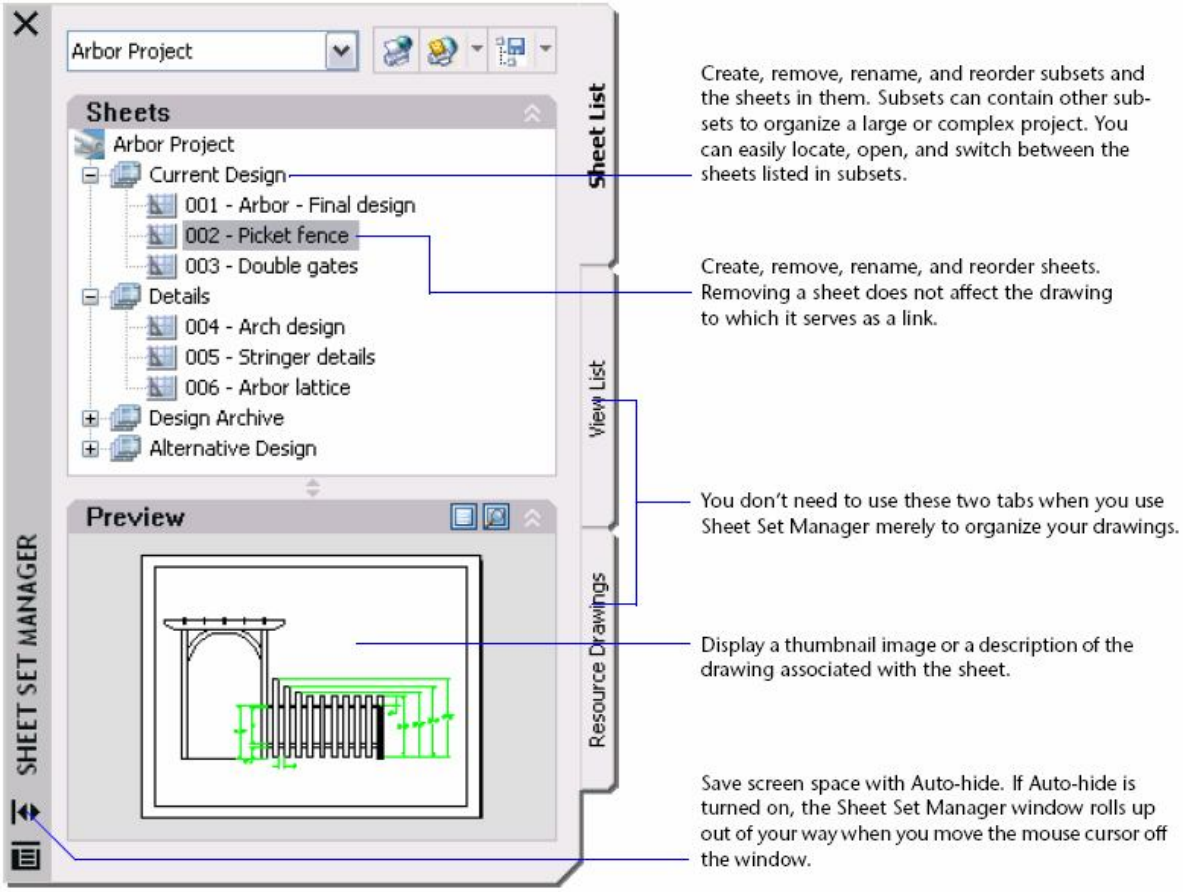


Name this file LCE_GNotes.dwg as directed in Chapter 1 and click Save.

USING SHEET SET MANAGER TO ORGANIZE YOUR PROJECTS

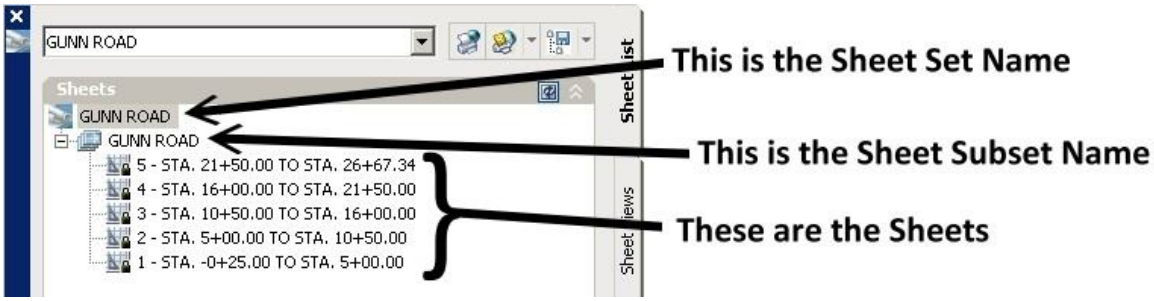
USING SHEET SET MANAGER TO ORGANIZE YOUR PROJECTS

Sheet Set Manager is a great way to organize projects in a methodical fashion without a lot of effort and time. Here is a breakdown of some of the things that Sheet Set Manager can do for us:



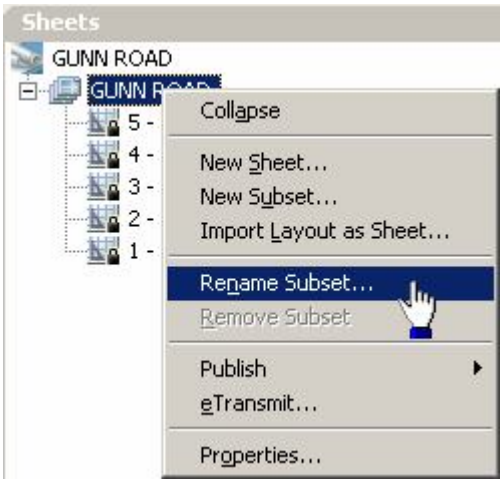
At the command prompt, type in "SSM".

As you may have notices, after you have gone through the Plan Production wizard, a Sheet Set has been created:

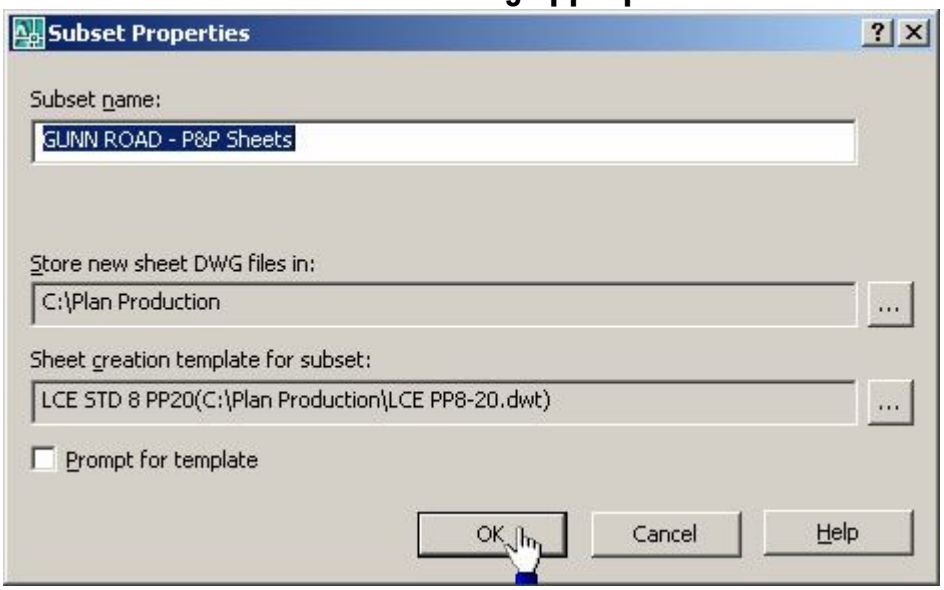


(Just a note here - Named drawing files in this example may not reflect the actual standard naming convention. Use the standard naming convention found in Chapter 1.)

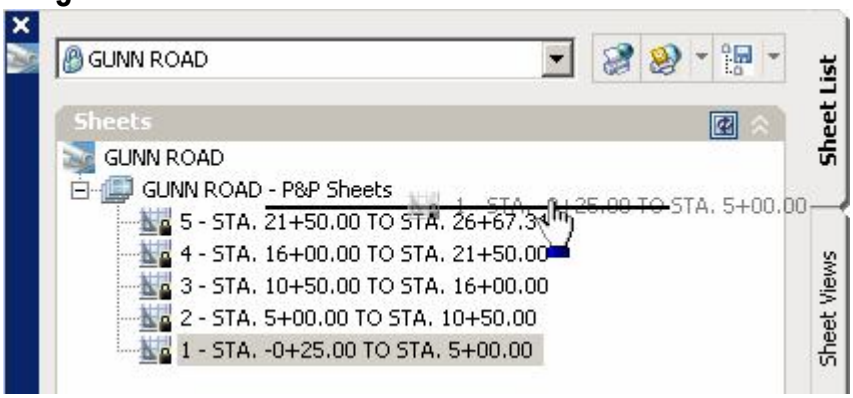
Let's do a little re-organization and renaming. Right click on the Subset Name and click Rename Subset:



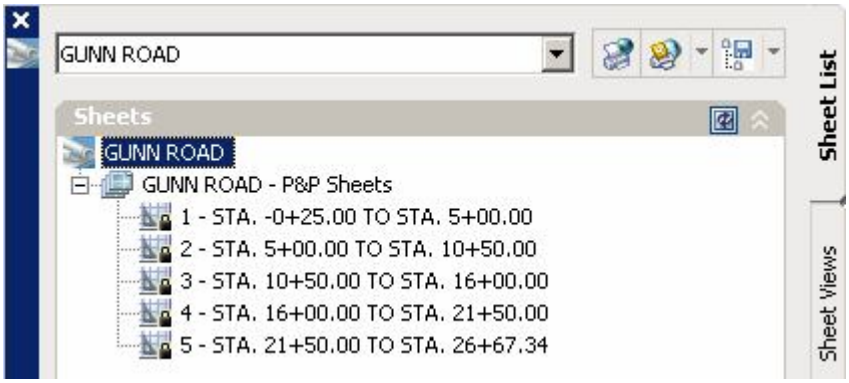
Rename this Subset to something appropriate. Click OK:



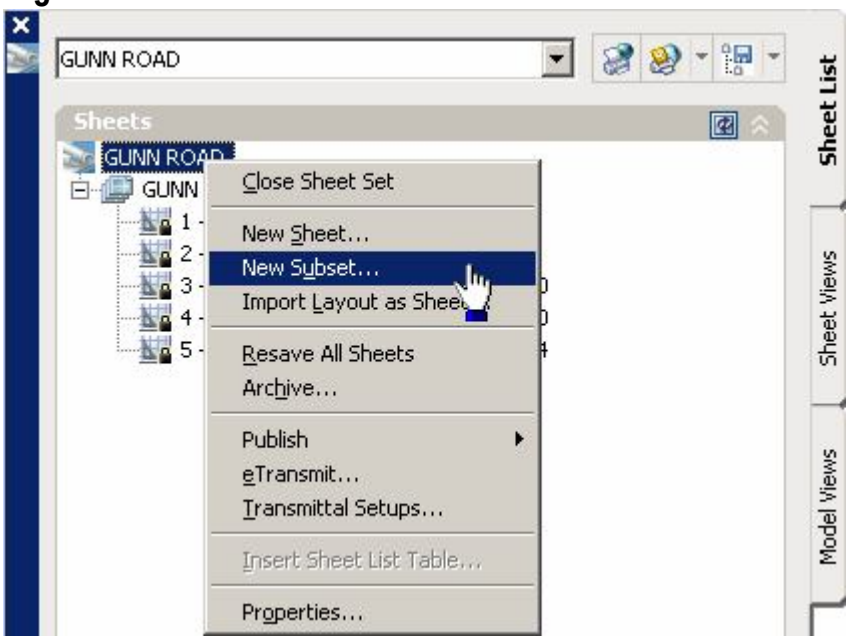
Now, let's re-organize these sheets so they are in the correct order. Click, hold and drag the sheet names above or below each other until they are in the proper order:



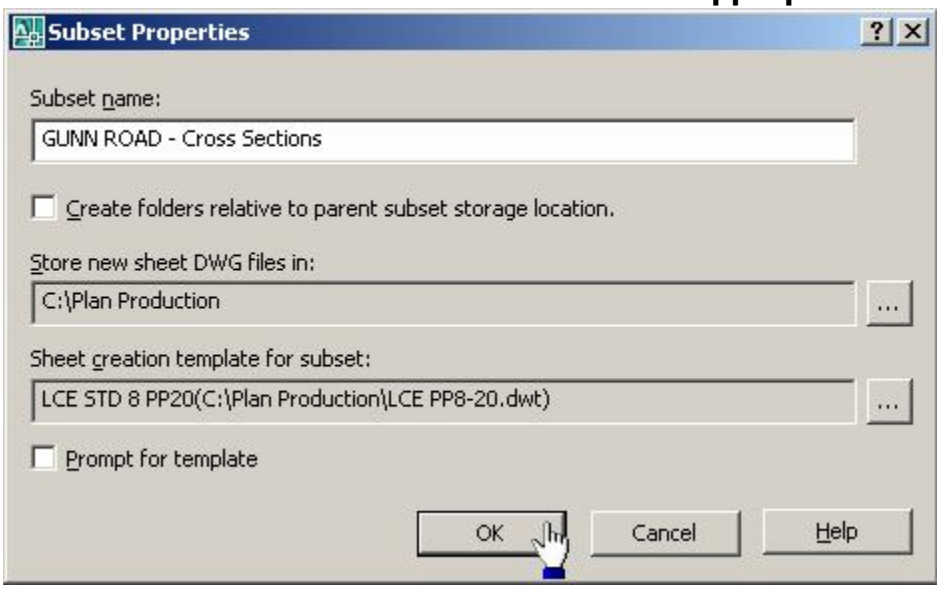
There, that's better:



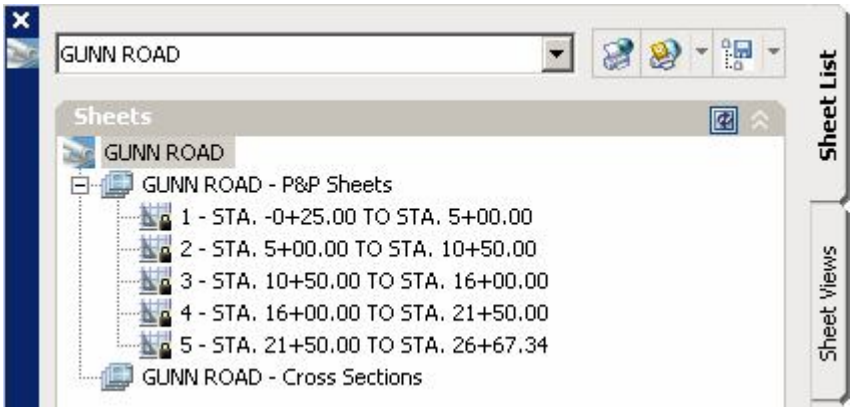
Now it's time to bring in the Cross Section Sheets. (Note-when your cross section sheets were created using Map Books, it associated your cross sections with another sheet set. You will need to delete that sheet set .DST file before moving on.)
Right click on the Sheet Set Name and let's create another Subset:



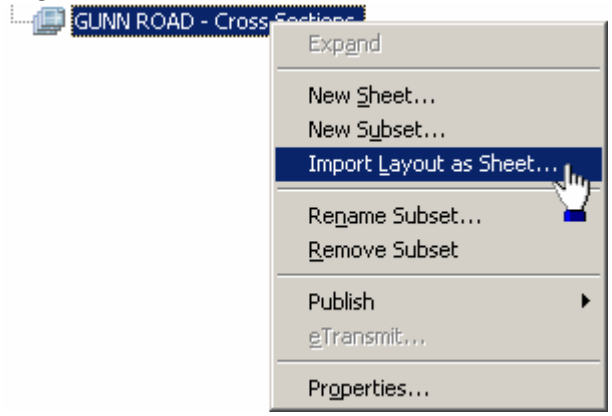
You should see this. Give the new Subset an appropriate name:



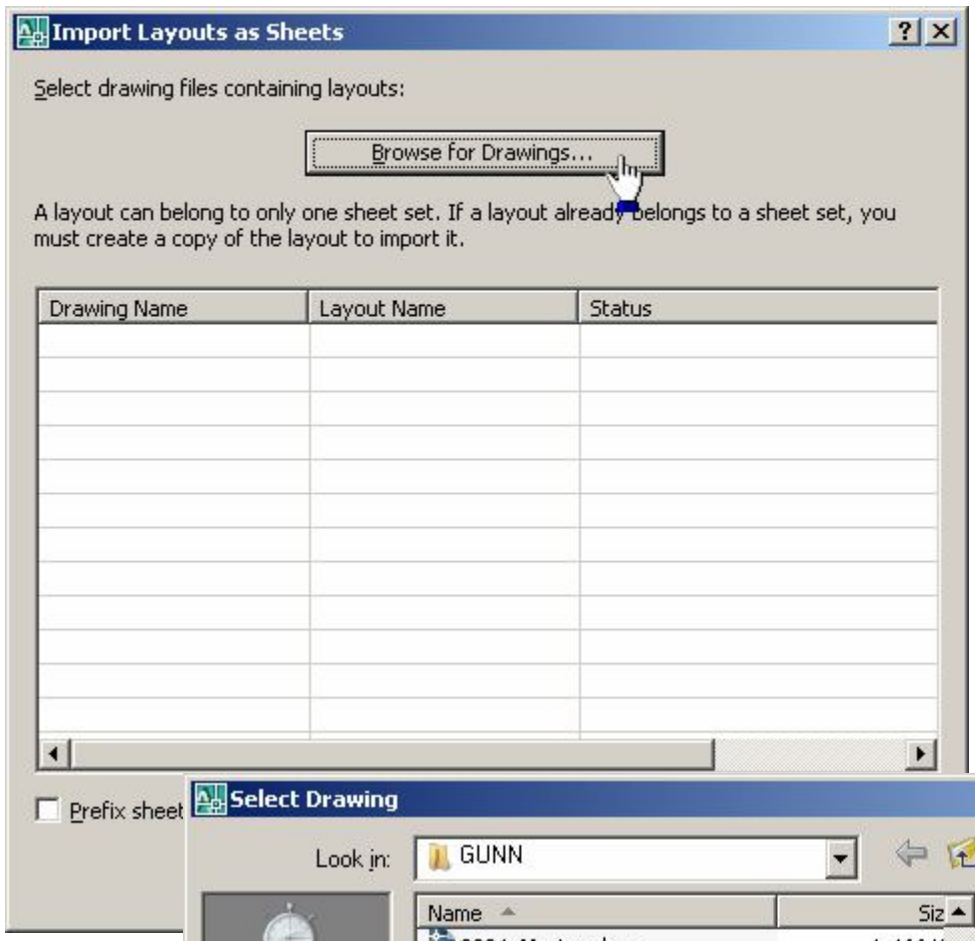
It should look like this:



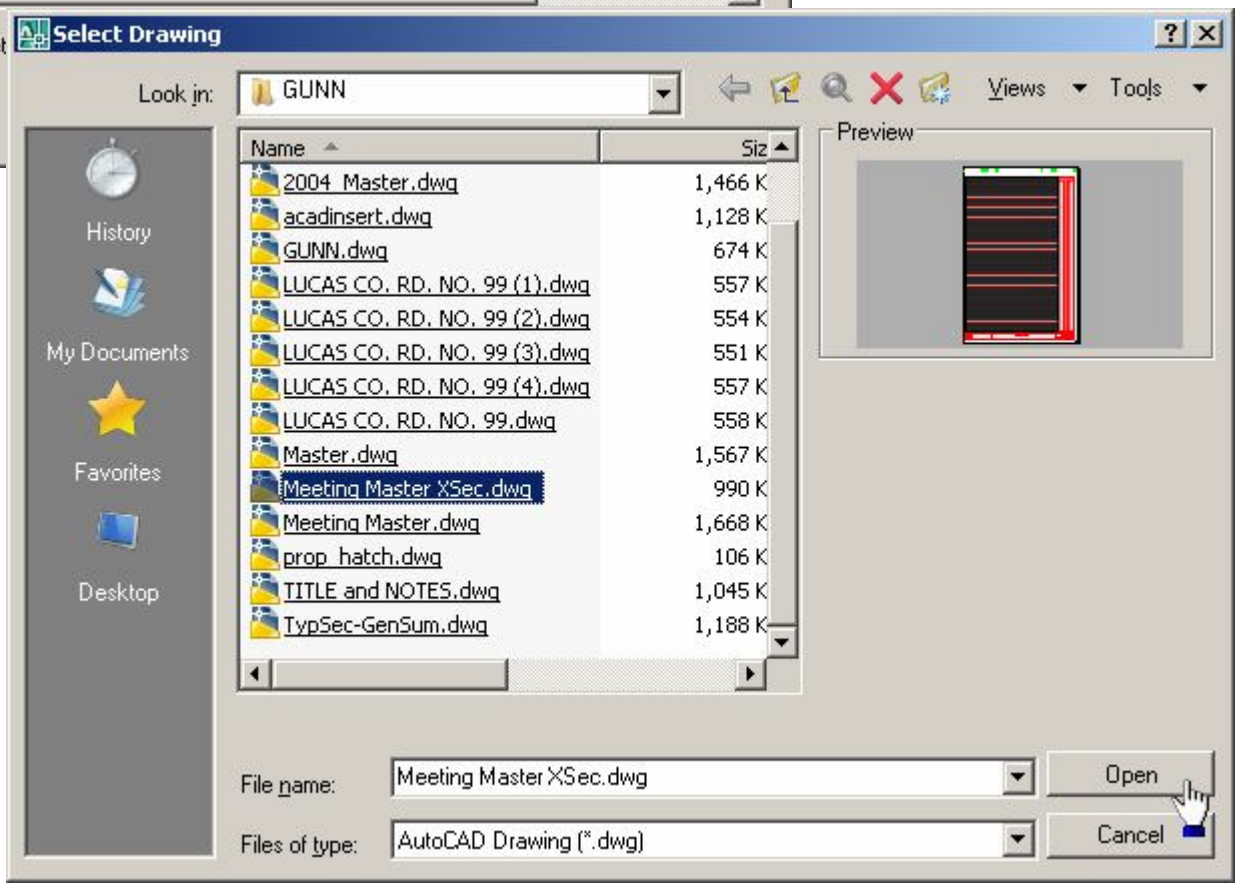
Right click on the new Subset Name and click Import Layout as Sheet:



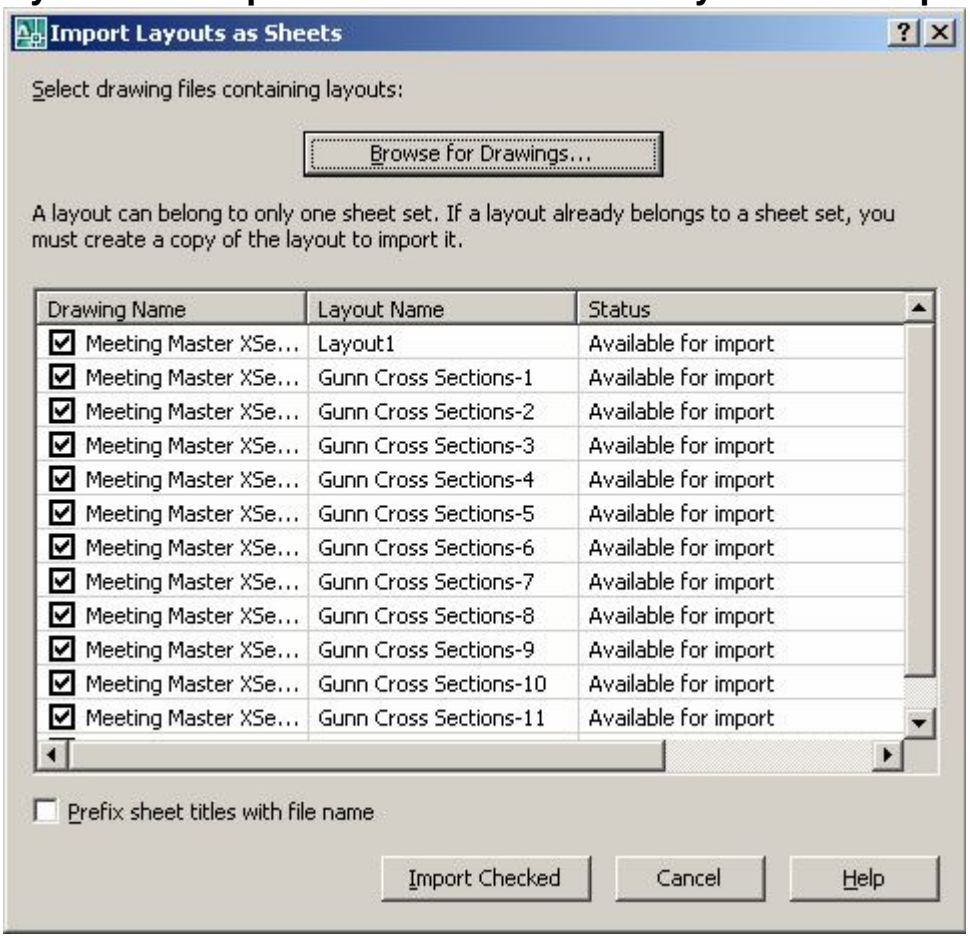
You'll see this. Click Browse:



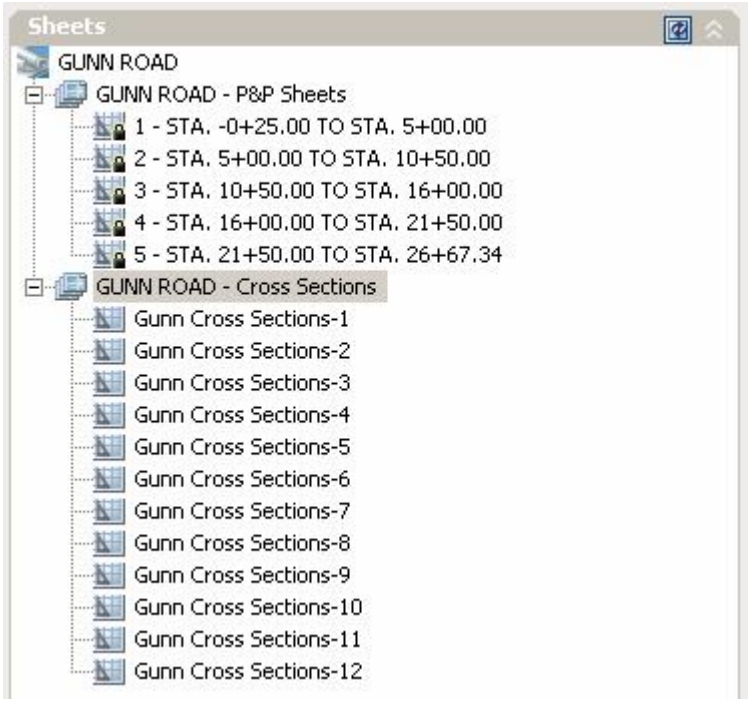
Browse to your cross section drawing, highlight it and click Open:



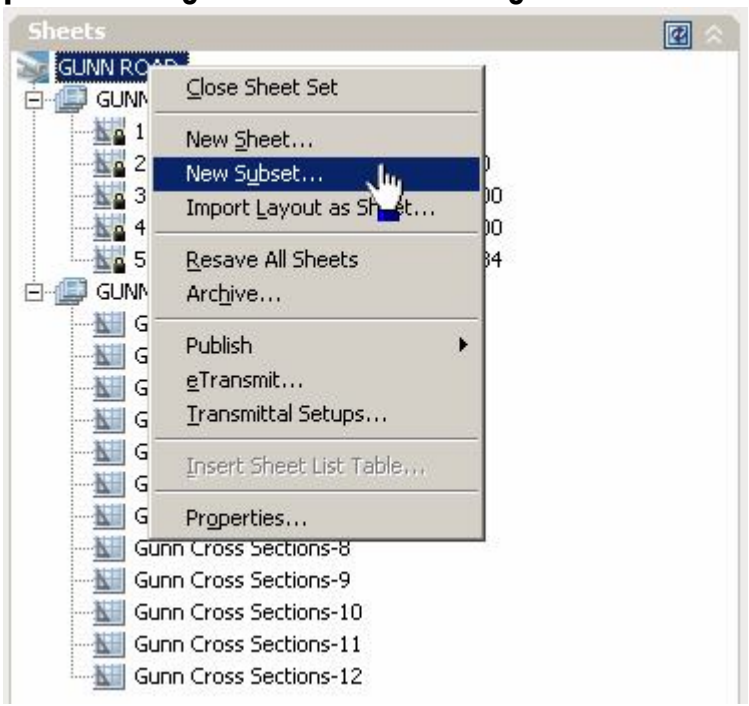
As you can see, these layouts are available for import, but prior to doing this step, I had to delete the .DST file associated with the cross sections. Now, the first layout is not part of the cross sections, so I will uncheck that box so as not to allow that layout to be imported with the rest of the layouts. Click Import Checked:

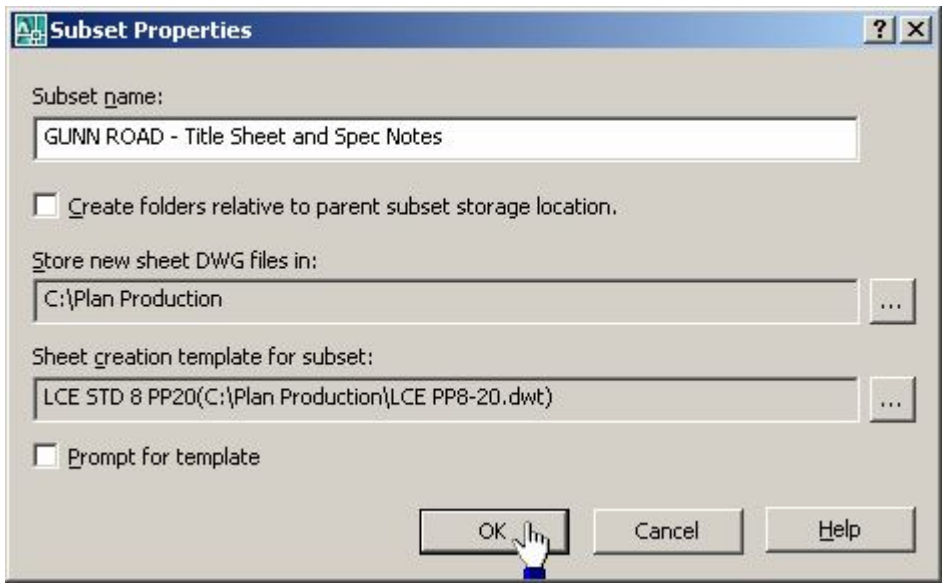


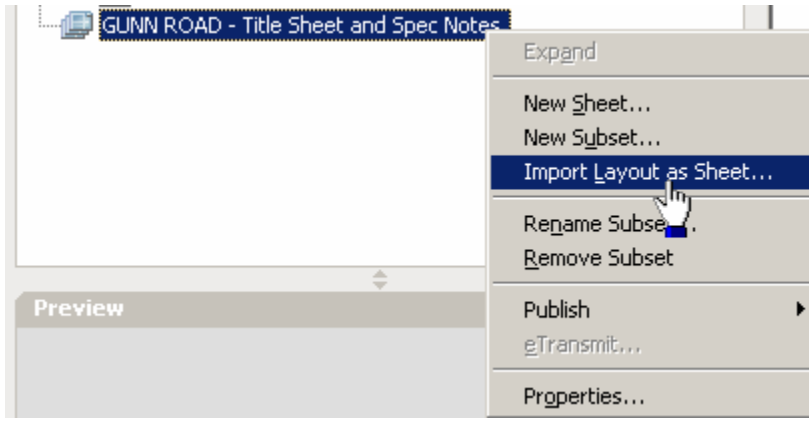
Here is your result:

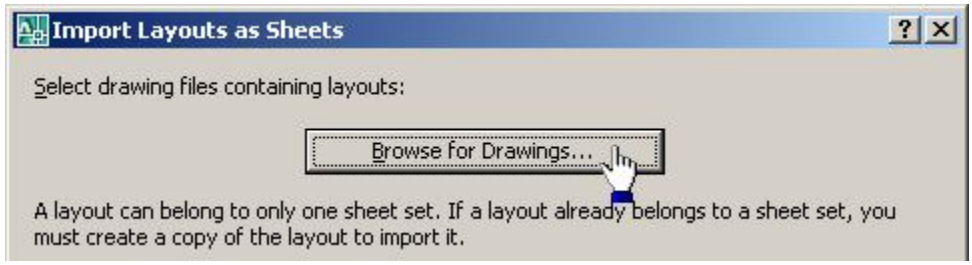


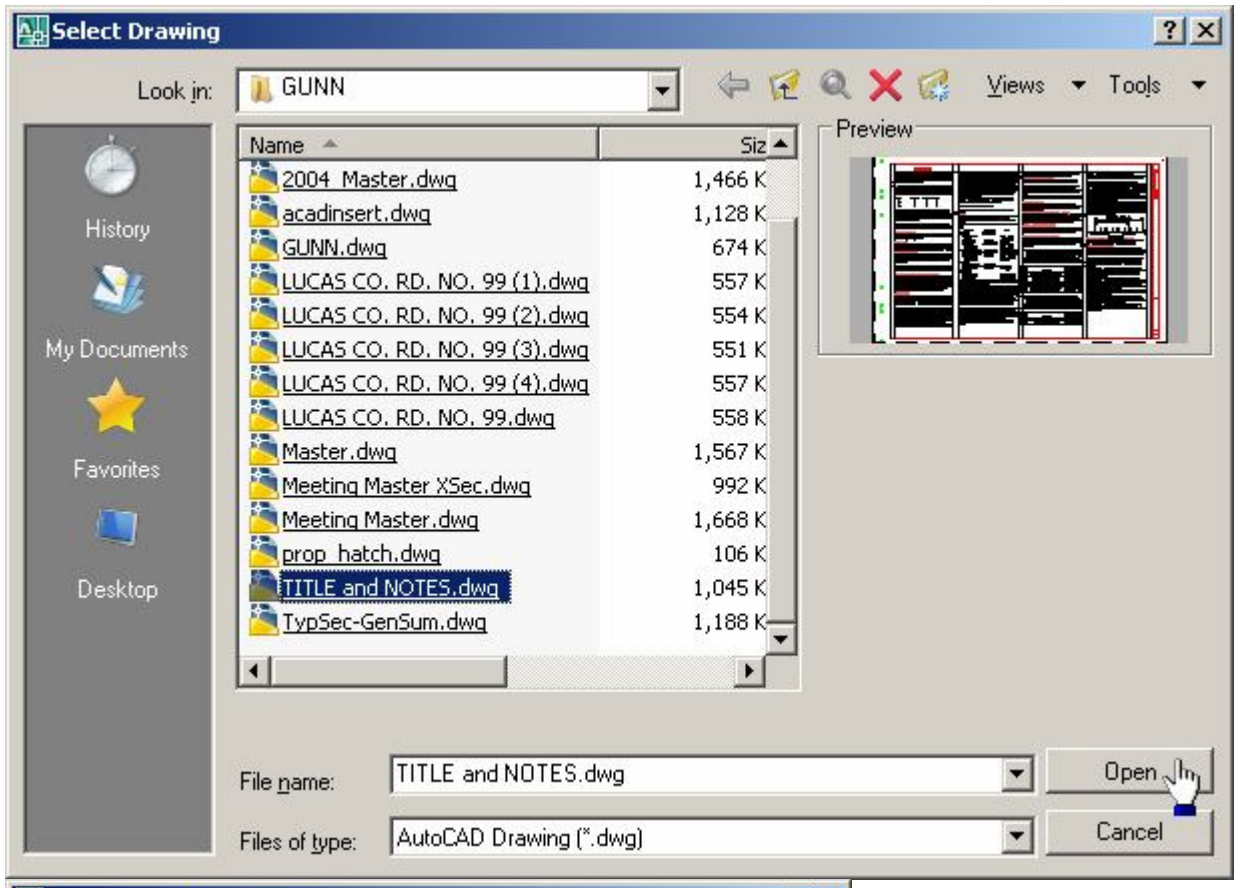
Let's do one more...the Title Sheet and some Spec Notes. We will repeat the same processes again. Just follow along:

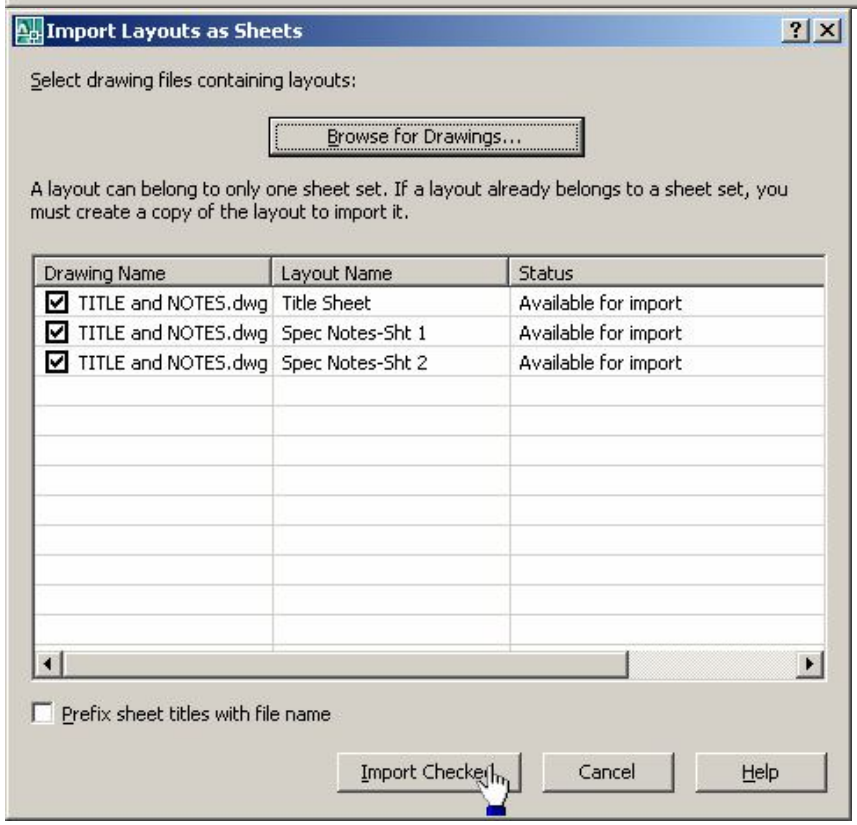



Subset Properties
Subset name:
GUNN ROAD - Title Sheet and Spec Notes
Create folders relative to parent subset storage location.
Store new sheet DWG files in:
C:\Plan Production
Sheet creation template for subset:
LCE STD 8 PP20(C:\Plan Production\LCE PP8-20.dwt)
Prompt for template
OK
Cancel
Help

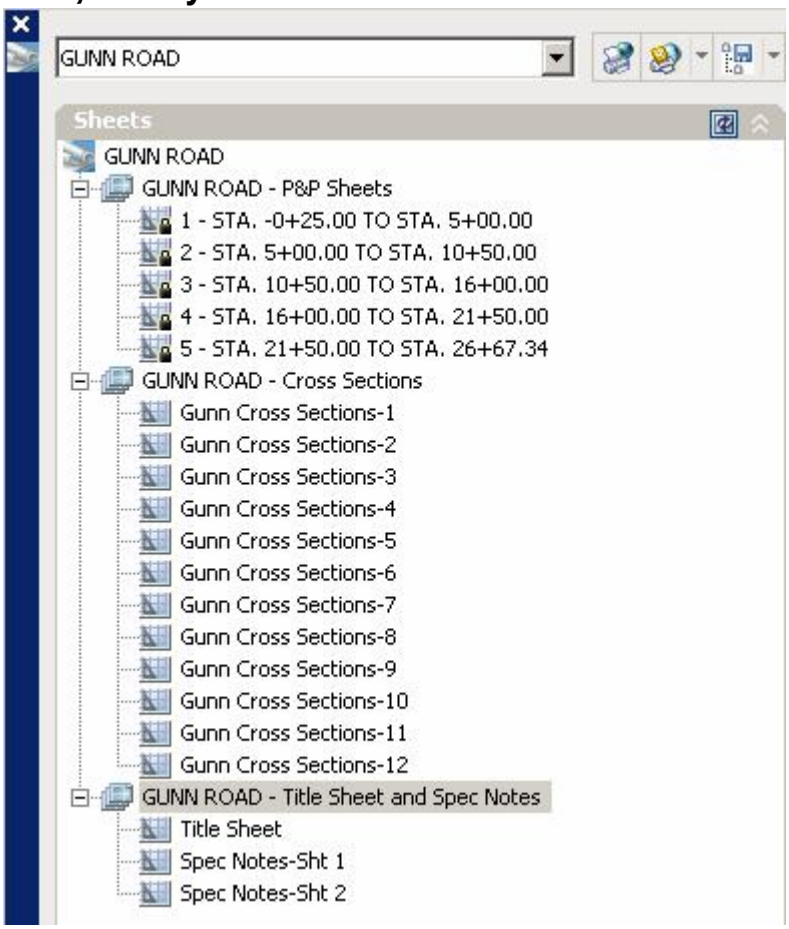

GUNN ROAD - Title Sheet and Spec Notes
Expand
New Sheet...
New Subset...
Import Layout as Sheet...
Rename Subset
Remove Subset
Publish
eTransmit...
Properties...
Preview


Import Layouts as Sheets
Select drawing files containing layouts:
Browse for Drawings...
A layout can belong to only one sheet set. If a layout already belongs to a sheet set, you must create a copy of the layout to import it.

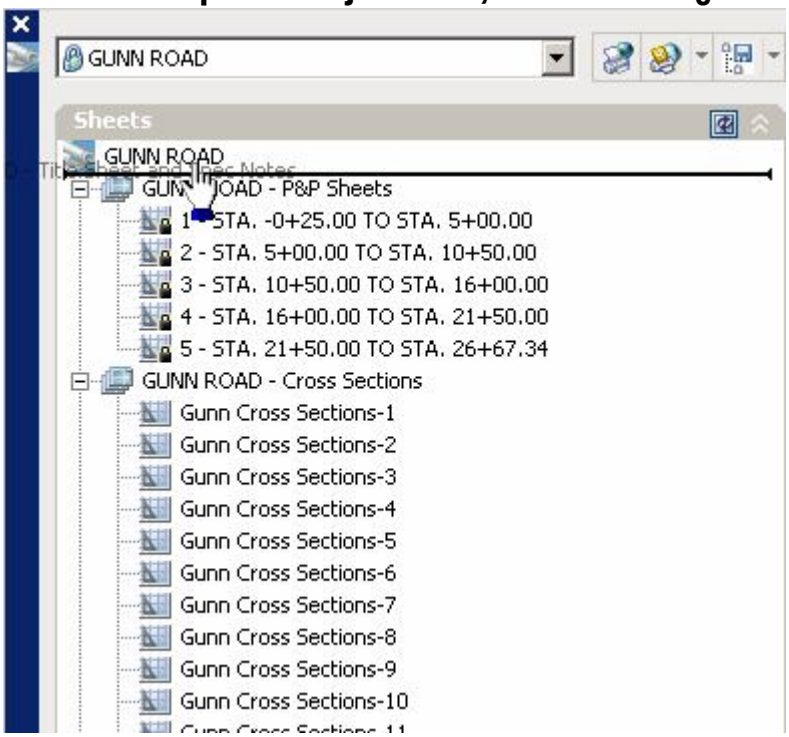

Select Drawing
Look in:
GUNN
Views
Tools
History
My Documents
Favorites
Desktop
Name
Siz
2004_Master.dwg 1,466 K
acadinsert.dwg 1,128 K
GUNN.dwg 674 K
LUCAS CO. RD. NO. 99 (1).dwg 557 K
LUCAS CO. RD. NO. 99 (2).dwg 554 K
LUCAS CO. RD. NO. 99 (3).dwg 551 K
LUCAS CO. RD. NO. 99 (4).dwg 557 K
LUCAS CO. RD. NO. 99.dwg 558 K
Master.dwg 1,567 K
Meeting Master XSec.dwg 992 K
Meeting Master.dwg 1,668 K
prop_hatch.dwg 106 K
TITLE and NOTES.dwg 1,045 K
TypSec-GenSum.dwg 1,188 K
Preview
File name:
TITLE and NOTES.dwg
Open
Files of type:
AutoCAD Drawing (*.dwg)
Cancel


Import Layouts as Sheets
Select drawing files containing layouts:
Browse for Drawings...
A layout can belong to only one sheet set. If a layout already belongs to a sheet set, you must create a copy of the layout to import it.
Drawing Name
Layout Name
Status
TITLE and NOTES.dwg
Title Sheet
Available for import
TITLE and NOTES.dwg
Spec Notes-Sht 1
Available for import
TITLE and NOTES.dwg
Spec Notes-Sht 2
Available for import
Prefix sheet titles with file name
Import Checked
Cancel
Help

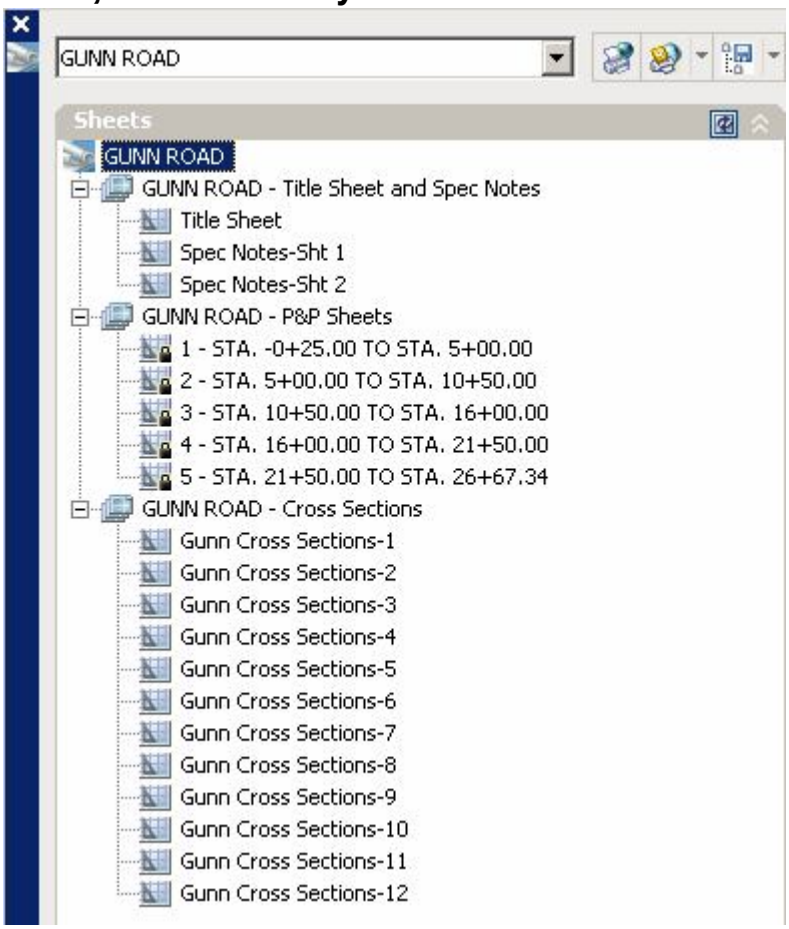
Now, there you are:



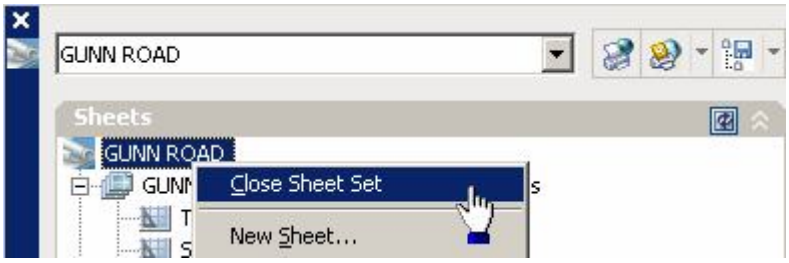
There's just one more thing. I would like to re-organize the subsets to reflect the order of our plans. I'll just click, hold and drag the last Subset to the top of the list:



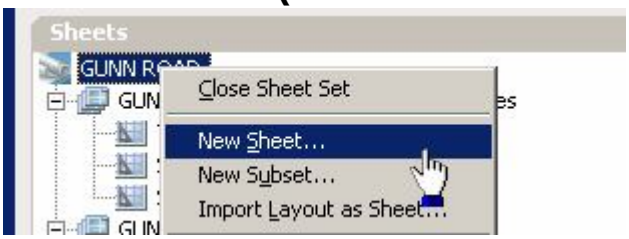
There, all nice and tidy:



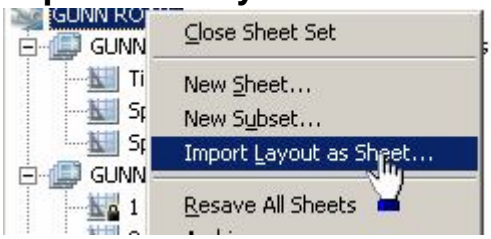
Now, some of the really cool things you can do from here. You can close the Sheet Set:



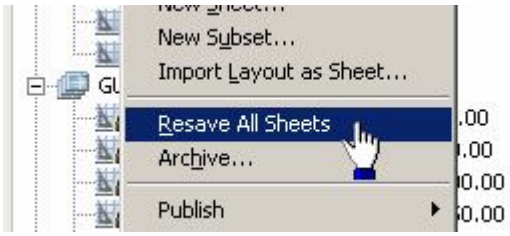
Add a New Sheet (not sure that we would use this-experiment):



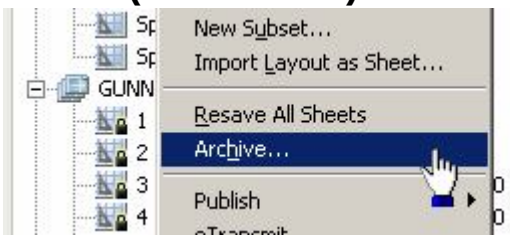
Import more layouts:



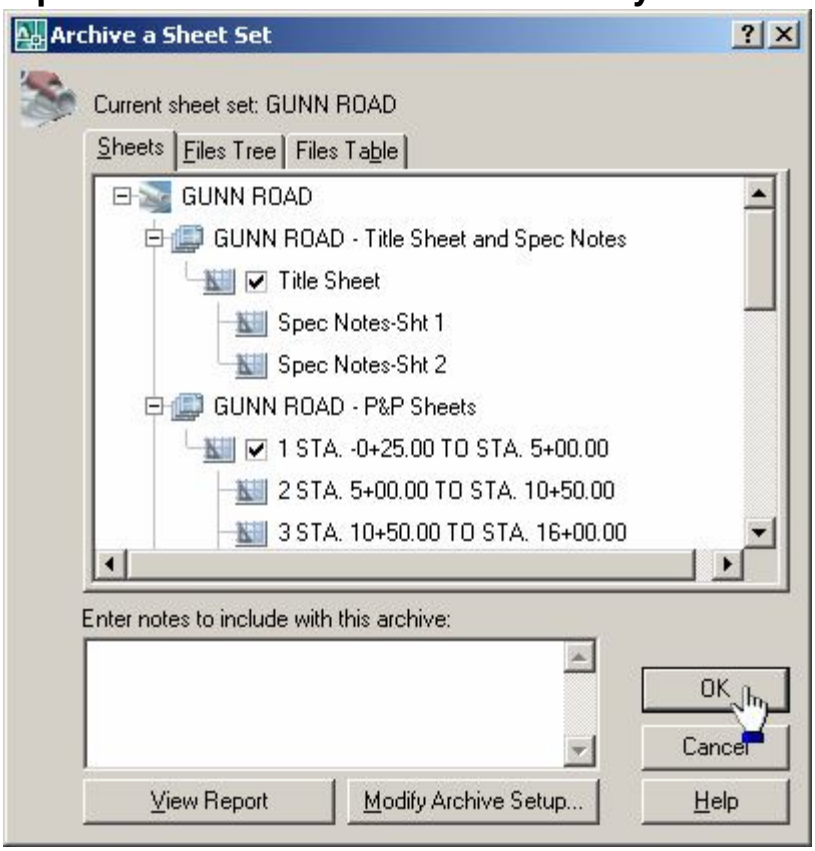
Re-Save All Sheets. This will actually save all the sheets in the list:

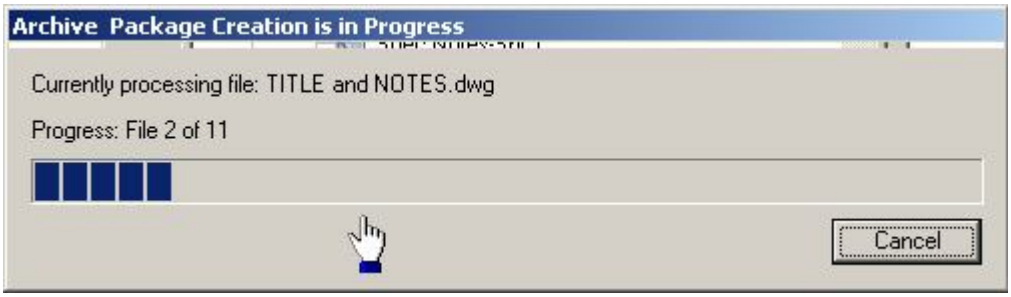


Archive (this is so cool):

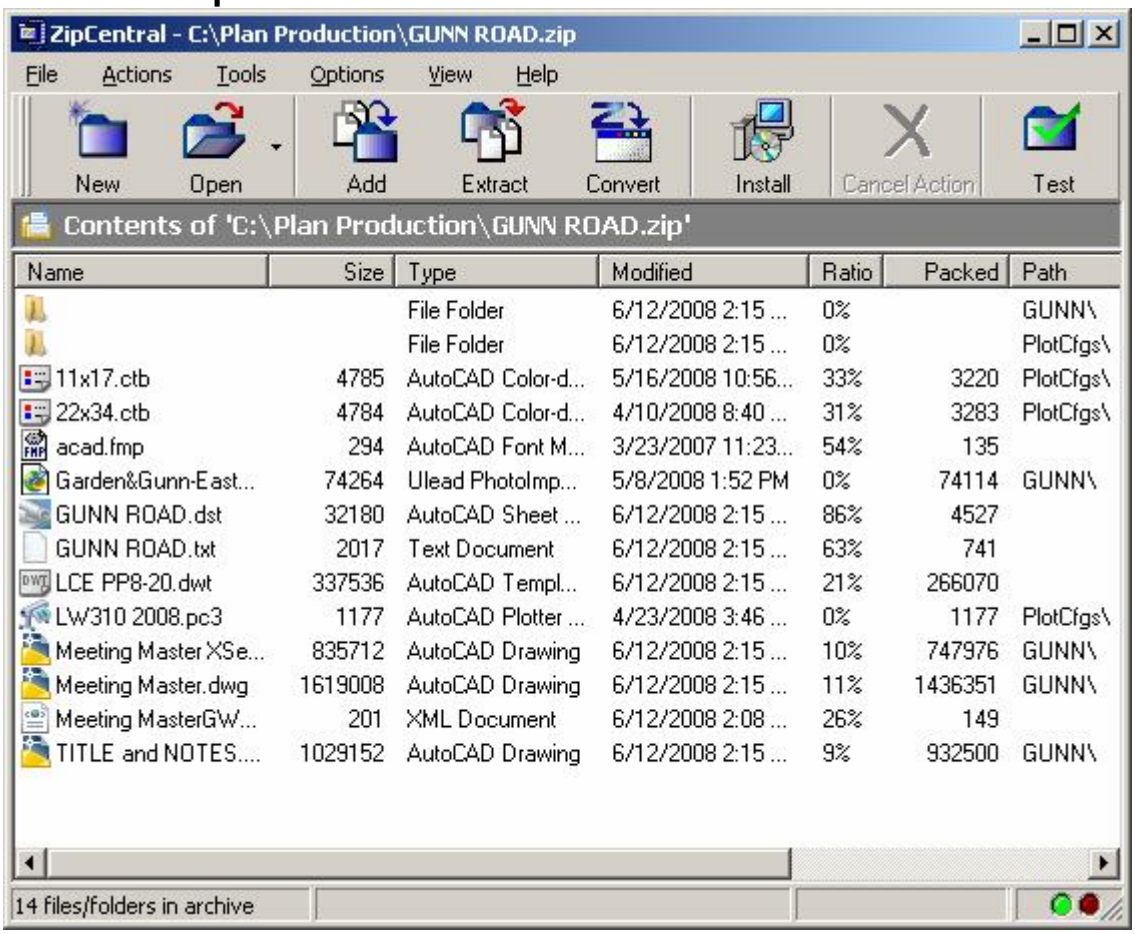


This will actually archive all the drawing files and associated files together into one .zip file. You can add notes and/or modify the archive setup. Click OK:



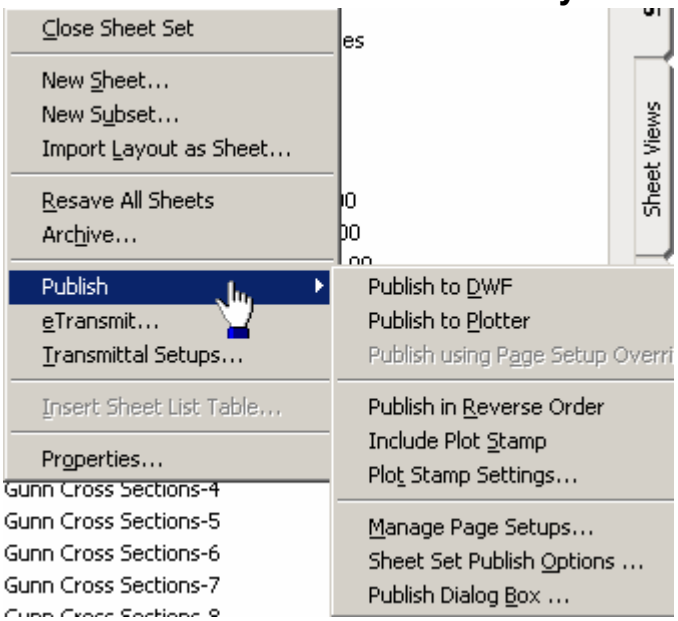


Here is the .zip file it created:

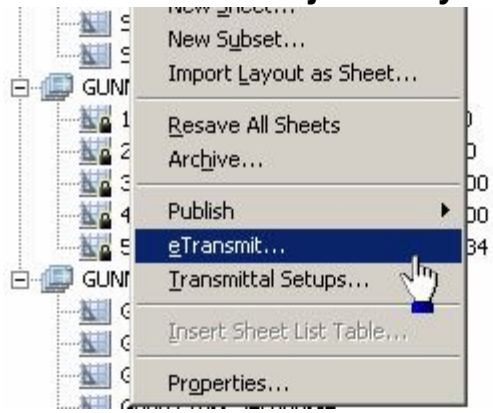


Very cool!

You have all the Publish features at your fingertips:



You can E-Transmit just like you can from the File pull down:



And, modify or create new setups for the Transmittal Setups:

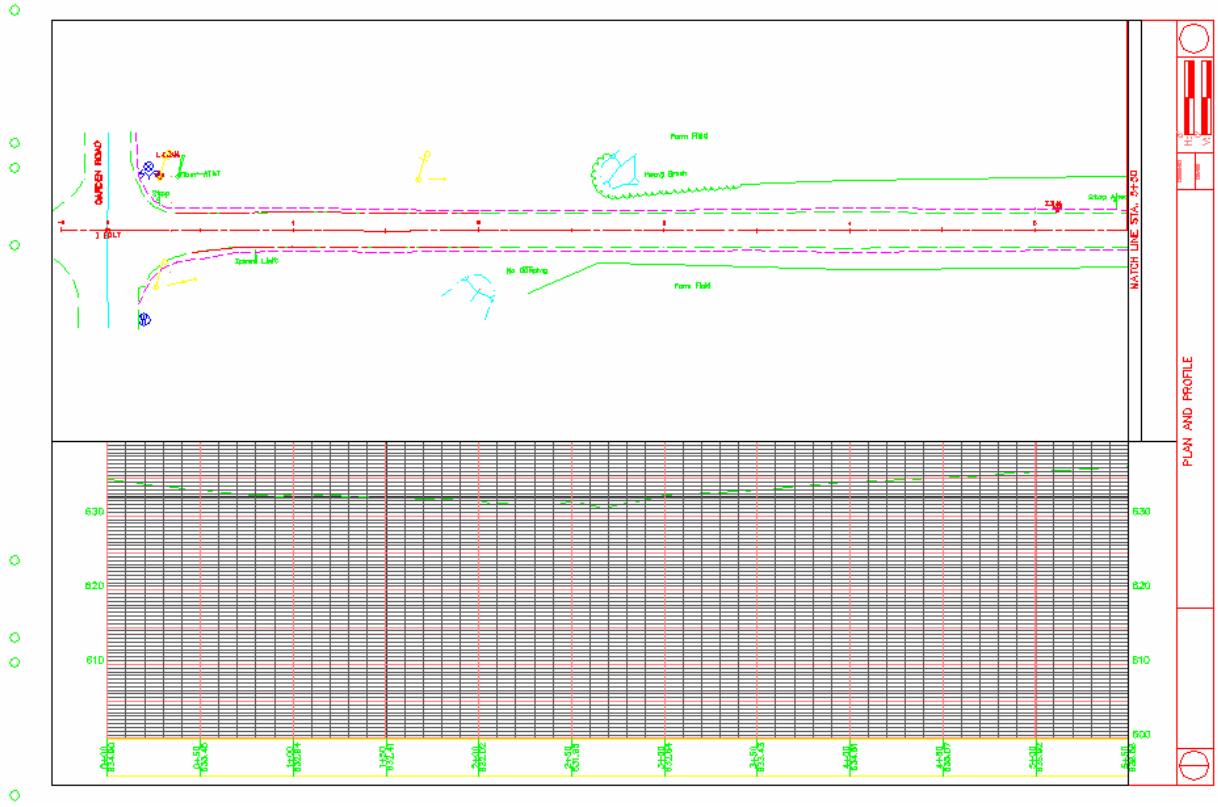
The Properties are something we are not going to deal with right now. Part of the Properties feature was to be able to use Text fields with the sheet blocks for global labeling. That did not work so well. See the P&P and Cross Section Sheets chapters.

LABELING P&P AND CROSS SECTION SHEETS

LABELING P&P AND CROSS SECTION BLOCKS GLOBALLY

Before we begin, please note this process will not work for all block attributes. Some are unique to each layout (labels e.g.: Sheet Number, Station to Station). Here we go...

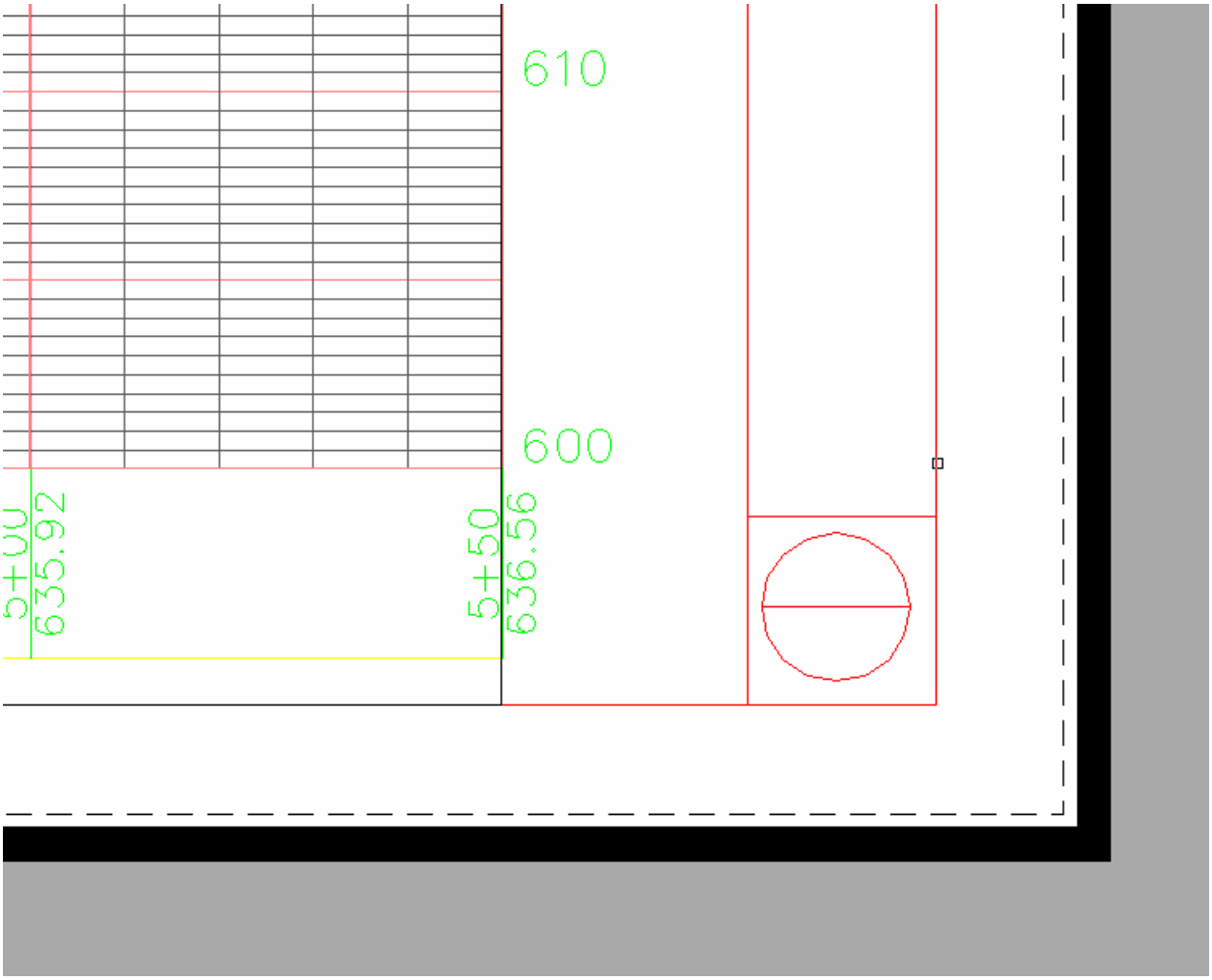
After creating and organizing your sheet layouts, click on the first layout sheet:



At the command prompt, type in "ssx" and hit enter:

```
Command:
Command: ssx

Select object/<None>:
```

Select the P&P sheet block:

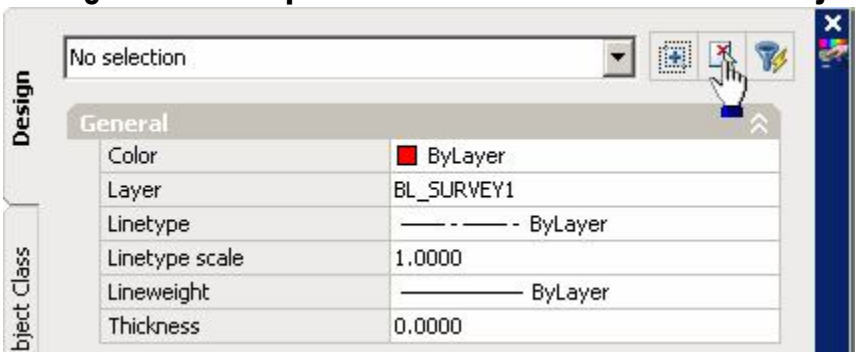


You will see this at the command prompt:

```
Select object/<None>:
Filter: ((0 . "INSERT") (2 . "lceppsht8") (8 . "0") (66 . 1) (210 0.0 0.0 1.0))

>>Block name/Color/Entity/Flag/LAyer/LType/Pick/Style/Thickness/Vector:
```

Hit enter.

Now go to the Properties box and click the Select Objects button:

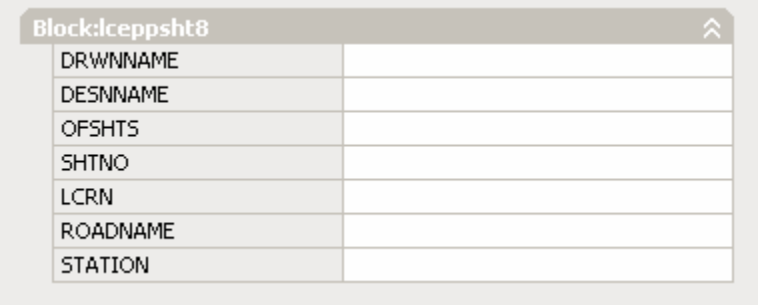


Type in "p" for previous:

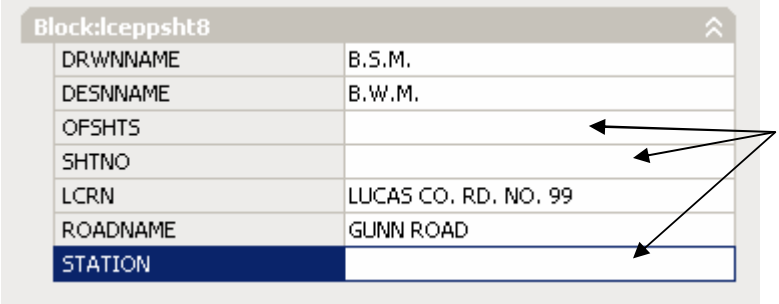
```
Command:
Command: _.PSELECT
Select objects: p
5 found

Select objects:
```

Hit enter.

Down at the bottom of the Properties box, you will see this:

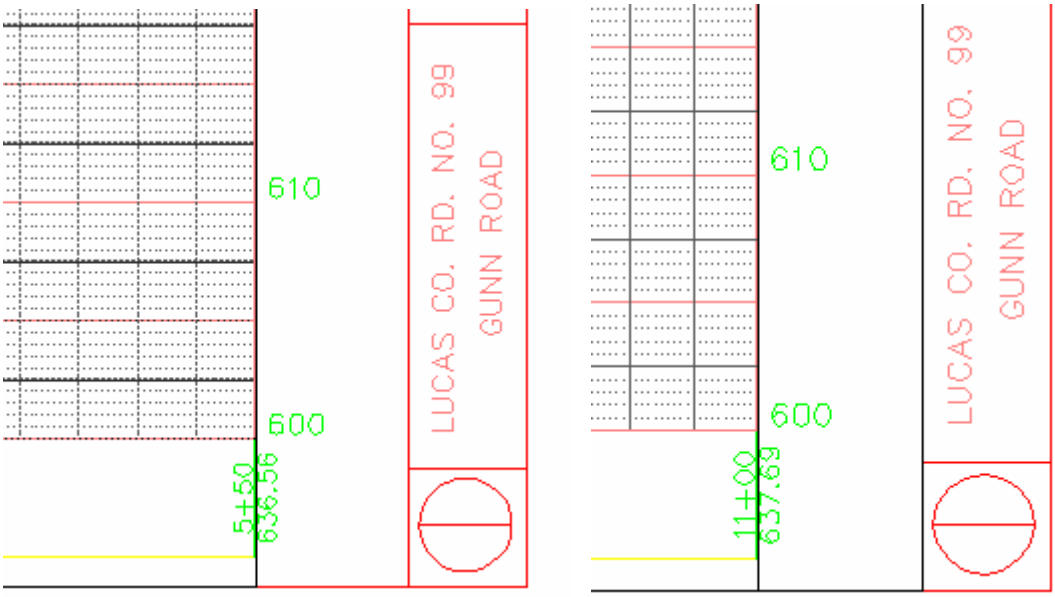


Fill out the appropriate information:



Again, these fields should be left blank as they are unique to each layout and should be filled in later Just hit Esc when you've completed filling in the information.

Now you'll notice that each sheet in each layout is labeled appropriately:



This is the first and second sheet layout of this example.

Use this same technique for cross section sheets.

Chapter

4

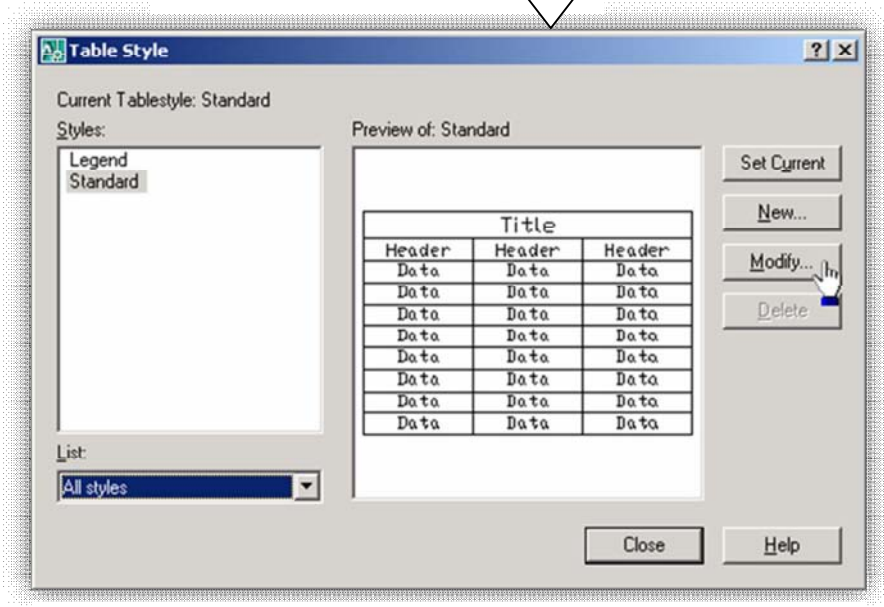
AutoCAD Civil 3D® Tips

Table of Contents

CREATING A TABLE IN CIVIL 3D

Type in the command Table and hit enter

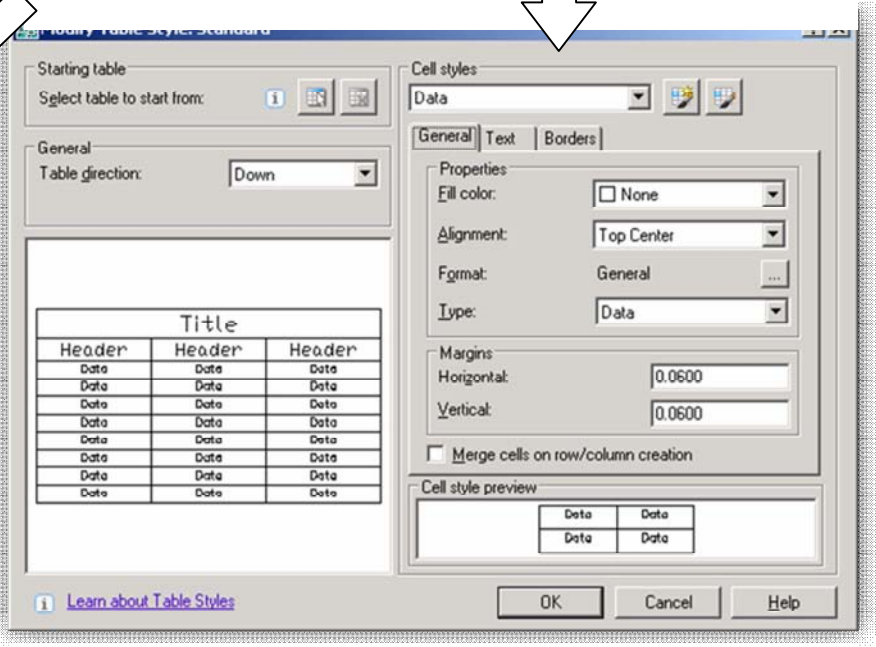
Click the button next to the Table Style selector



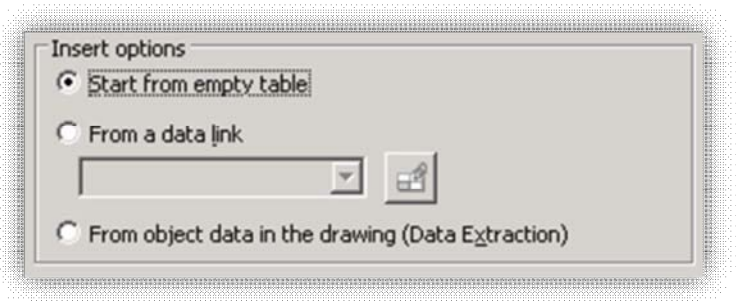
Use this Table Style dialogue box to bring up the Table Style Editor-Click New or Modify

If you click New, give your Table Style a name, then click Continue

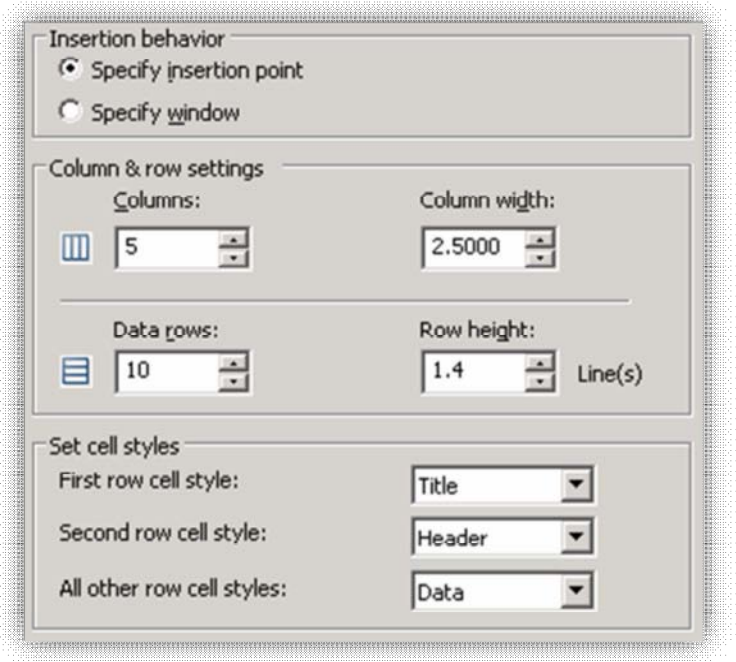
Now back at the main dialogue, you have some insert options:



Once you have your table formatted the way you want it, click OK Set your Table Style current, then Close the previous box

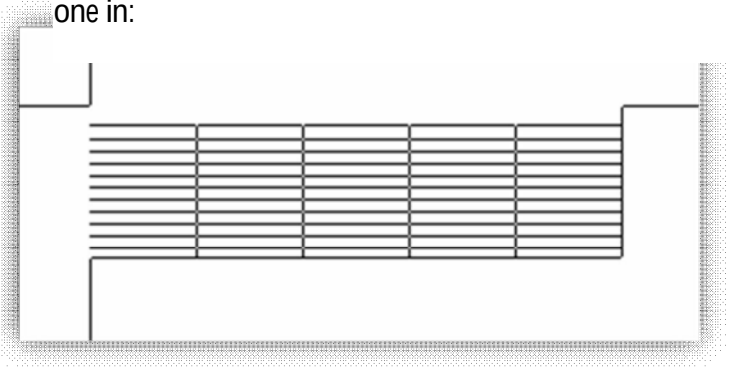


You can start from scratch using an empty table. We'll do that one first. Set your Insertion behavior, Column and row settings and cell styles:

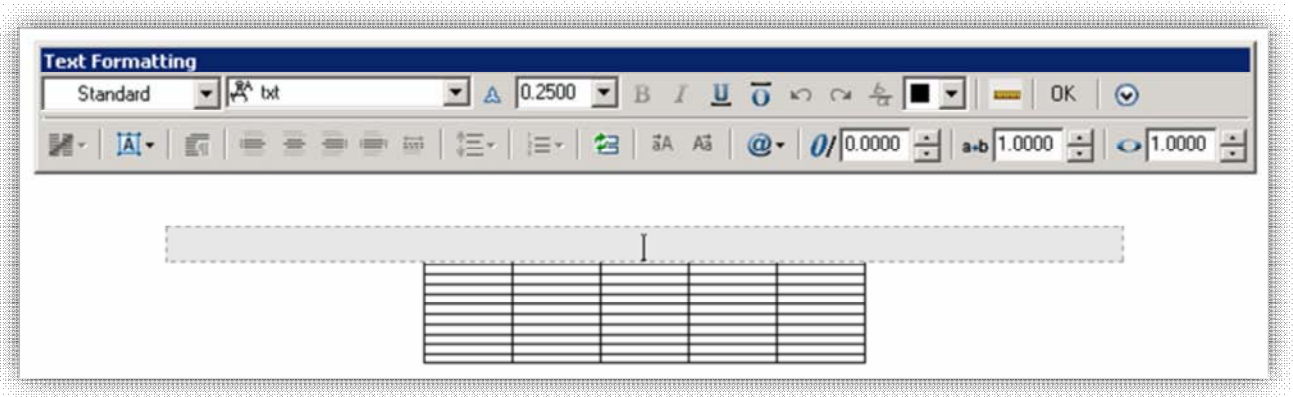


Click OK:

Pick an insertion point by clicking a point or by typing one in:

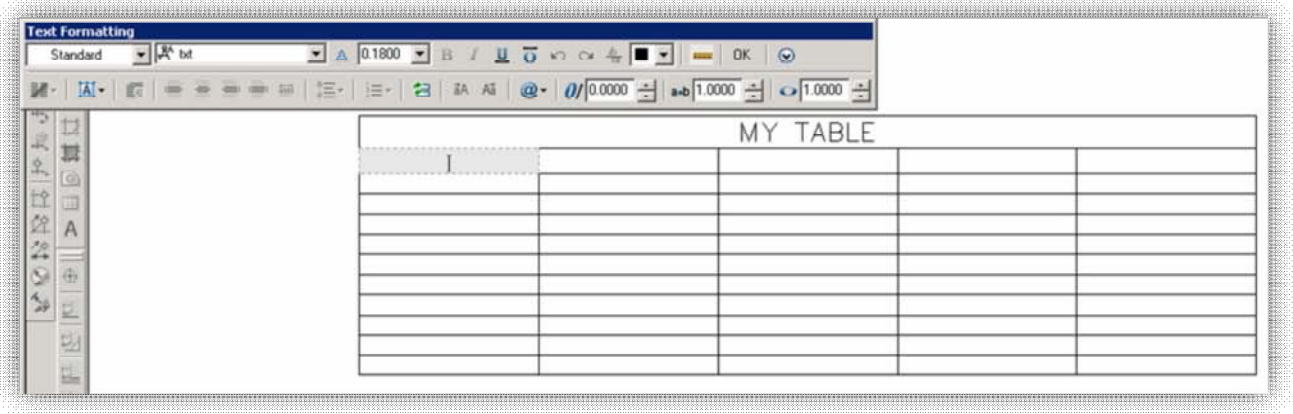


You are now presented with this (Please note the font for the style you created is not the default-will continue to check on this and bring any updates to you):

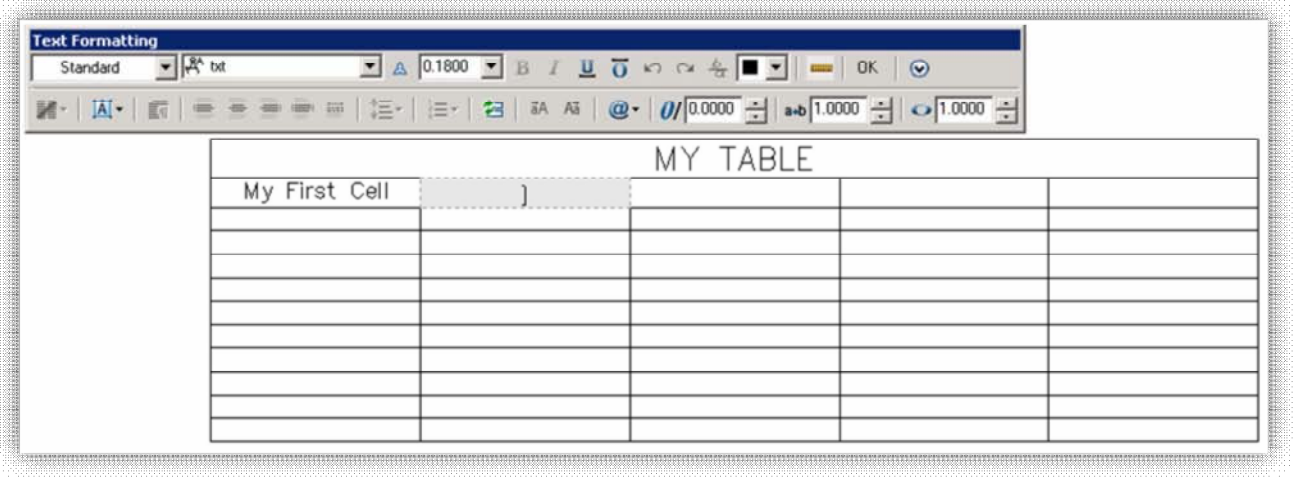


You can start typing in a label name for the table if you wish. Click OK when you're done.

Now double click the first cell:



You can start typing, when filled in, just hit the TAB key and voila, you are in the next cell, just like Excel:



Just repeat until the table is filled.
Another nice feature is the auto fill feature:

MY TABLE				
PART NO.	DATE:			
1	4/14/2008			

If your table has numbers, dates or any other type of data that runs sequentially in order, just like in Excel, you can click once on the first cell, then click the lighter colored snap in the lower right hand corner of the cell and drag it down to fill in the other cells:

MY TABLE				
PART NO.	DATE:			
1	4/14/2008			

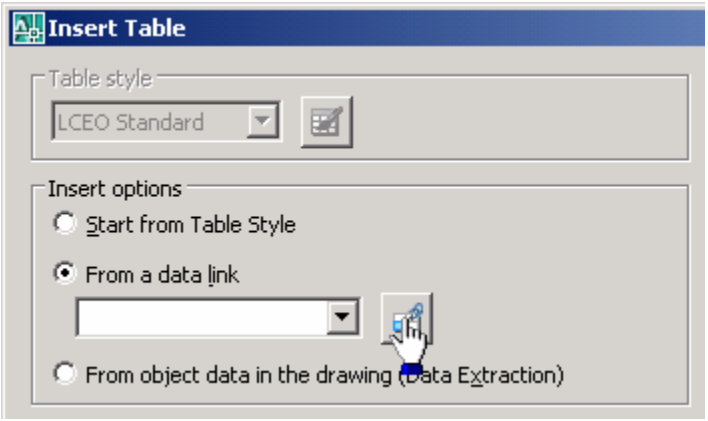
MY TABLE				
PART NO.	DATE:			
1	4/14/2008			
2				
3				
4				
5				
6				
7				
8				
9				
10				

Repeat for the next cell column:

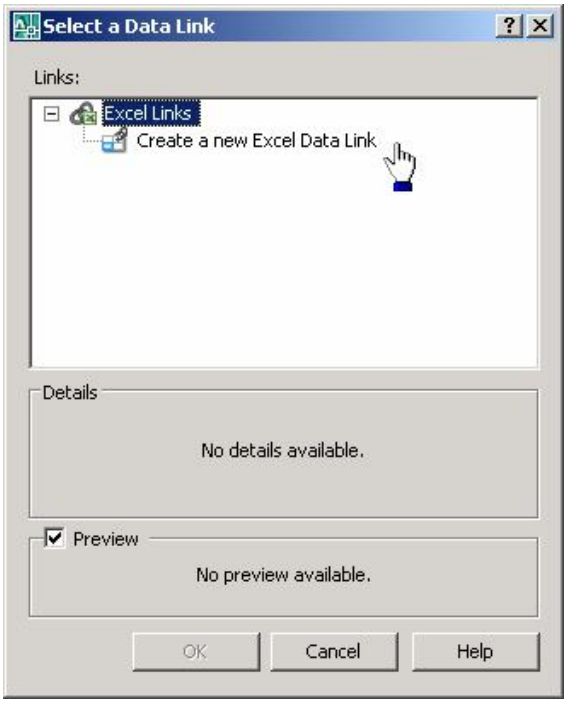
MY TABLE				
PART NO.	DATE:			
1	4/14/2008			
2	4/15/2008			
3	4/16/2008			
4	4/17/2008			
5	4/18/2008			
6	4/19/2008			
7	4/20/2008			
8	4/21/2008			
9	4/22/2008			
10	4/23/2008			

Pretty cool – so far…

Let's try another type of insertion. Go back to Insert > Table and do this. Change the Insertion Option to – From a Data Link:



Click the button next to the data link field

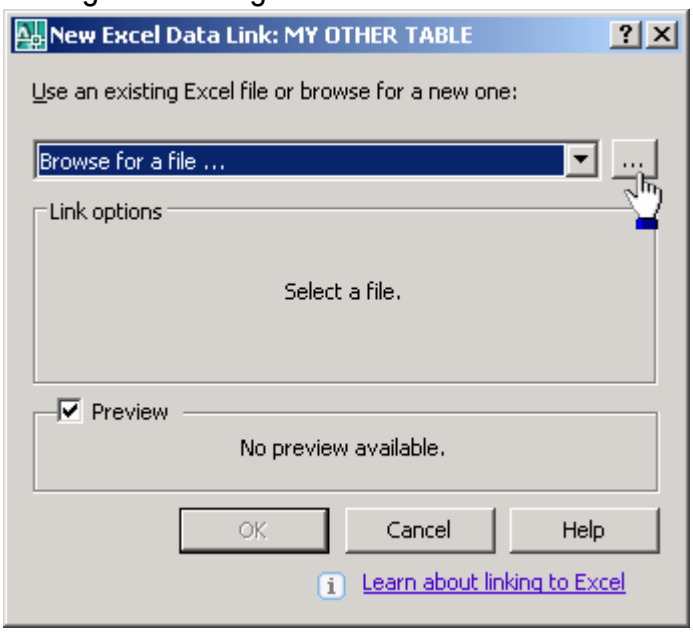


You should get the box to the right –click on Create a new Excel Data Link

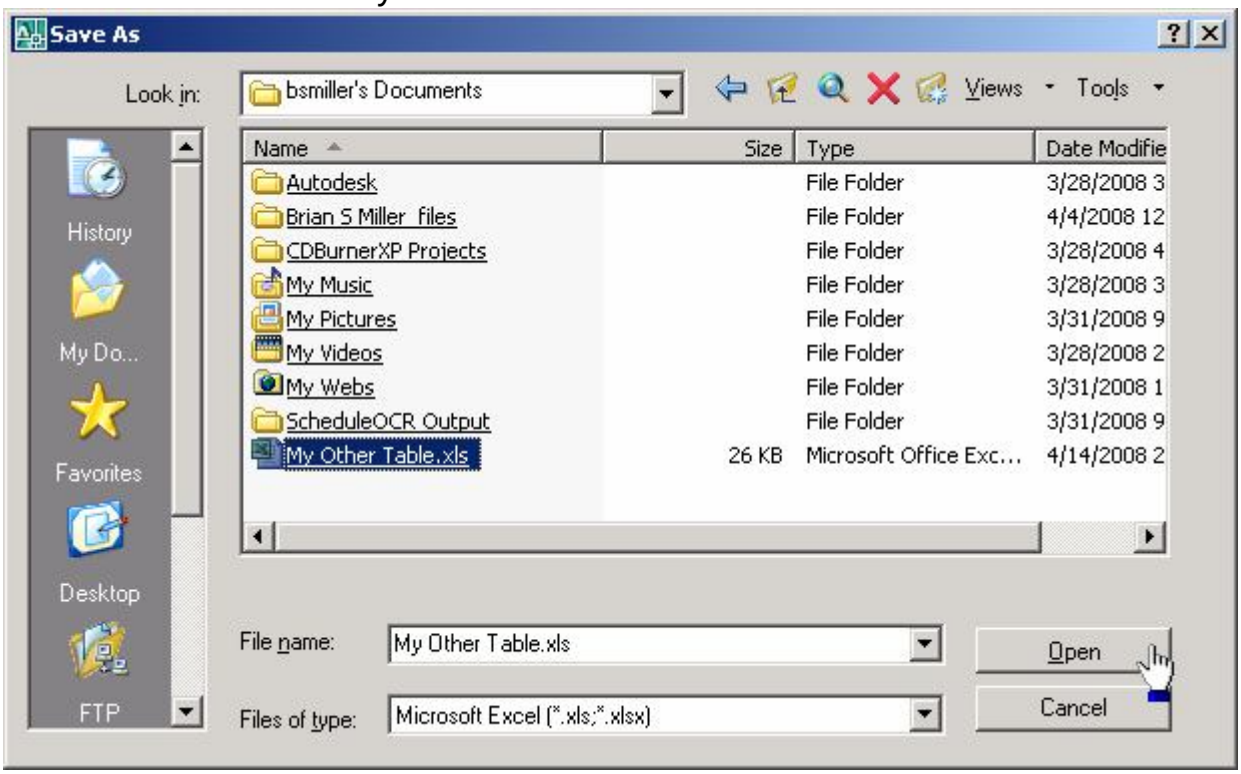
You will see this:

Fill in the field and click OK.

Let's go browsing:

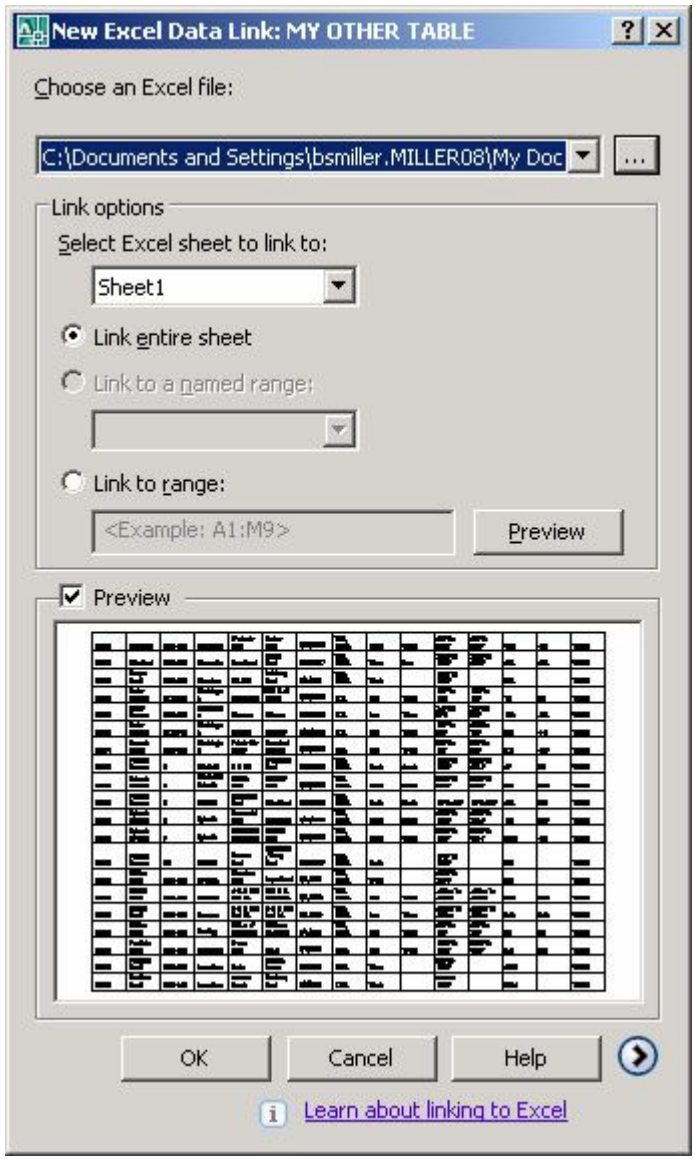


Browse for the excel file you wish to use.



Click Open.

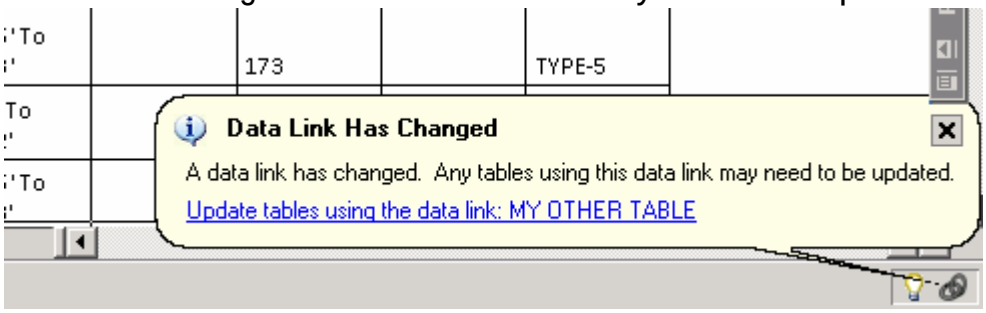
Here is the result:



You have some options here – Link the whole Excel sheet, or a named range or Link to a range. Click OK. Then click OK once more and once again to insert your new Excel table. Click or type in an insertion point:

G0191	Stitt Road	0128-01C	Waterville	Weckerly Road	Bucher Road	4/13/2005	W.S., D.M.L.	North	South	980' to 1292'	908' to 1315'	312	405	TYPE-5
G0192	Stitt Road	0128-08C	Waterville	River Road	Russell Road	4/18/2007	W.S., D.M.L.	West	East	1895' to 2199'	1895' to 2199'	304	304	TYPE-5
G0193	Strayer Road	0104-01C	Monclova	U.S. 20A	Salisbury Road	4/8/2005	W.S., D.M.L.	West		3198' To 3699'		501		TYPE-5
G0194	Suder Avenue	0172-01C	Washington	Alexis Road	875' N. of Alexis	2/16/2006	G.W.	East	West	398' To 474'	401' To 497'	76	96	TYPE-5
G0195	Suder Avenue	0172-03C	Washington	Vistamar	Villamar	2/16/2006	G.W.	East	West	140' To 572'	165' To 596'	432	431	TYPE-5
G0196	Suder Avenue	0172-04C	Washington	Villamar	Rosemar	2/16/2006	G.W.	East	West	288' To 699'	311' To 753'	309	440	TYPE-5
G0197	Summit Street	1980-01C	Washington	Toledo City Limits	Shoreland Avenue	2/16/2006	G.W.	East	West	130' To 708'	130' To 533'	578	403	TYPE-5
G0198	Sylvania Avenue	5	Richfield	S. R. 295	Washburn Road	4/21/2005	W.S., D.M.L.	North	South	2046' To 2083'	2063' To 2114'	37	51	TYPE-5
G0199	Sylvania Avenue	5	Richfield & Sylvania	Kilburn Road	Mitchaw Road	4/19/2005	W.S., D.M.L.	North	South	6159' To 6379'	6151' To 6363'	220	212	TYPE-5
G0200	Sylvania Avenue	5	Sylvania	Centennial Road	Silica Road	4/20/2005	W.S., D.M.L.	North	South	49' To 260'	49' To 215'	211	166	TYPE-5
G0201	Sylvania Avenue	5	Sylvania	Centennial Road	Silica Road	4/20/2005	W.S., D.M.L.	North	South	1821' To 2249'	1811' To 2314'	428	503	TYPE-5
	Sylvania			Holland-Syl	Tantara		W.S.			1945' To	2785' To			

If you make a change in the Excel spreadsheet while still in the AutoCAD drawing, you will be notified that a change has been made and do you wish to update the drawing:



If you noticed the last cell in the table called out for all Type-5 guardrails. The updated table in AutoCAD now looks like this:

G0191	Stitt Road	0128-01C	Waterville	Weckerly Road	Bucher Road	4/13/2005	W.S., D.M.L.	North	South	980' to 1292'	908' to 1315'	312	405	TYPE-4
G0192	Stitt Road	0128-08C	Waterville	River Road	Russell Road	4/18/2007	W.S., D.M.L.	West	East	1895' to 2199'	1895' to 2199'	304	304	TYPE-4
G0193	Strayer Road	0104-01C	Monclova	U.S. 20A	Salisbury Road	4/8/2005	W.S., D.M.L.	West		3198' To 3699'		501		TYPE-4
G0194	Suder Avenue	0172-01C	Washington	Alexis Road	875' N. of Alexis	2/16/2006	G.W.	East	West	398' To 474'	401' To 497'	76	96	TYPE-4
G0195	Suder Avenue	0172-03C	Washington	Vistamar	Villamar	2/16/2006	G.W.	East	West	140' To 572'	165' To 596'	432	431	TYPE-4
G0196	Suder Avenue	0172-04C	Washington	Villamar	Rosemar	2/16/2006	G.W.	East	West	288' To 699'	311' To 753'	309	440	TYPE-4
G0197	Summit Street	1980-01C	Washington	Toledo City Limits	Shoreland Avenue	2/16/2006	G.W.	East	West	130' To 708'	130' To 533'	578	403	TYPE-4
G0198	Sylvania Avenue	5	Richfield	S. R. 295	Washburn Road	4/21/2005	W.S., D.M.L.	North	South	2046' To 2083'	2063' To 2114'	37	51	TYPE-4
G0199	Sylvania Avenue	5	Richfield & Sylvania	Kilburn Road	Mitchaw Road	4/19/2005	W.S., D.M.L.	North	South	6159' To 6379'	6151' To 6363'	220	212	TYPE-4
G0200	Sylvania Avenue	5	Sylvania	Centennial Road	Silica Road	4/20/2005	W.S., D.M.L.	North	South	49' To 260'	49' To 215'	211	166	TYPE-4
G0201	Sylvania Avenue	5	Sylvania	Centennial Road	Silica Road	4/20/2005	W.S., D.M.L.	North	South	1821' To 2249'	1811' To 2314'	428	503	TYPE-4
	Sylvania			Holland-Syl	Tantara		W.S.			1945' To	2785' To			

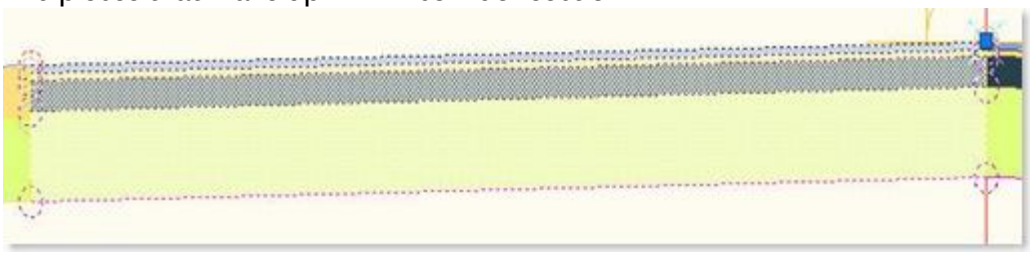
Enjoy creating tables from now on!

CORRIDORS, OBJECT VIEWER AND PERFORMANCE

A post in the discussion group today got me thinking about something I do and take for granted. He was complaining, rightfully so, about how slow corridors are in the object viewer. Read on to find out a way to improve your performance.

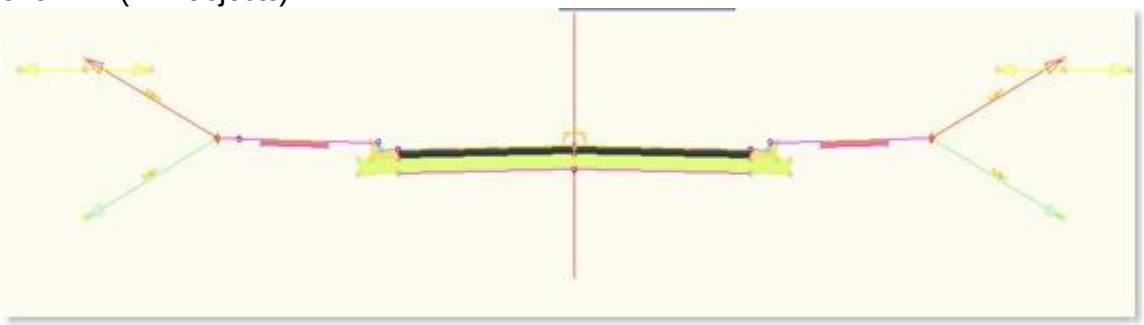
The performance of the Object Viewer seems to be inversely proportional to the amount of data you're trying to view. Corridors have a ton of information in them typically.

1. You have corridor sections every X feet or metres; the more you have, the slower it will be.
2. Each corridor section has a ton of information as well. Just think of a LaneOutsideSuper.
   13 links
   10 markers
   4 shapes
   That's 27 objects…and that's just a single subassembly. A typical urban road may have over 120 pieces that make up EVERY corridor section.

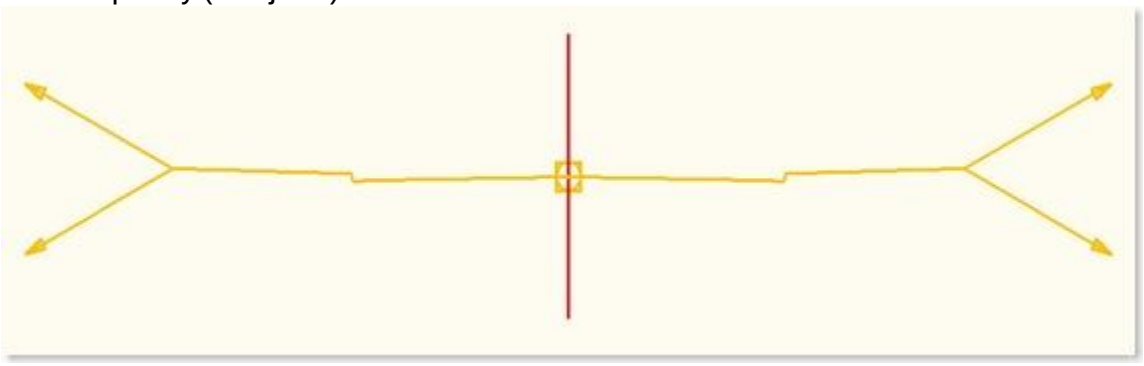


We may need all of that when we create our assembly, but we don't need to display all that info inside our corridor. Really, we just need the Top.

Show All (122 objects)



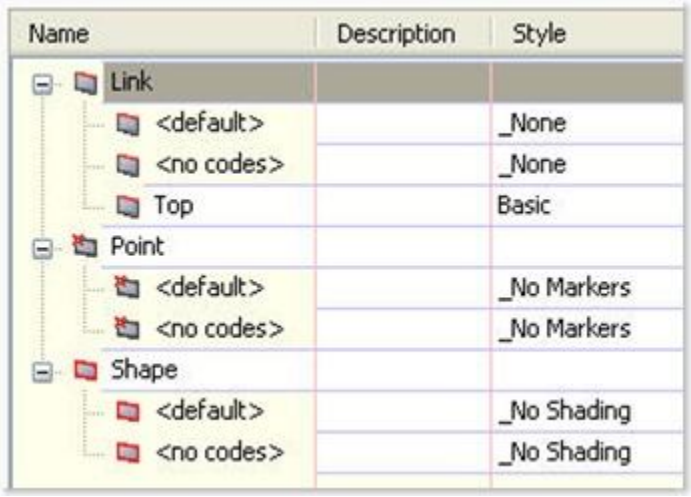
Show Top Only (8 objects)



A savings of 114 objects per corridor section. a 93% reduction in objects. Even the most jaded techie can appreciate that.

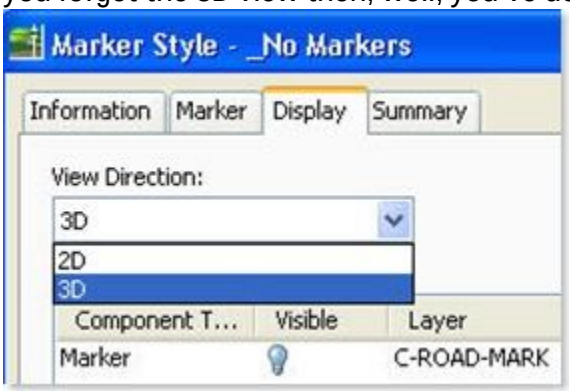
How do we do this? Easy…the dreaded Code Set Styles.

To make a long story short, here is an image of my code set style. Notice that the styles for EVERYTHING except Top links are turned off.



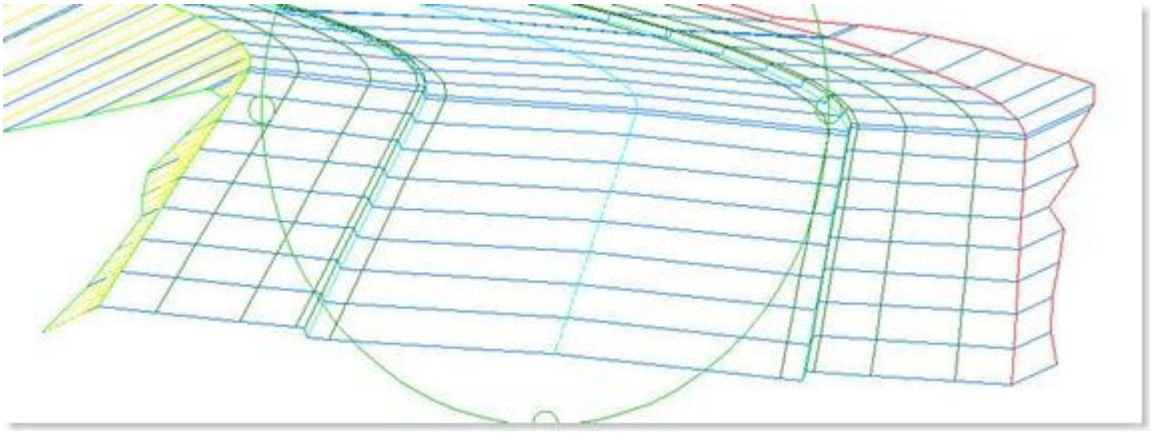
Apply this to your corridor in the corridor properties and go to town in the object viewer

Just to make sure you're not missing anything. When you are creating those "No Markers" type of styles make sure you turn off the Links, Markers, or Shapes in both the 2D view and the 3D view. If you forget the 3D view then, well, you've done a lot of work for nothing.



There is even more you can do to help yourself. Turn off all those pesky corridor feature lines that you really don't need…like all those that lie underground. You'll find a Feature Lines tab in corridor properties.

P2	No Description	☑
Flange	No Description	☑
ETW_Sub	No Description	☐
ETW_Base	No Description	☐
Crown_Pave2	No Description	☐
Crown_Sub	No Description	☐
Back_Curb	No Description	☑
Hinge_Cut	No Description	☑
Sidewalk_Out	No Description	☑
Sidewalk_In	No Description	☑
ETW	No Description	☑



CIVIL 3D TEMPLATE FILE LOCATIONS AND DESCRIPTIONS

Location for the following - g:\data\engineer\cadstds\support:

- **ACAD.DWT – This file is the template that contains the Lucas County Engineers Standards by which all procedural and drawing standards are held by (Layers, Linetypes, Textstyles, Civil 3D Styles; etc.)**
- **CoMap.DWT – This file is the template by which you can create the Title Sheet from**

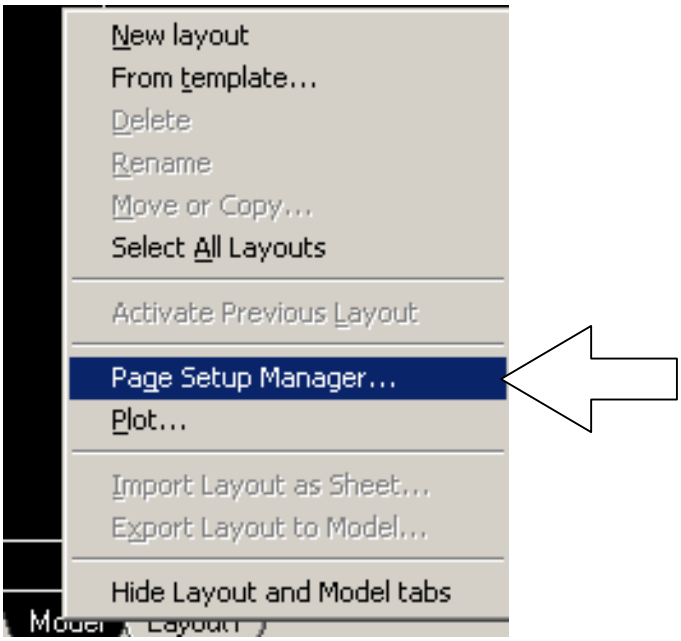
Location for the following - g:\data\engineer\cadstds\plan production sheets:

- **LCE TITLE.DWT – This file is the template that is used in conjunction with Map Book to create each project's Title sheet**
- **LCE PP6-20.DWT – This is the plan and profile template file with the smaller profile grid that is used with Plan Production**
- **LCE PP8-20.DWT – This is the plan and profile template file with the larger profile grid that is used with Plan Production**
- **LCE XSEC L.DWT – This is the cross section template file (landscape) that is used with Map Book**
- **LCE XSEC P.DWT – This is the cross section template file (portrait) that is used with Map book**
- **LCE NBDR.DWT – This file is the template by which you can create the Master General Notes from. All 6 pages and their associated layouts are already set up in this template. Modify as necessary for each project**
- **LCE TNBDR.DWT - This file is the template by which you can create the Master Traffic Notes from. All 4 pages and their associated layouts are already set up in this template. Modify as necessary for each project**

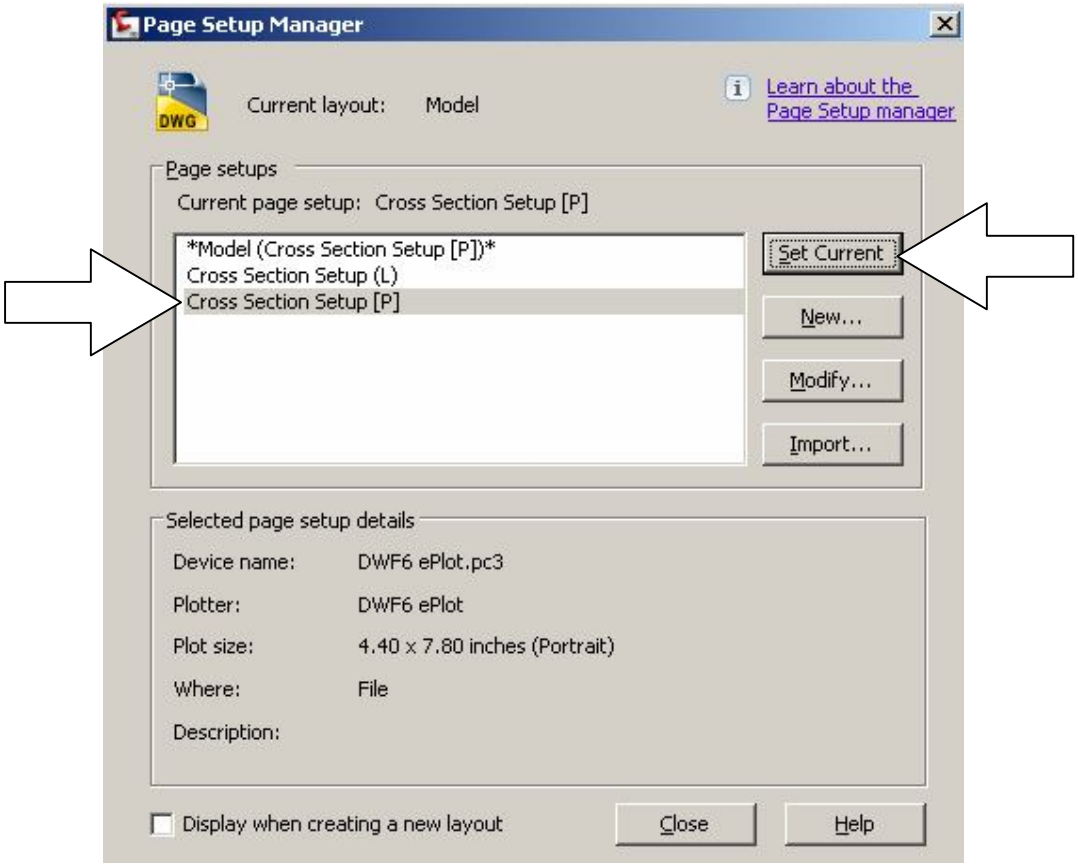
TECH. NOTE PAD (AN AREA TO MAKE NOTES):

CREATING SECTIONS VIEWS IN AUTOCAD CIVIL 3D 2010 UPDATE

Right click on the model tab and click Page Setup Manager…:

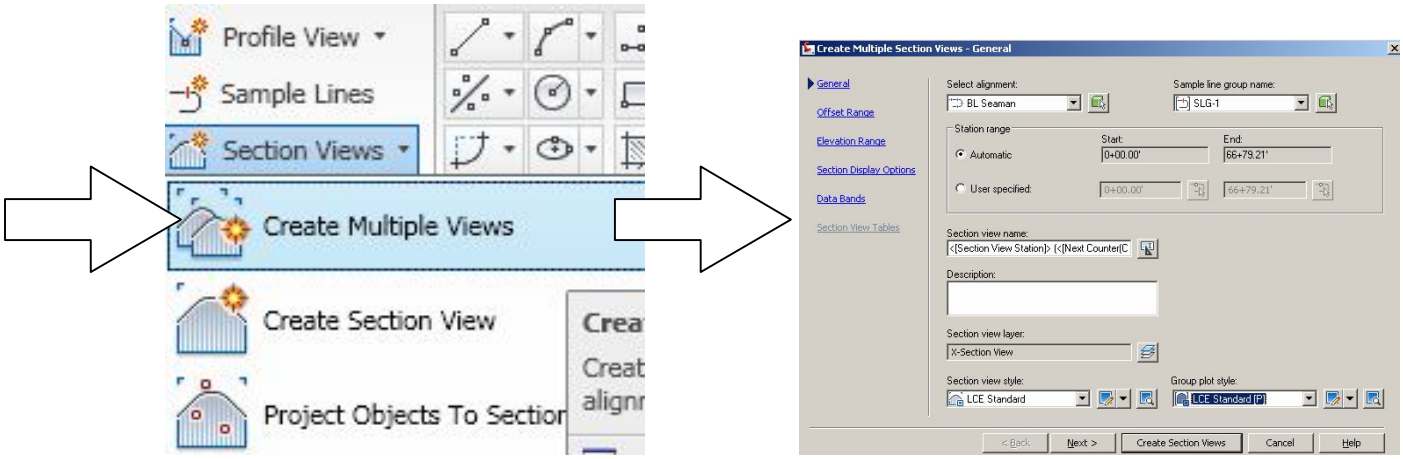


Make sure that the orientation (portrait or landscape), you wish for your section layout is current. Click your desired orientation and click Set Current. Click Close:

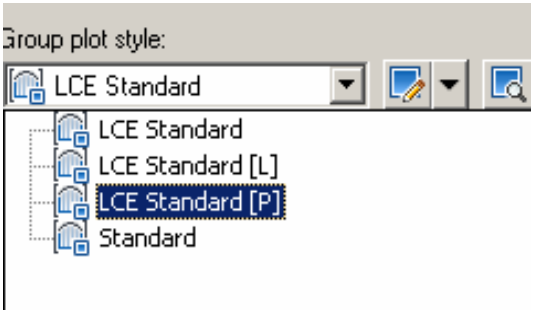


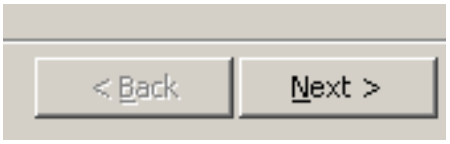
For this example, we will use the portrait setup, since it is the most typical.

In the ribbon, under Section Views, click Create Multiple Views:



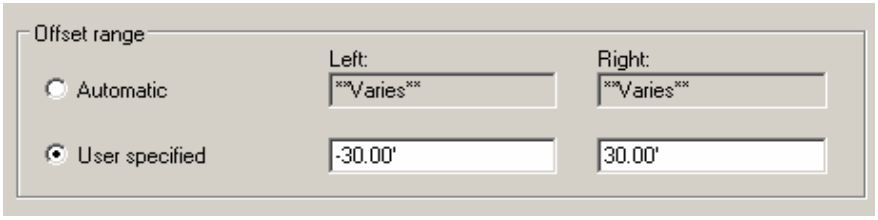
Under the Group Plot Style pull down, select the LCE Standard [P] or [L] style:





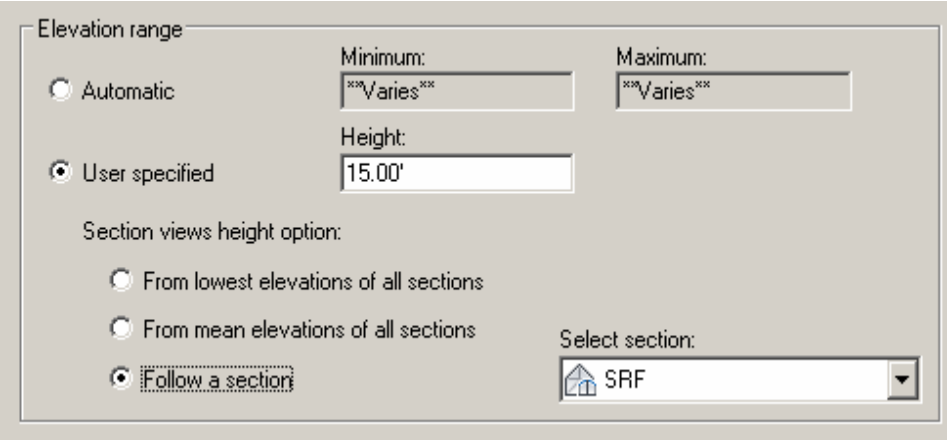
Click Next.

Modify your Offset Range (if needed):

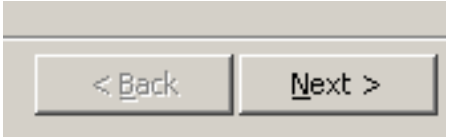


Click Next.

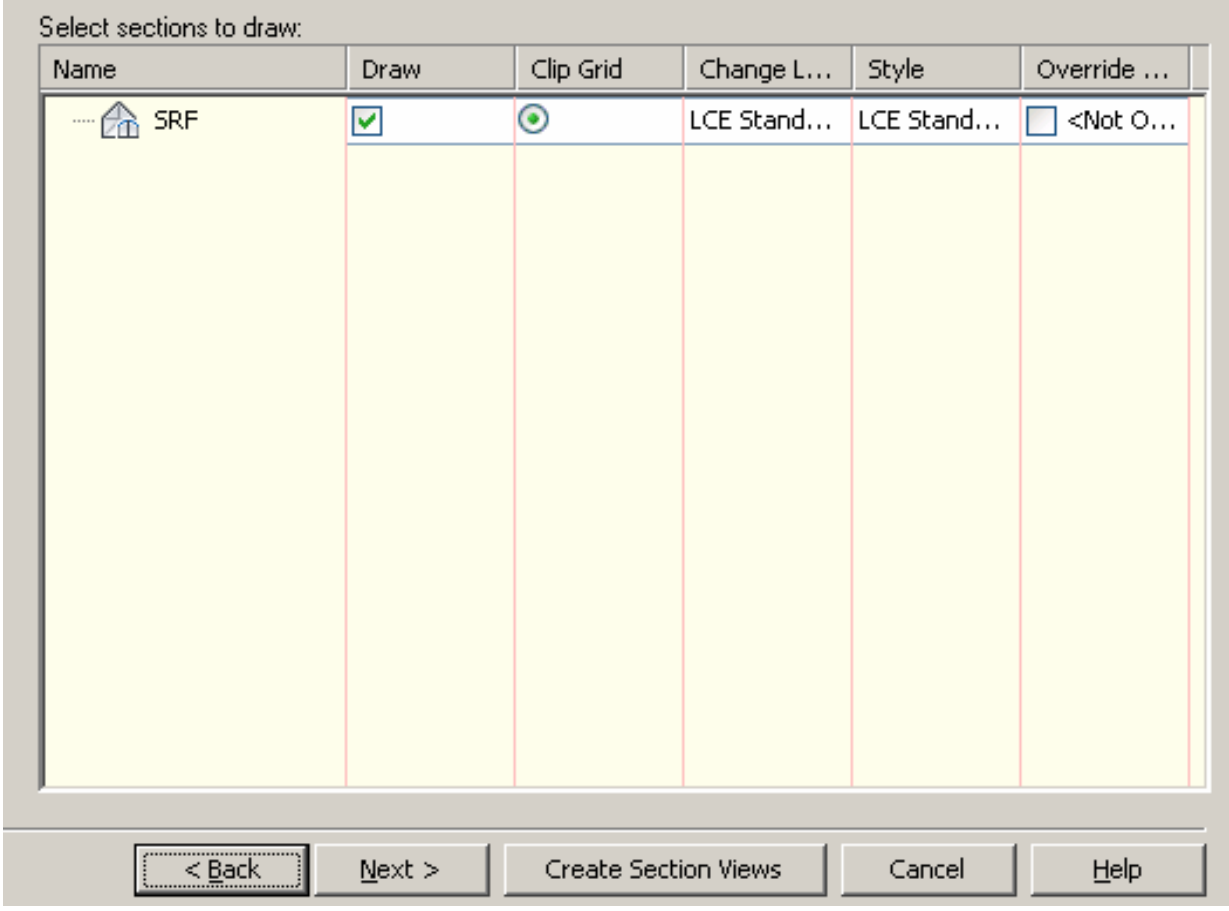
Make sure your settings are as follows for Elevation Range:



Click Next.

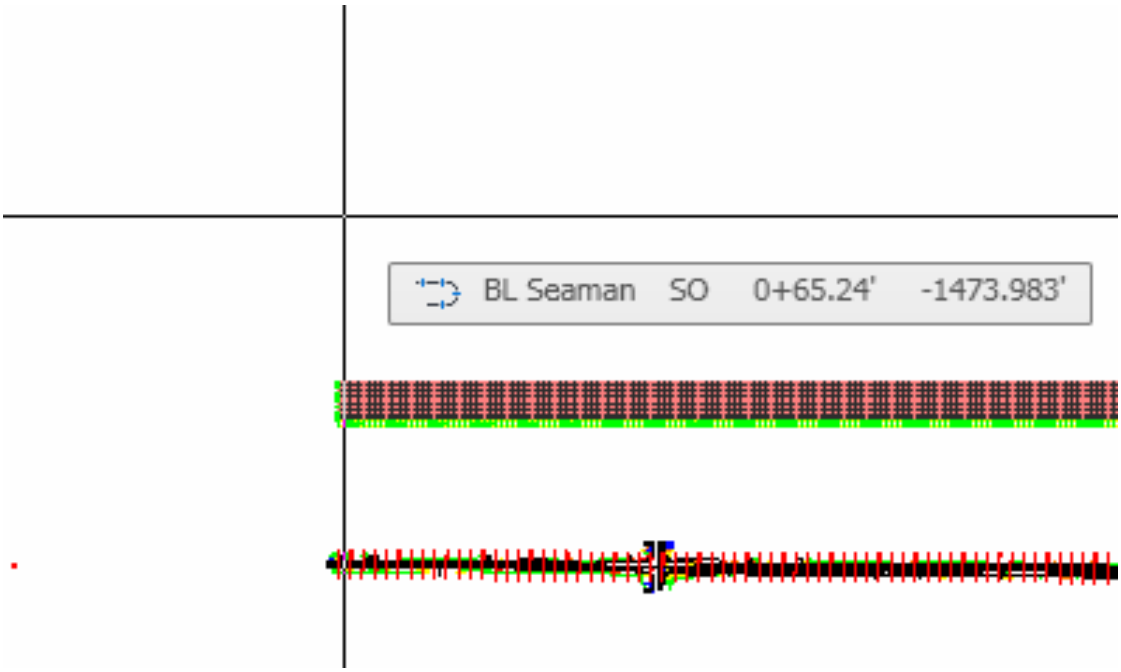


If you've already worked on your pipe network, assemblies and corridors, they should show up here. For this example, this has not been done:

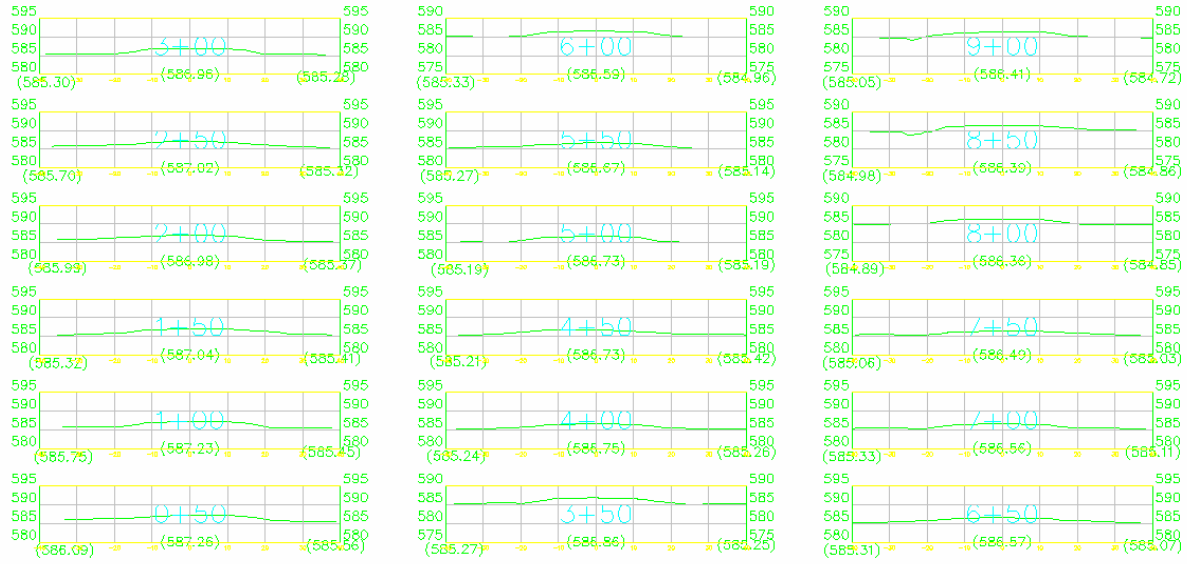


Click Next, then Click Create Section Views or just click Create Section Views.

Select your View origin:



Here are your sections:

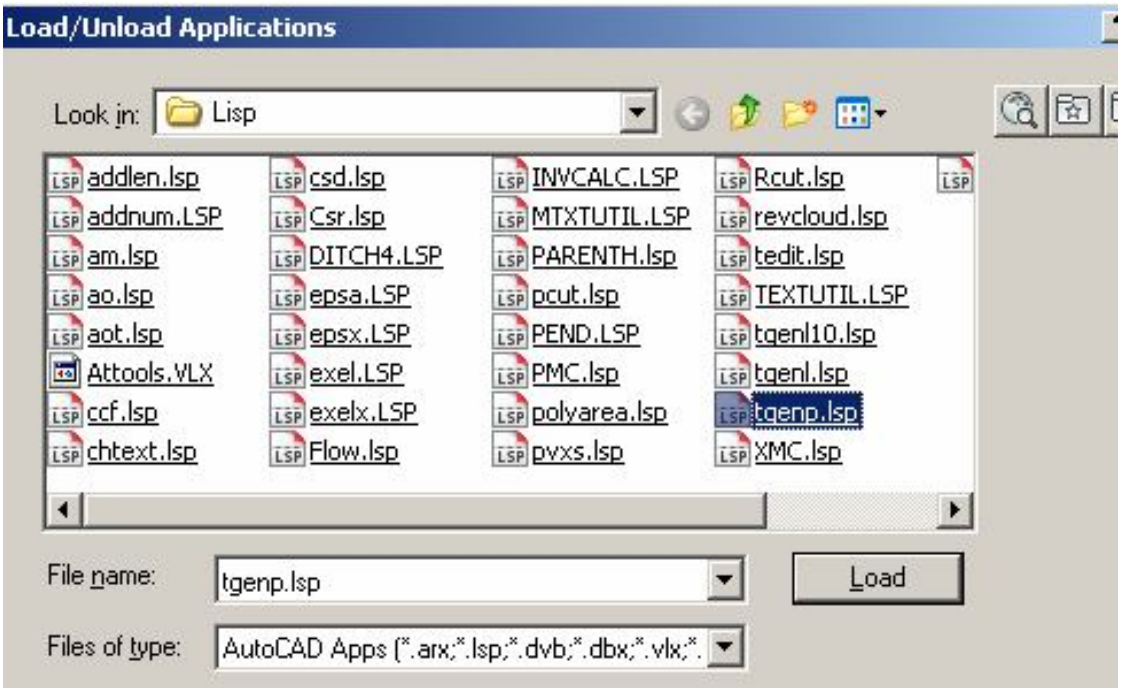


Now run one of the tile creation lisp routines for Map Book (the lisp routines are tgenp.lsp or tgenl.lsp – the commands are tgp or tgl). We'll run tgenp.lsp for portrait:

Type in appload:

```
Command: appload
Command:
```

Locate the lisp routine out on g:\data\engineer\cadstds\lisp\tgenp.lsp:



Click Load, then click Close at the bottom.

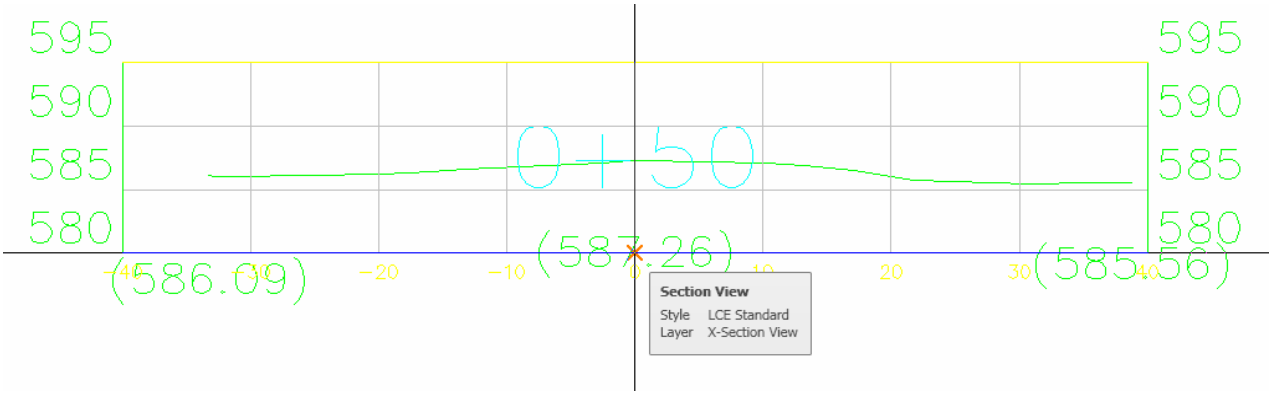
Type in, hit enter:

```
Command: tgp
```

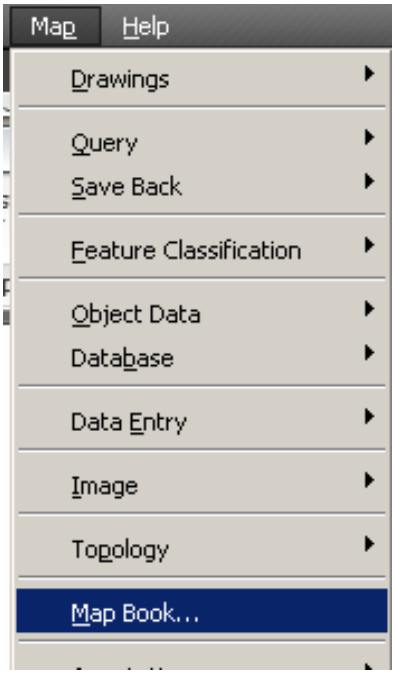
Type in the # of columns of your sections and hit enter (In this case, 23):

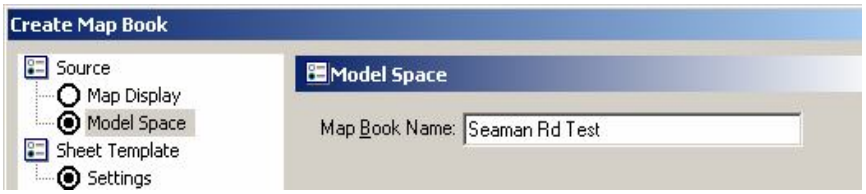
```
No. of Cross Section Columns: 23
```

```
Select Tile Point - Intersection of 1st XS Base of Grid & CL:
```

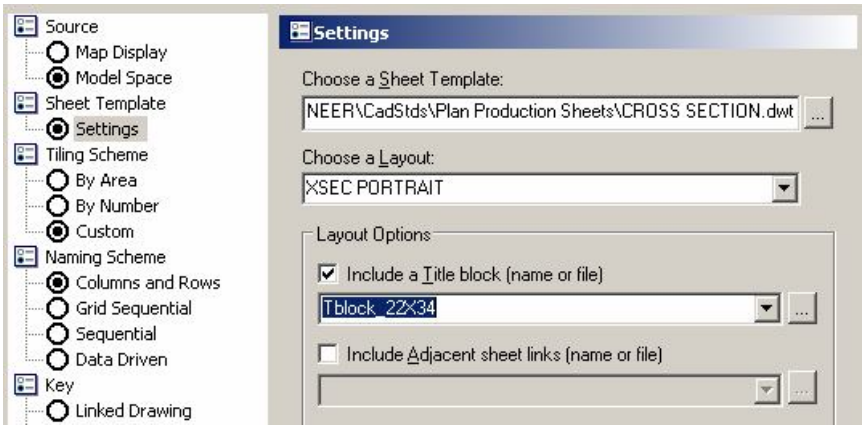


Now run the Map Book as follows. Give a meaningful name:

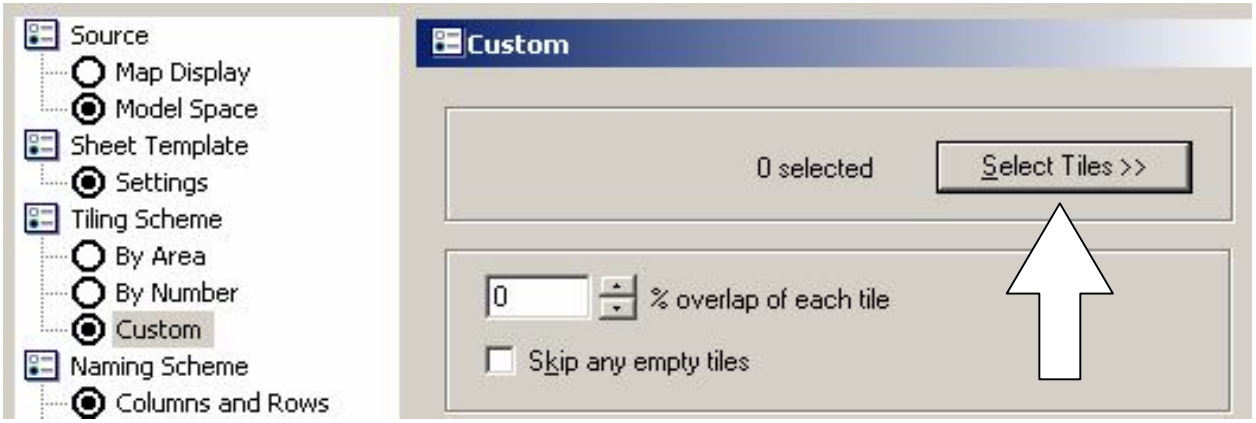




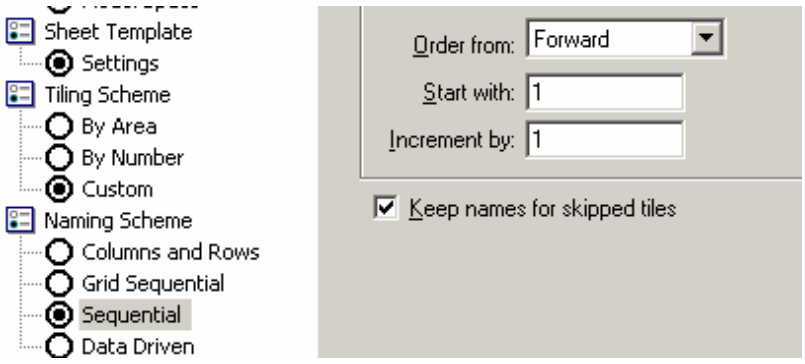
Select the template, layout & block for your project:



Select the tiles you created before (be sure to select them one by one in sequence):



After selecting them, hit enter. Change the Sequential Naming Scheme to 1's:



Click Generate:

Here is an example of your created sheet: