

LUCAS COUNTY ENGINEERS



CAD Procedural Manual

AutoCAD Civil 3D®

Procedures

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Startups for AutoCAD Civil 3D®

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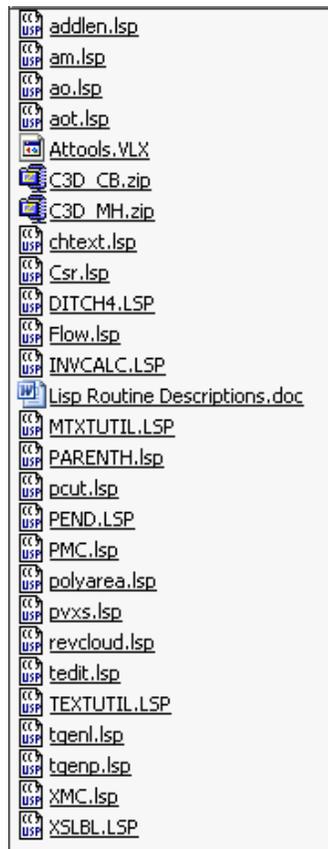
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**SEE THE LCE CAD STANDARDS AND SPECIFICATIONS MANUAL
FOR CAD DRAFTING SPECIFICATIONS**

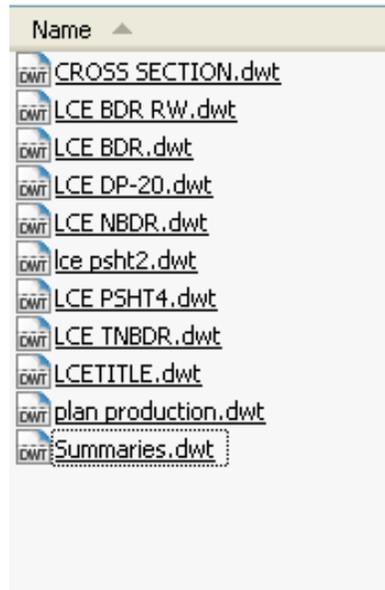
WHAT'S ON THE CD?

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

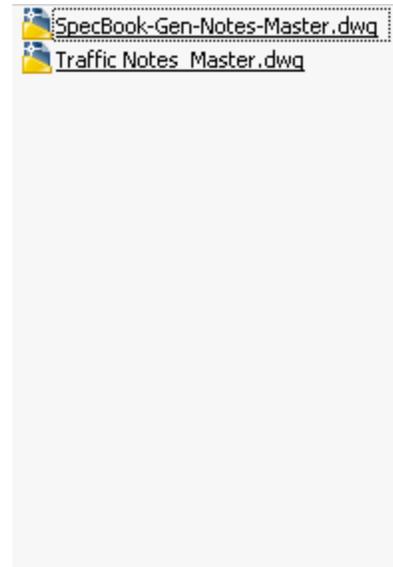
\Lisp:



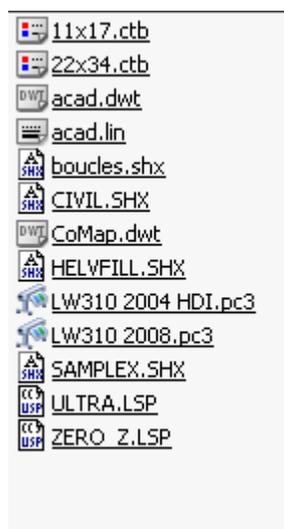
\Plan Production Sheets:



\Specs & Notes:



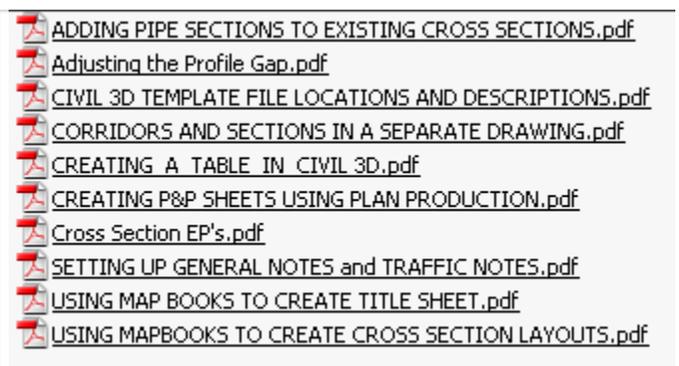
\Support:



\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	CROSS SECTIONS.DWG	EX. & PROP. CROSS SECTIONS AND CROSS SECTION SHEETS	EX. & PROP. CROSS SECTIONS IN MODEL SPACE - SHEETS IN LAYOUT

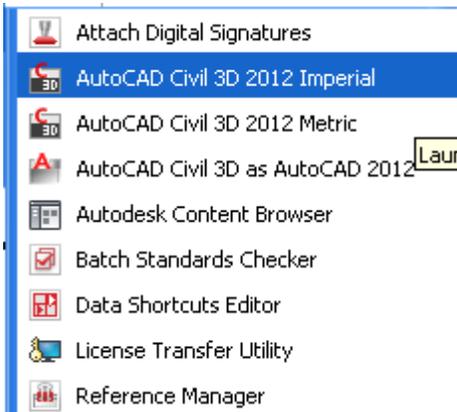
SCALES:

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.

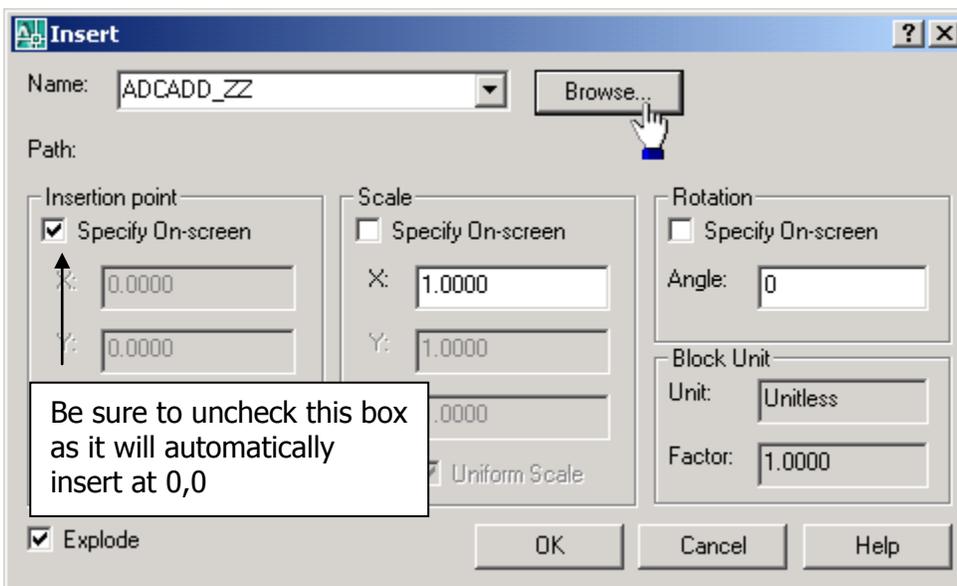
To begin, start Civil 3D:



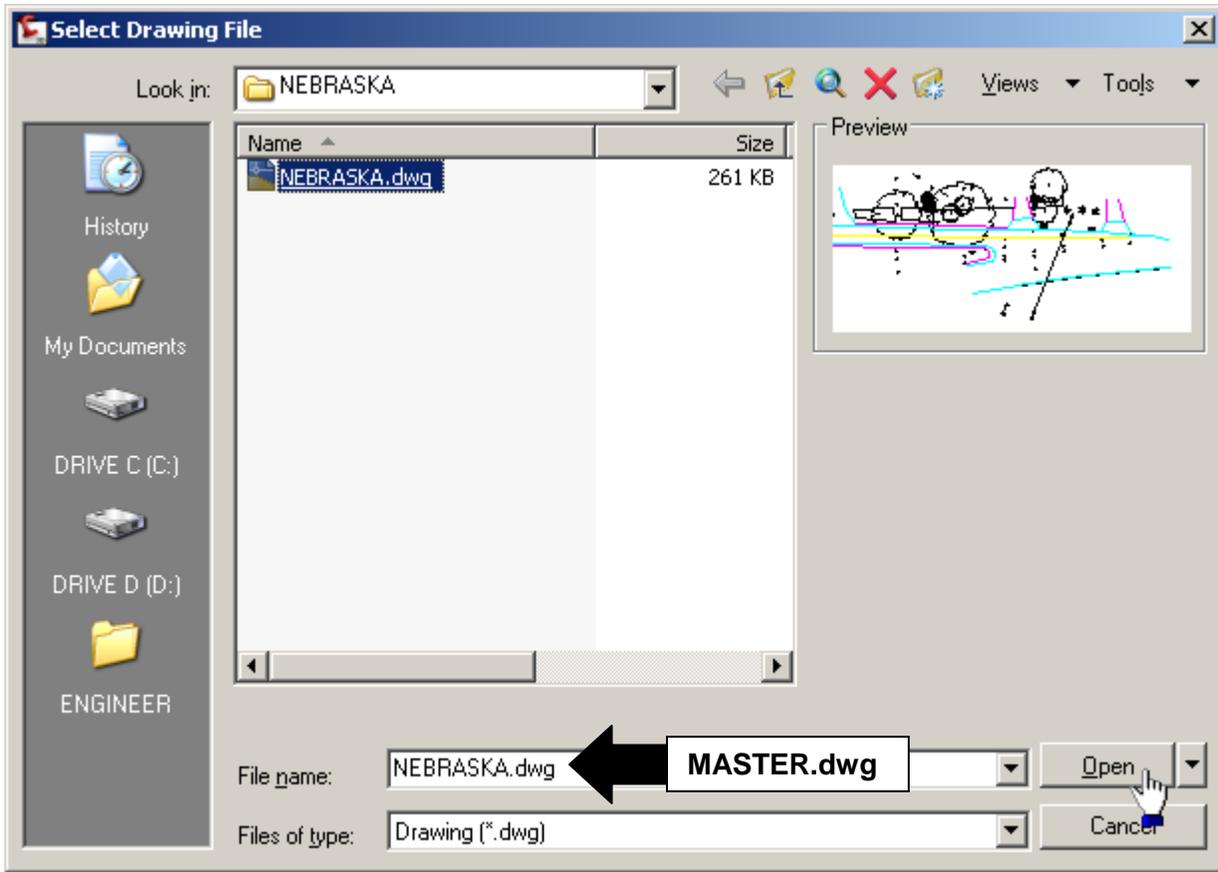
Or



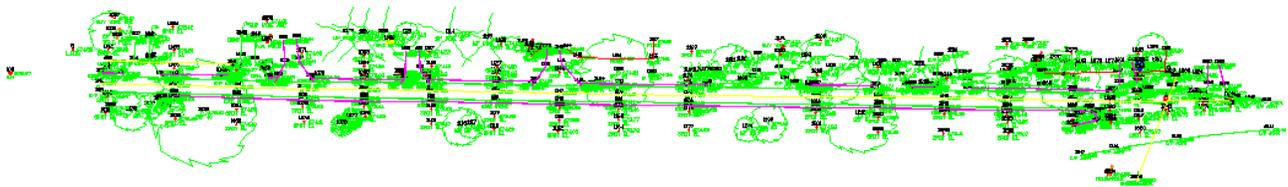
To begin your project, simply insert the .dwg you received from the Survey Dept., being sure to explode it on insert. Use 0,0 as your insertion point. Use the Insert pull down>Block or type in INSERT and Click the Browse button:



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 :



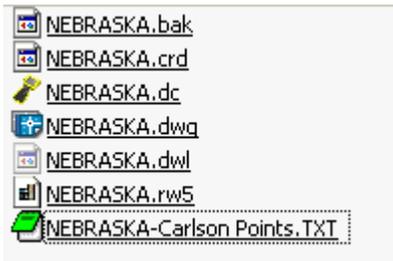
Now save your new drawing in the project folder as

Master.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.

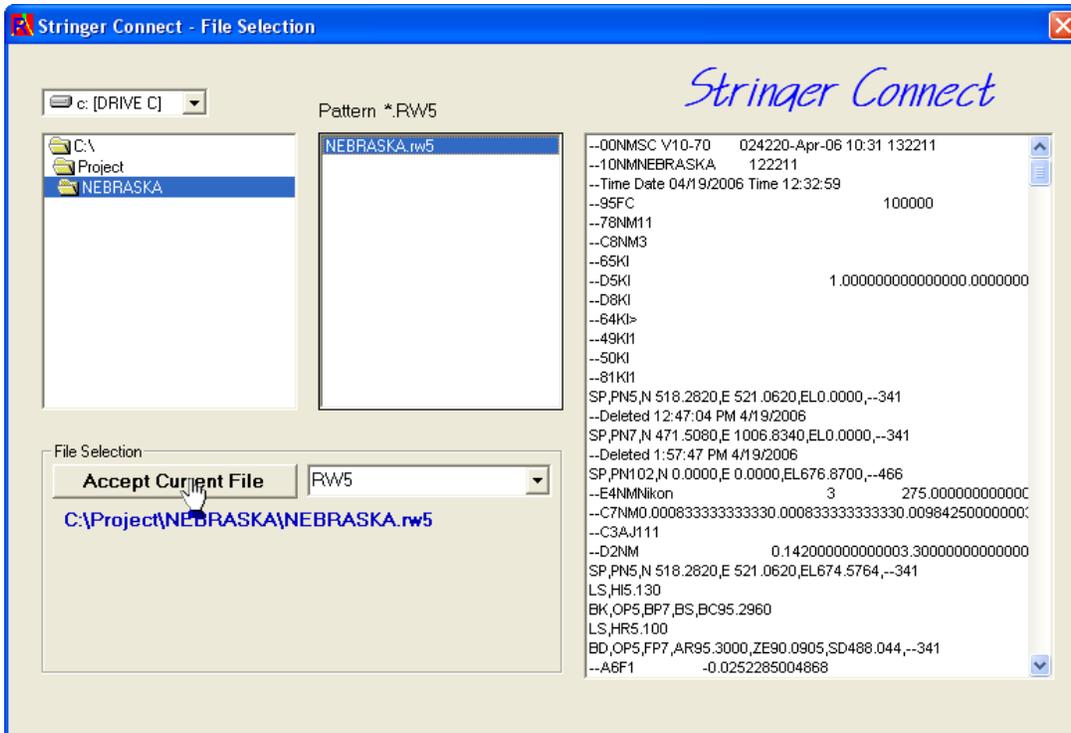
The .txt file is the point file you will import into your drawing to create your TIN.

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:

Survey Reducer - File Name : C:\Project\NEBRASKA\NEBRASKA.rw5

Options

Curvature Correction

Stringer Connect

Note					00NMSC V10-70	024220-Apr-06 10:31 132211
Note					10NMNEBRASKA	122211
Note					Time Date 04/19/2006	Time 12:32:59
Note					95FC	100000
Note					78NM11	
Note					C8NM3	
Note					65KI	
Note					DSKI	1.0000000000000000
Note					D8KI	
Note					64KI>	
Note					49KI1	
Note					50KI	
Note					81KI1	
Coord	PN 5	521.062	518.282	0.000	341	
Note					Deleted 12:47:04 PM 4/19/2006	
Coord	PN 7	1006.834	471.508	0.000	341	
Note					Deleted 1:57:47 PM 4/19/2006	
Coord	PN 102	0.000	0.000	676.870	466	
Note					E4NMNikon	3 275.0000
Note					C7NMO.0008333333333330.0008333333333330.009842	
Note					C3AJ111	
Note					D2NM	0.1420000000000003.300000
Coord	PN 5	521.062	518.282	674.576	341	
HT	HI 5.130	TH 0.000				
Orient	OP 5	BP 7	BC 95.2960	BS 0.0000		
HT	HI 5.130	TH 5.100				
Note					BD,OP5,FP7,AR95.3000,ZE90.0905,SD488.044,--341	
Note					66E1	0.0252285004868

Options

ADD SAVE

To Note SAVE AS

SRCH-REP

PRINT CLOSE

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:

```

MONCLOVA TOPO-List Points Report.txt
List Points Report                               Thu Oct 11 13:46:13 2012
File> G:\data\ENGINEER\bsmiller\MONCLOVA TOPO\MONCLOVA TOPO.crd

PointNo.  Northing(Y)    Easting(X)    Elev(Z)    Description
1         691948.70           1616524.81    0.00      MONBOX
2         691956.53           1619179.44    0.00      MONBOX
3         691974.14           1618577.95    651.76    BAR

1463      691913.56           1618724.75    649.72    X
1464      691903.81           1618725.06    649.29    X
1465      691888.56           1618726.36    649.15    X
1466      691970.98           1618020.64    650.25    CK/4
1467      691927.51           1618542.84    651.76    CK/101

Number of points listed> 474
  
```

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

```

MONCLOVA TOPO-List Points Report.txt
1         691948.70           1616524.81    0.00      MONBOX
2         691956.53           1619179.44    0.00      MONBOX
3         691974.14           1618577.95    651.76    BAR
4         691970.98           1618020.82    650.21    BAR
100      691981.18           1618040.97    651.92    SBM
101      691927.50           1618542.85    651.76    SBM
1000     691974.14           1618578.11    651.74    CK/3
1001     691981.14           1618040.96    651.91    CK/100
1002     691983.74           1617850.26    646.97    CLS1
1003     691986.57           1617850.49    647.62    CLS1
1004     691994.45           1617851.55    648.13    CLS1 -7
1005     691994.88           1617859.74    649.01    X
1006     691996.17           1617848.03    648.88    X
1007     691988.92           1617857.37    648.77    X
1008     691990.11           1617847.67    648.35    X
1009     691983.27           1617858.52    649.14    X
1010     691977.11           1617855.13    648.62    X
1011     691976.39           1617843.87    648.65    X
1012     691982.25           1617844.51    648.59    X
  
```

Save the point file.

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

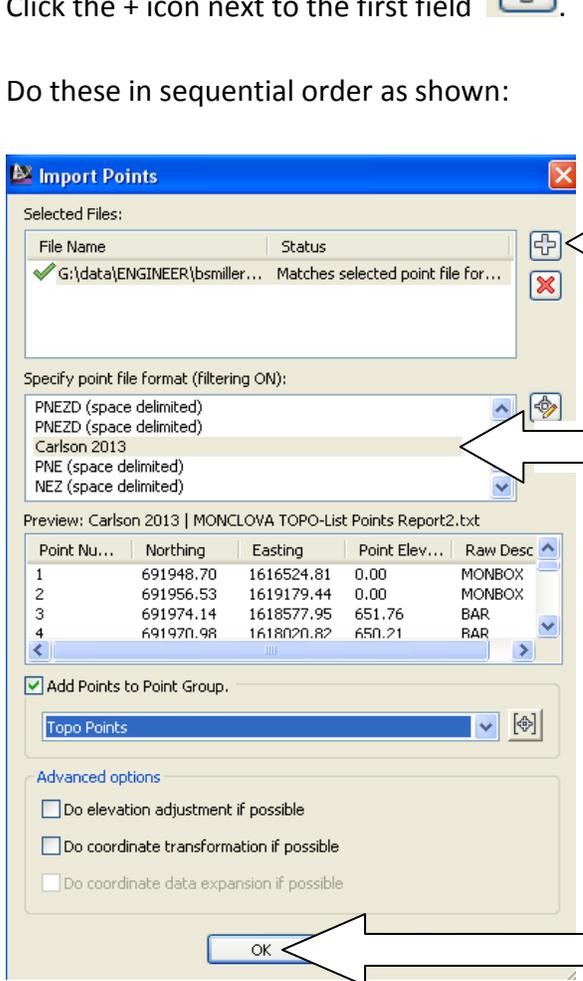
To import points from the project point file:

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. Click the + icon next to the first field .

5. Do these in sequential order as shown:



2. Browse and select the point file you just saved.

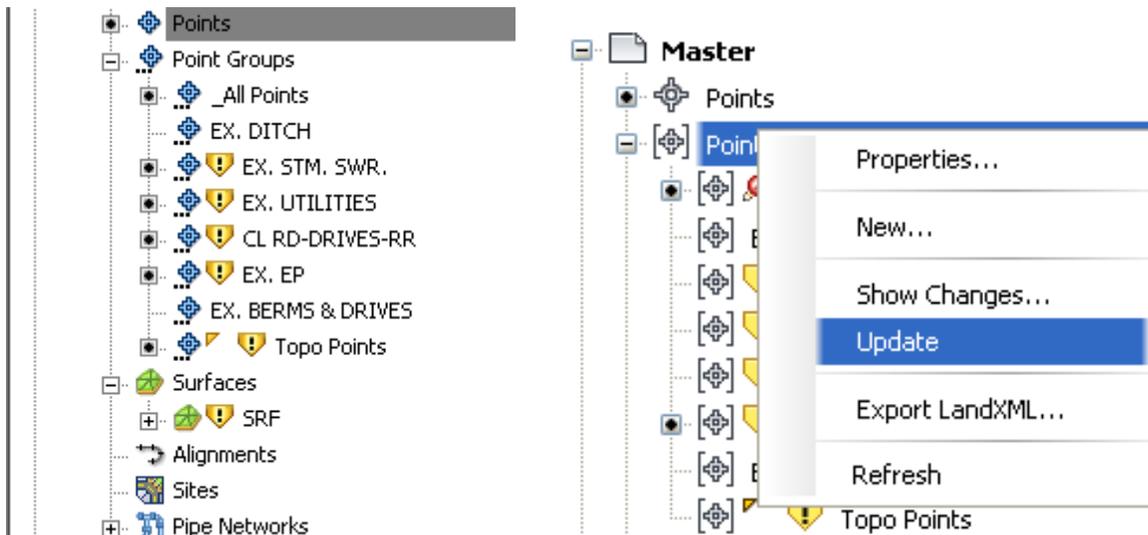
1. Select the Carlson 2013 Format first.

3. Click OK.

Point Nu...	Northing	Easting	Point Elev...	Raw Desc
1	691948.70	1616524.81	0.00	MONBOX
2	691956.53	1619179.44	0.00	MONBOX
3	691974.14	1618577.95	651.76	BAR
4	691970.98	1618020.82	650.21	BAR

A special note about the Sign and Double posted Sign symbols – There are 4 styles for the sign symbols...north, south, east and west. The sign symbols are much easier to manage in this manner. Just assign the appropriate style to each sign, depending on it's orientation to the alignment of the road. Any further questions, please see Brian S. Miller.

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):



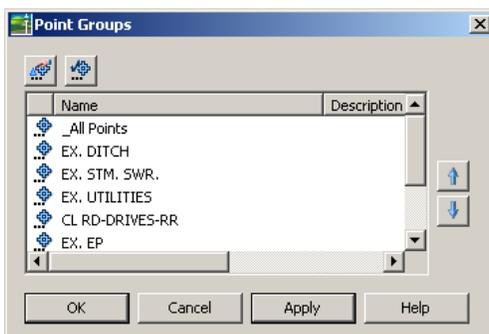
Here is the point listing under points:

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:

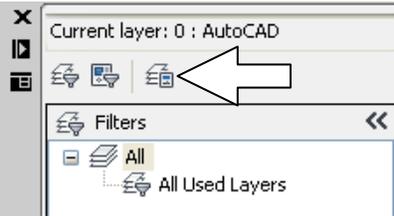


If you right click on point groups and click properties, you'll see this box:

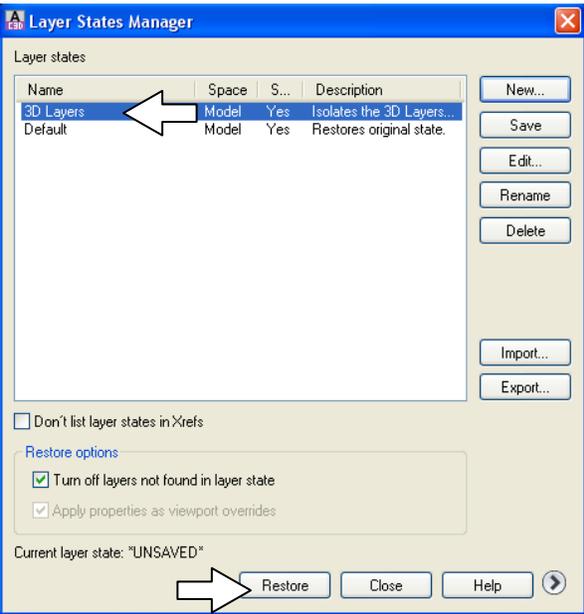


If you highlight a point group, and click the up and down arrows, this will put one point group over the other, hence, filtering which point group(s) you want to or don't want to see.

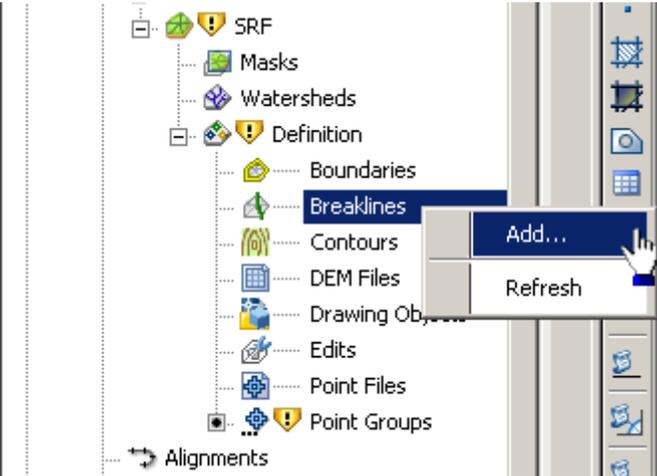
To create breaklines for your drawing, do the following. Go to the Layer Manager and click the Layer state icon:



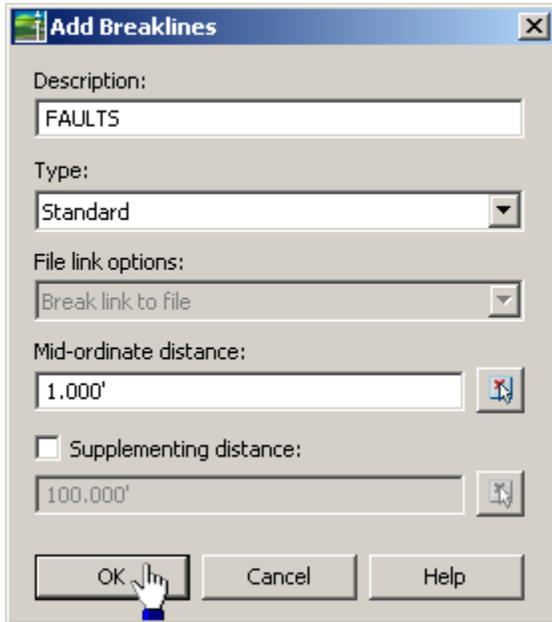
Click the 3D Layers and click Restore:



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



Give the Breakline group a name and click OK:



You will be prompted to select objects. Window up all the 3D lines in the view and hit Enter:

(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.)

To restore the layer state to normal, go back to Layer Manager and restore the Default.

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

Topo Symbols in Civil 3D

Carlson Symbols vs Civil 3D Cogo Points

The process for using topographic symbols in the Carlson Survey and Civil 3D software is now being described in this manual. In previous versions, the symbology was controlled by Carlson Survey, generating satisfactory topo points, however, having no dynamic capabilities, rotation of the topo symbols was always necessary on projects that ran South to North, and some symbols had to be rotated no matter the orientation of the survey. Carlson Survey will no longer be used as the final application of creating topo symbols. Civil 3D will be used for this process, although, when a project is delivered to staff, they will be receiving 2 drawings from the Survey Dept., one being the original survey with the Carlson symbols and one containing just the 2D and 3D lines created by Carlson.

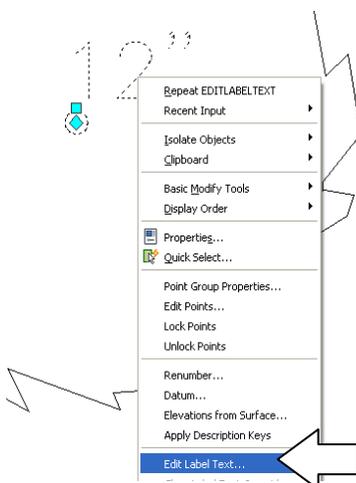
When topo symbols are created by Civil 3D, they are now dynamic, which means, that when the view in model space or layout tabs is rotated, the symbols automatically rotate to the view.

Another benefit of using the C3D cogo points is you do not have to have the PNTS layers on to see the PNT NO, PNT DESCR or PNT ELEV. Just mouse over any cogo point and Civil 3D reveals all – Point Number, the Style controlling the cogo point, the Layer that the cogo point is on, the Description, the Easting, the Northing, and the Elevation.

Civil 3D Cogo Points Labels

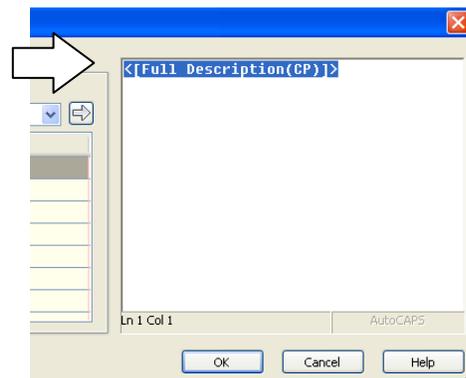
Labels for cogo points are controlled and edited differently than the Carlson symbols were. When you click on a label for a cogo point, a grip appears in the center of the symbol. Click the grip and you can relocate the label to your desired location.

Editing a label, if necessary, is accomplished by the following steps:



Right click on the selected label and click Edit Label Text.

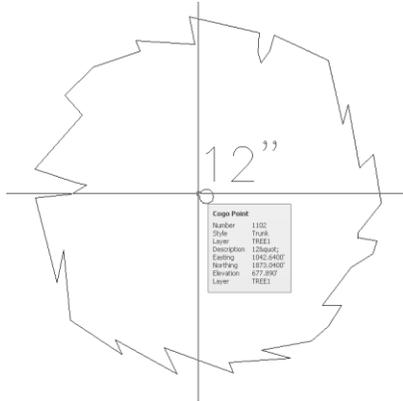
Highlight what is in the box (right) and make the change you want and click OK.



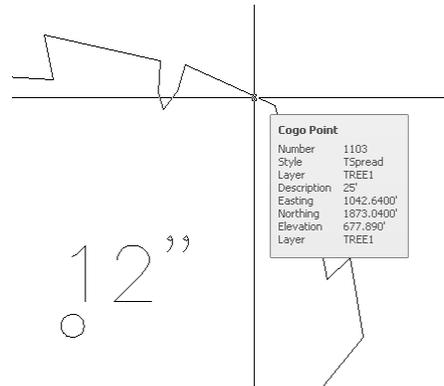
Tree Symbols

The deciduous and coniferous trees are now created using two independent blocks, the trunk and the spread. This allows for independent scaling for more accurate sizing of these two elements.

Below is the example of the deciduous tree.



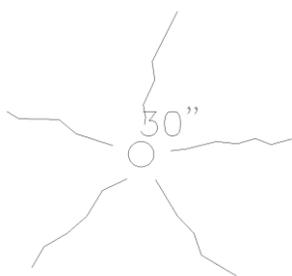
12" Dec. Tree Trunk



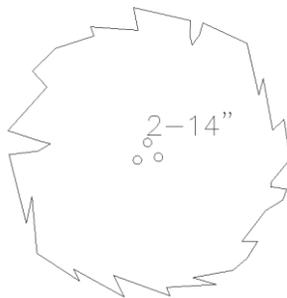
12" Dec. Tree Spread

(Note: the label visibility setting of the label style controlling the spread label is set to False. Mousing over the spread will tell you the spread dia., but if you need to have the spreads labeled, you can turn them on by setting the label visibility to True.)

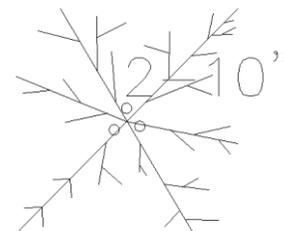
Below are the other tree and bush variations:



Pine Tree



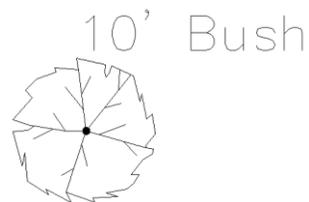
Multi-Stem Deciduous



Multi-Stem Coniferous



Coniferous Bush



Deciduous Bush (New Symbol Block)

(Note – the Multi-Stem Trees, Coniferous Bush and the Deciduous Bush are one single block)

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. In the Create Design Panel, Click Alignments pull down. Click Create Alignment From Objects.
3. Select the polyline that represents the baseline alignment.
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 Alignment from Objects

Name: BL Nebraska

Type: Centerline

Description:

Starting station: 0+00.00'

General | Design Criteria

Site: <None>

Alignment style: LCE Standard

Alignment layer: BL_SURVEY1

Alignment label set: LCE Standard

Conversion options

Add curves between tangents

Default radius: 200.000'

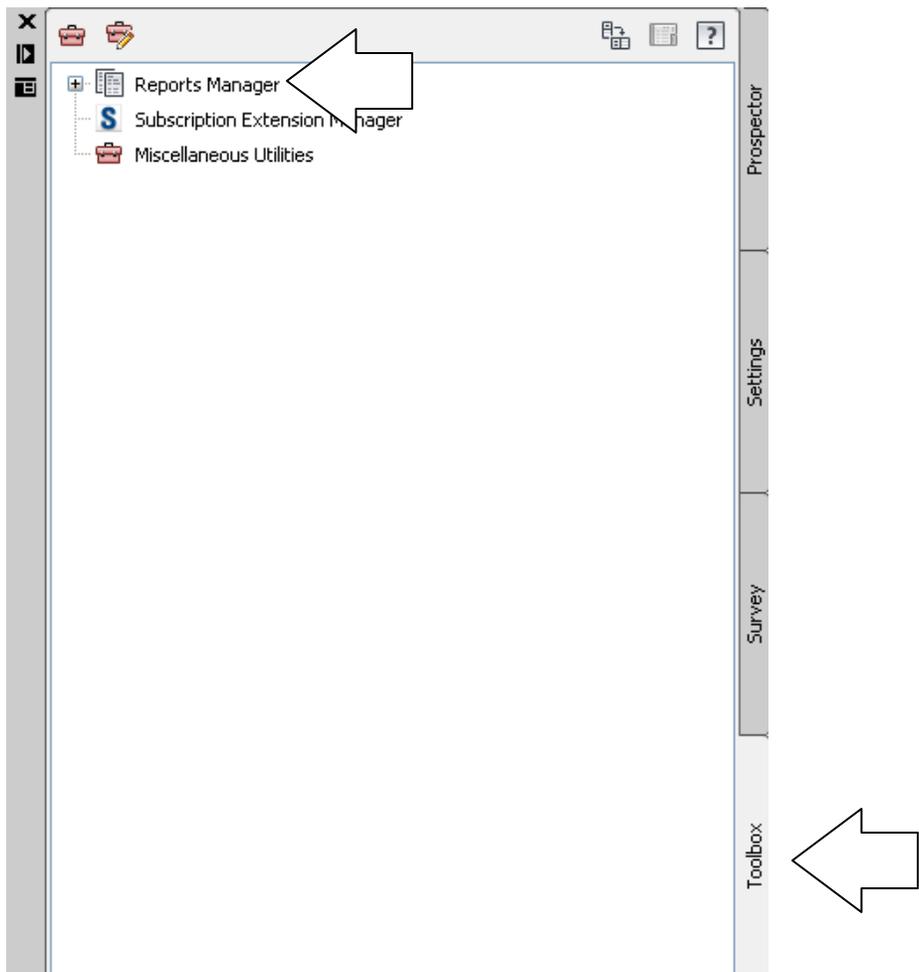
Erase existing entities

OK Cancel Help

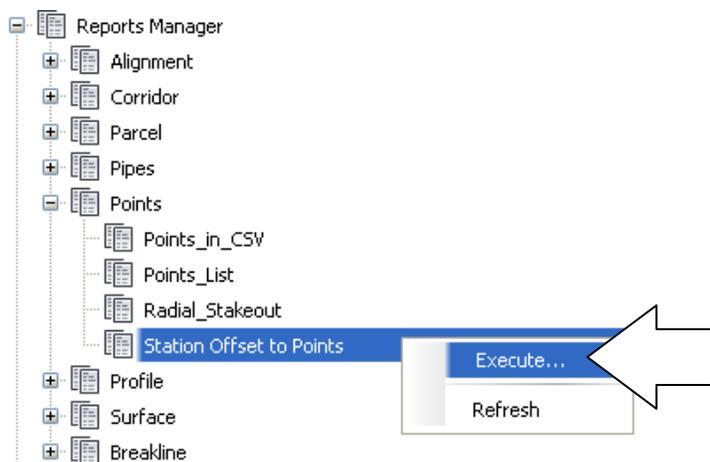
CREATE A STATION-OFFSET REPORT

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

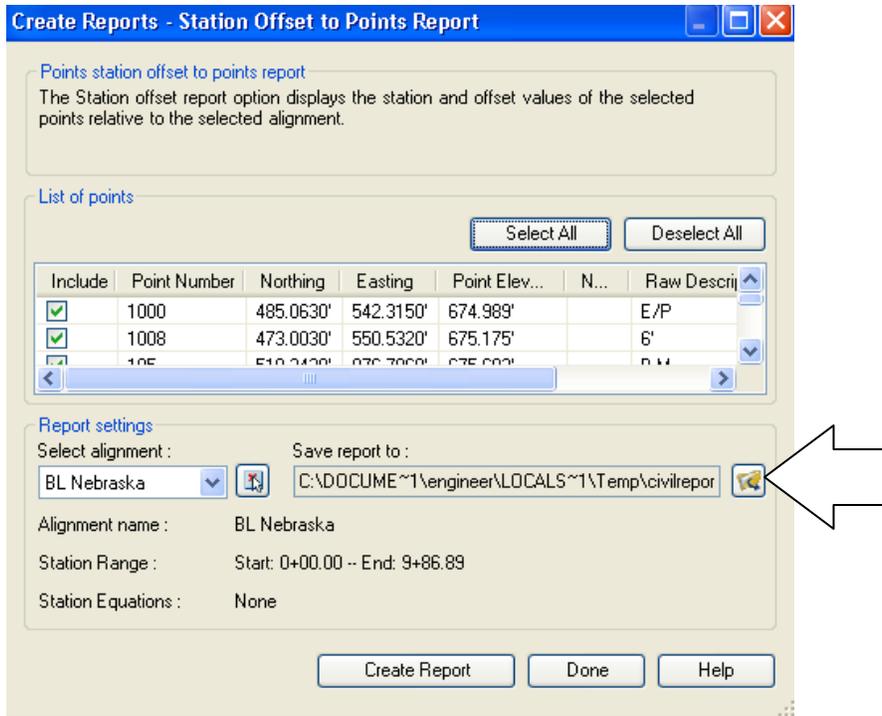
Go to the Toolspace and click on the Toolbox tab and open up the Reports Manager:



Go to the Station Offset to Points Report. Right click and click Execute:

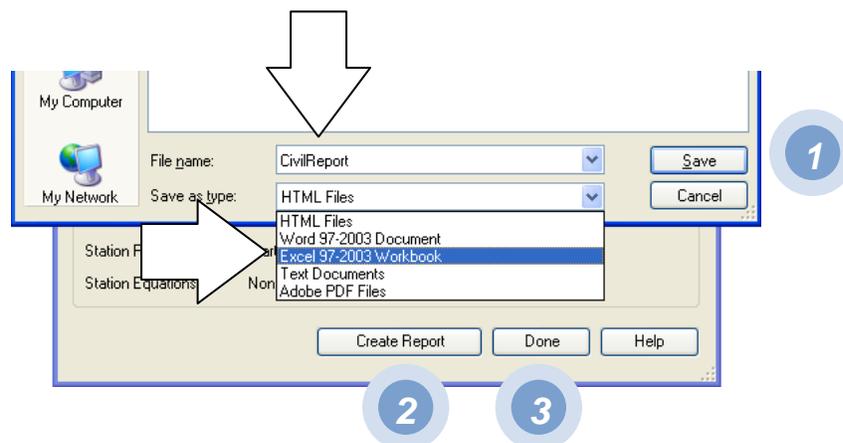


When the report dialogue comes up, go to and click the Save button:



When the Save dialogue comes up, select the project directory you are working in to keep your documents all in one place and organized.

Change the file type to Excel and give the report a name that is meaningful to the project:



Next, do the following:

1. Click Save.
2. Click Create Report – when clicked, the report will be created and brought up in Microsoft Excel. Minimize Excel and go to step 3.
3. Click Done

Bring Excel back up from the Task Bar. This is what you should see:

	A	B	C	D	E
1	Station Offset to Points Report				
2					
3	Client:	Prepared by:			
4	Client	Preparer			
5	Client Company	Your Company Name			
6	Address 1	123 Main Street			
7	Date:	3/20/2012 9:25:25 AM			
8					
9					
10	Alignment Name:	BL Nebraska			
11	Description:				
12	Station Range:	Start: 0+00.00, End: 9+86.89			
13					
14	Point	Station	Offset	Elevation	Description
15	1000	0+76.72	7.109'	674.989'	(E/P)E/P
16	1008	0+85.40	18.841'	675.175'	(6')6'
17	105	4+10.11	-34.509'	675.602'	(B.M.)B.M.
18	1001	0+76.05	0.184'	675.289'	(CL)CL
19	1009	0+82.76	9.962'	674.643'	(SPOT)SPOT
20	1002	0+77.47	-6.492'	674.808'	(E/P)E/P
21	1010	0+81.63	23.188'	675.038'	(SPOT)SPOT
22	3	9+06.56	-1.705'	675.163'	(MONUMENT)MONUMENT
23	1003	0+77.22	-8.171'	674.856'	(EDGE)EDGE
24	1011	0+82.34	-10.151'	674.957'	(SPOT)SPOT
25	1004	0+80.17	-12.152'	674.763'	(SIGN)SIGN
26	1012	0+82.12	-26.436'	675.030'	(SPOT)SPOT
27	5	0+54.20	-25.261'	674.576'	(L_ROD)L_ROD
28	1005	0+83.48	-40.076'	675.742'	(20")20"
29	1013	0+82.47	-17.517'	674.584'	(UNDG)UNDG
30	1006	0+88.36	-35.607'	675.518'	(TELE.)TELE.
31	1014	0+93.52	-6.416'	675.057'	(E/P)E/P
32	7	5+41.24	11.408'	673.546'	(L_ROD)L_ROD

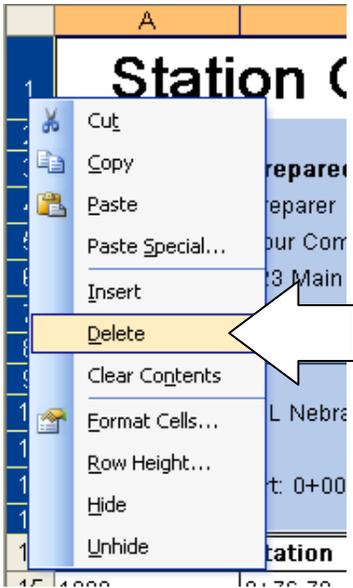
One of the points of contention of using this report was not being able to put the report in order based on the station for each point. With Excel, you can now do this. Just follow the steps outlined below.

Steps

Highlight the upper portion of the cells that make up the heading of the report:

	A	B	C	D	E	F
1	Station Offset to Points Report					
2						
3	Client:	Prepared by:				
4	Client	Preparer				
5	Client Company	Your Company Name				
6	Address 1	123 Main Street				
7	Date:	3/20/2012 9:25:25 AM				
8						
9						
10	Alignment Name:	BL Nebraska				
11	Description:					
12	Station Range:	Start: 0+00.00, End: 9+86.89				
13						
14	Point	Station	Offset	Elevation	Description	

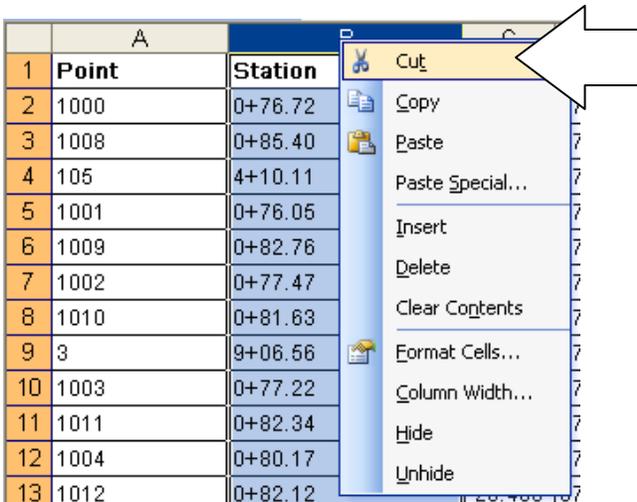
Right click in the numbered area to the left, and click Delete:



You should see this now:

	A	B	C	D	E
1	Point	Station	Offset	Elevation	Description
2	1000	0+76.72	7.109'	674.989'	(E/P)E/P
3	1008	0+85.40	18.841'	675.175'	(6')6'
4	105	4+10.11	-34.609'	675.602'	(B.M.)B.M.
5	1001	0+76.05	0.184'	675.289'	(CL)CL
6	1009	0+82.76	9.962'	674.643'	(SPOT)SPOT
7	1002	0+77.47	-6.492'	674.808'	(E/P)E/P
8	1010	0+81.63	23.188'	675.038'	(SPOT)SPOT
9	3	9+06.56	-1.705'	675.163'	(MONUMENT)MONUMENT
10	1003	0+77.22	-8.171'	674.856'	(EDGE)EDGE
11	1011	0+82.34	-10.151'	674.957'	(SPOT)SPOT
12	1004	0+80.17	-12.152'	674.763'	(SIGN)SIGN
13	1012	0+82.12	-26.436'	675.030'	(SPOT)SPOT
14	5	0+54.20	-25.261'	674.576'	(L_ROD)_L_ROD
15	1005	0+83.48	-40.076'	675.742'	(20")20"
16	1013	0+82.47	-17.517'	674.584'	(UNDG)UNDG
17	1006	0+88.36	-35.607'	675.518'	(TELE.)TELE.
18	1014	0+93.52	-6.416'	675.057'	(E/P)E/P
19	7	5+41.24	11.408'	673.546'	(L_ROD)_L_ROD
20					

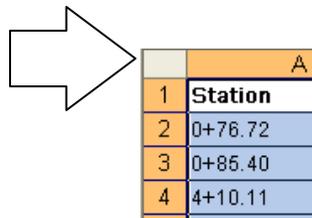
Go to Column B and right click the cell that's marked B to highlight the column and click Cut:



Go to Column A, right click the cell that's marked A to highlight the column and click Insert Cut Cells. It should now look like this:

	A	B	C	D	E
1	Station	Point	Offset	Elevation	Description
2	0+76.72	1000	7.109'	674.989'	(E/P)E/P
3	0+85.40	1008	18.841'	675.175'	(6')6'
4	4+10.11	105	-34.509'	675.602'	(B.M.)B.M.
5	0+76.05	1001	0.184'	675.289'	(CL)CL
6	0+82.76	1009	9.962'	674.643'	(SPOT)SPOT
7	0+77.47	1002	-6.492'	674.808'	(E/P)E/P
8	0+81.63	1010	23.188'	675.038'	(SPOT)SPOT
9	9+06.56	3	-1.705'	675.163'	(MONUMENT)MONUMENT
10	0+77.22	1003	-8.171'	674.856'	(EDGE)EDGE
11	0+82.34	1011	-10.151'	674.957'	(SPOT)SPOT
12	0+80.17	1004	-12.152'	674.763'	(SIGN)SIGN
13	0+82.12	1012	-26.436'	675.030'	(SPOT)SPOT
14	0+54.20	5	-25.261'	674.576'	(L_ROD)L_ROD
15	0+83.48	1005	-40.076'	675.742'	(20")20"
16	0+82.47	1013	-17.517'	674.584'	(UNDG)UNDG
17	0+88.36	1006	-35.607'	675.518'	(TELE.)TELE.
18	0+93.52	1014	-6.416'	675.057'	(E/P)E/P
19	5+41.24	7	11.408'	673.546'	(L_ROD)L_ROD

Click in the blank square in the upper left hand corner:



Go to the Sort Ascending icon and click it:

The screenshot shows the Excel ribbon with the 'Sort Ascending' icon (represented by 'A' over 'Z') highlighted. Below the ribbon, the spreadsheet shows the first five rows of the data table, with the 'Station' column selected. The data in the 'Station' column is: 0+76.72, 0+85.40, 4+10.11, 0+76.05.

Now your report is in order by station:

	A	B	C	D	E
1	Station	Point	Offset	Elevation	Description
2	0+54.20	5	-25.261'	674.576'	(I_ROD)I_ROD
3	0+76.05	1001	0.184'	675.289'	(CL)CL
4	0+76.72	1000	7.109'	674.989'	(E/P)E/P
5	0+77.22	1003	-8.171'	674.856'	(EDGE)EDGE
6	0+77.47	1002	-6.492'	674.808'	(E/P)E/P
7	0+80.17	1004	-12.152'	674.763'	(SIGN)SIGN
8	0+81.63	1010	23.188'	675.038'	(SPOT)SPOT
9	0+82.12	1012	-26.436'	675.030'	(SPOT)SPOT
10	0+82.34	1011	-10.151'	674.957'	(SPOT)SPOT
11	0+82.47	1013	-17.517'	674.584'	(UNDG)UNDG
12	0+82.76	1009	9.962'	674.643'	(SPOT)SPOT
13	0+83.48	1005	-40.076'	675.742'	(20")20"
14	0+85.40	1008	18.841'	675.175'	(6')6'
15	0+88.36	1006	-35.607'	675.518'	(TELE.)TELE.
16	0+93.52	1014	-6.416'	675.057'	(E/P)E/P
17	4+10.11	105	-34.509'	675.602'	(B.M.)B.M.
18	5+41.24	7	11.408'	673.546'	(I_ROD)I_ROD
19	9+06.56	3	-1.705'	675.163'	(MONUMENT)MONUMENT

Now just Save and close the report. If you would like, you can rename your report file based on the name of the baseline that is in your project, especially if you have more than one baseline.

Profiles and Cross Sections

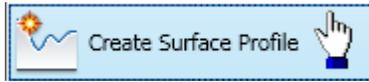
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CREATE A PROFILE

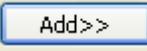
To create a Profile (create profile in the Master.dwg - Note: Disregard Alignment Name as some of these instructions were taken from previous manual procedures.)

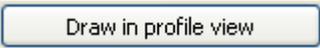
1. Under the Create Design Tab, click Profiles pull down ➤ Create Surface Profile.



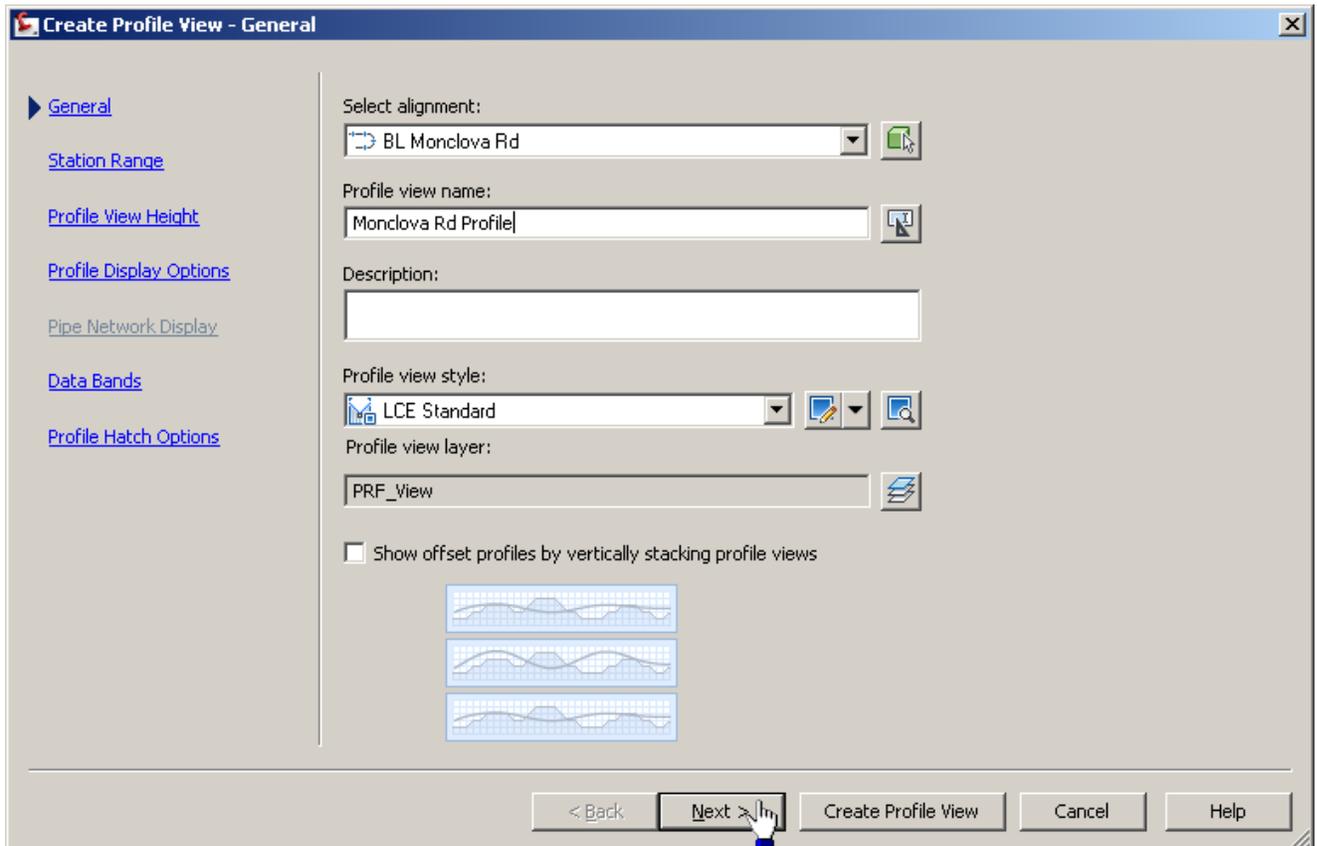
2. In the Create Profile From Surface dialog box, in the Alignment field, select your alignment:



On the right side of the dialog box, click . A centerline profile is added to the Profile List.

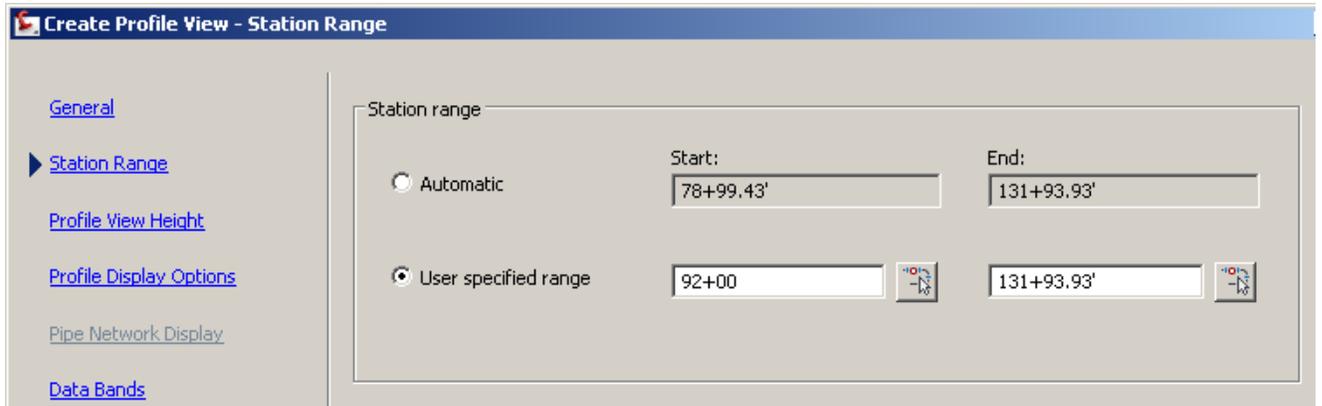
3. Click .

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



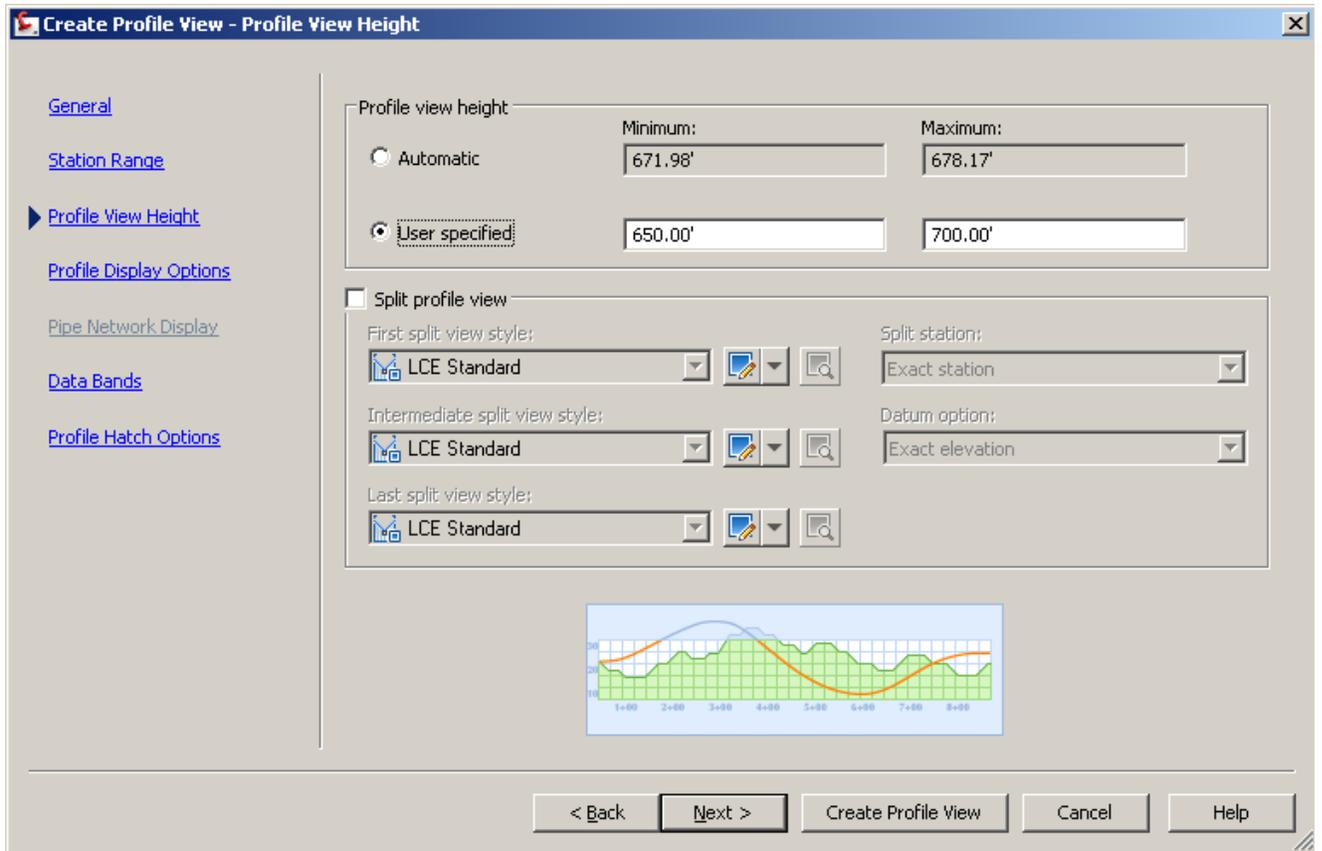
Note: Most settings for the Profile and Profile View are preset.

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.

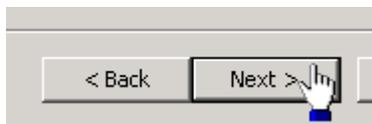
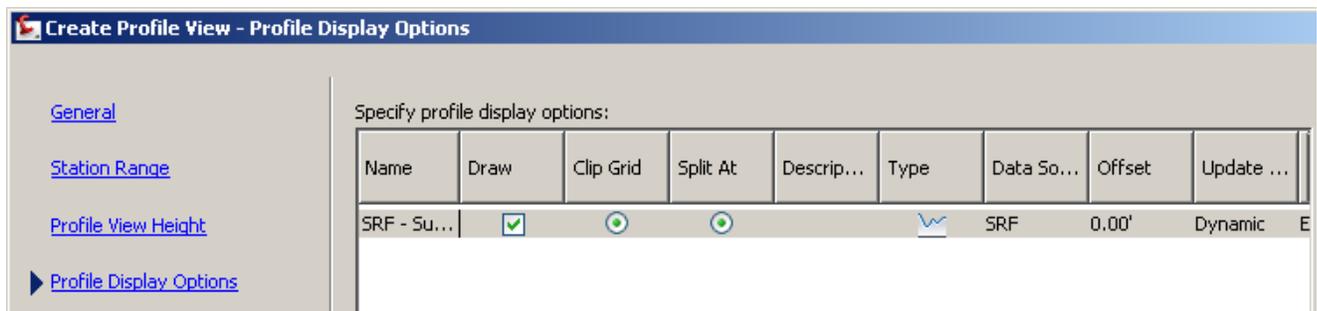
Intermediate Split View Style

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):

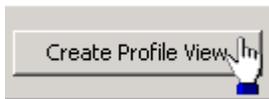


Click Next.

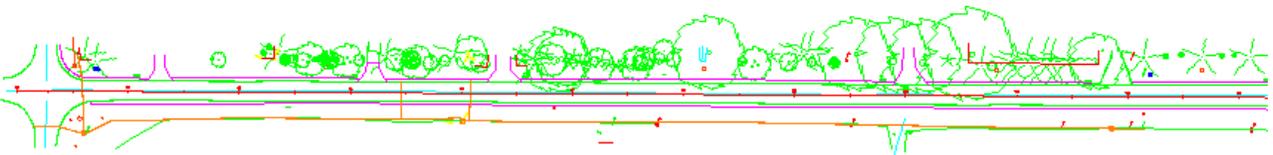
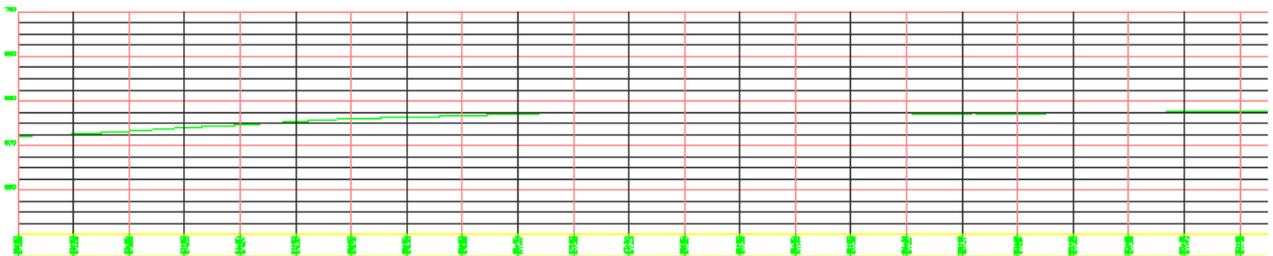
Data Bands (you shouldn't have to do anything to this either):



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



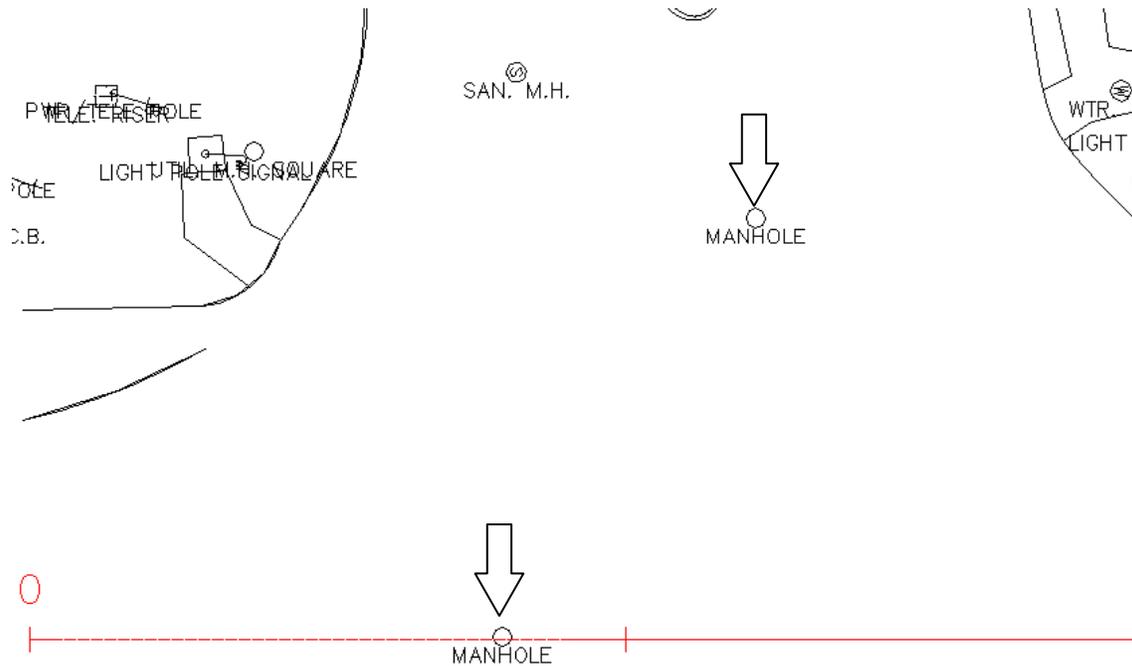
Click Create Profile View. Select your Profile View origin.



EXISTING PIPE NETWORKS

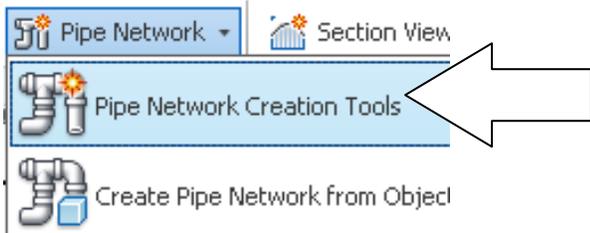
TO CREATE AN EXISTING PIPE NETWORK

Here you have two existing storm manholes:

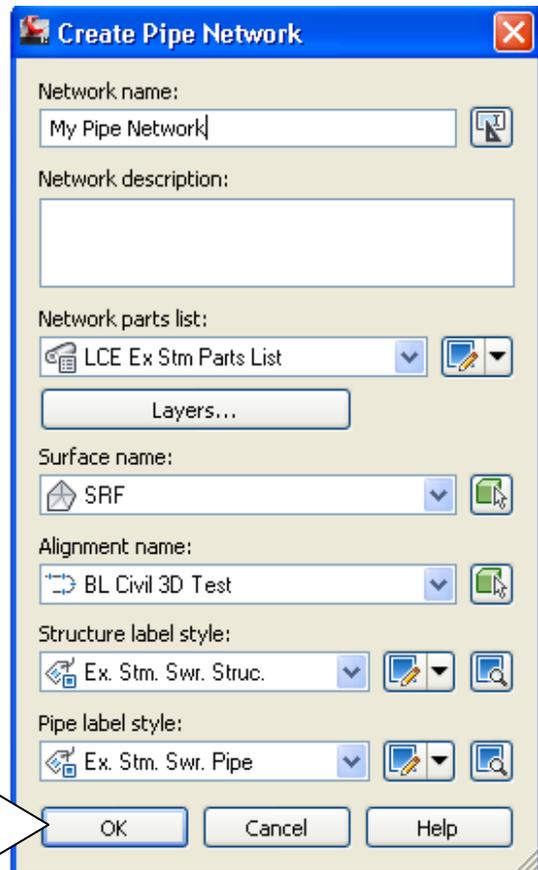


Now, go to the Pipe Network pull down > click

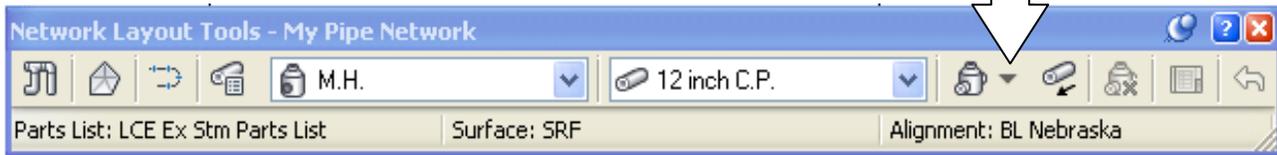
Pipe Network Creation Tools:



You should now have a box like this. Be sure to select all the pull downs, then click OK :

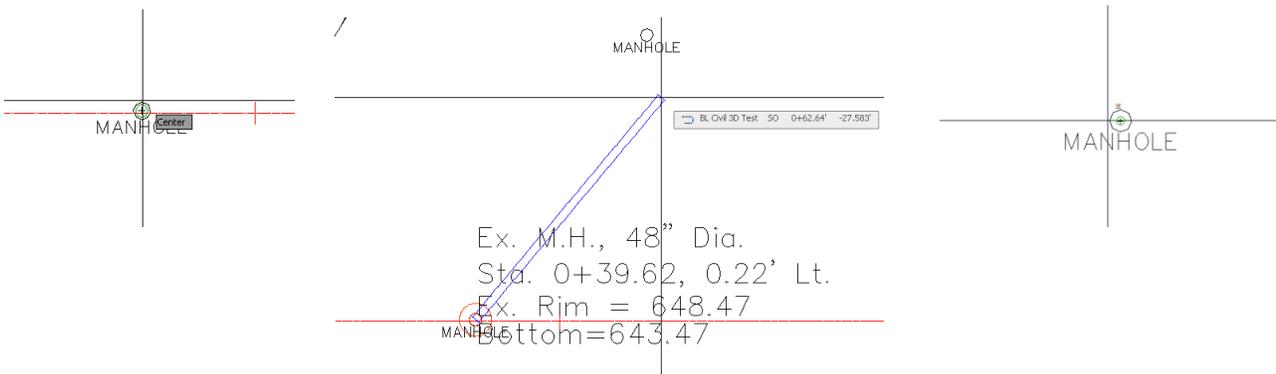


The Pipe Network Creation Toolbar will appear:

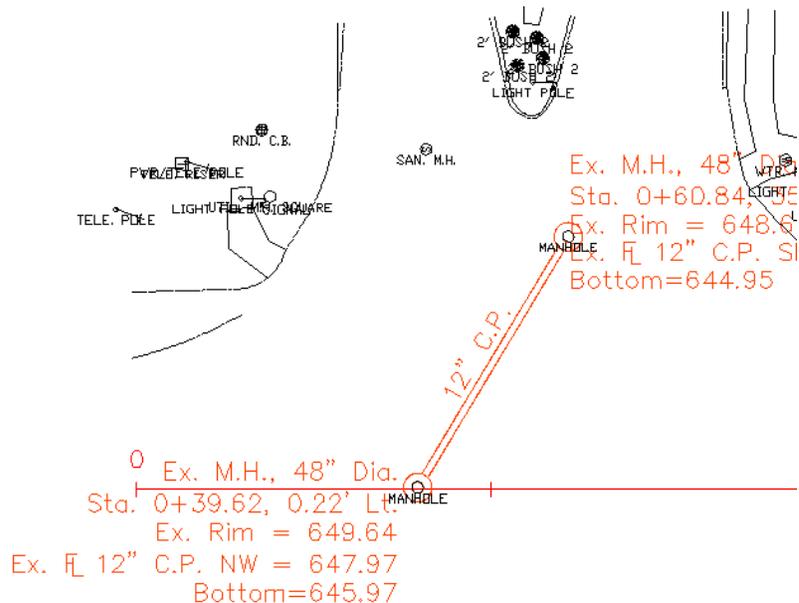


Make sure to select the type of structure you need and the size/type pipe. By default, it is ready to put the first structure in. (Note: If you only want to put the structures in first, select the drop down arrow next to the icon. You have the option of putting a structure only in or a pipe only).

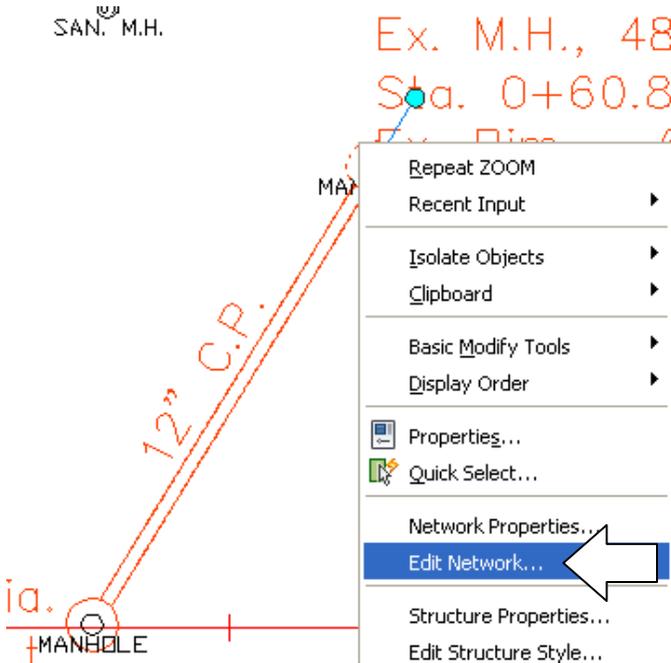
When you are ready to put the first structure in, use either the center snap or the insert snap, snap onto the first manhole. Then snap onto the next m.h. or pipe end:



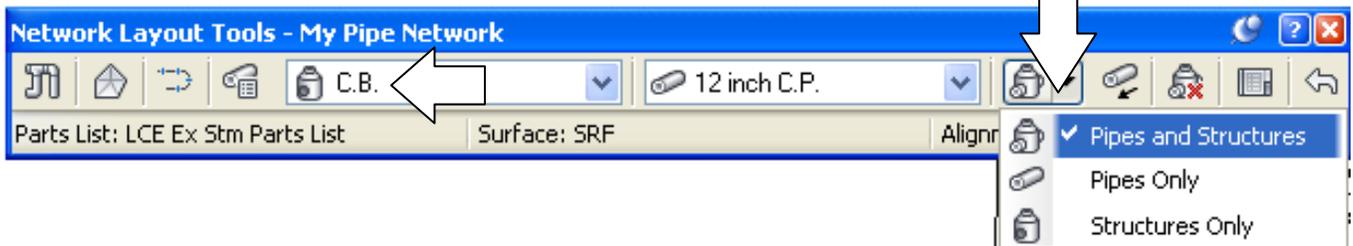
You should end up with something like this:



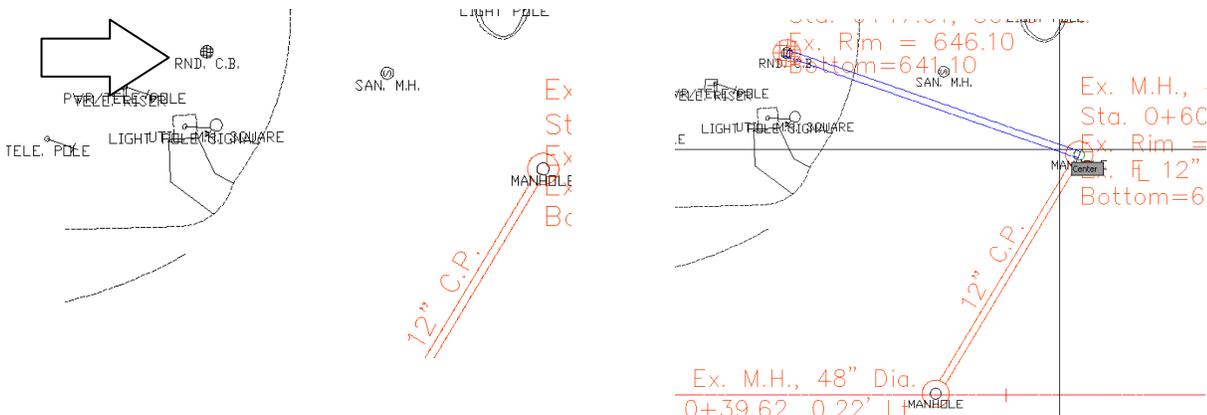
If you need to add more pipes and structures to the pipe network you have just created, click on the last structure and right click, then click Edit Network:



The Network Layout Tool appears for this pipe network. You can change the mode depending on what type of feature you are continuing for this pipe network.

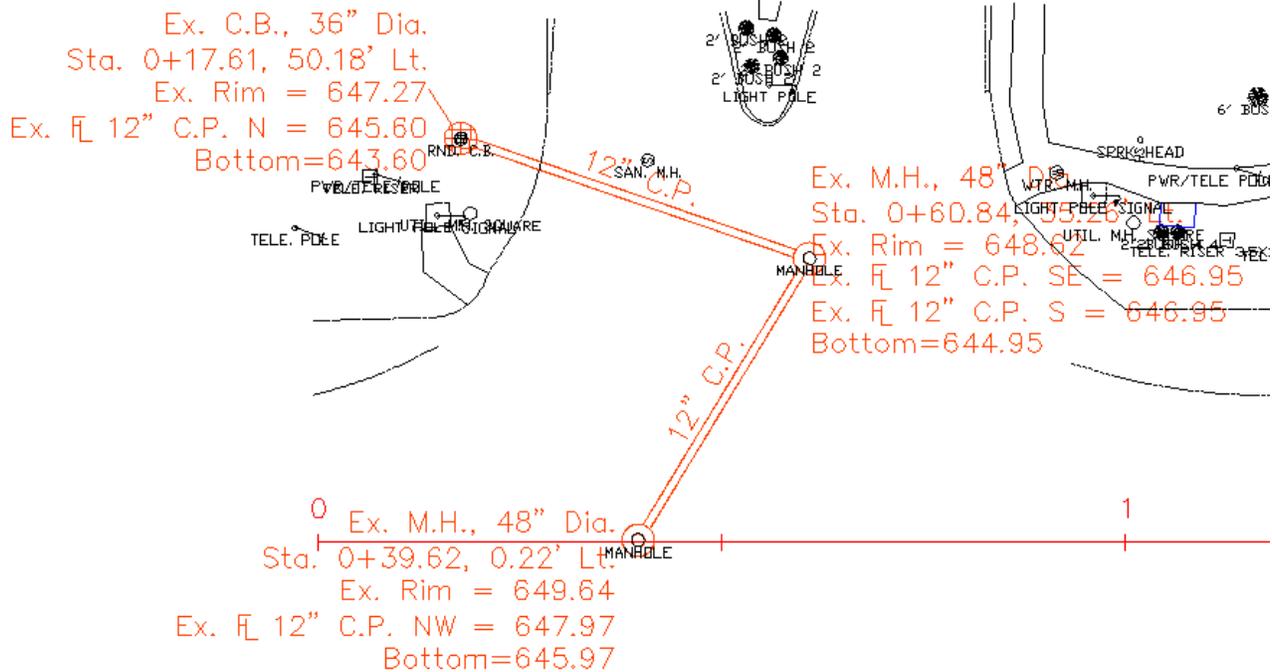


We will just add another structure and pipe run to this network. Since we are snapping onto an ex. C.B., we will change the structure type to the C.B. Snap onto the structure that connects to the catch basin or whatever feature you are adding:

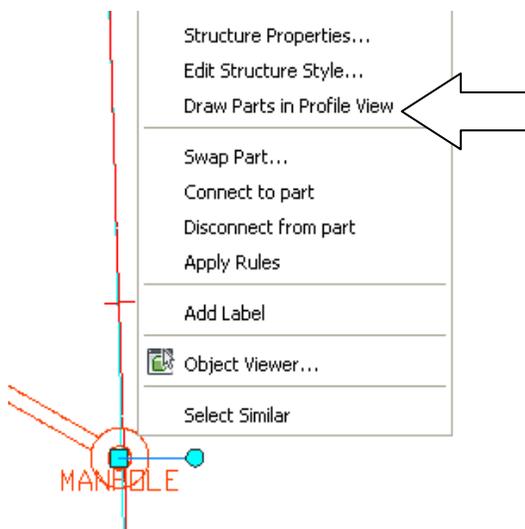


Hit Enter.

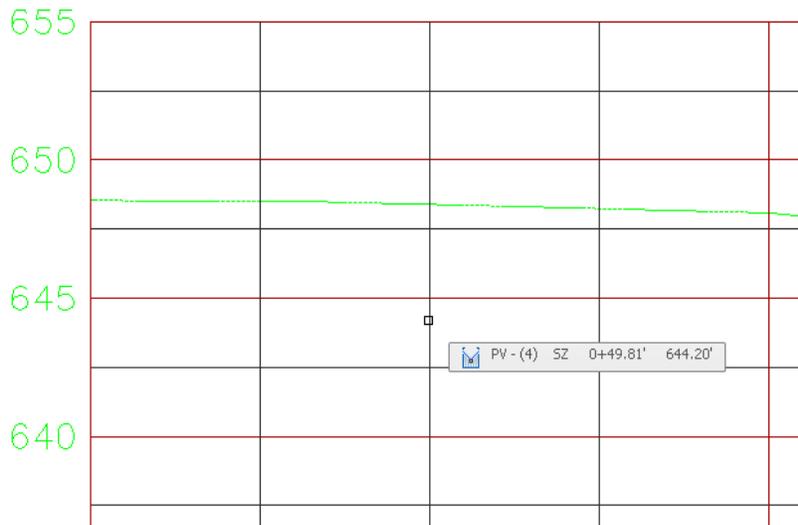
Here is the end result. Erase the labels from the plan by just selecting each one and hit the Delete key on your keyboard, as the labels for structures only appear in the profile and cross sections.



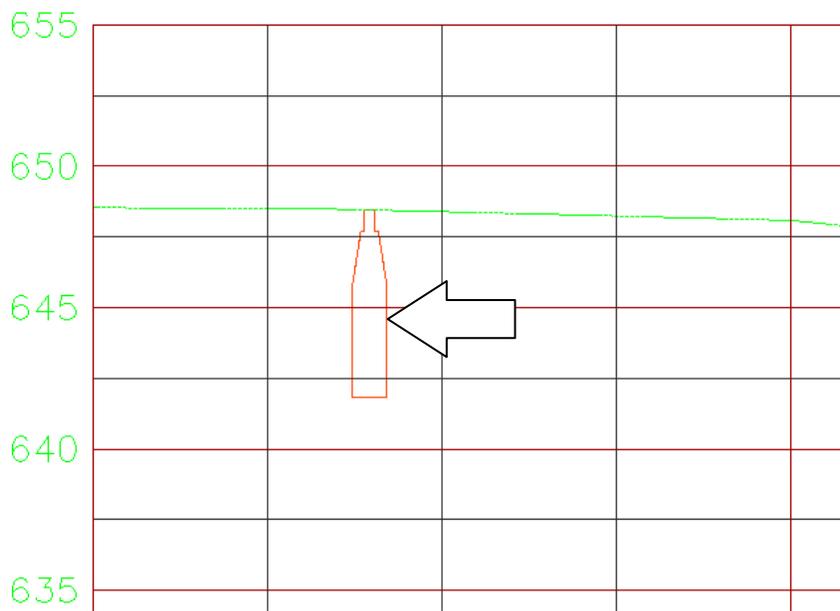
To draw (project) your pipe network pipes and structures to your profile, do the following. First, click on and right click on one of the structures you are projecting to your profile, and choose Draw Parts in Profile View:



Go to your profile and select the Profile View:

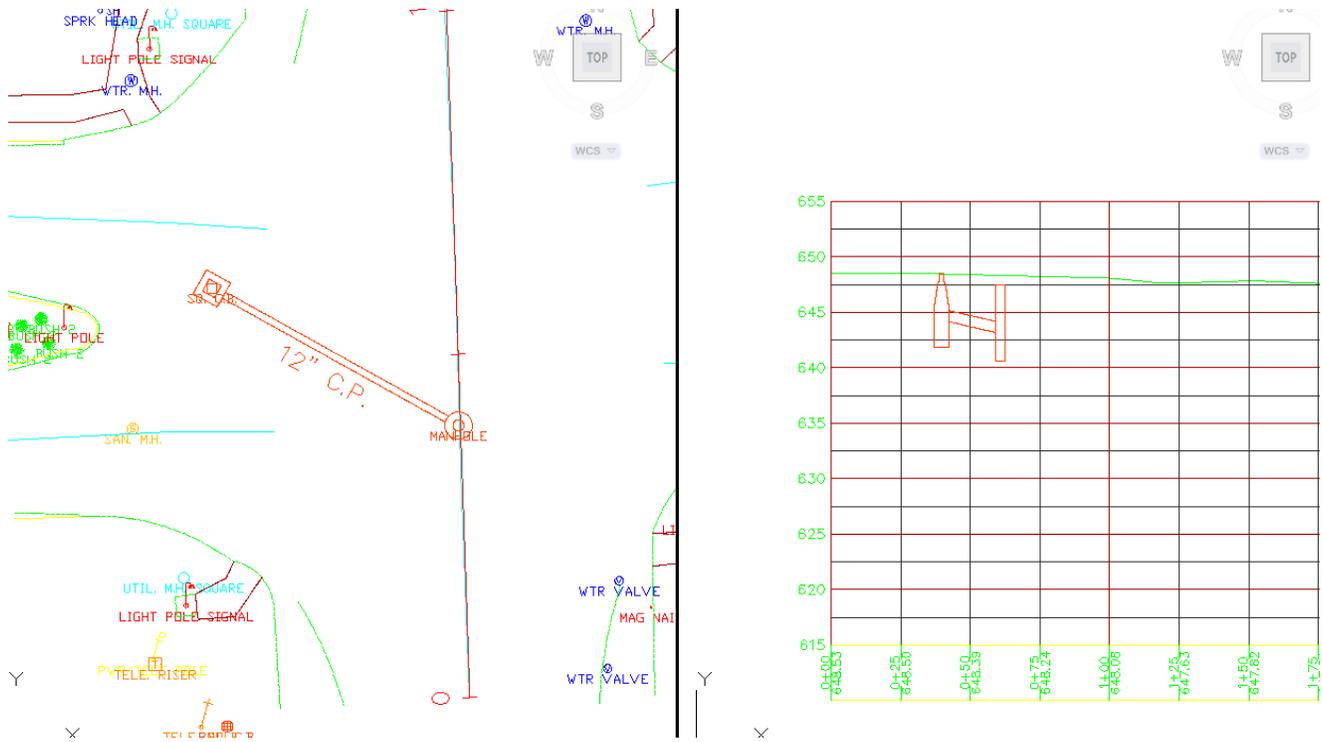


Your M.H. structure should look like this:



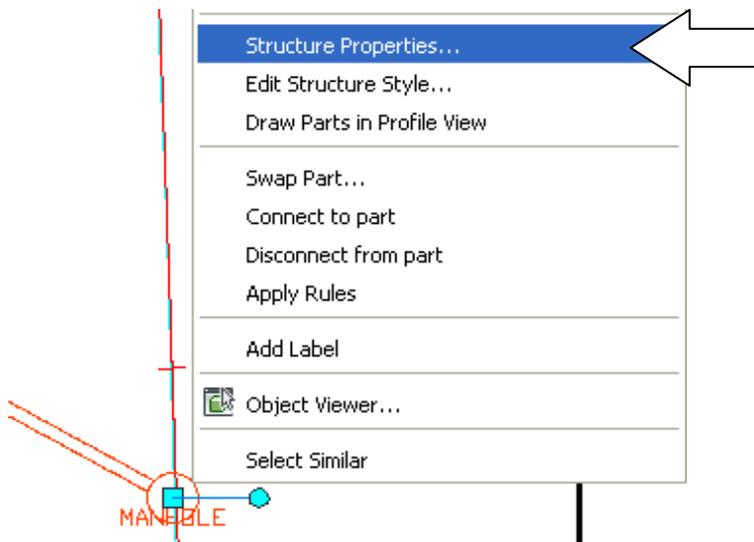
Note: Do not be concerned about the inner wall and floor showing up just yet. There is a LISP routine that will be used near the end of the project to fill in all existing and proposed structures in the profiles. The LISP routine is very simple and it automatically draws in the correct wall thickness and floor thickness / bottom invert.

Now just add the rest of your Pipe Network(s) to the profile:



To adjust invert elevations in the pipes and structures, here are the basics.

Click, then right click on one of the structures, and select Structure Properties:



Here you can modify the rim and invert properties and behavior of the structure and pipes to match the Rim , Sump and Pipe Inverts collected in the field:

Structure Properties		Value
Structure Easting		1639943.8816'
Connected Pipes		1
Insertion Rim Behavior		
Insertion Rim Elevation		648.470'
Surface Adjustment Value		0.000'
Automatic Surface Adjustment		True
Sump Behavior		
Sump Elevation		642.303'
Sump Depth		2.000
Control Sump By:		Depth

Rim to Sump Height	6.167'
Wall Thickness	6.000"
Floor Thickness	6.000"
Material	Reinforced Concrete
Frame	M.H.
Grate	Standard
Cover	Standard
Frame Height	9.000"
Frame Diameter	18.000"
Frame Length	
Frame Width	
Barrel Height	
Barrel Pipe Clearance	6.000"
Cone Height	24.000"
Slab Thickness	
Inner Structure Diameter	48.000"

For Catch Basins, be sure to modify the inner structure diameter to the actual size of the existing structure – size of ex. structure is usually indicated in the survey field notes.

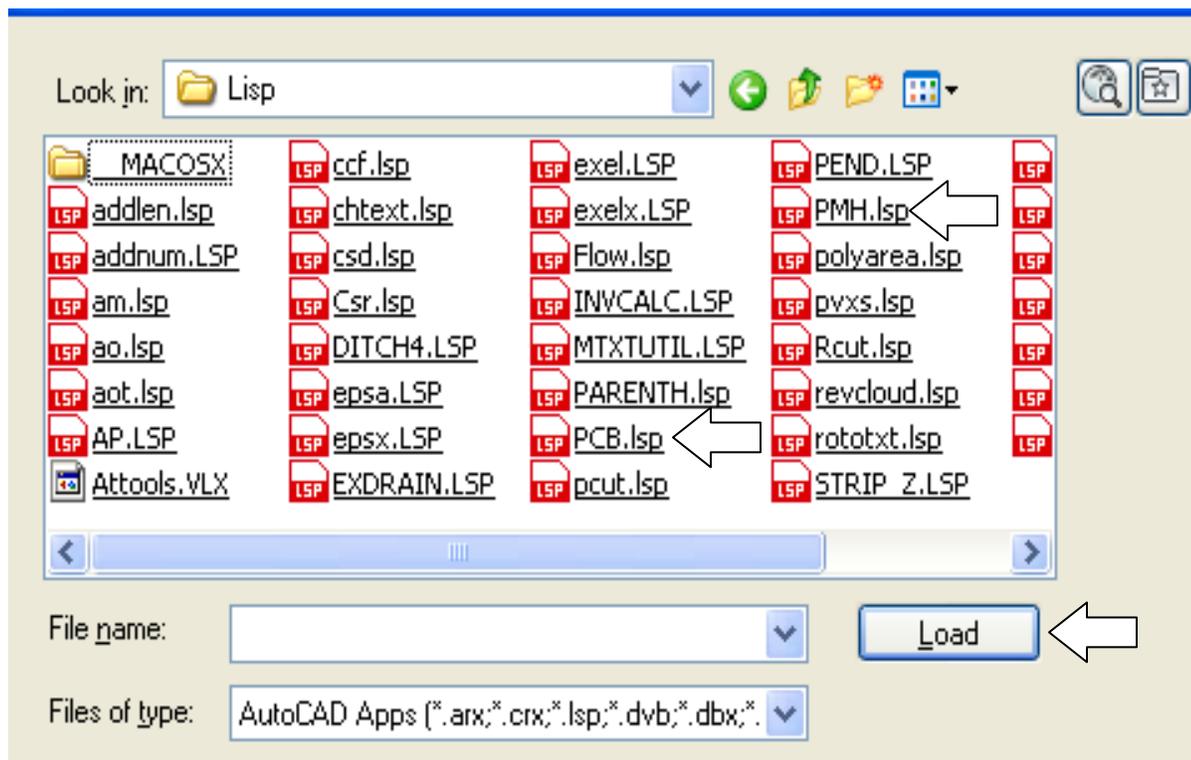
Name	Status	Descri...	Inner ...	Inner ...	Inner ...	Invert ...	Center...	Crown...	Slo
Structure - ...	✓								
Pipe - (7)	✓ 0	Concret...	12.000"			644.303'	644.803'	645.303'	-3.0

Name	Status	Descri...	Inner ...	Inner ...	Inner ...	Invert ...	Center...	Crown...	Slo
Structure - ...	✓								
Pipe - (7)	✓ 0	Concret...	12.000"			643.074'	643.574'	644.074'	3.0

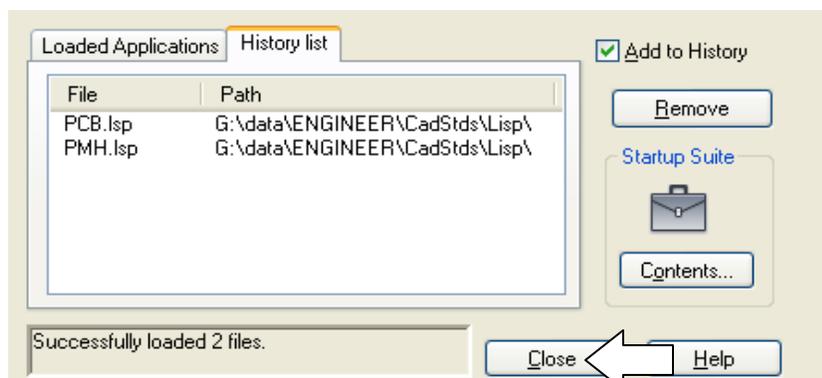
Once you have the existing pipes and structures in the profile and the rim elevations, and inverts of the pipes and structures to their correct elevations, use the following LISP routines to draw in the inner walls of the structures. If for any reason, you have to relocate an existing structure or move a proposed structure, delete the inner wall from the structure, relocate it and then re-use these routines to draw them back in.

Steps for Inner Wall Creation

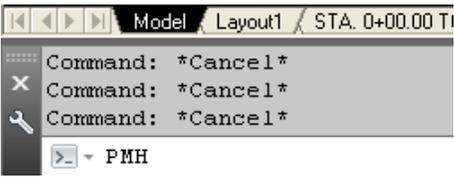
Type in `aplload` in Civil 3D. Browse to `g:\data\engineer\cadstds\lisp` and select `PMH.lsp` or `PCB.lsp` (`PMH` is for manhole structures and `PCB` is for catch basin structures):

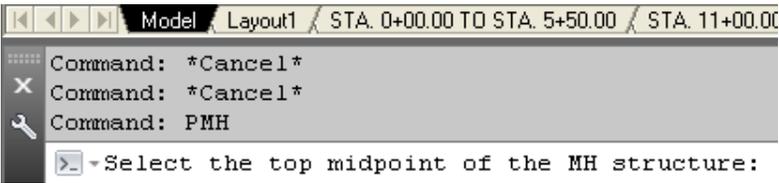


Select the desired `lsp` file and click `Load`. (If you hold down the `CTRL` key you can highlight both). You can now click `Close`:

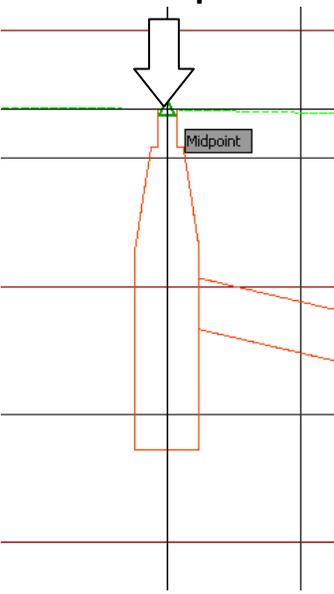
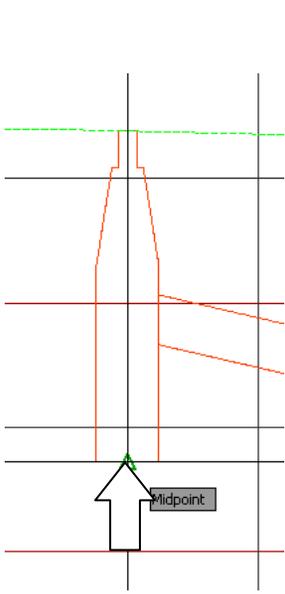
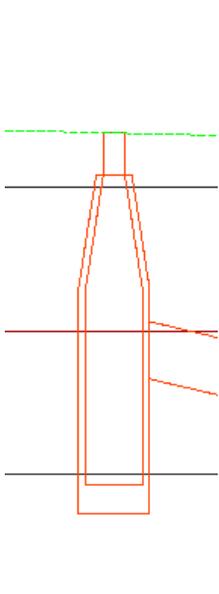


Now type in either PMH or PCB, depending on the structure. For this example, I will be doing both.

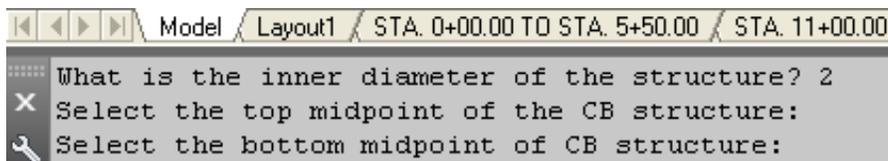
1.  Hit Enter

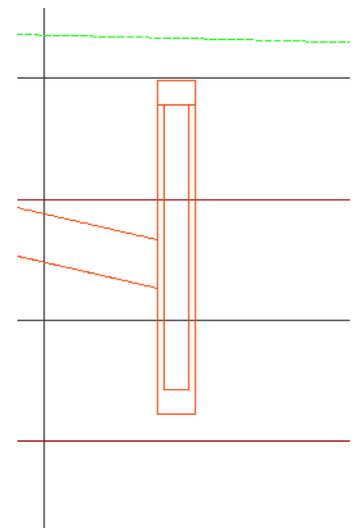
2. 

Select the top and then the bottom of the structure:

3.  4.  5.  Done.

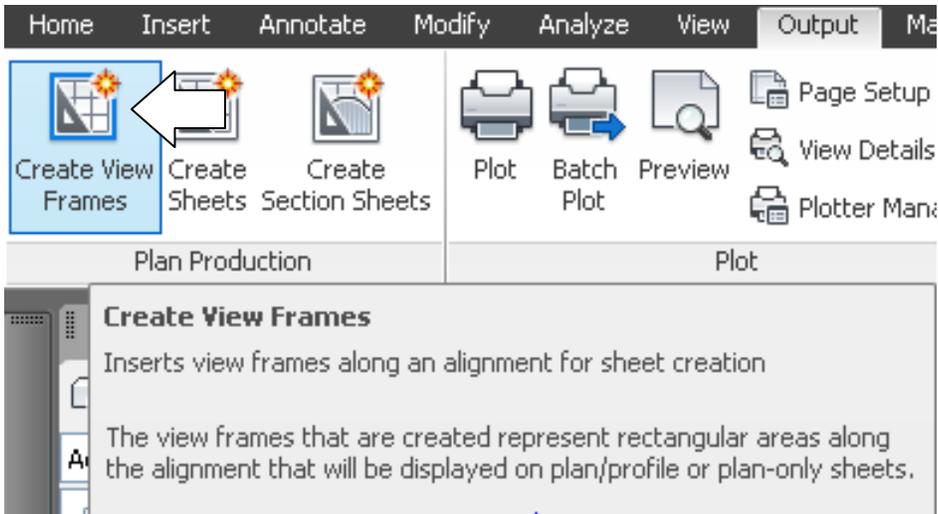
Use the PCB command for catch basins. You will be asked to provide the inner structure diameter. For this example, we will use 2, since the structure is a 3' structure. Now just select the top and bottom of the structure as you did before:



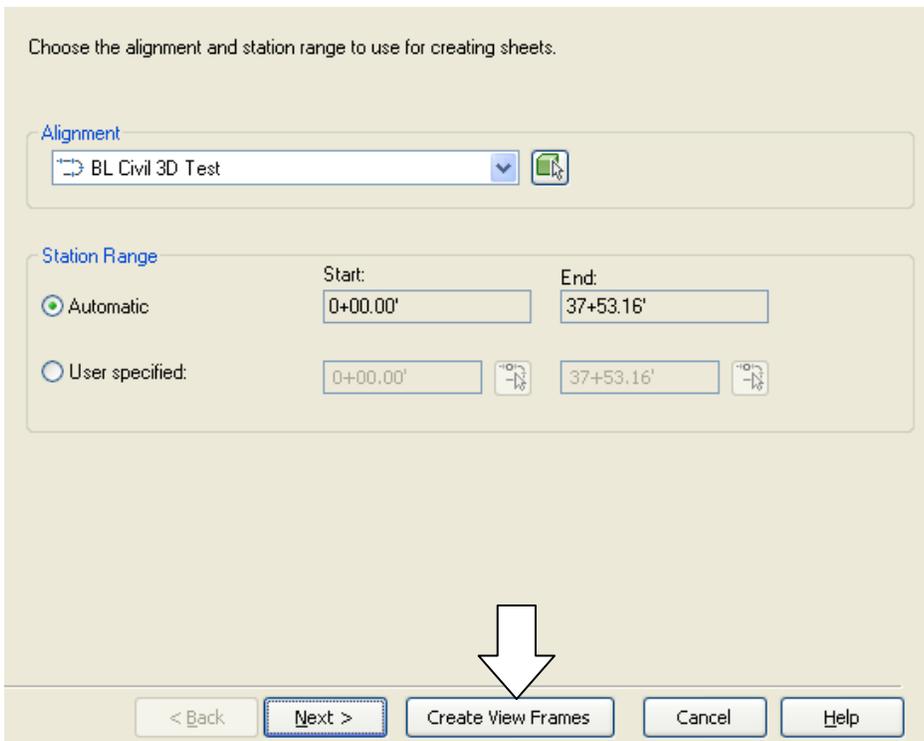


CREATE P&P SHEETS IN THE MASTER DRAWING

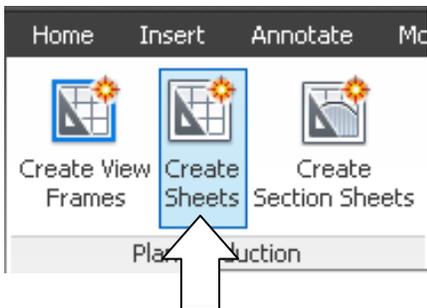
Go to the ribbon, and click on the Output Tab>Create View Frames:



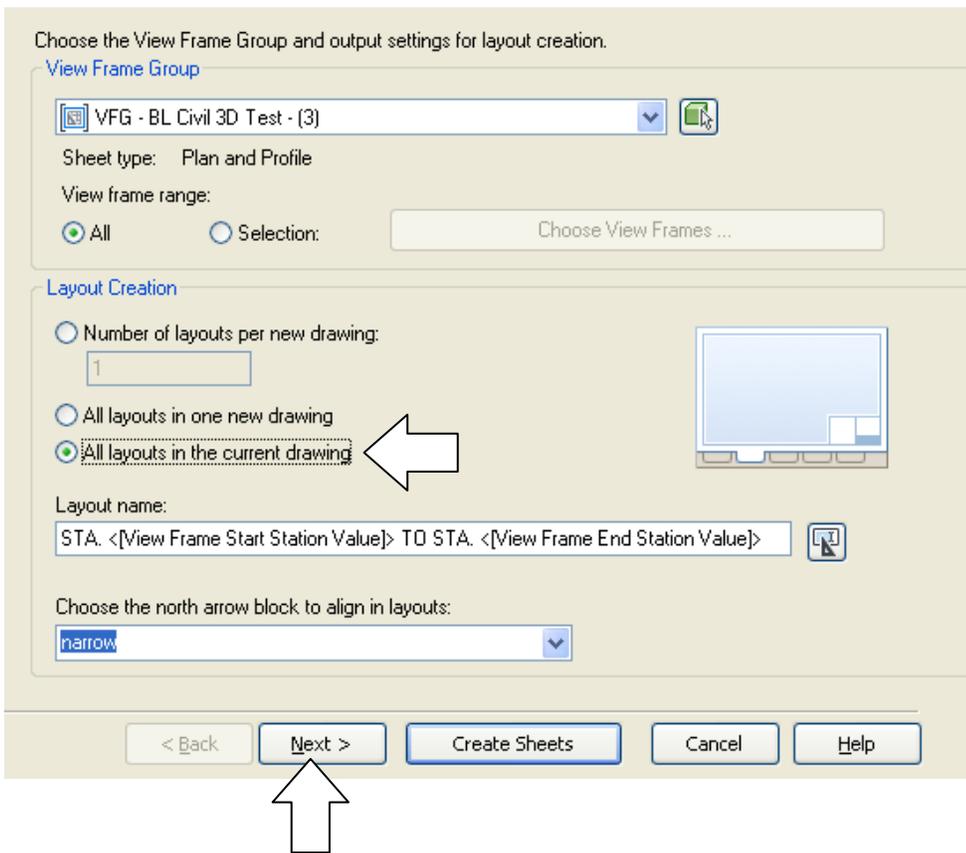
If settings are suit your needs, just click next or make any adjustments, then click Create View Frames:



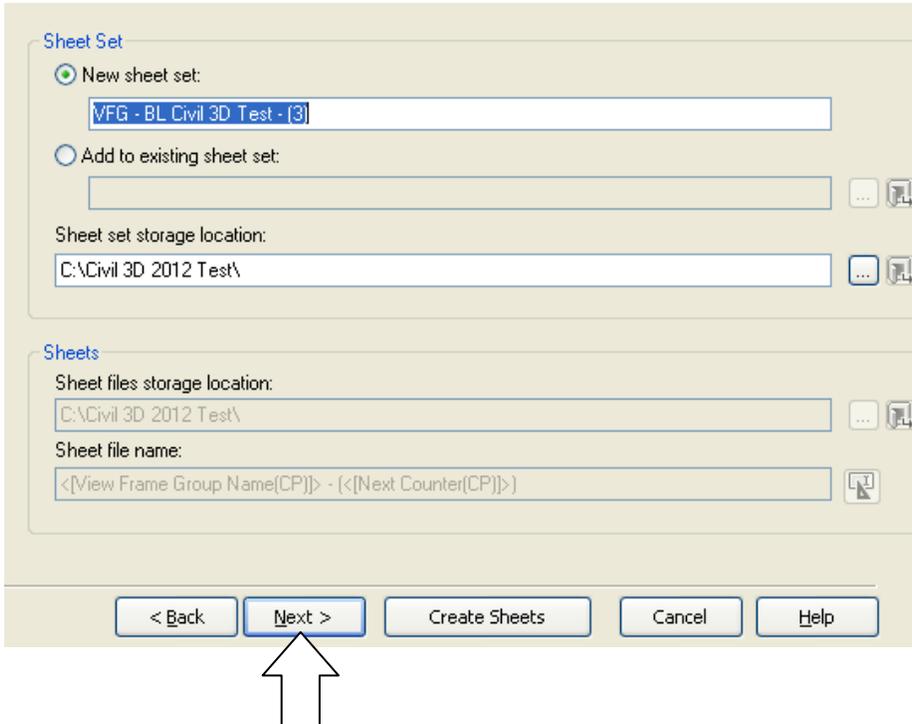
Next, go back to the ribbon and click Create Sheets:



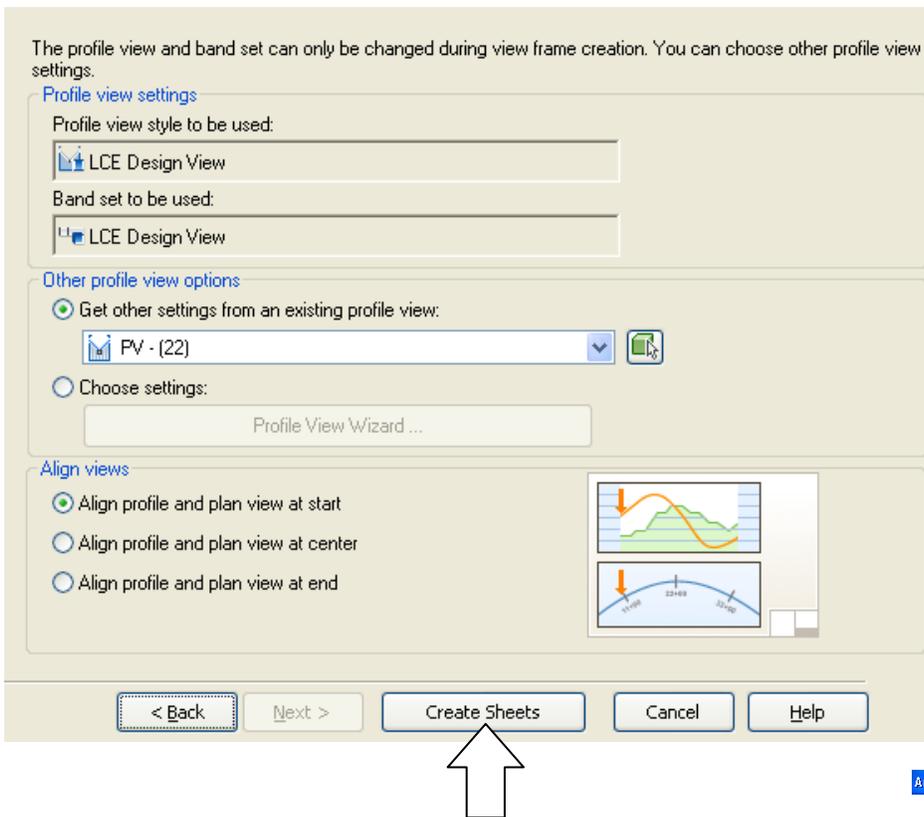
Be sure to check All layouts in the current drawing – click Next:



Click Next:



Click Create Sheets:



You'll see this:

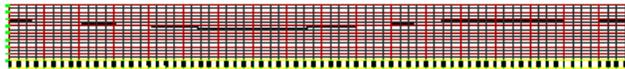
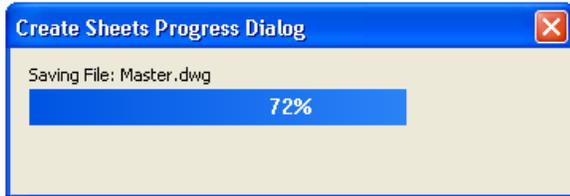
Click OK



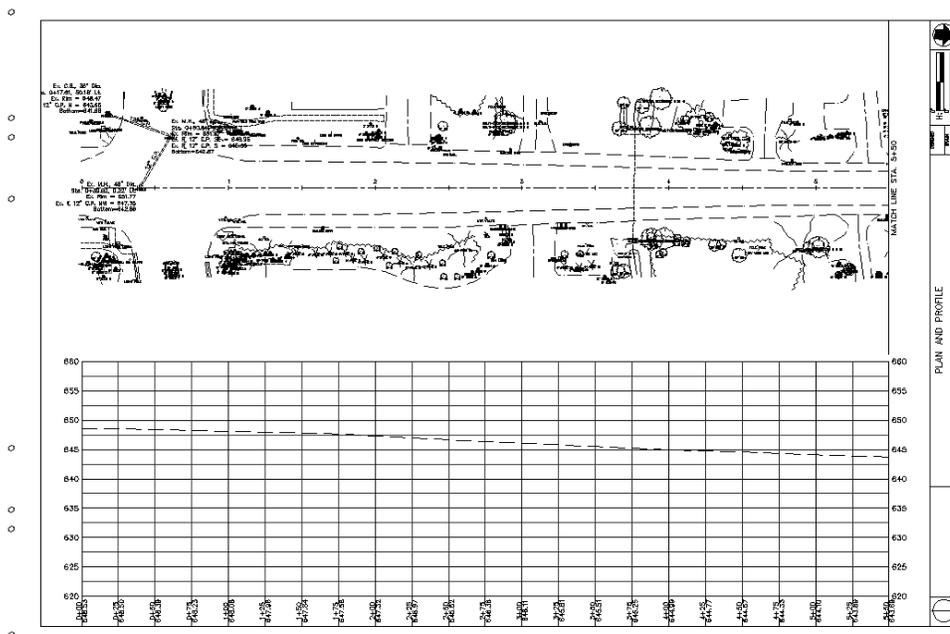
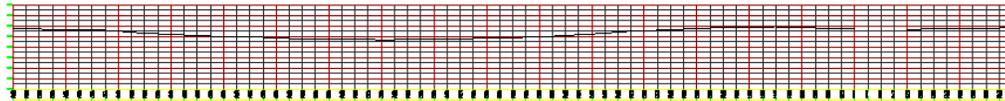
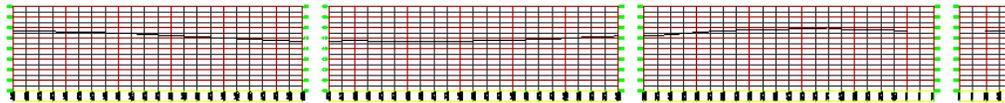
You will be prompted to select an insertion point for the profiles for each sheet:

```
Command:  
Command: _aeccCreateSheets  
Select profile view origin:
```

Pick a point in your drawing. You will see this:

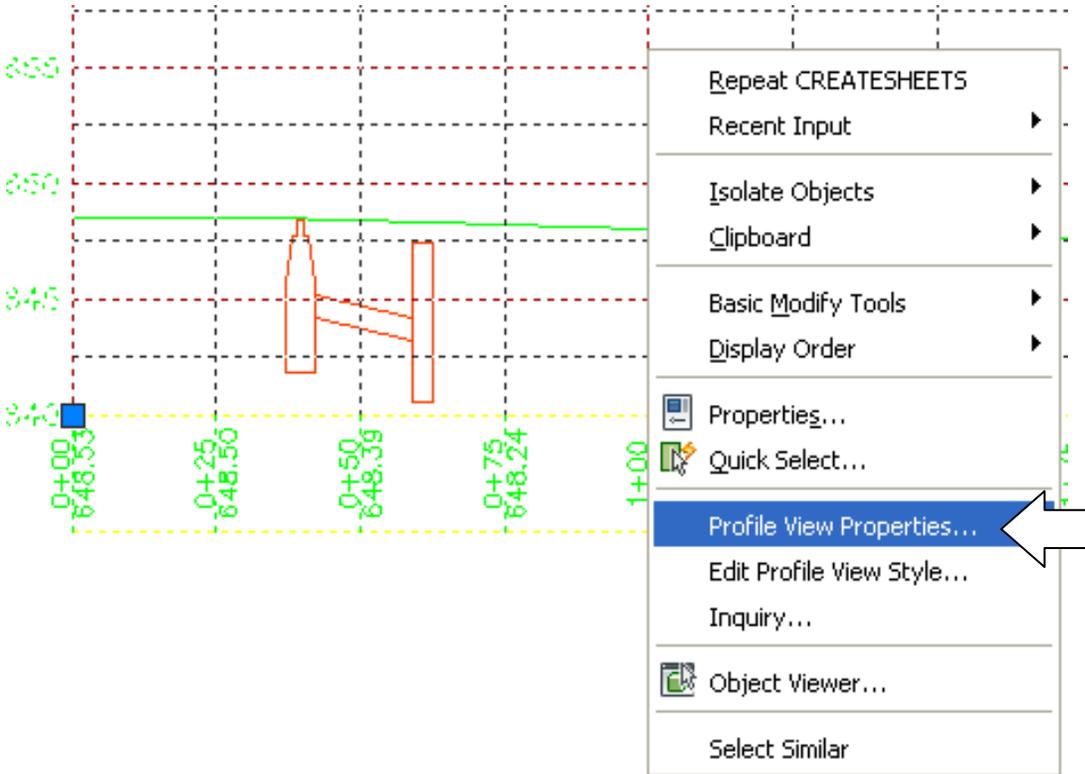


Now you'll have the profiles for each sheet in your model space and each plan and profile sheet for your layouts:

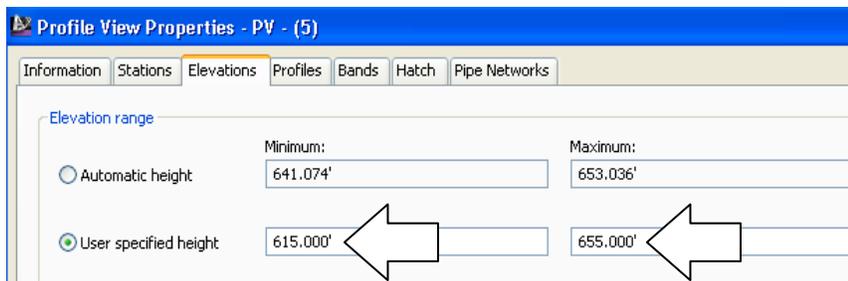


Note: After you have created the sheets, you will have to adjust the elevation range of each sheet profile in model space.

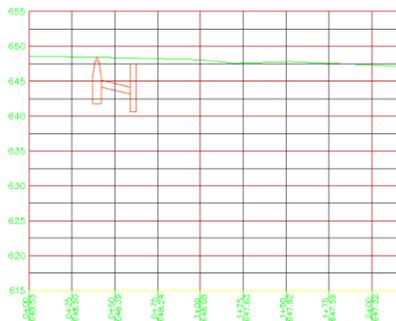
To do this, click, then right click on the Profile View and select Profile View Properties...:



Now, make sure you are on the Elevations tab, and then change the range to make it more suitable for the sheet (Do this for each sheet profile):



Click OK.



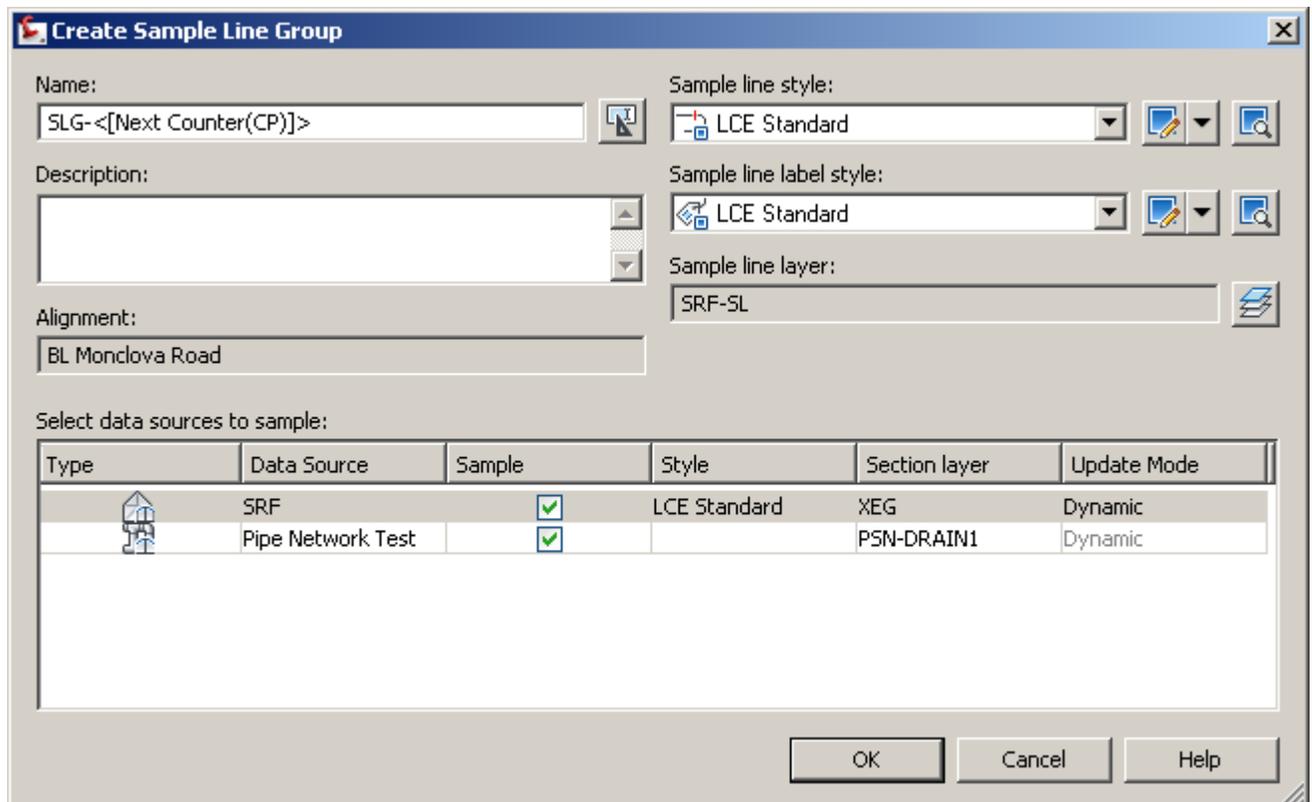
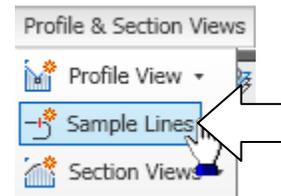
CREATE SAMPLE LINES

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.

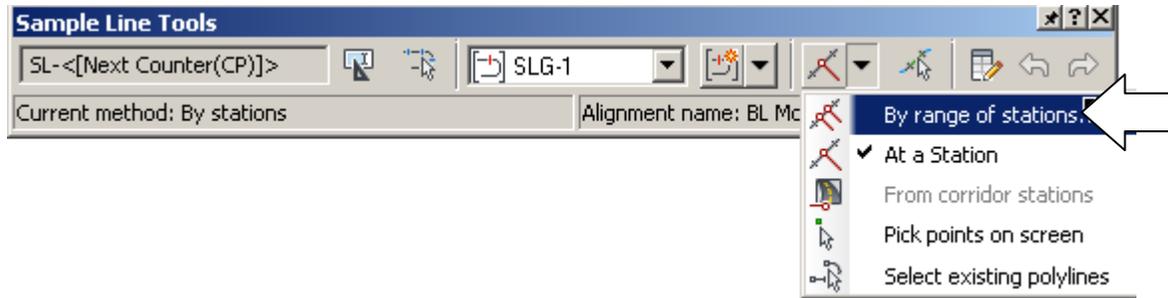
To create sample lines

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, be sure to select the layers for Sample line layer and the Section sampling defaults layer.

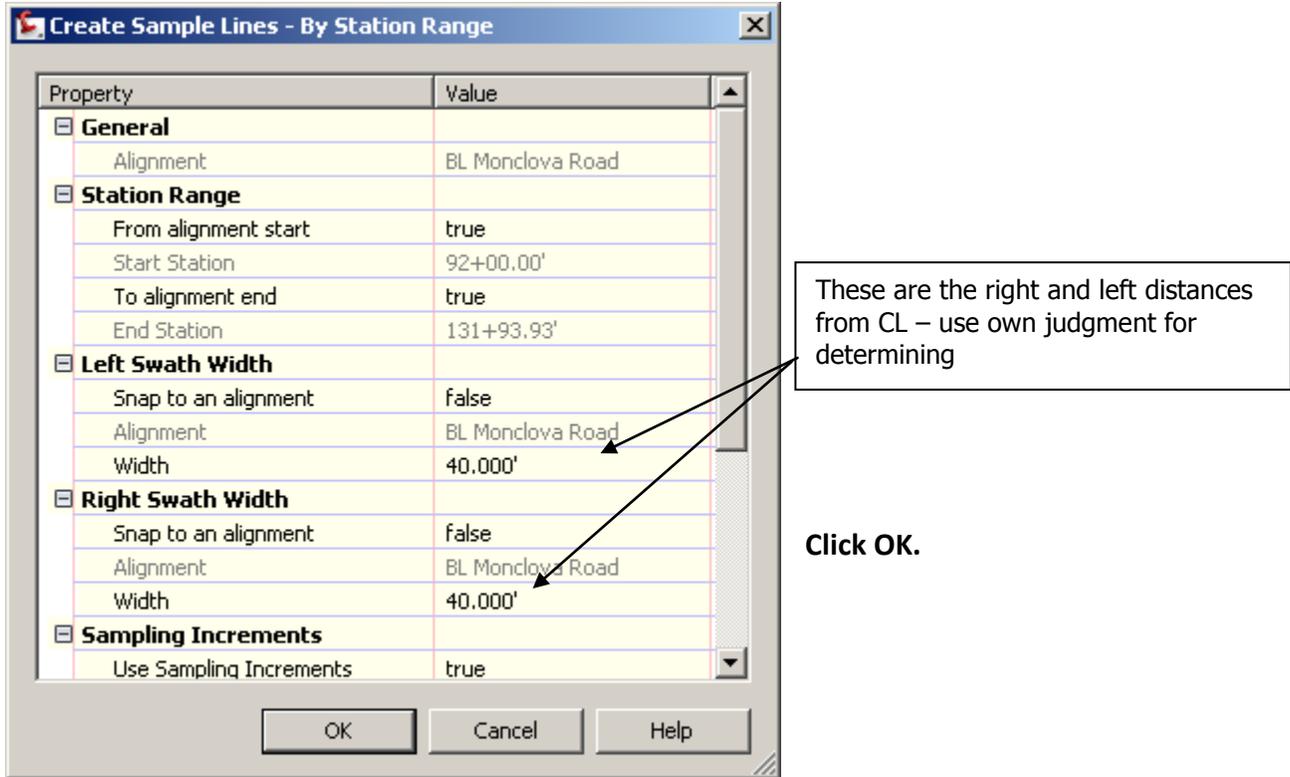


Click OK.

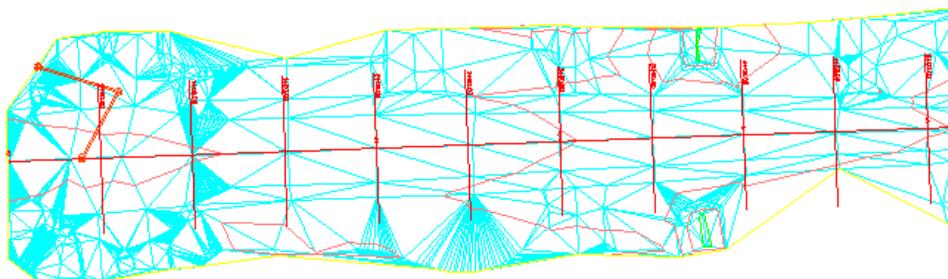
5. On the Sample Lines Tools bar, click this pull down to get the station range option:



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

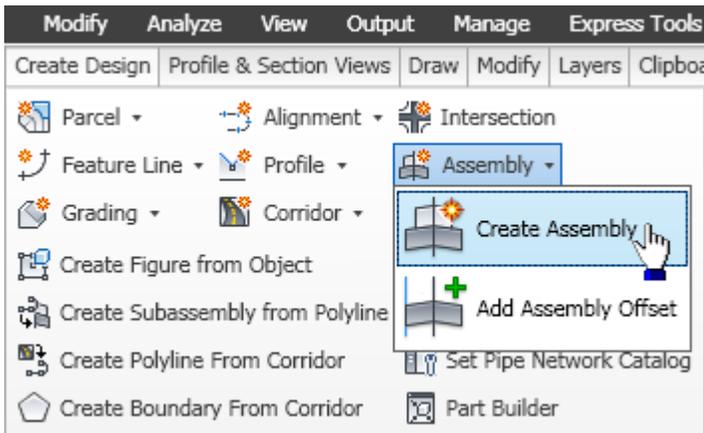


Now select specific locations along you baseline, (such as drive locations, existing storm drain structures, etc.) to include them with the sample line creation. Be sure to include the swath widths (Note: Consult your driveway summary to specify drive locations by stations):

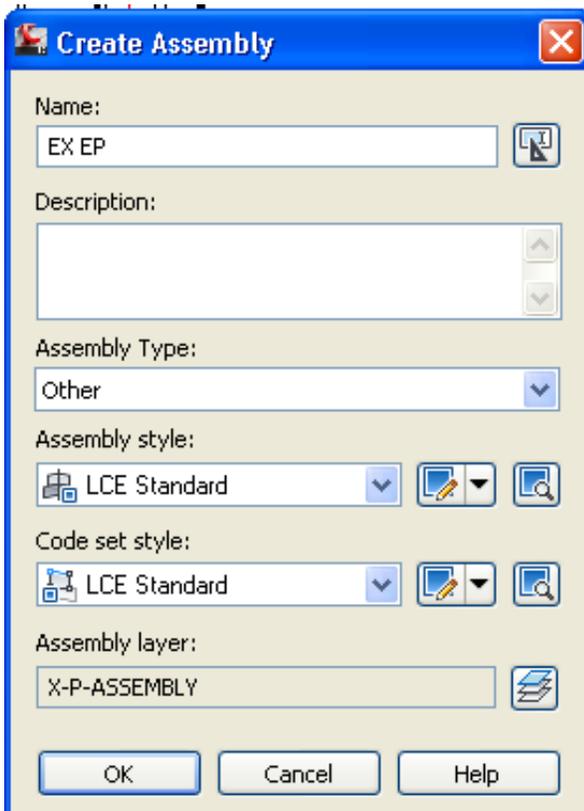


CREATE EX. EDGES OF PVMT. FOR CROSS SECTIONS

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



Be sure the settings are as follows:

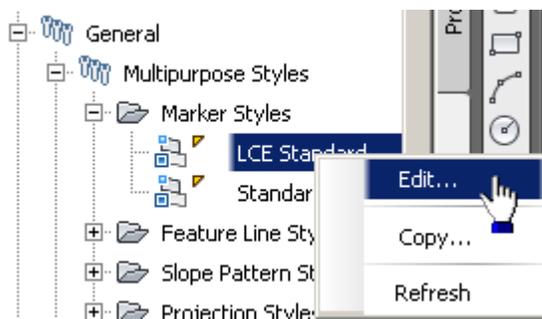


Click OK.

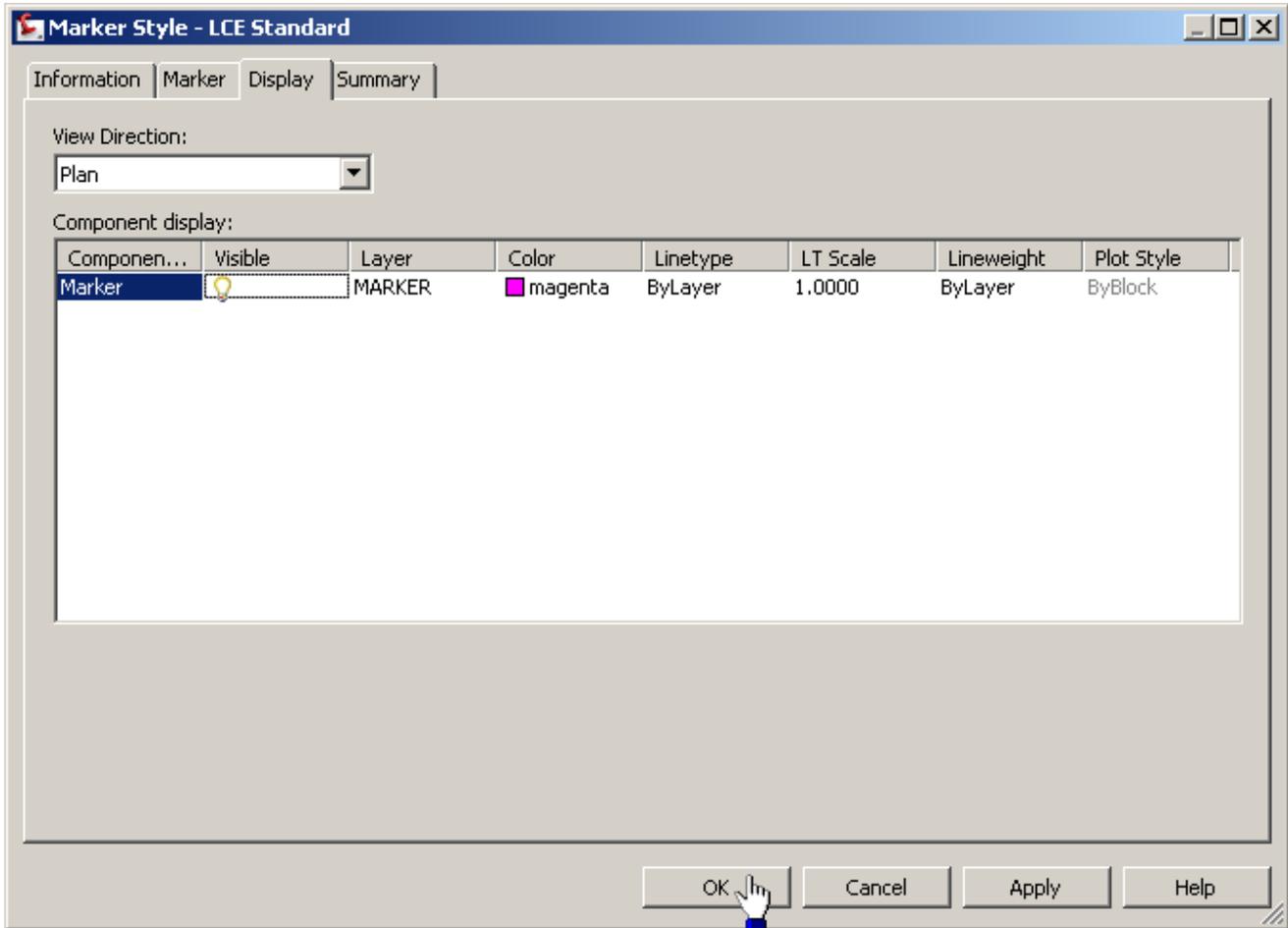
Pick a point to locate your new assembly:



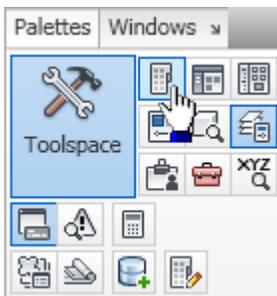
Next, make sure your markers are on:



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

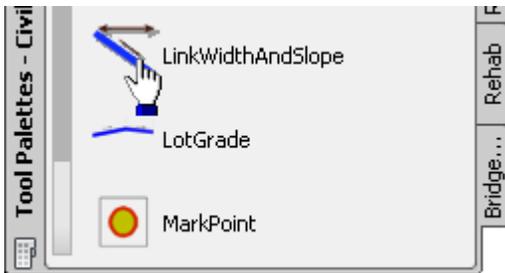


Make sure your Tool Palettes is up to see the assemblies:

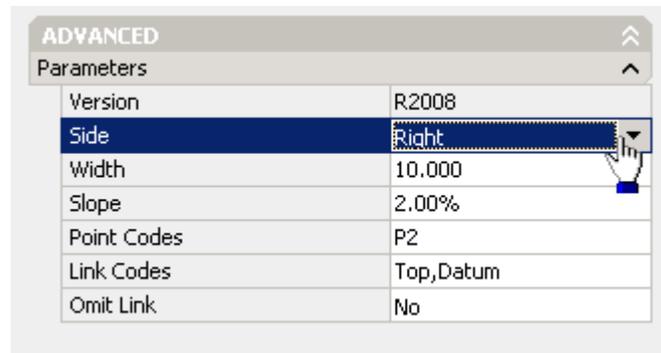


Select the following assembly component under the Imperial – Generic Tab:

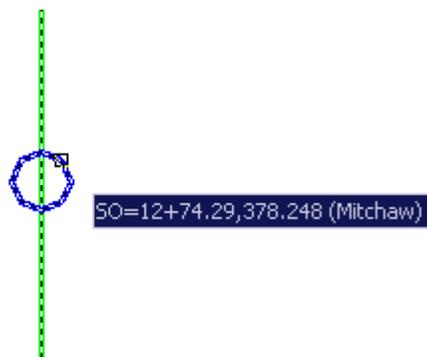
LinkWidthAndSlope



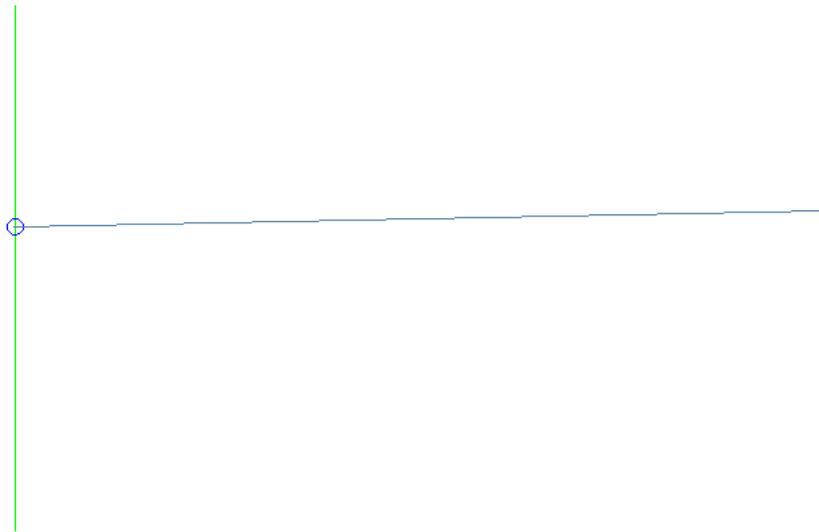
Next, go to your properties box and make sure the side is set to right:



Now, select the assembly maker:



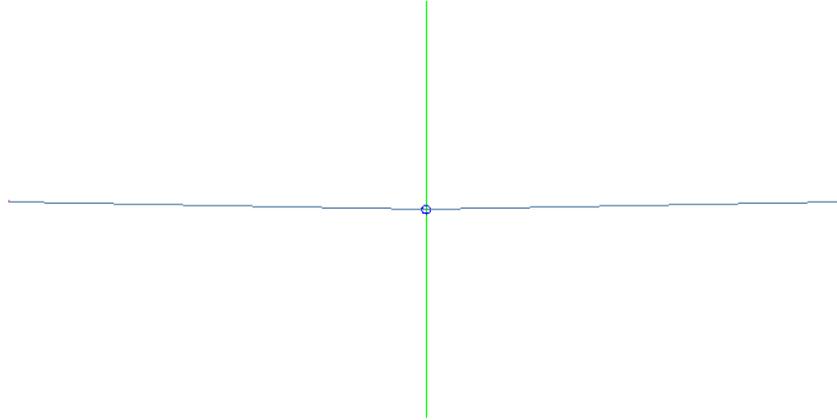
You should see this:



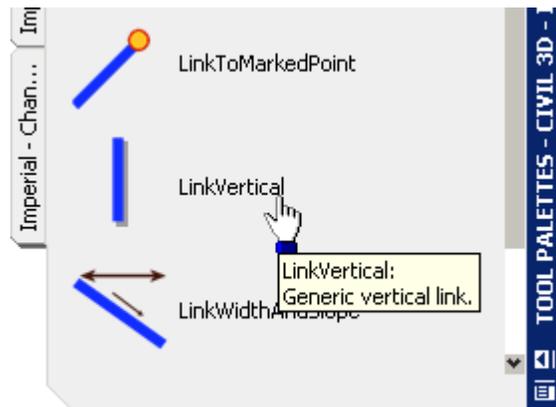
Go back to Tool Palettes and select the same component LinkWidthAndSlope, then go to properties and switch the side to Left:

ADVANCED	
Parameters	
Version	R2008
Side	Left
Width	10.000
Slope	2.00%
Point Codes	P2
Link Codes	Top,Datum
Omit Link	No

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



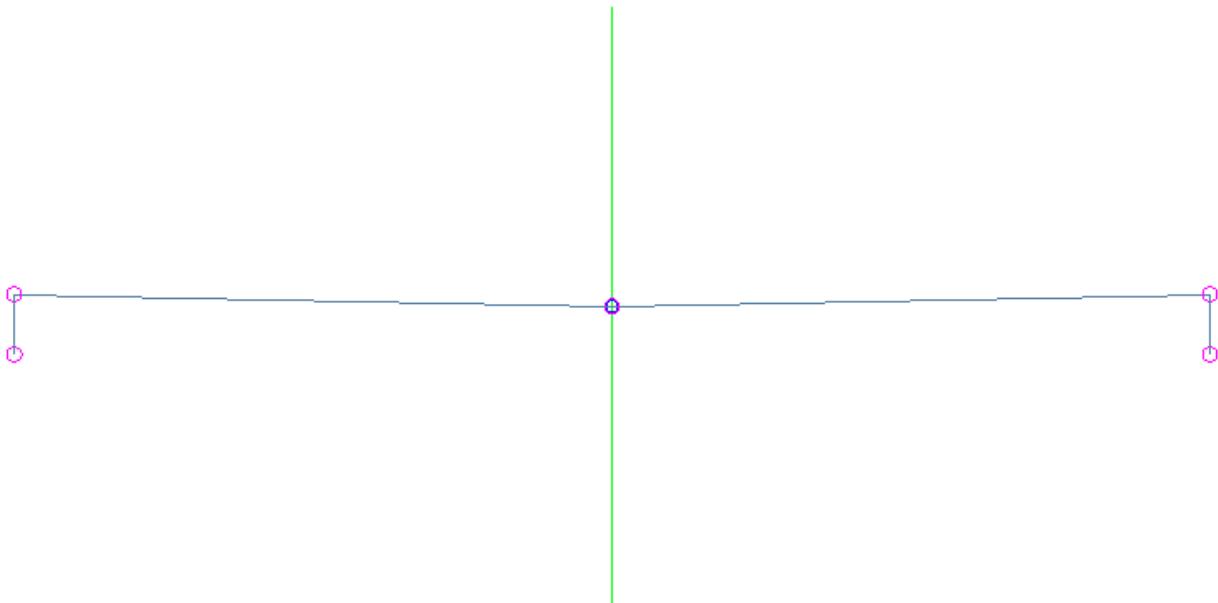
Go back to your Tool Palette and select LinkVertical:



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

ADVANCED	
Parameters	
Version	R2008
Vertical Deflection	-1.000'
Point Codes	P2
Link Codes	Top,Datum
Omit Link	No

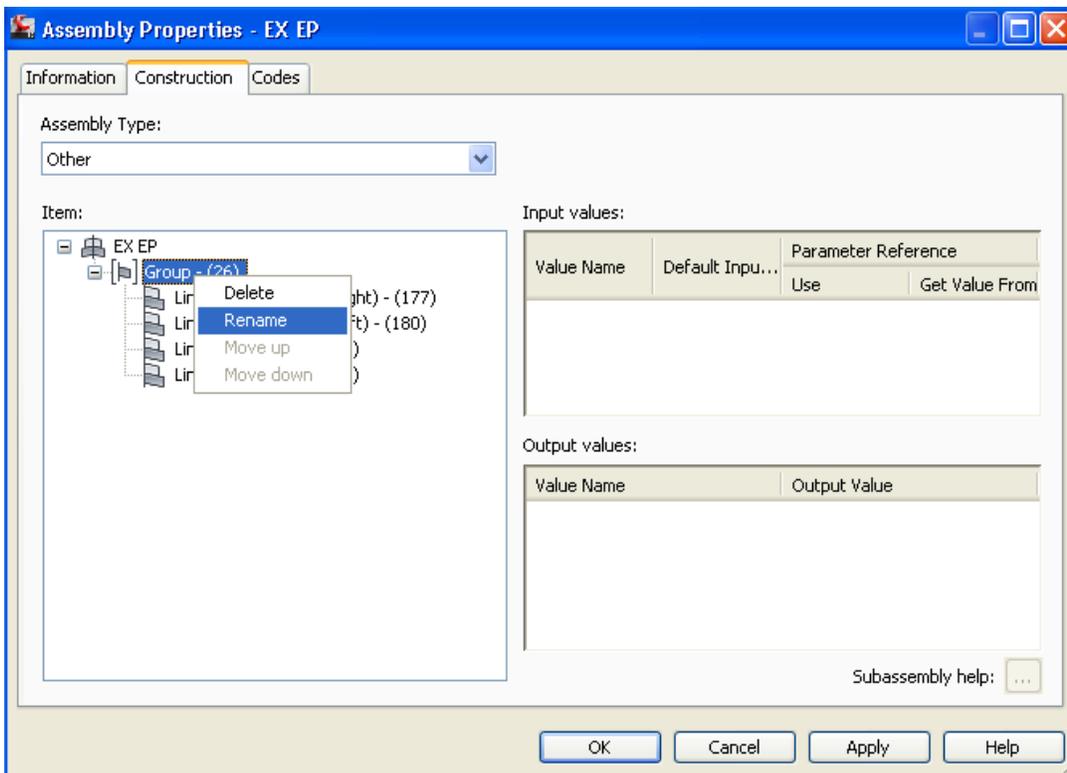
Now select one end marker and hit enter until you get the Command Prompt to insert the LinkVertical component. Repeat for the other side:



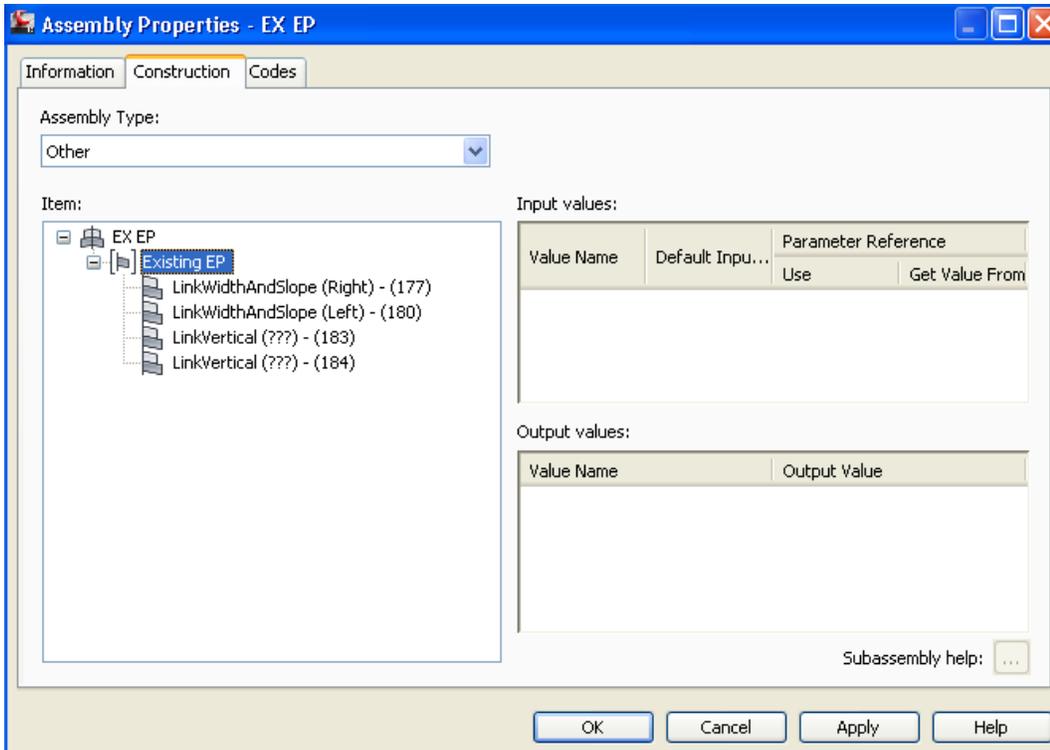
Now go to your Prospector Tab and right click your assembly called “EX-EP” and click properties:



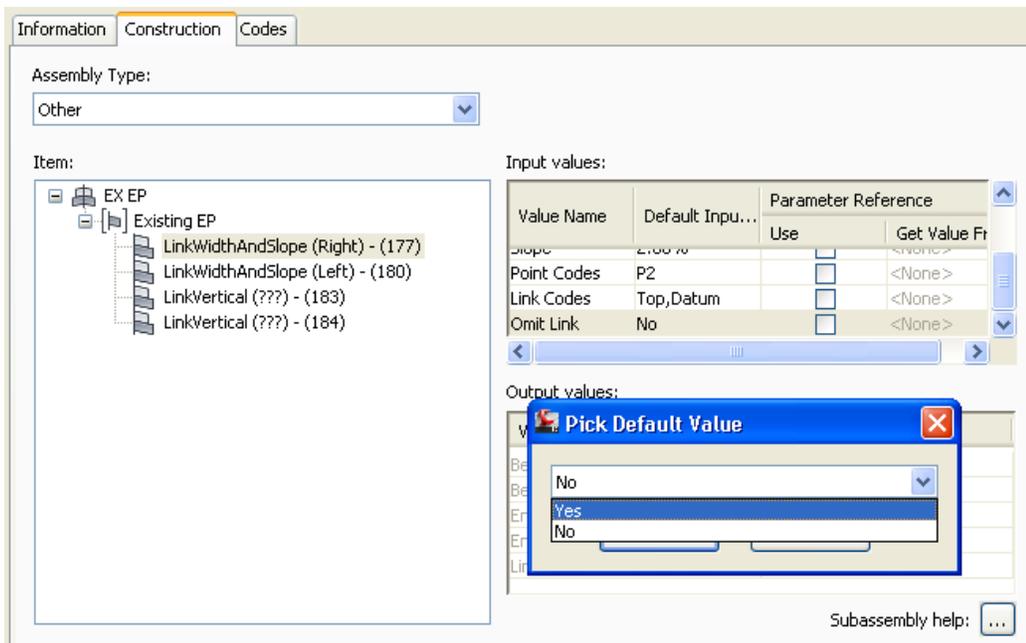
Make the Construction tab active, right click on the Group Names and rename them to something meaningful:

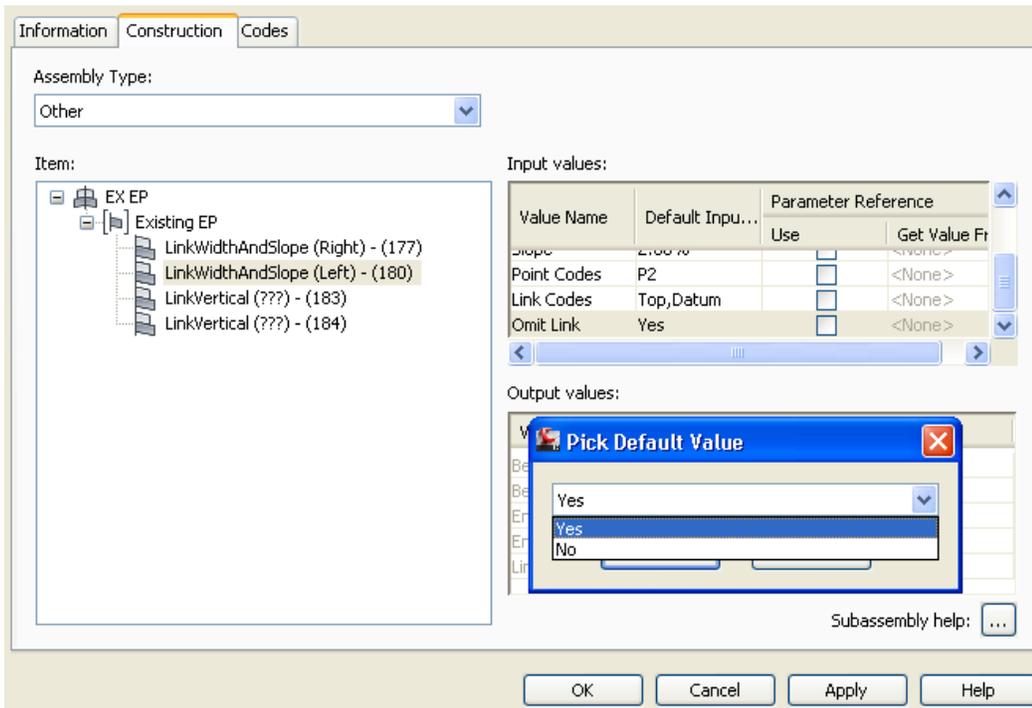


Like Existing EP group:



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





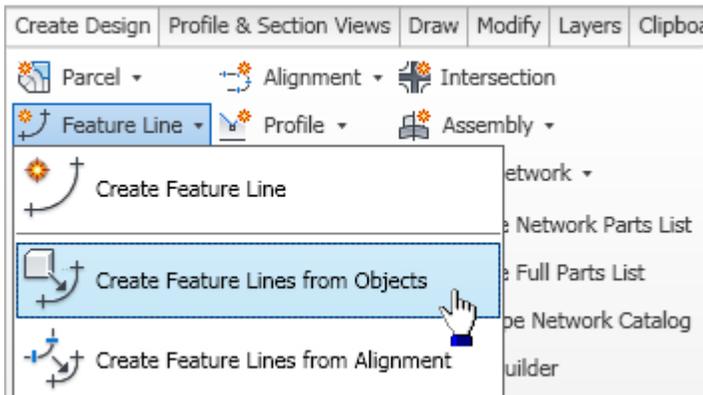
Now click OK.

Go back and turn off your markers.

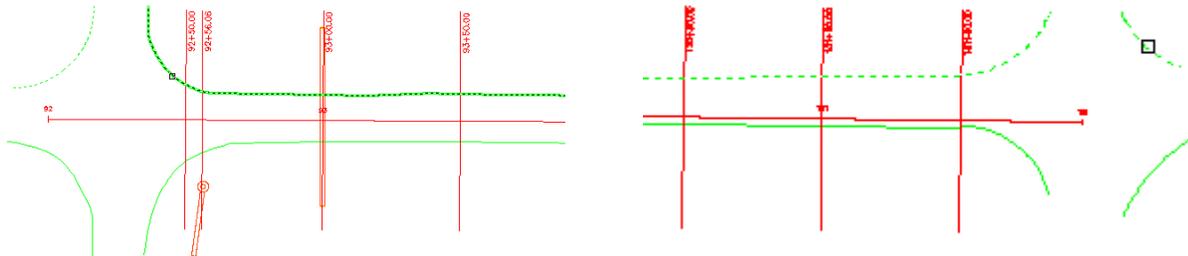
Before you go any further, using the AutoCAD command WBLOCK, make a block of the 3D Lines from your Master.dwg. Use the Layer State Manager to isolate the 3D Layers > Wblock the 3d lines out as a separate drawing > go back to the Layer State Manager and restore the Default.

Insert the 3D Lines block (explode on insert) into your cross section drawing using 0,0 as your insertion point.

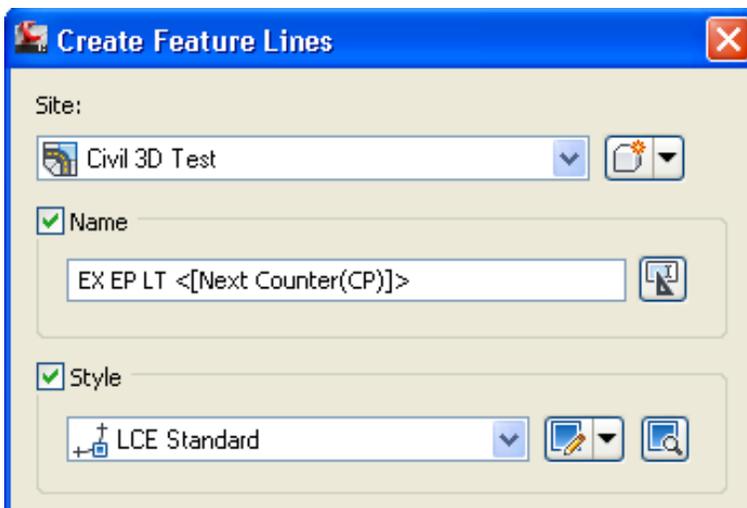
Now you are going to create Feature Lines from the 3D EP lines you inserted earlier. Make sure your 3D lines are on. Go to Create Design>Feature Line>Create Feature Lines from Pipe networks:



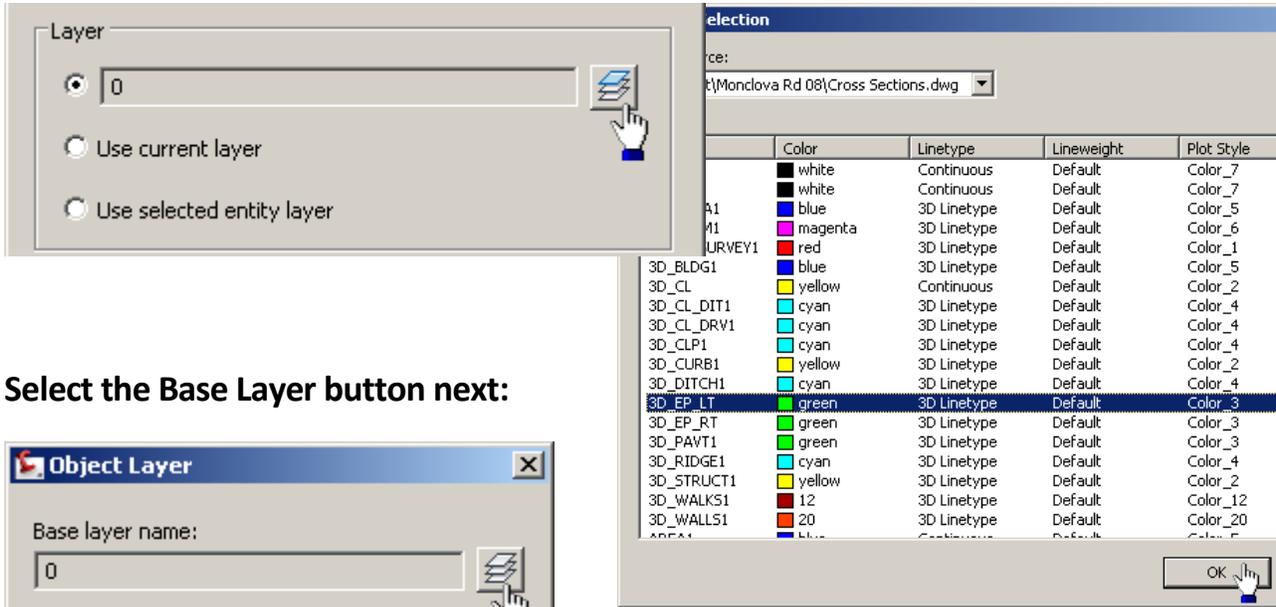
Start selecting either the right or left 3D EP lines:



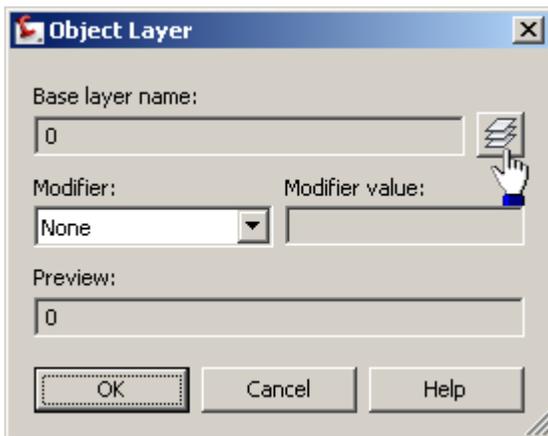
When one side is selected, hit Enter. Make the top settings as follows. Do not leave out <[Next Counter(CP)]> in the name:



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

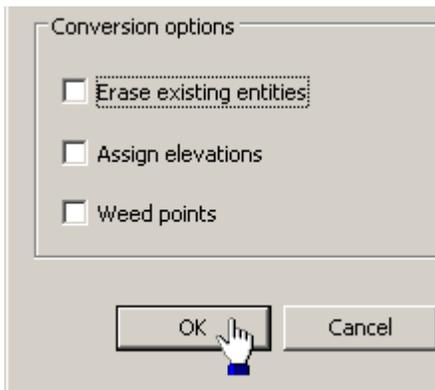


Select the Base Layer button next:



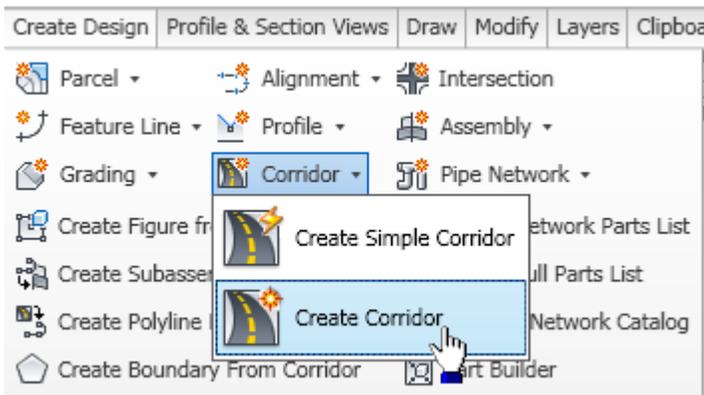
Make the selection (shown right) and click OK, then click OK again.

Uncheck the Erase existing entities box and click OK:

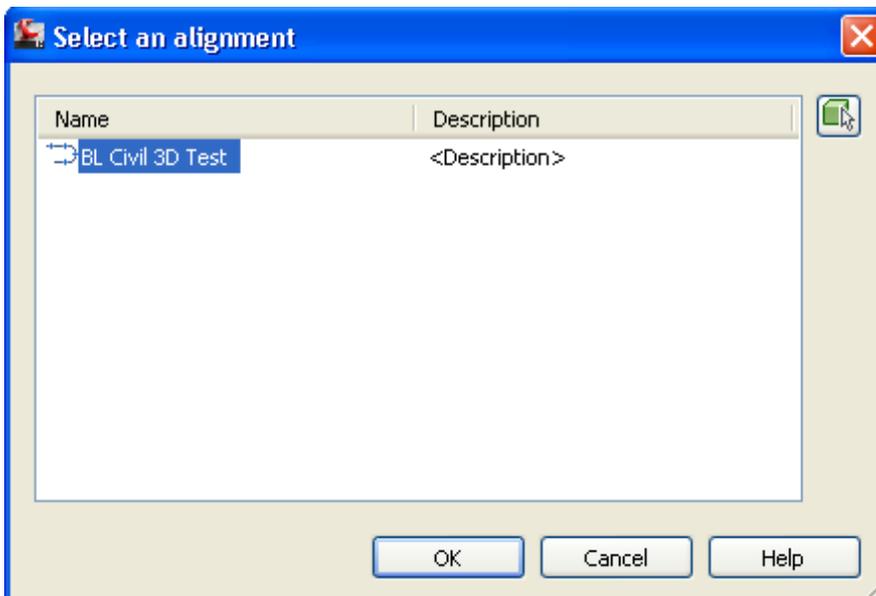


Repeat these steps on page 25-26 for the right side of the Edge of Pavement that you haven't created yet.

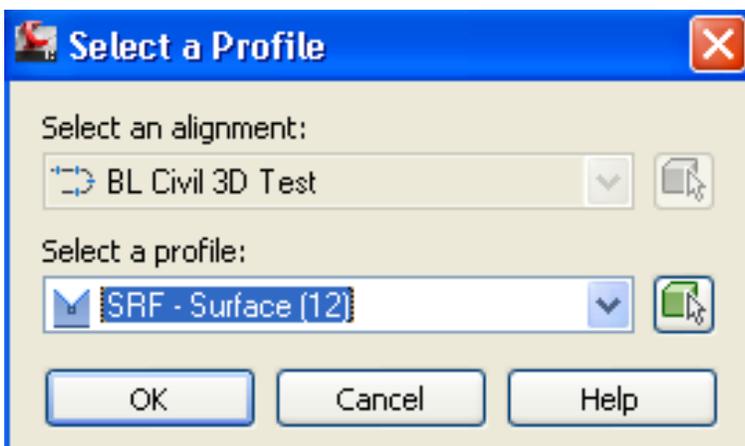
You are now going to create a new corridor for your new assembly. Click the Corridor pull down and click Create Corridor:



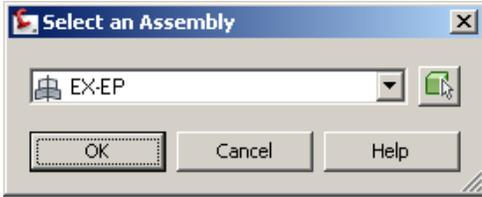
Hit Enter to select from a list. Select the project baseline. Click OK.



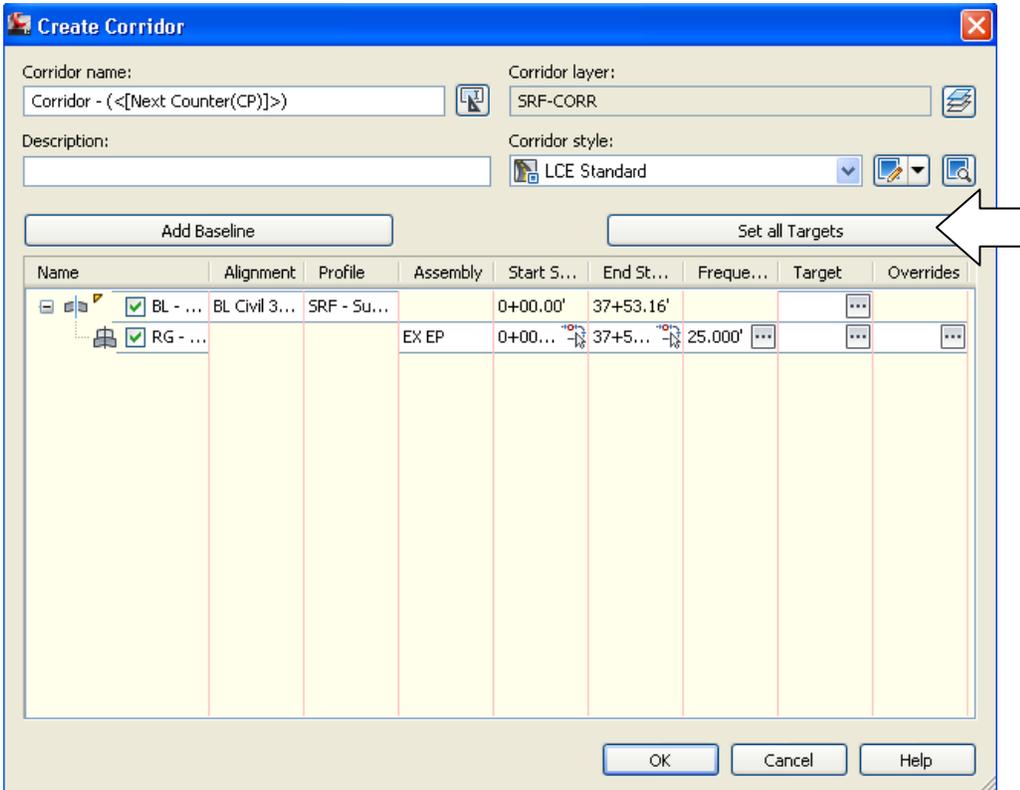
Enter and select profile by clicking OK:



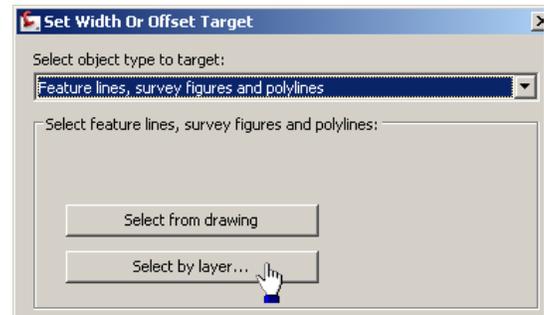
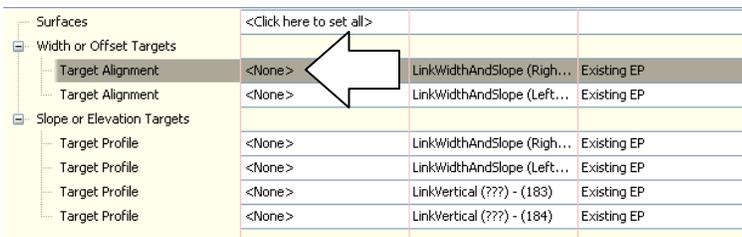
Enter and select the EX-EP assembly by clicking OK:



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

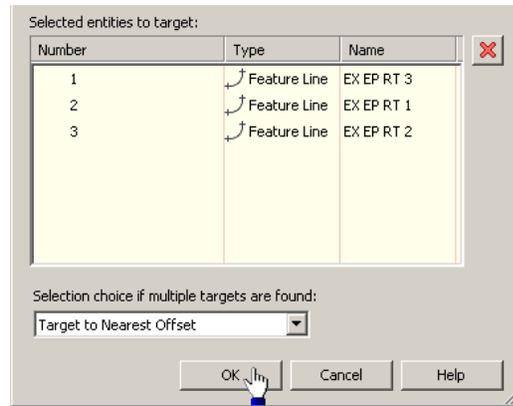
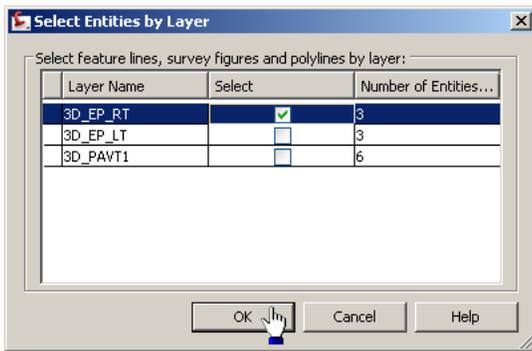


Click on the Right Assembly Group-Pipe network Name field to target the Alignment:



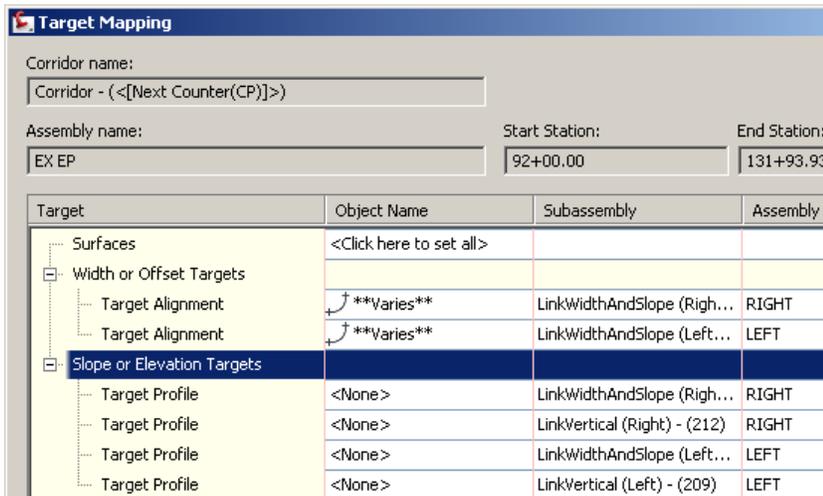
Set the Offset Target type to Feature Lines, etc. pull down (above) - click Select by Layer:

Select the 3D_EP_RT layer and click OK.

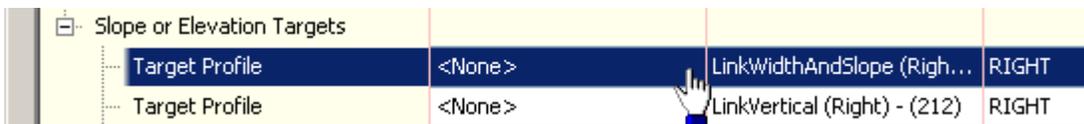


Your feature lines have been added as targets for the right side EP's. Click OK.

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



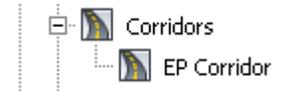
Now, click on the Target Profile Pipe network Name for the right side:



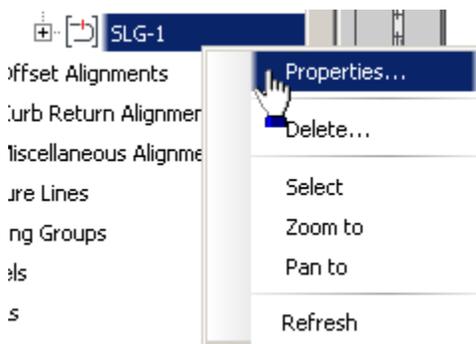
Again, following the same procedures as above, select the pull down to change to the Feature Line option, Select by Layer, click OK, then click OK again. Repeat the same steps for the left side. Do not target the Right and Left LinkVertical Subassemblies.

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

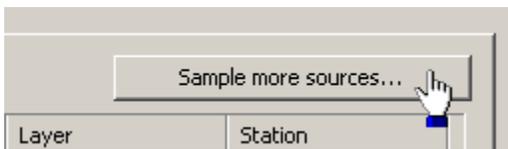
Click OK...and OK again and your Corridor is created.



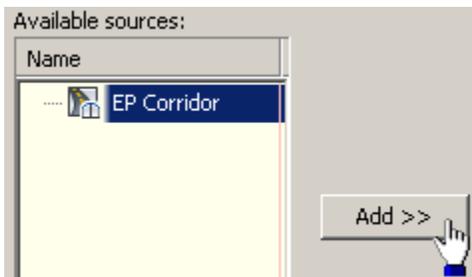
Now add your new corridor to your sample line group:



Right click on the Sample Line group and click Properties.



Click Sample more sources...



Highlight your corridor and click Add>>.

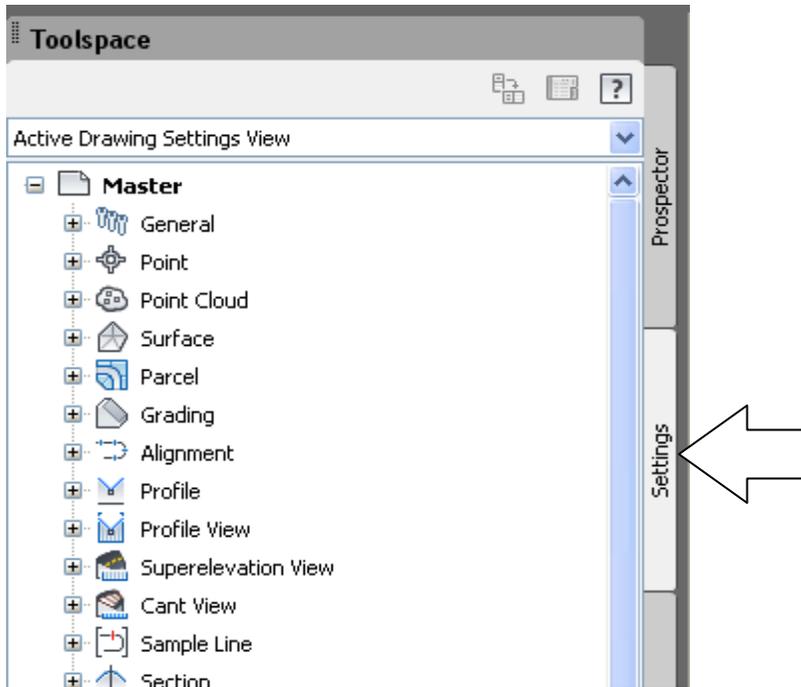


Click OK, then click OK again.

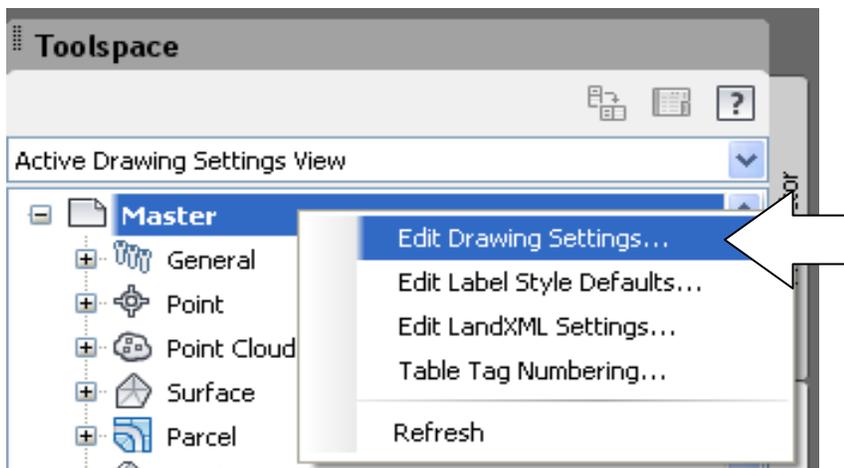
CREATING SECTION VIEWS

Before creating Section Views, you will have to change the scale under the general settings of the drawing. Follow these steps:

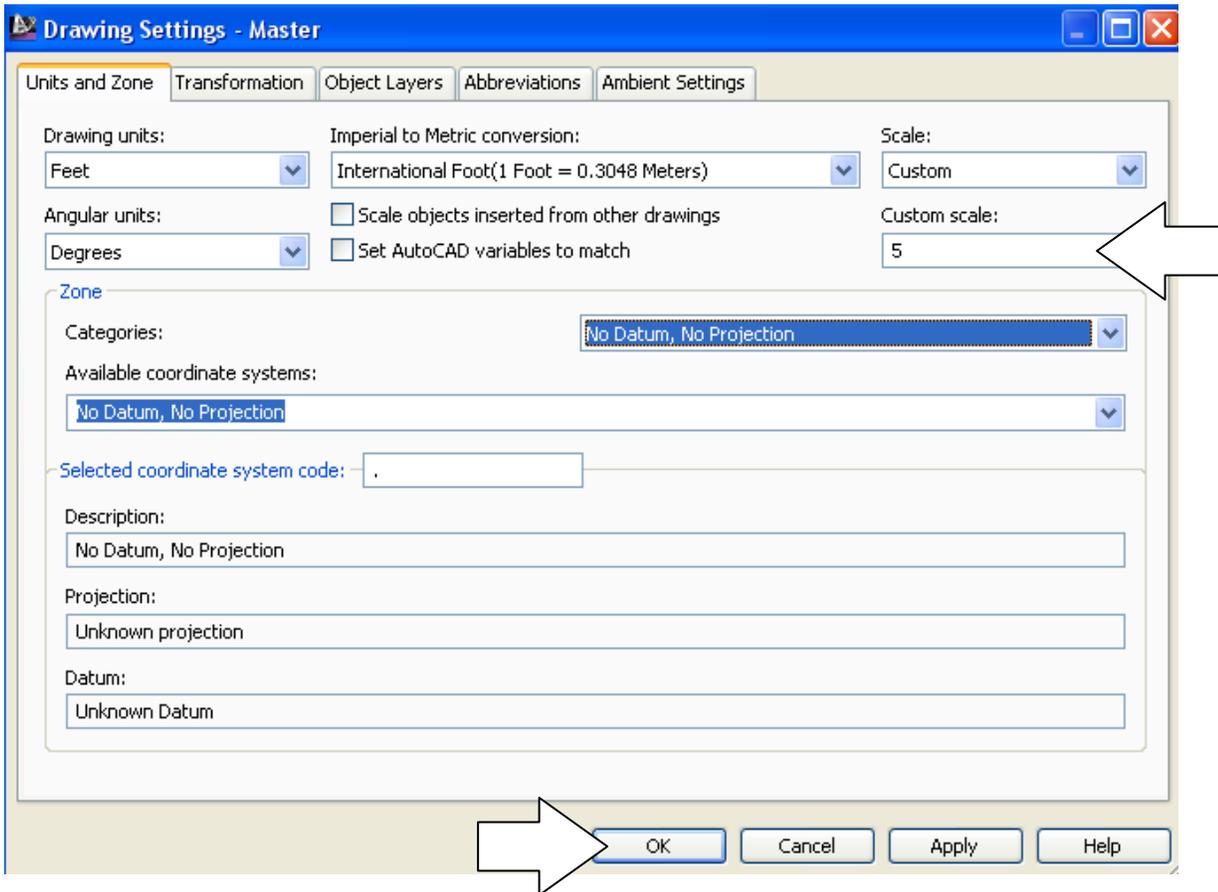
In the Toolspace, click the Settings Tab:



Next, right click on the drawing name and click Edit Drawing Settings:

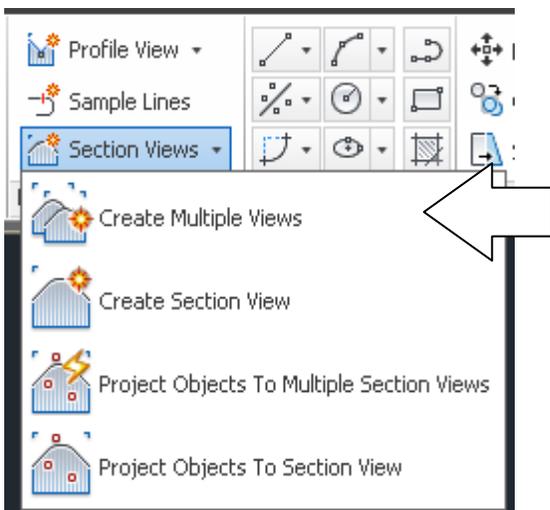


You are going to change the scale from 20 to 5, so the section views come into the drawing, looking correct. Just change the 20 in the Custom scale field to 5, then click OK:

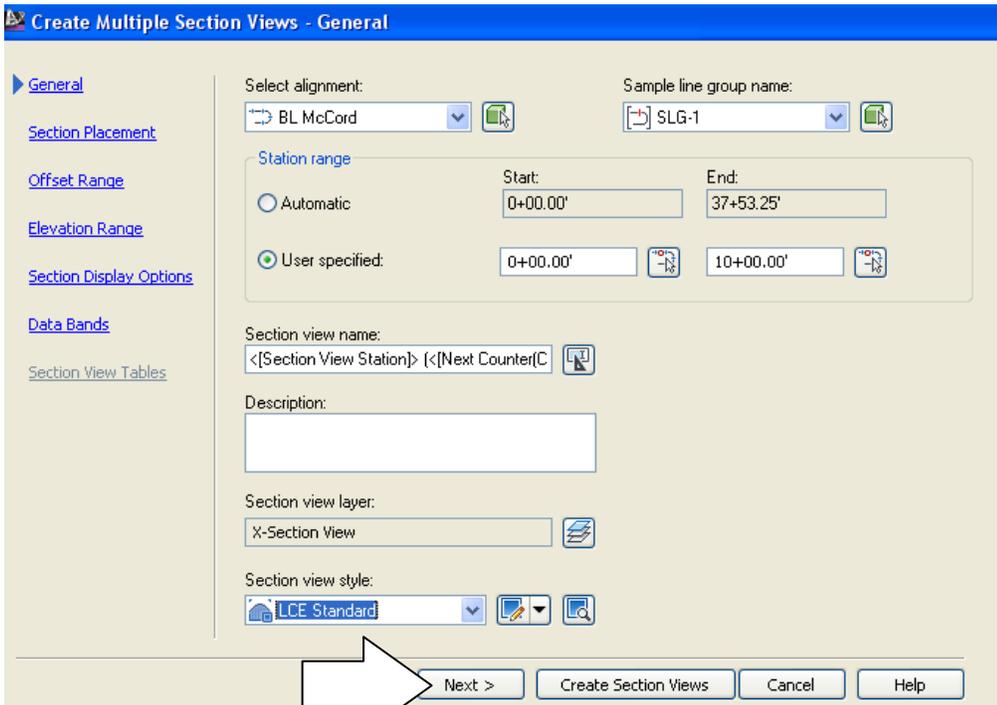


Now you are ready to create your Section Views.

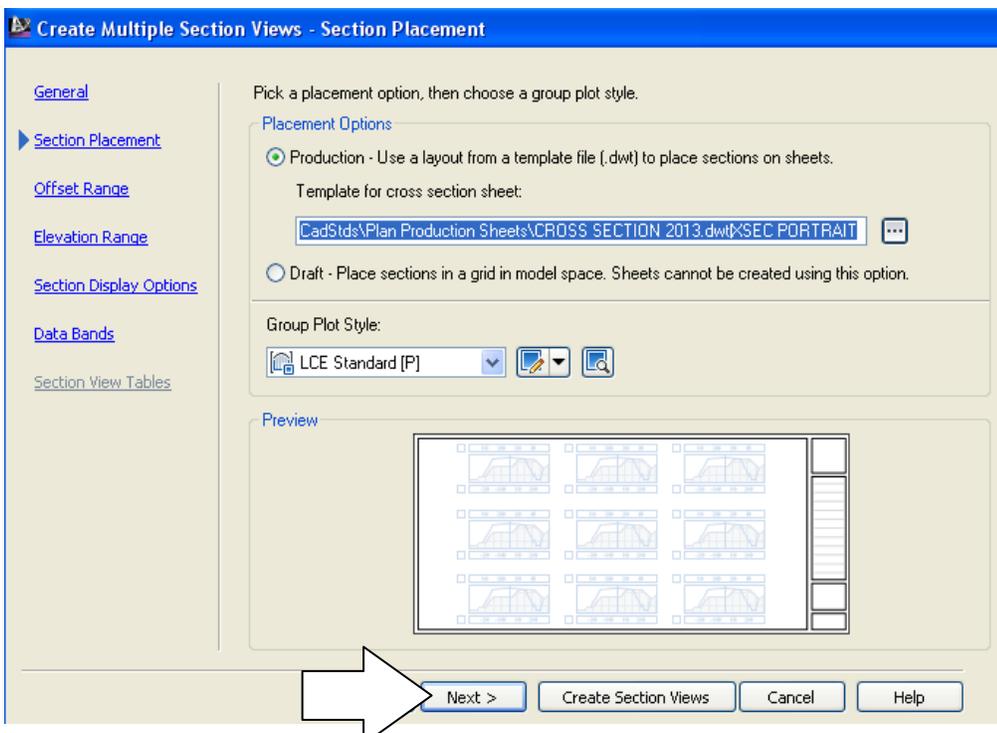
On the ribbon, click the Section Views pull down, and click Create Multiple Views:



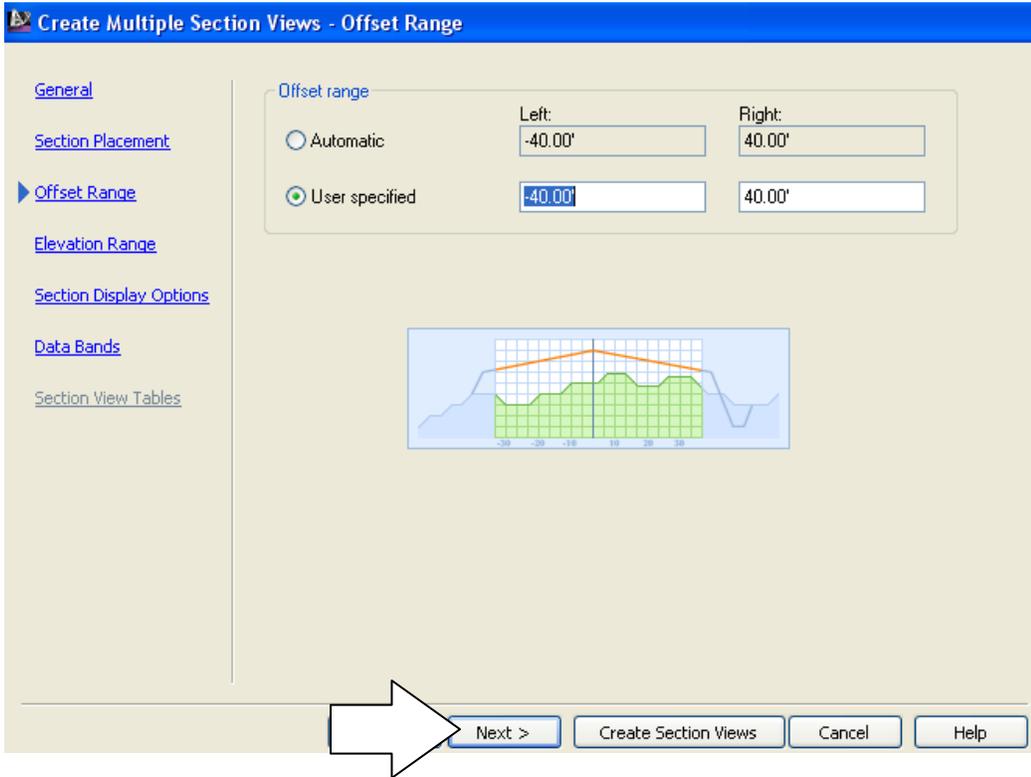
On this first screen, you would typically want to do an Automatic setting for the Station range, but I've specified a range to reduce the amount of Section Views for this training document. The rest of the settings are fine as is. Click Next:



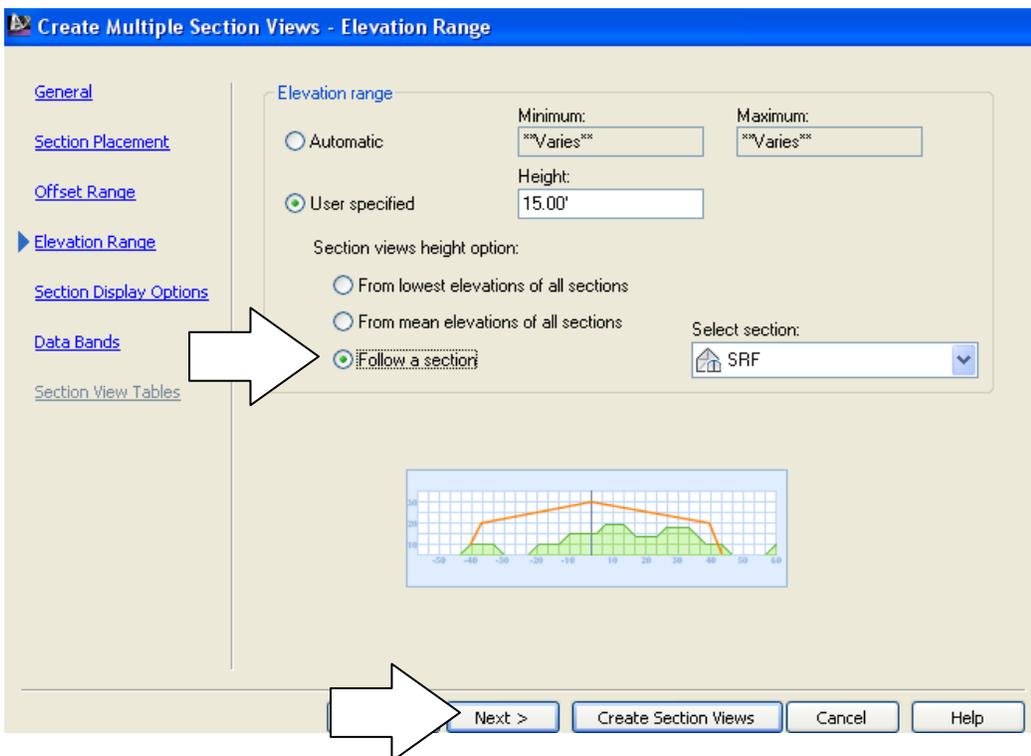
If the template is not set to the proper template file, click the button with the 3 dots next to the field, and browse to G:\data\ENGINEER\CadStd\Plan Production Sheets\cross section 2013.dwt. Set the Group Plot Style to as shown. Click Next:



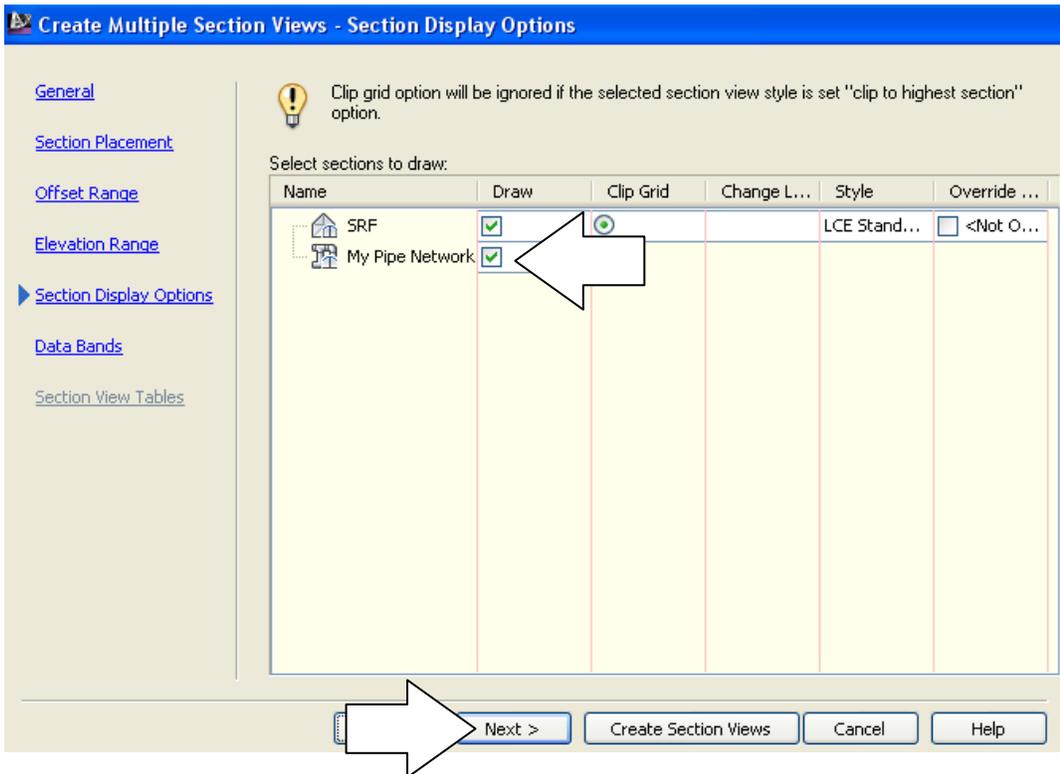
On this screen, you can adjust the swath width of the Section Views, based on the Portrait or Landscape format of the template. The default should be set for Portrait, -40 and 40. Click Next:



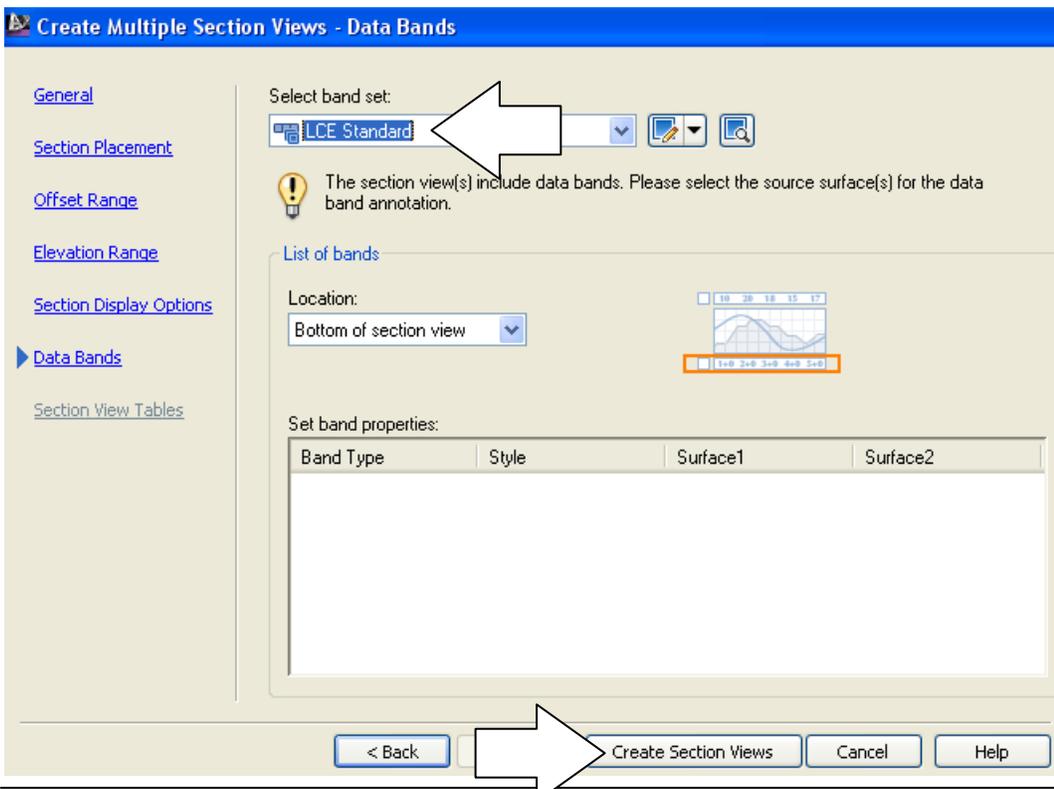
Specify the Section view height option to follow a section – SRF. Click Next:



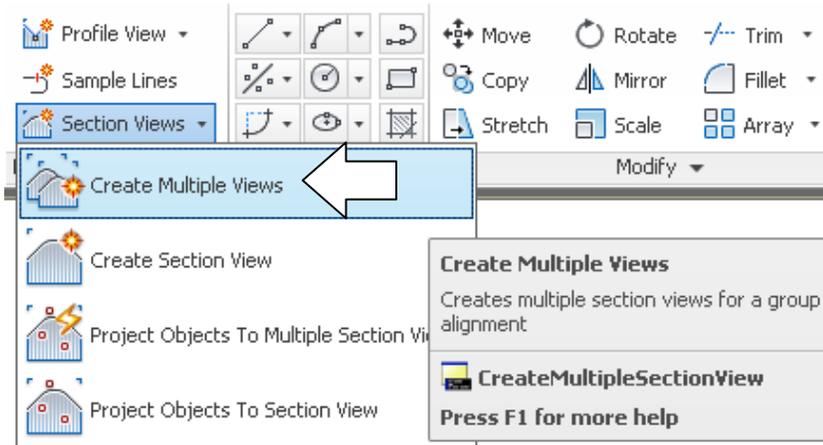
On this screen, you can choose to include or exclude the SRF and pipe networks by checking or unchecking the boxes. By default, they will be checked. Click Next:



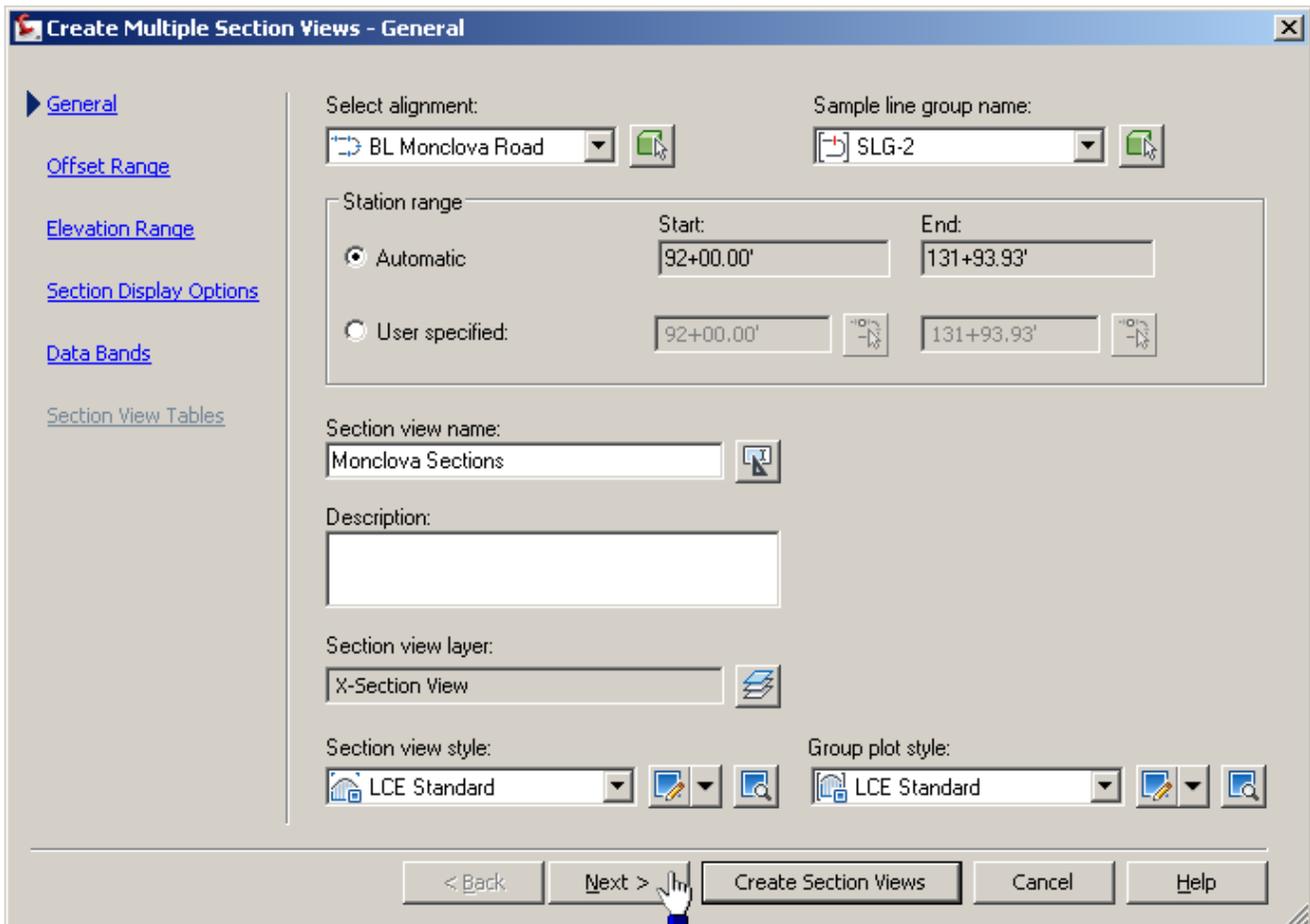
Be sure on this next screen that the band set is set to LCE Standard. Click Create Section Views:



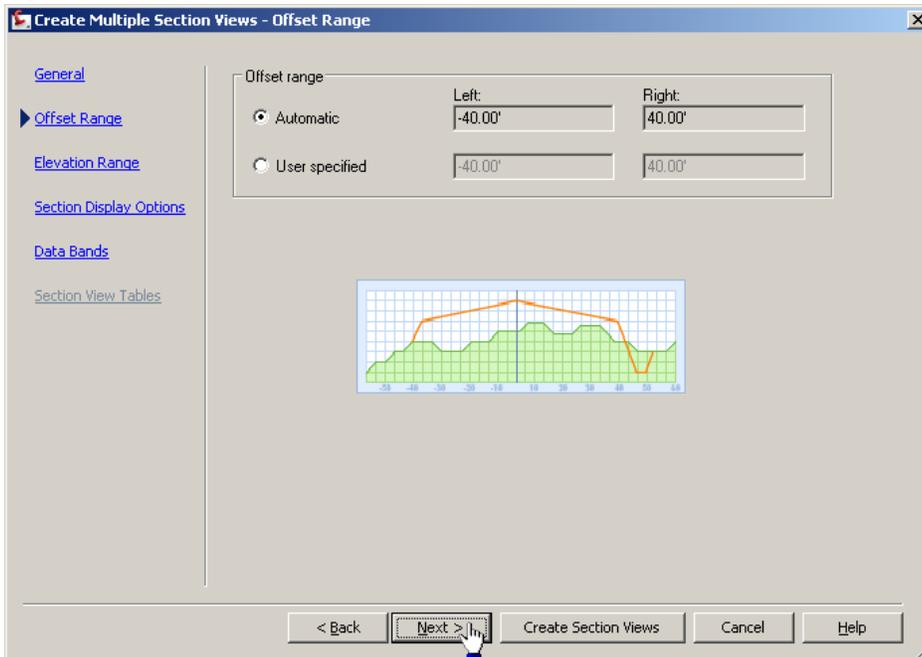
Go to Profile & Section Views, and click Create Multiple Section Views :



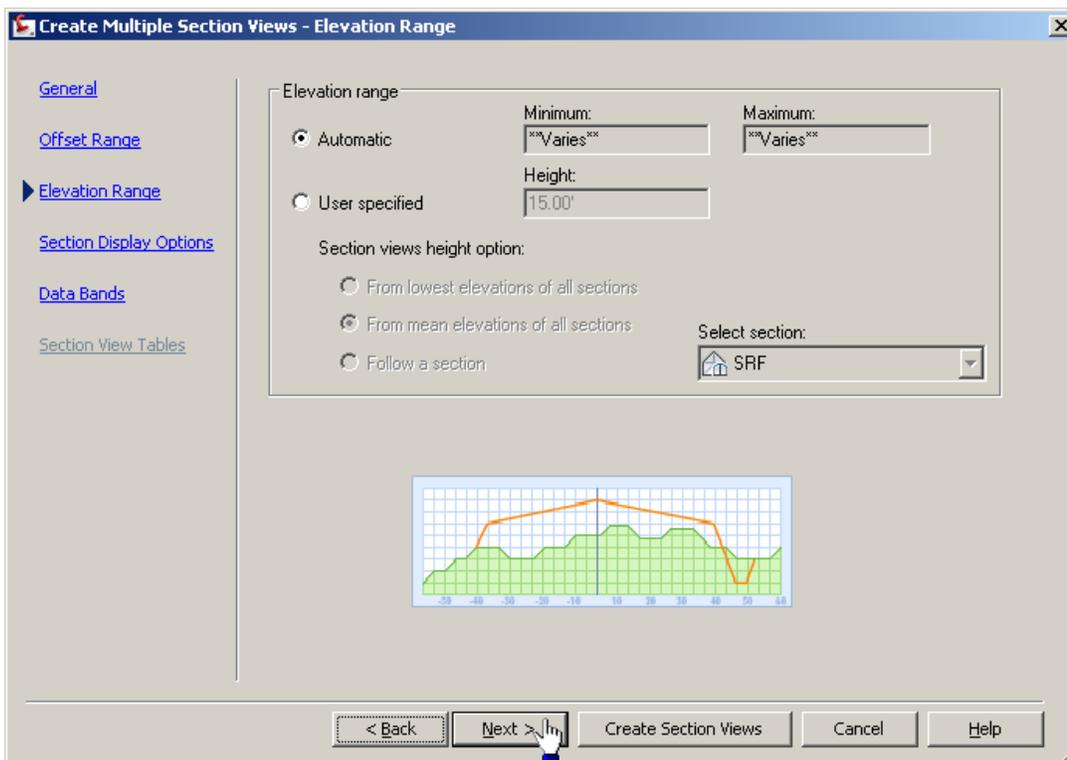
Give the Section View a name and click Next:



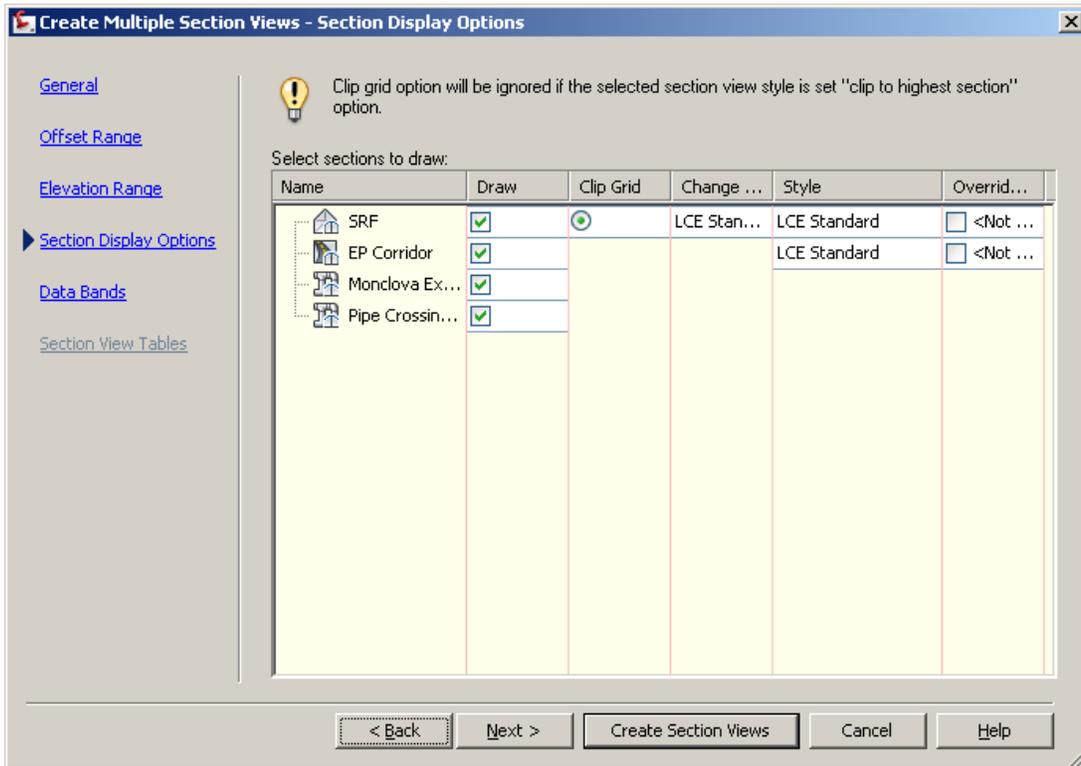
You can leave the Offset Range as is or change it. Click Next (Note-If you have sections that are cutting through pipe network crossings at a skewed angle, use the User Specified Offset range setting and make sure the left side is -40 and the right side is 40:



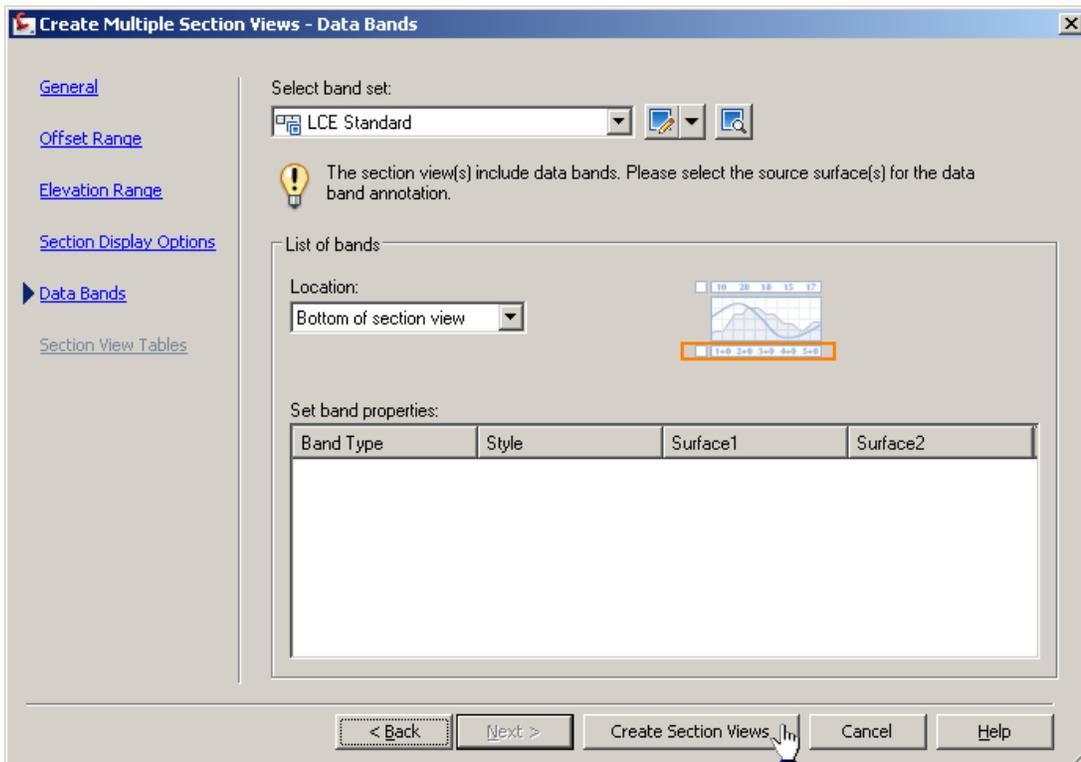
Leave the Elevation range settings as is:



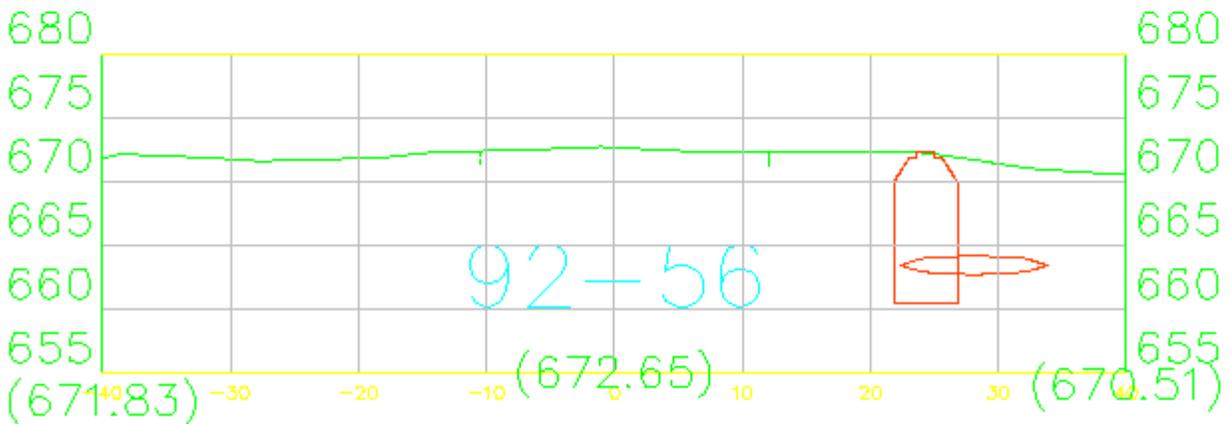
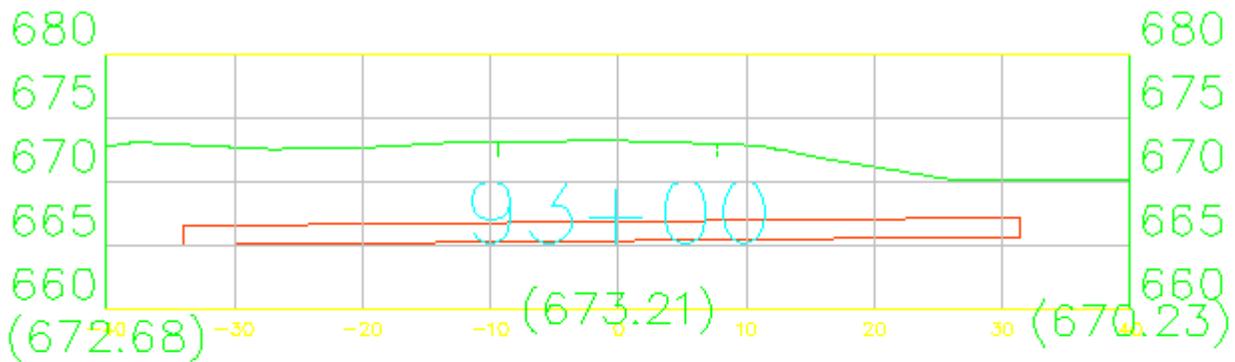
Section Display Options. Leave as is unless you want to exclude pipe networks from appearing in the sections. Click Next:



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

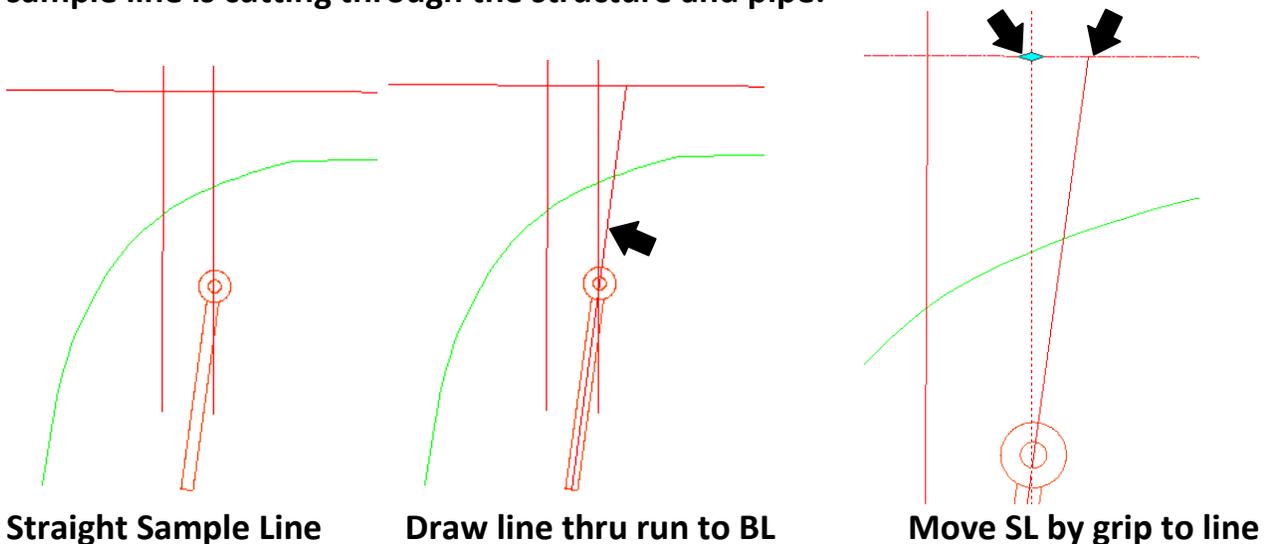


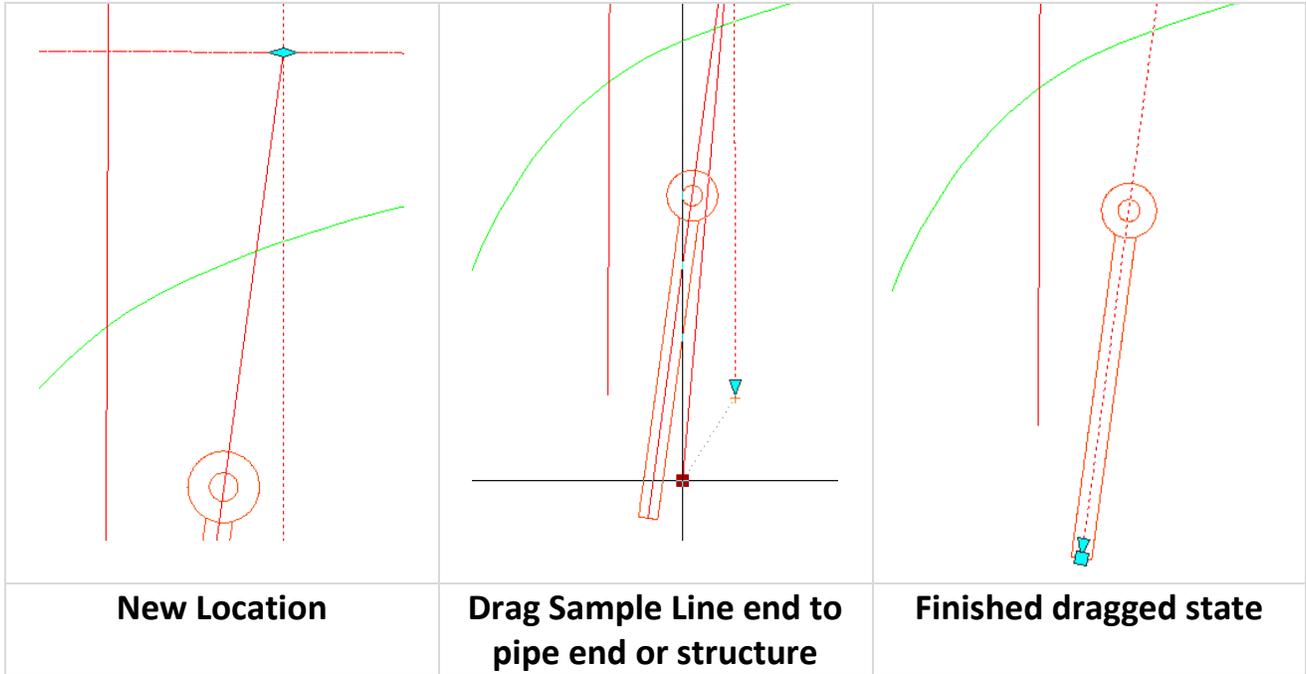
Here is the result:



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:

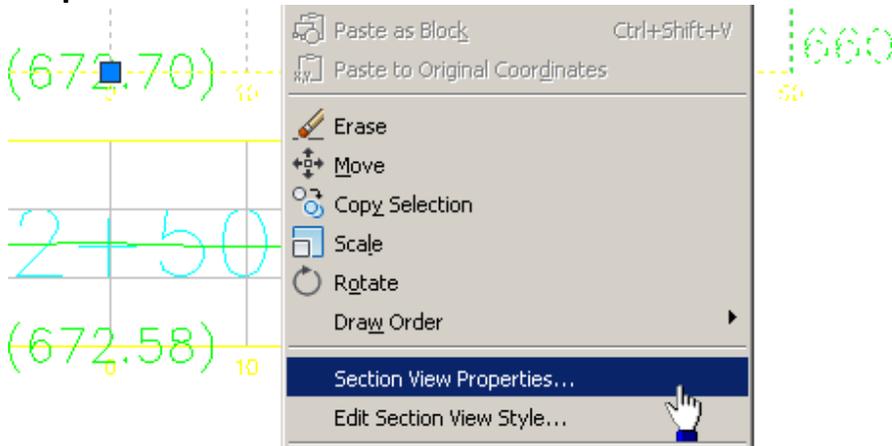




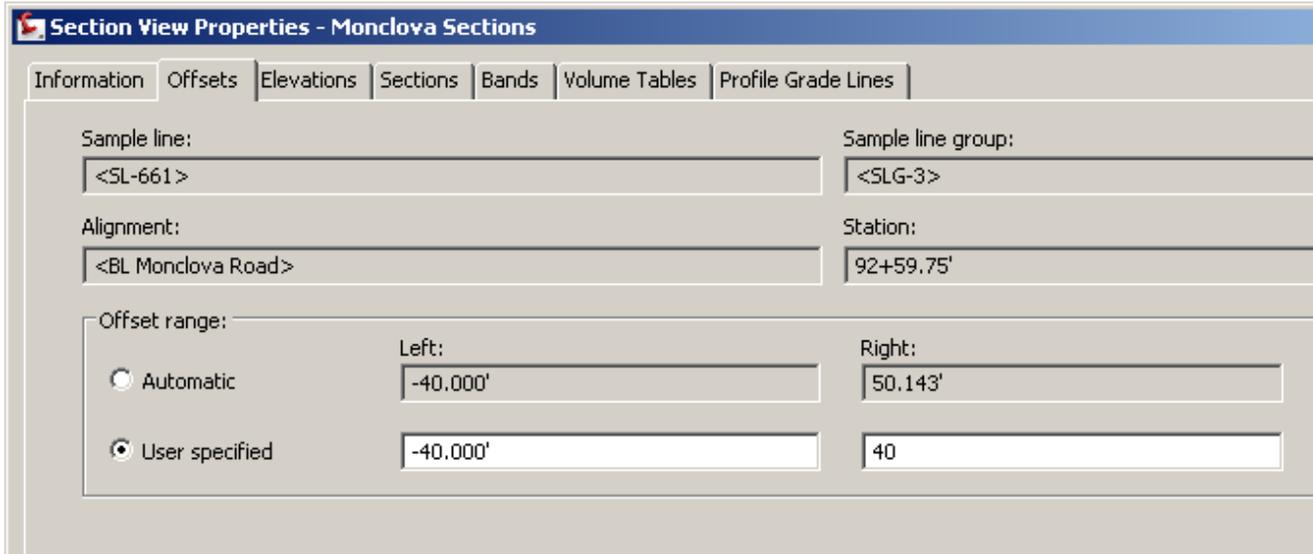
Hit Esc. You'll notice the section has extended out past the swath width of the sections. This may not happen all the time, depending on where the end of the sample line ends in relationship to the other sample lines.



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.

ADDITIONAL STEP

You will need to adjust the location of the section views to be centered in the layouts of the Cross Section Sheets when they are created. Use the Move Step A for Portrait style cross section sheets and Move Step B for Landscape style.

Move Step A

Use the Move command > select all your section views > enter > select your base point > type in the following:

@4,5

Hit enter.

Move Step B

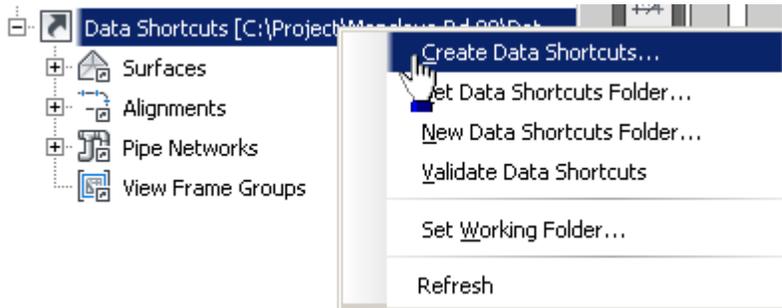
Use the Move command > select all your section views > enter > select your base point > type in the following:

@5,5

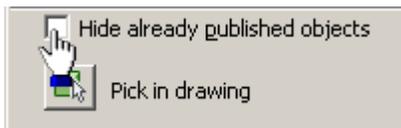
Hit enter.

ADDING ADDITIONAL PIPE NETWORKS IN SECTION VIEWS

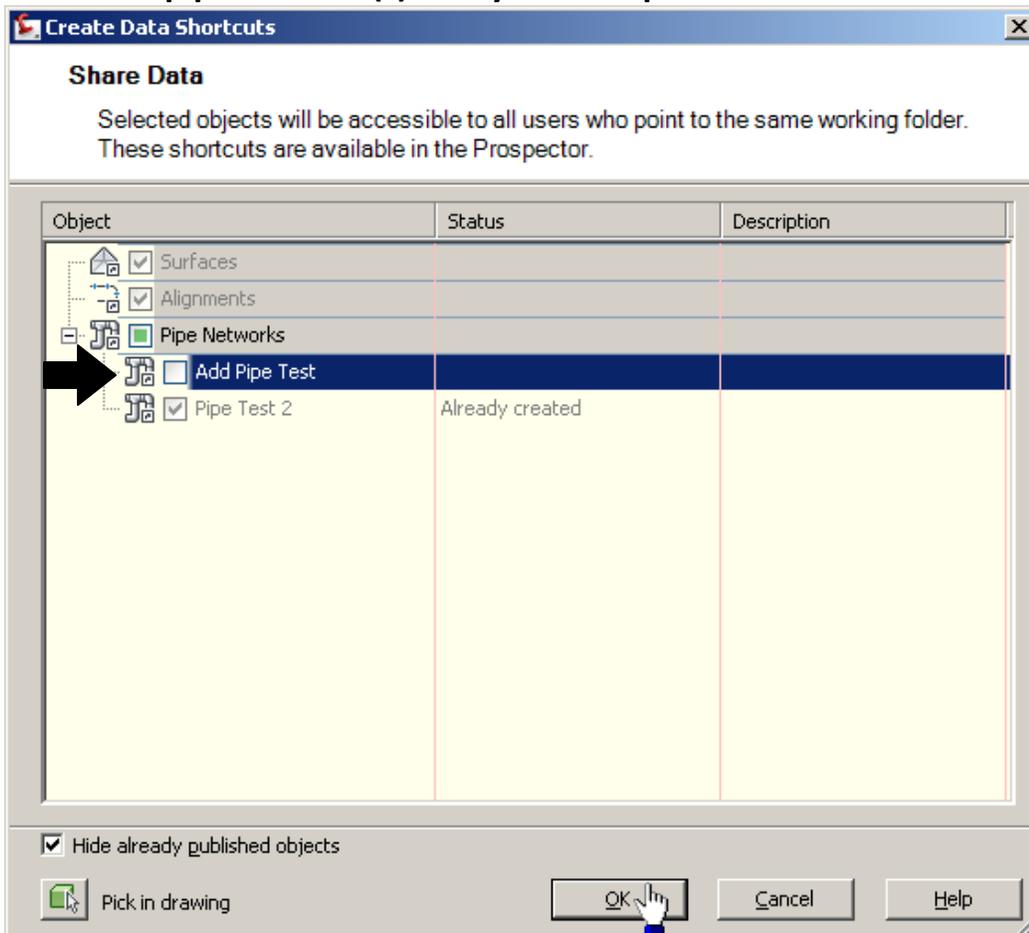
To add additional pipe networks to your section views, do this. After the pipe network has been created in your Topo drawing, be sure to add it as a data shortcut. Right click on the data shortcuts in Prospector and click Create Data Shortcuts:



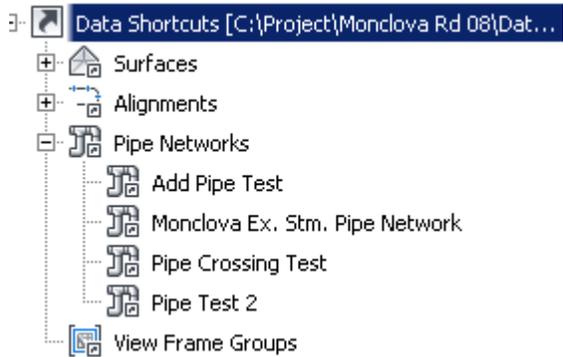
If you want, you can check the Hide already published pipe networks to show just the pipe networks that you want published.



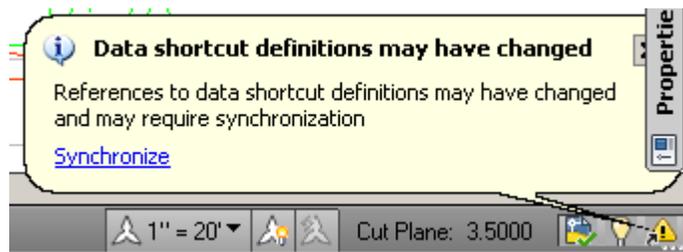
Check the pipe network(s) that you want published and click OK:



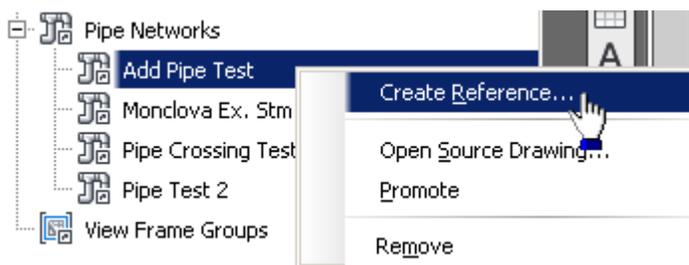
You see that this pipe network has been added as a data shortcut:



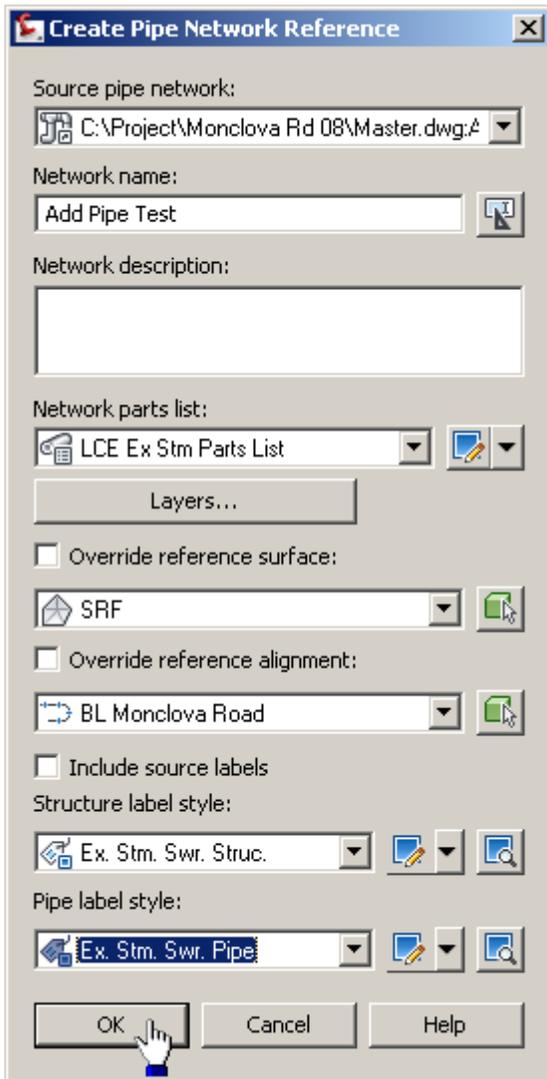
Click Save in your Topo drawing. Now open or switch to your Cross Section drawing. You will see the following balloon notification if you already had your Cross Section drawing opened:



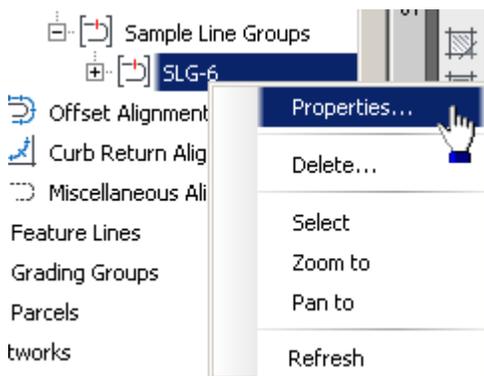
If you do see this, click the Synchronize. If you re-opened your Cross Section drawing, the new data shortcut will have synchronized automatically. You will still need to make a new reference to the new data shortcut. Do this...right click the new data shortcut and click Create Reference:



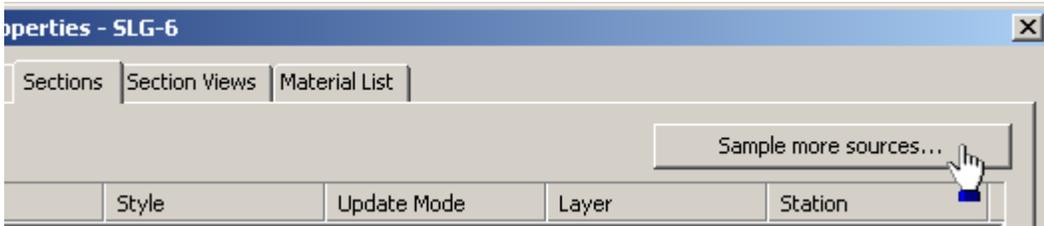
Depending on the type of pipe network you've referenced, be sure your settings are correct, then click OK:



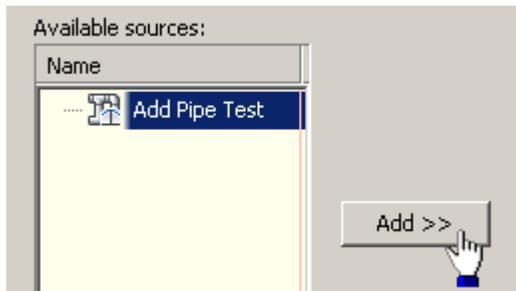
Now drill down in Prospector to your Sample Line group, right click and click Properties:



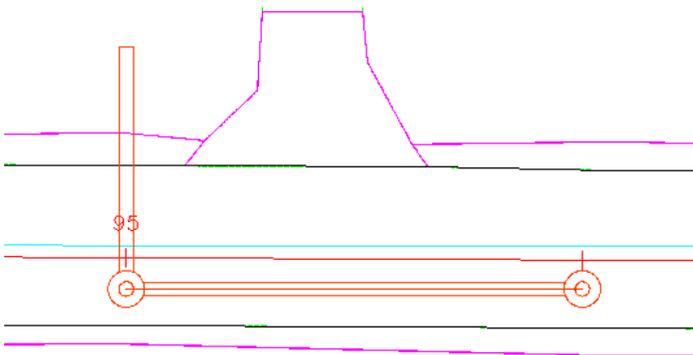
Be sure the Sections tab is active, click the Sample more sources button:



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

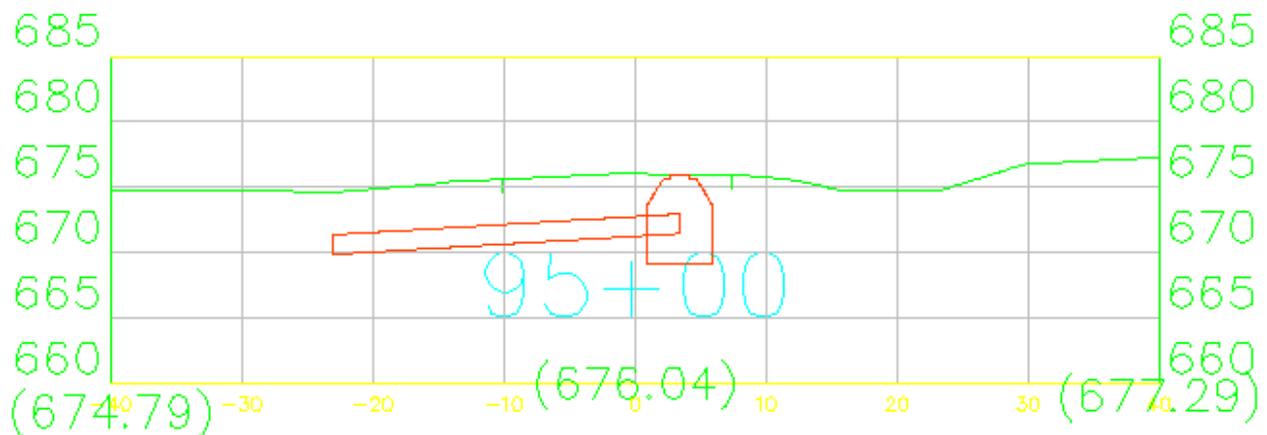


Then click OK, and click OK again.



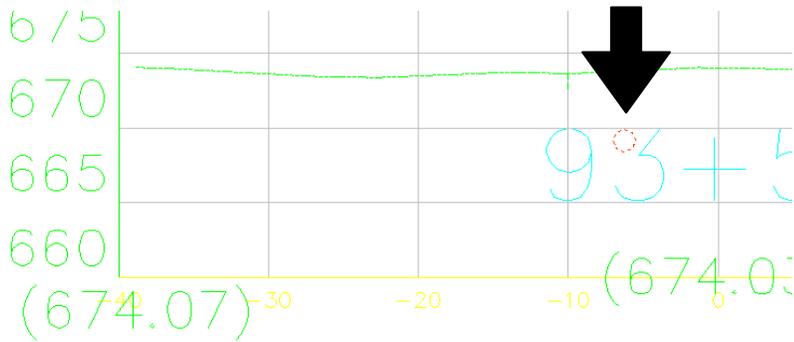
This is what was added to the Top drawing...

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

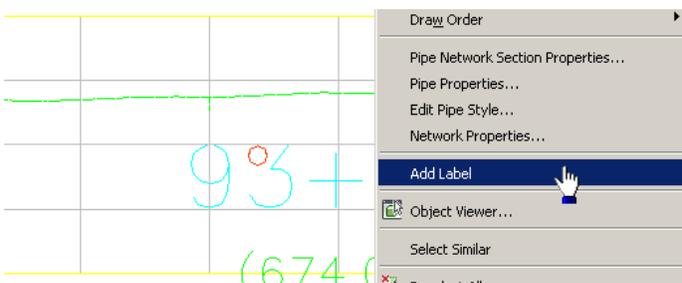


LABELING PIPES AND STRUCTURES IN SECTION VIEWS

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

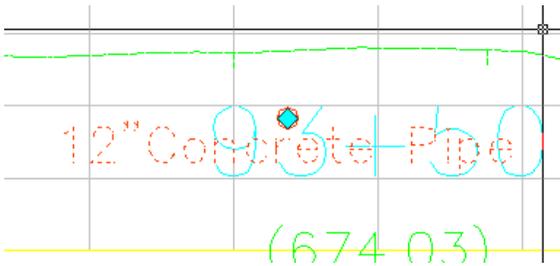


Select Add Label:

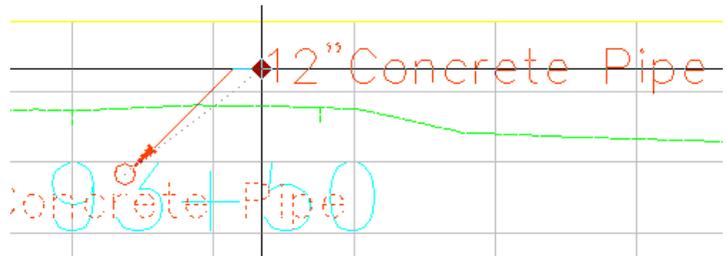


To move the label, just click it to highlight it and select the grip, move the label and pick a new location for the label:

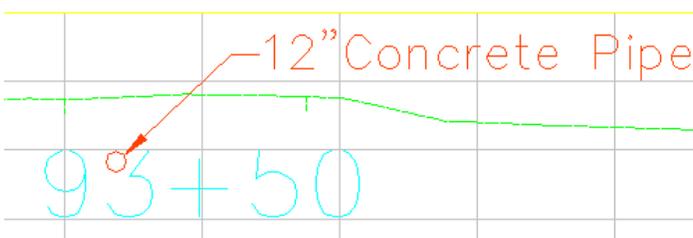
1)



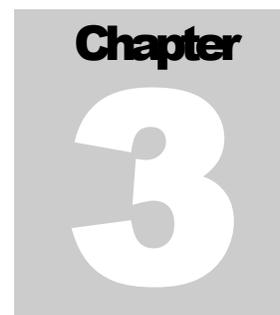
2)



3)



Repeat procedure for structures.



Sheet Management for AutoCAD Civil 3D®

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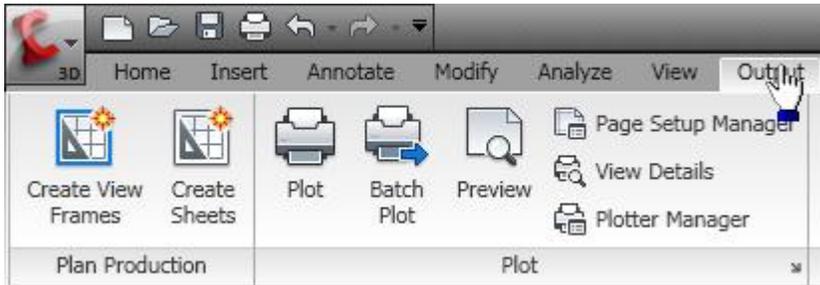
CREATING P&P SHEET LAYOUTS USING PLAN PRODUCTION

PLAN PRODUCTION – USING THE PLAN PRODUCTION TEMPLATE

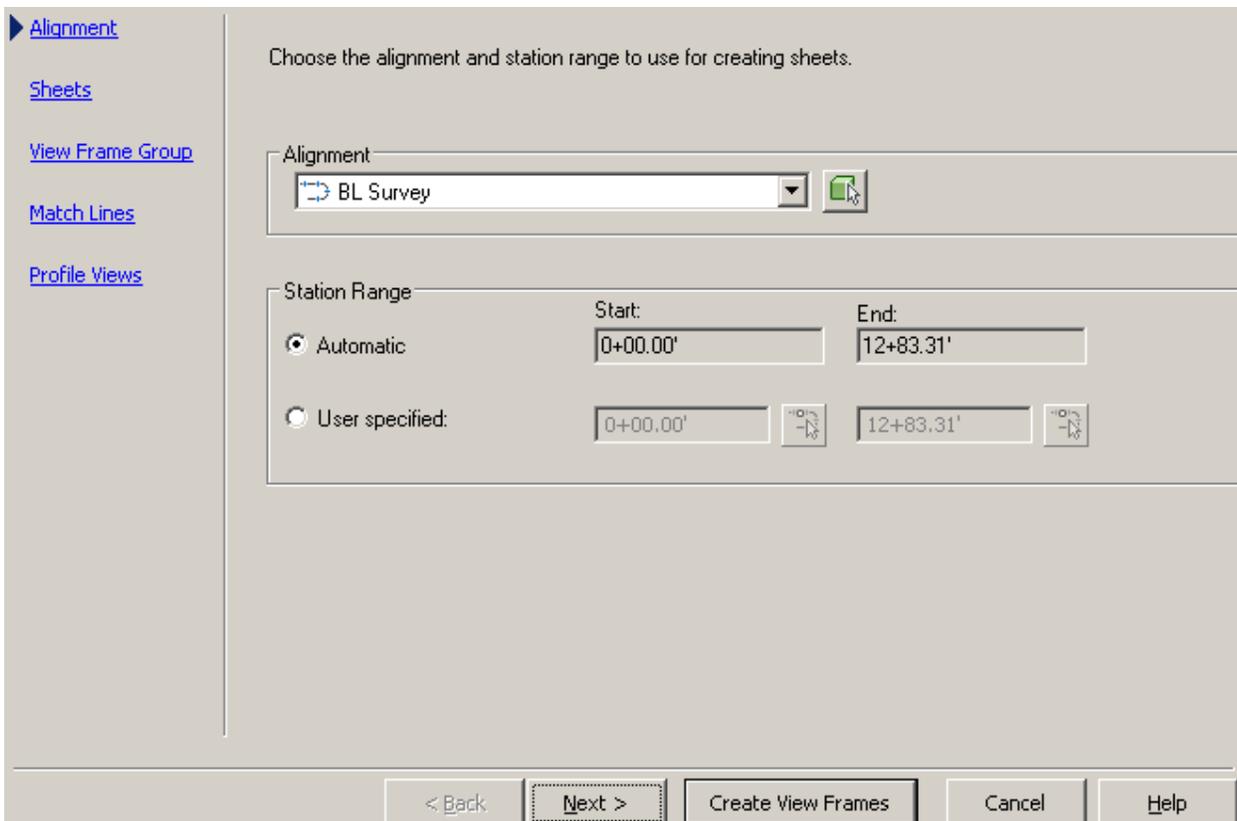
Typical Plan and Profile

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

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

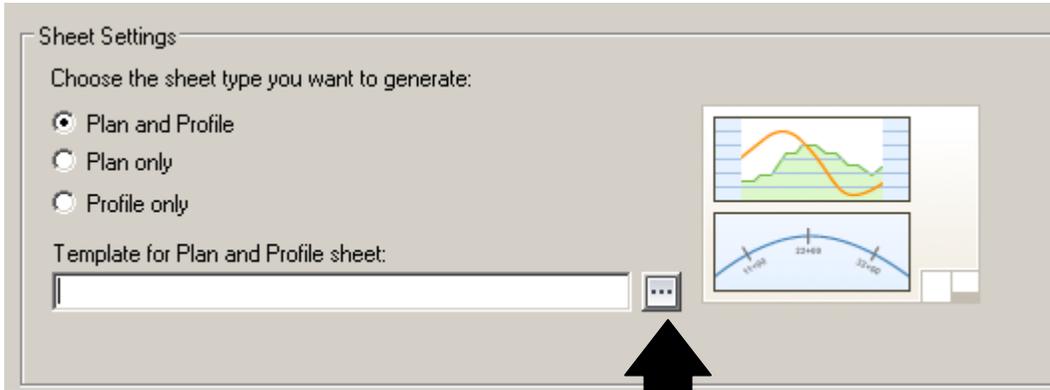


Make sure you have your proper Alignment chosen and specify the type of Station Range:

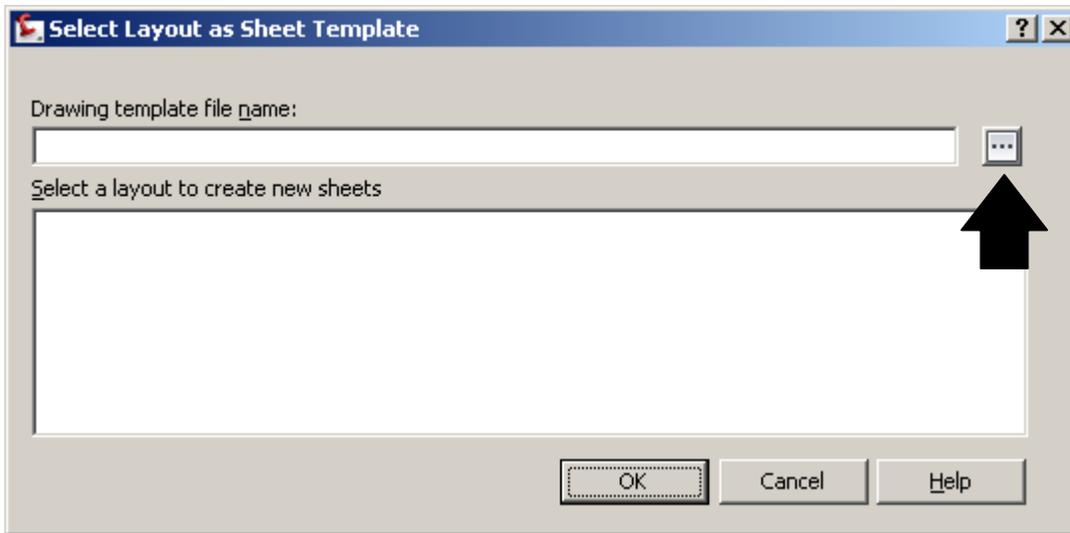


Click Next.

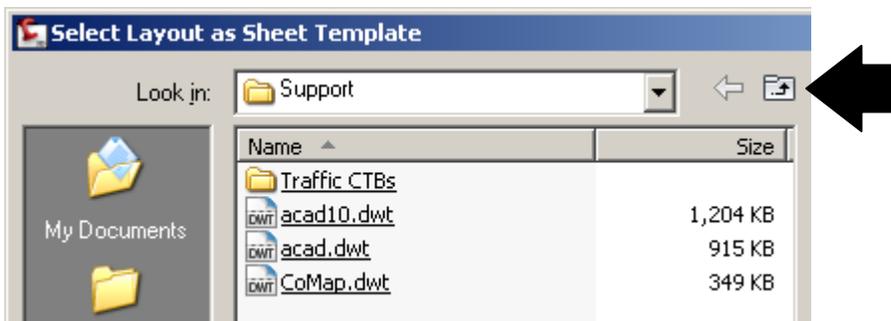
Under the Sheet Settings, click on the Browse button next to the Template for Plan and Profile sheet field (note-the template field may be already filled in with a default location-disregard this location):



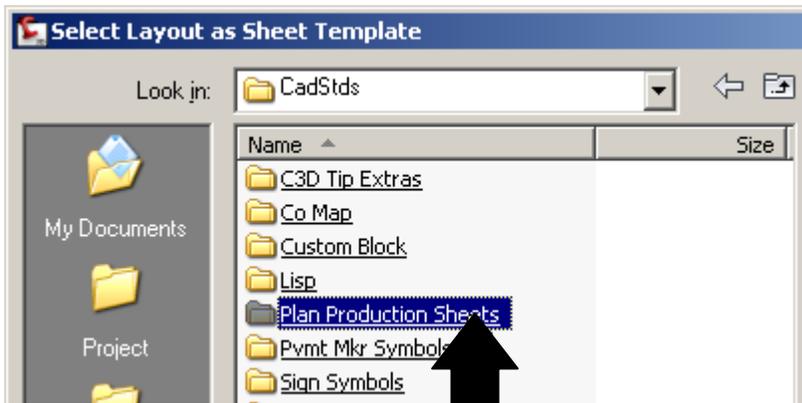
In this box, again select the Browse button to navigate to the LCE standard template file:



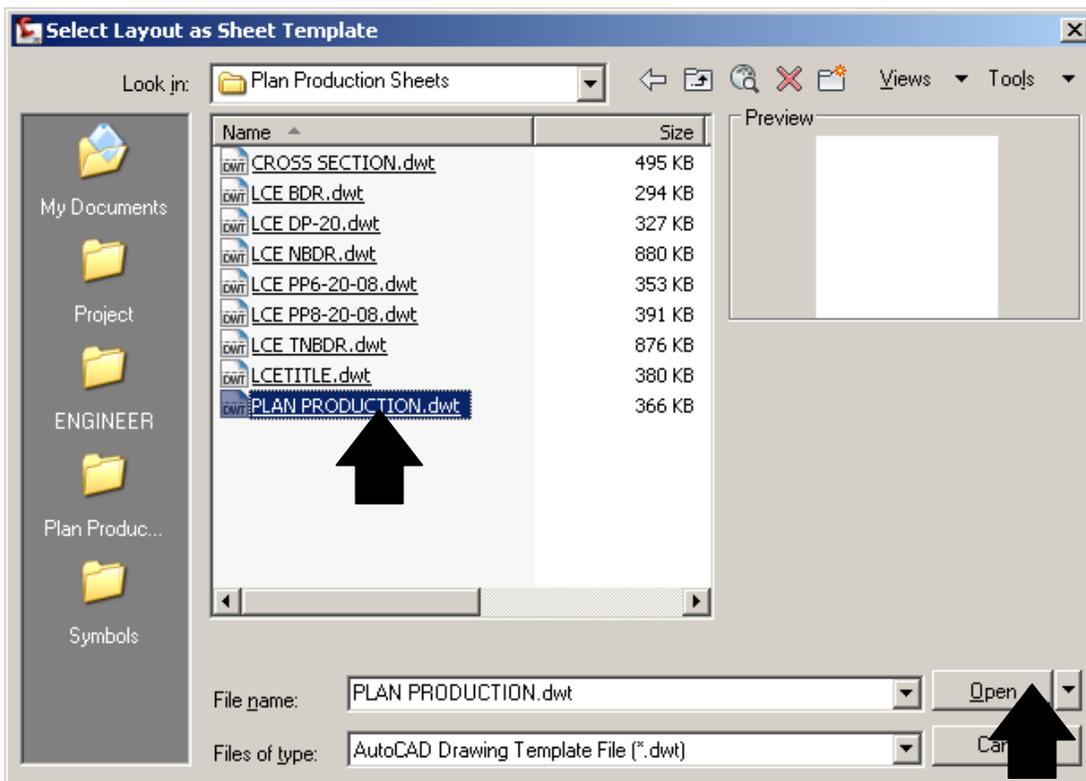
By default, the Open box should navigate to the Support folder out on the network. Click the Up Folder icon to go to the previous folder:



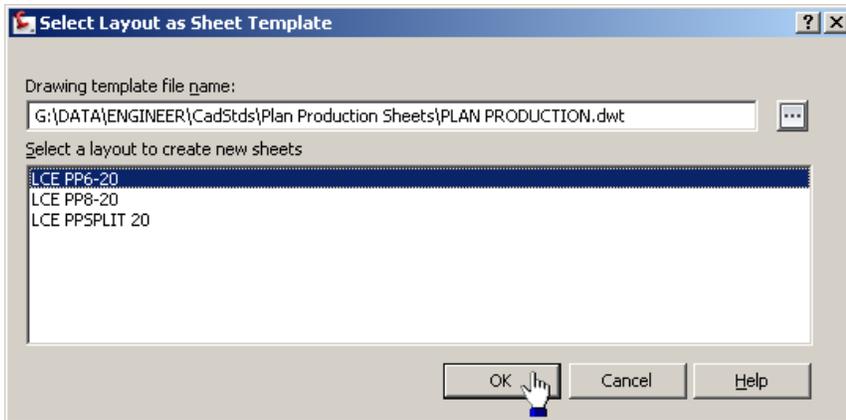
Select the Plan Production Sheets folder:



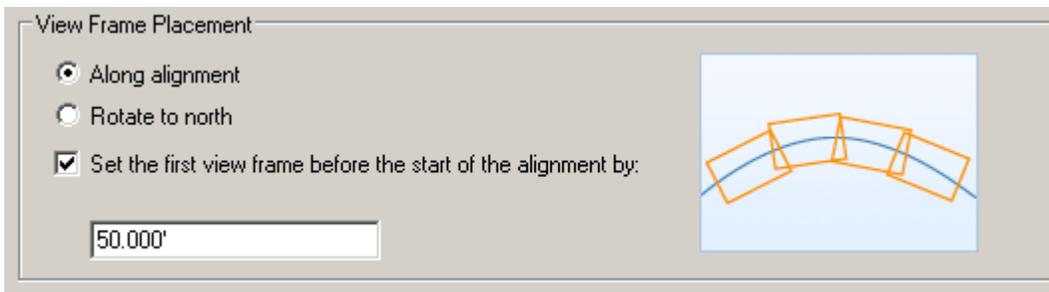
Select the PLAN PRODUCTION.dwt file and click Open:



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:

[Alignment](#)
[Sheets](#)
▶ [View Frame Group](#)
[Match Lines](#)
[Profile Views](#)

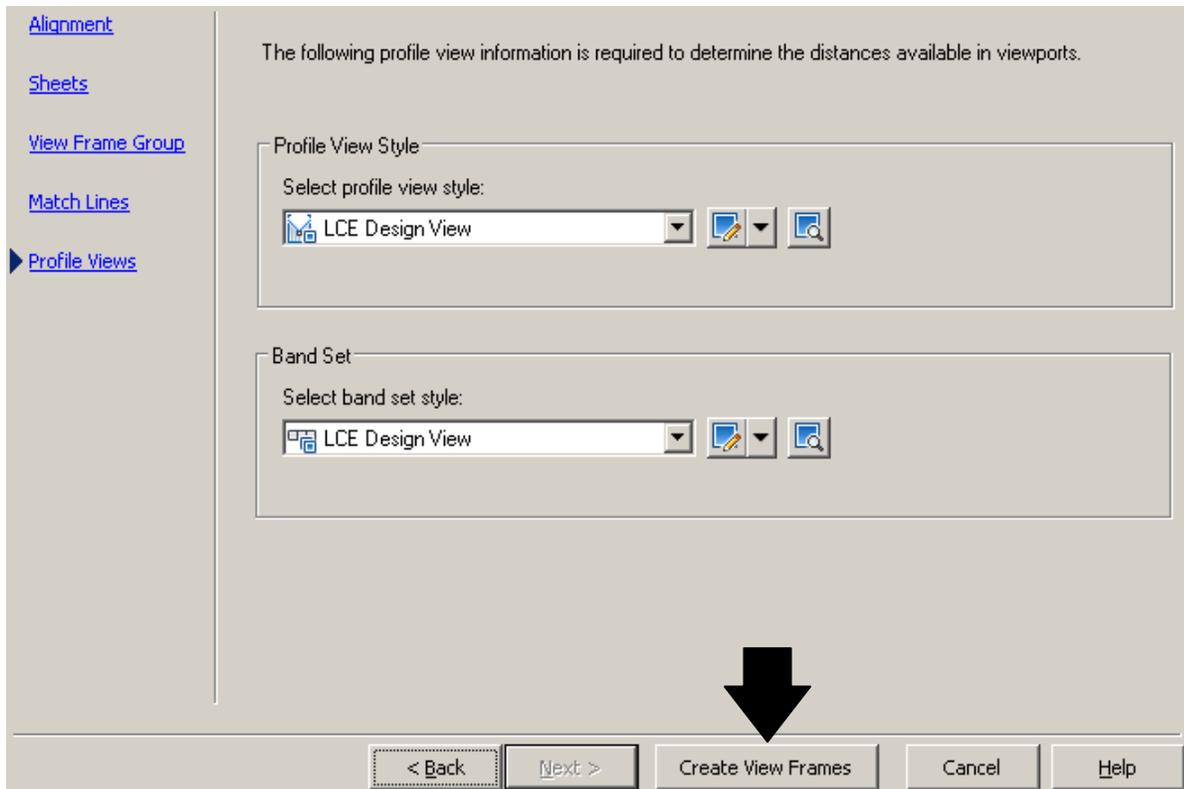
Specify object creation criteria for the view frame group and view frames.

View Frame Group
Name: 
Description:

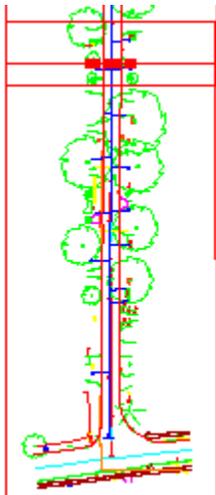
View Frame
Layer: 
Name: 
Style:   
Label style:   
Label location:



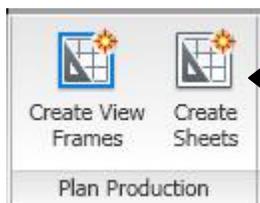
In this box, you can pre-set the type of display you wish to see when your profile views are created. For now leave these settings as is and click Create View Frames:



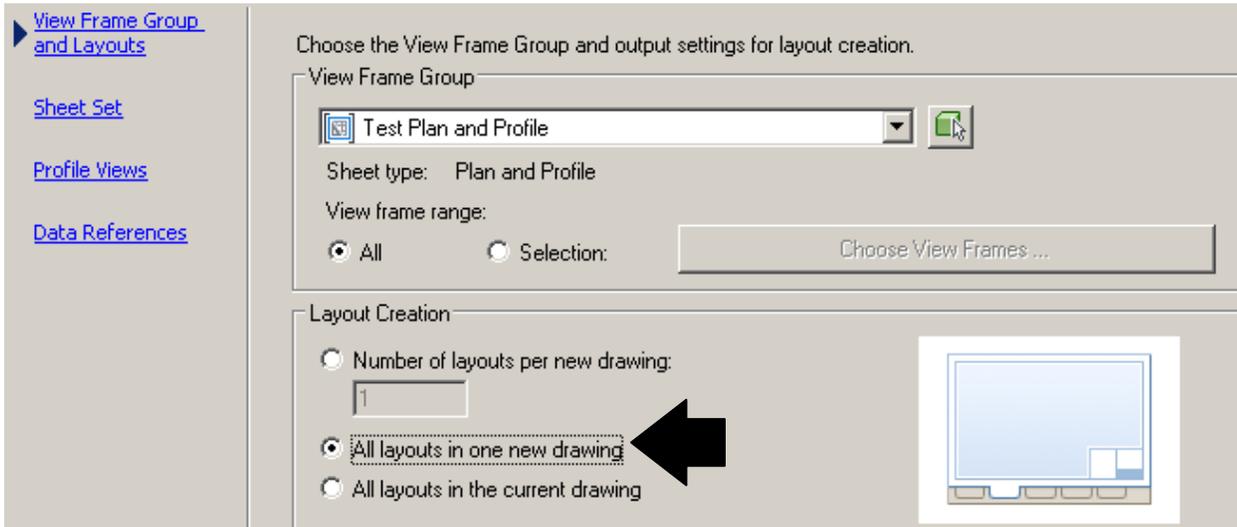
You see your View Frames:



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:

Autodesk Vault must be installed to use this option.

Sheet Set

New sheet set:
Test Plan and Profile

Add to existing sheet set:
...

Sheet set file (.DST) storage location:
C:\Project\Test EP\ ...

Sheets

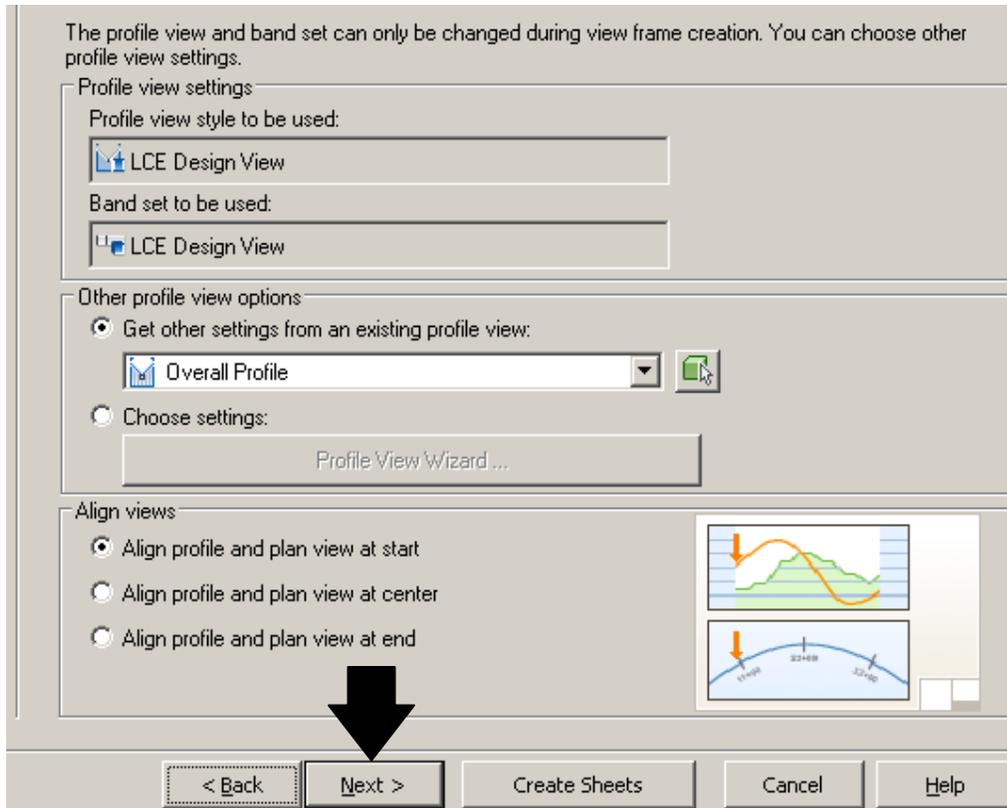
Sheet files storage location:
C:\Project\Test EP\ ...

Sheet file name:
Plan Production ...

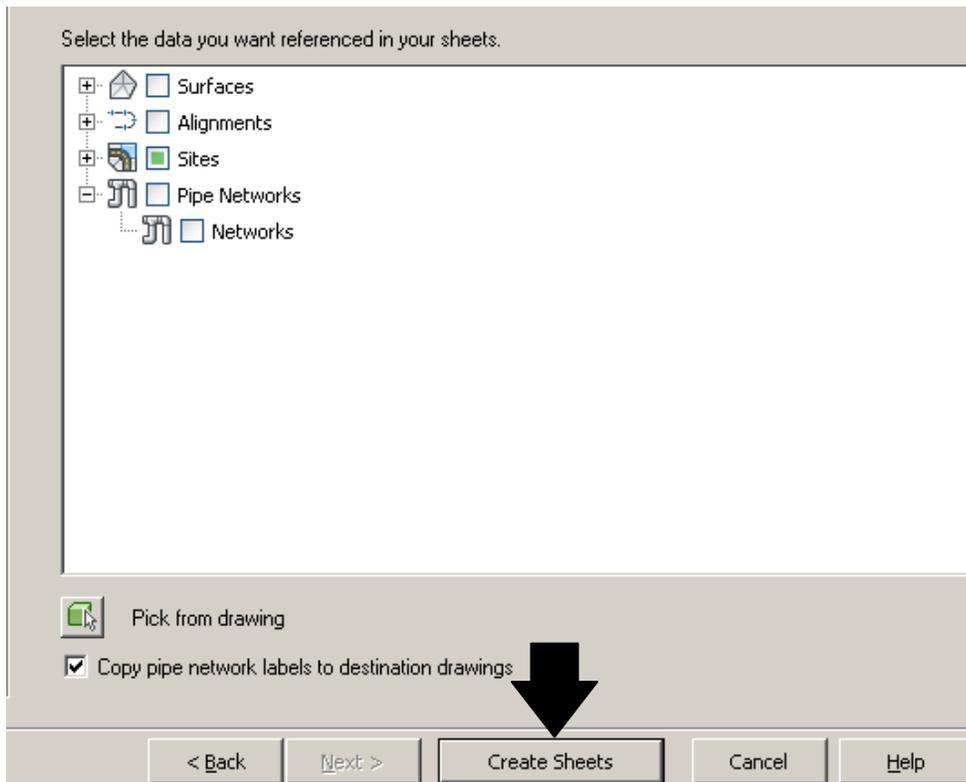
< Back **Next >** Create Sheets Cancel Help



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:



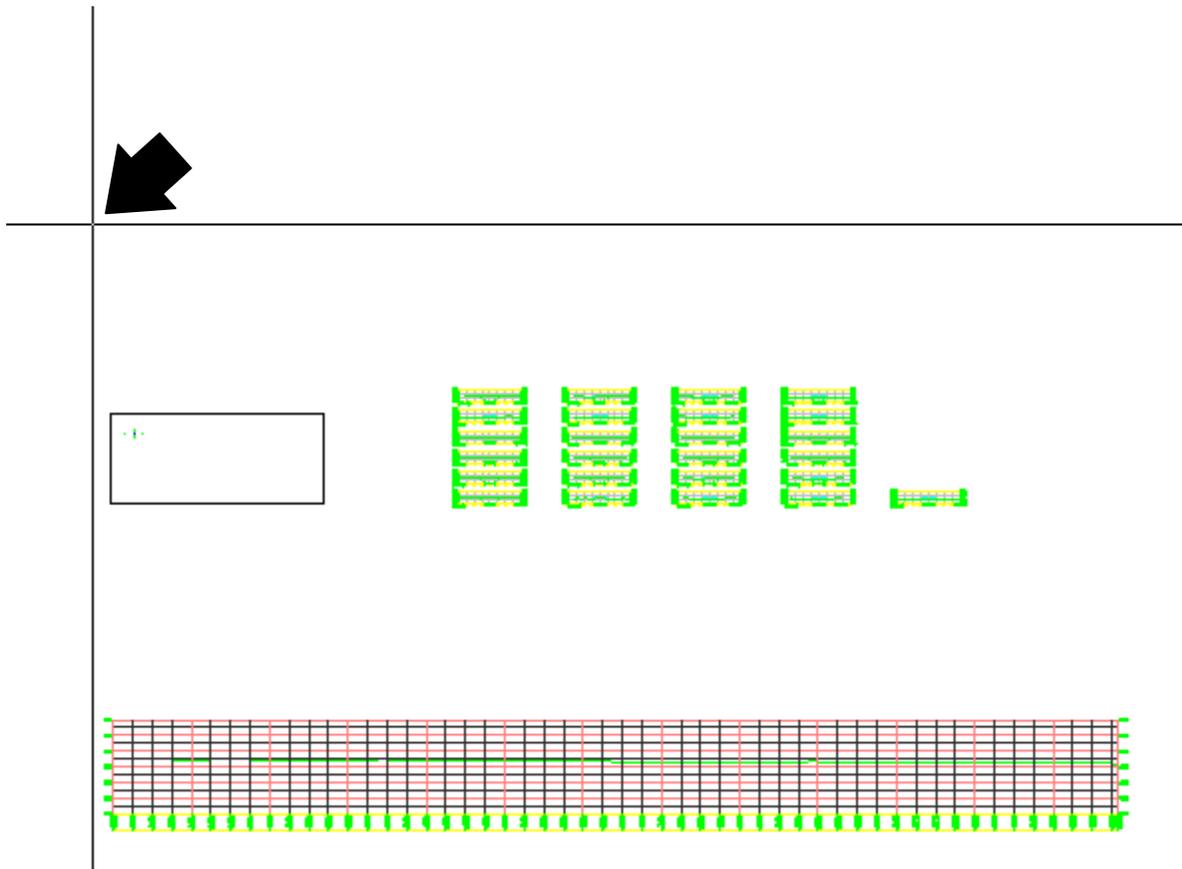
In this next box, since we are “transporting” the sheet layouts and the plan and the profile by x-ref over to a new drawing called “Plan Production”, you can include any or all data shortcuts automatically just by choosing them here. Make your choices and click Create Sheets (notice you can copy your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



Click OK to this next prompt:

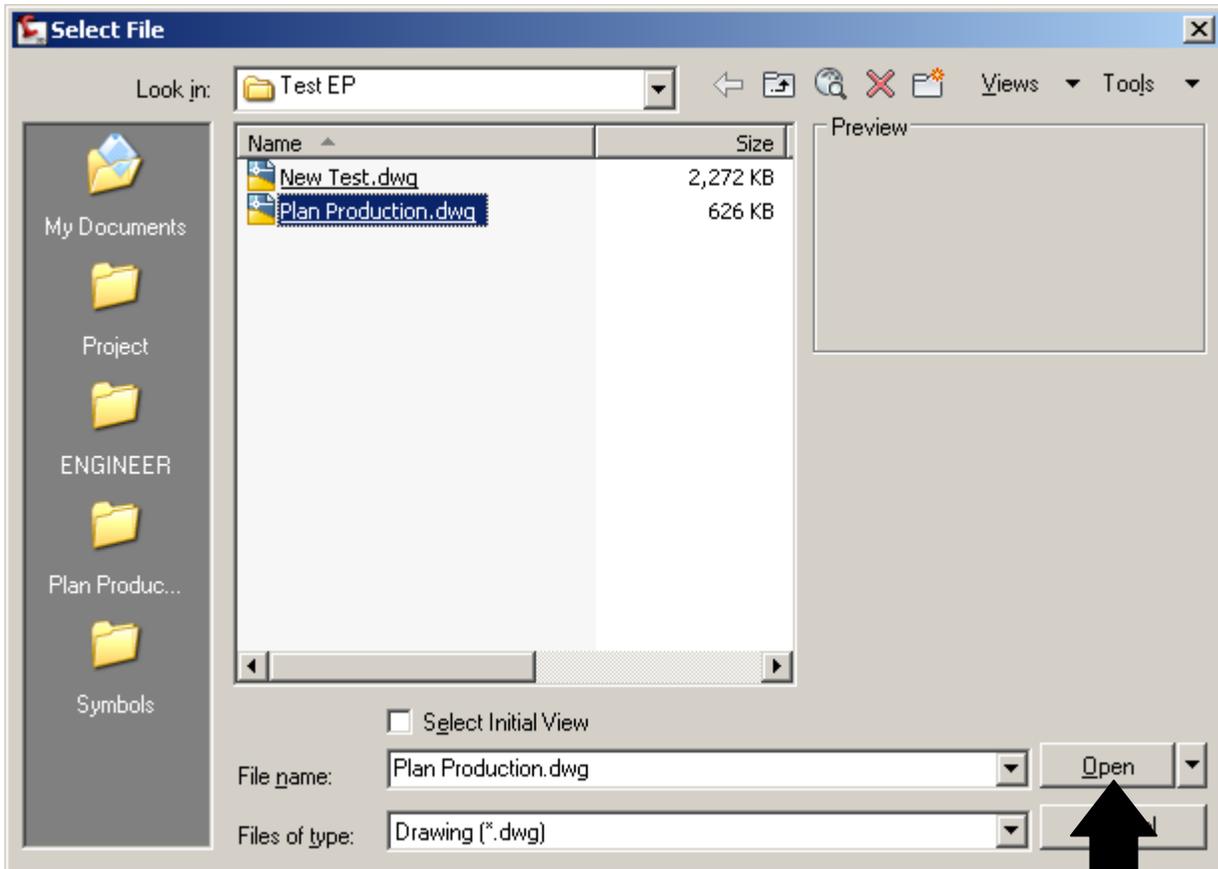


Select a location for your new profile views:

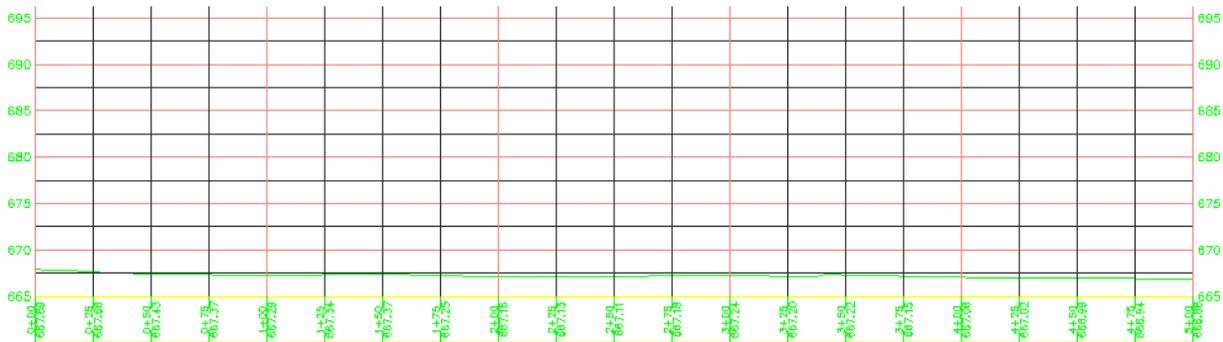


When the process is completed, if you have created the layouts in the current drawing, then the new profile views and the sheet layouts should of appeared in your current drawing. Since we told the wizard to create a separate drawing for the profile views and layouts, we need to open the drawing called 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:



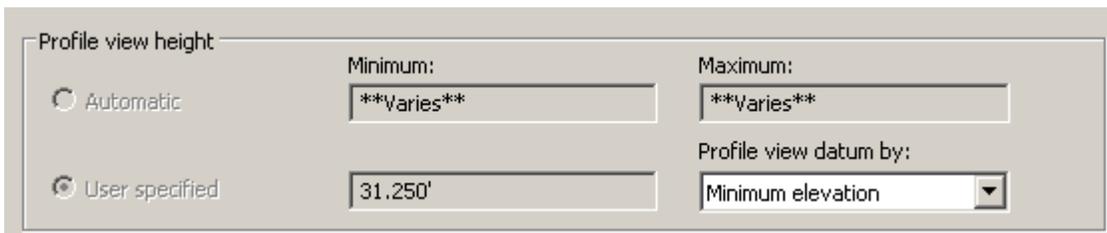
Once opened, if you zoom in on the first profile view, you will notice that the profile is riding low in the view.



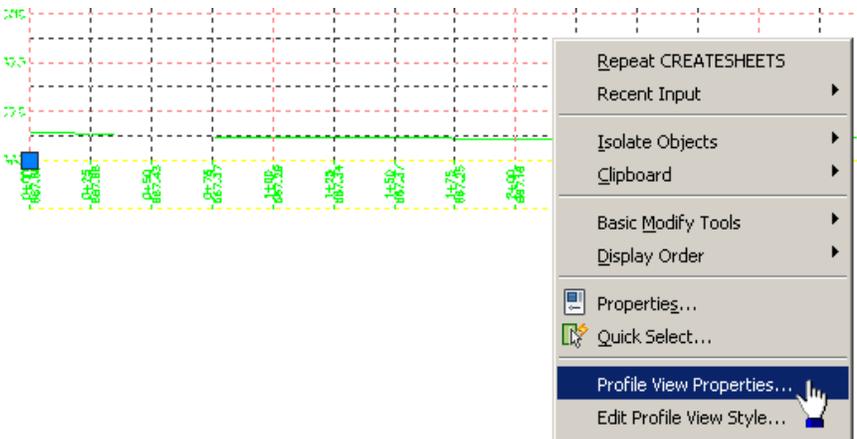
This is a small bug in the software. Back in the wizard, there was a step where you could base the profile views elevation range on the overall profile already created or you could manually enter in the elevation range that you wanted:



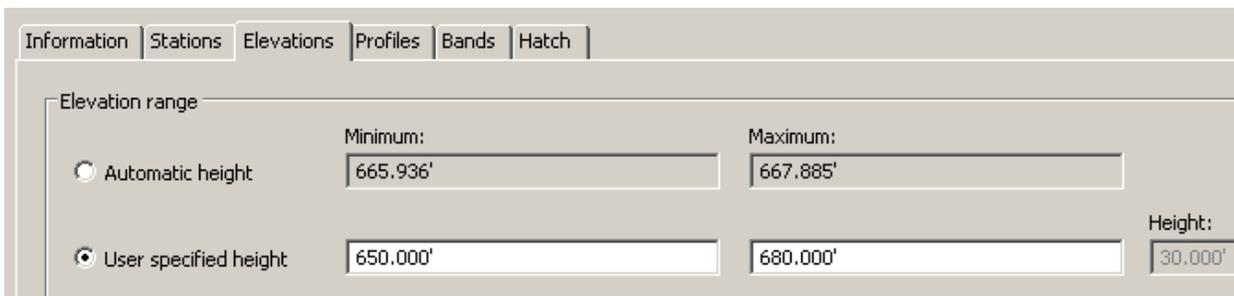
Had we selected the Profile View Wizard, this is what we would of seen:



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:

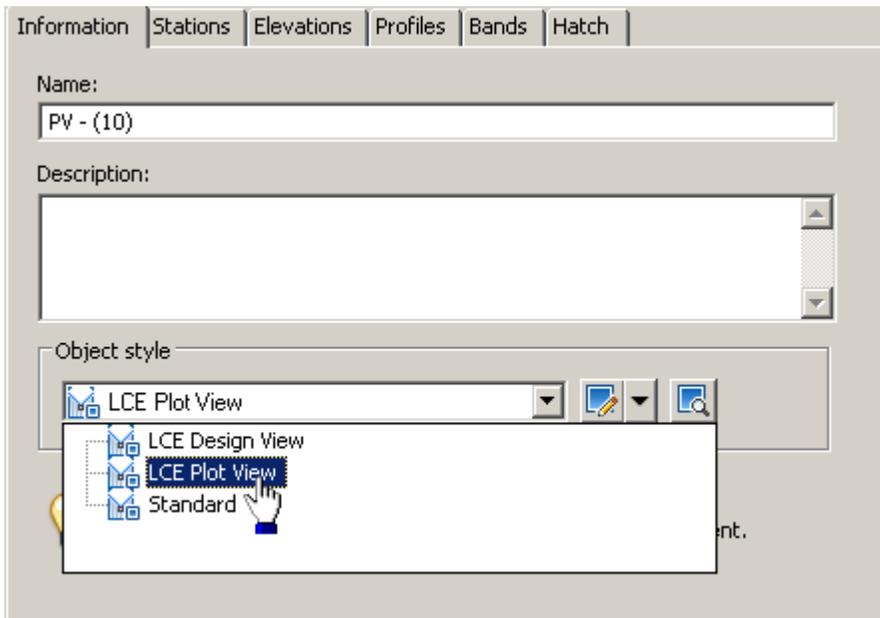


Click on the Elevations Tab, and put in a reasonable elevation range:

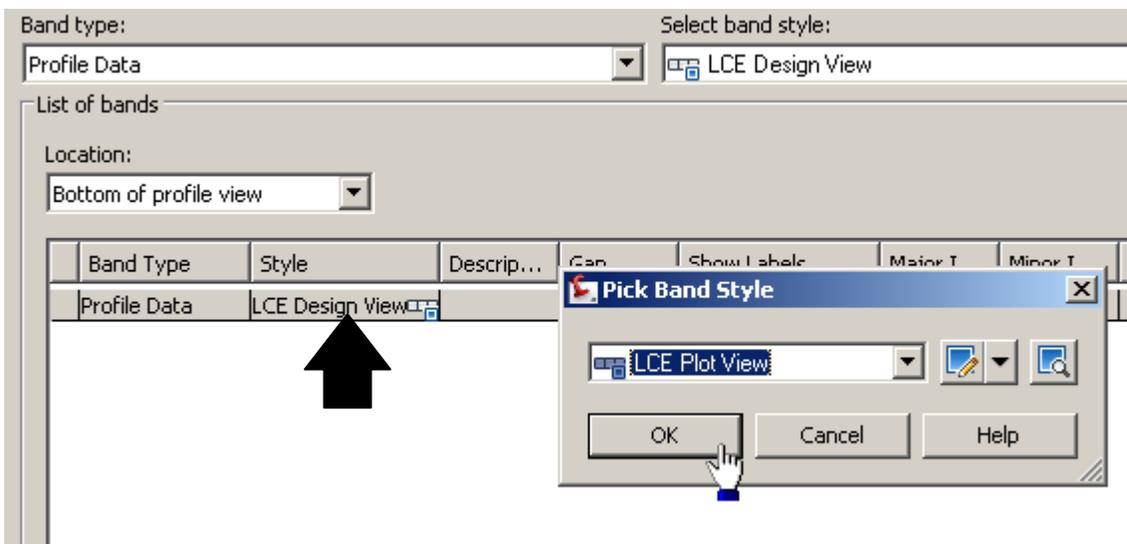


Now we are going to deviate a little from the current process to explain the two different grid styles. (Please refer to this section of this tutorial as a reference for any other plan production tutorials for switching between profile view styles and profile view band styles.) Ok, here we go.

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:



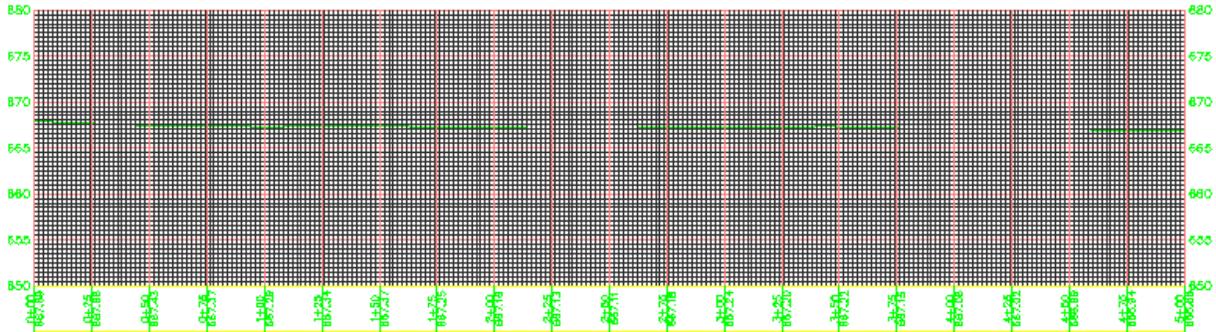
Next, click the Bands Tab, and double click the Style under the Bands List. Click the pull down And select the Plot View Style and click OK:



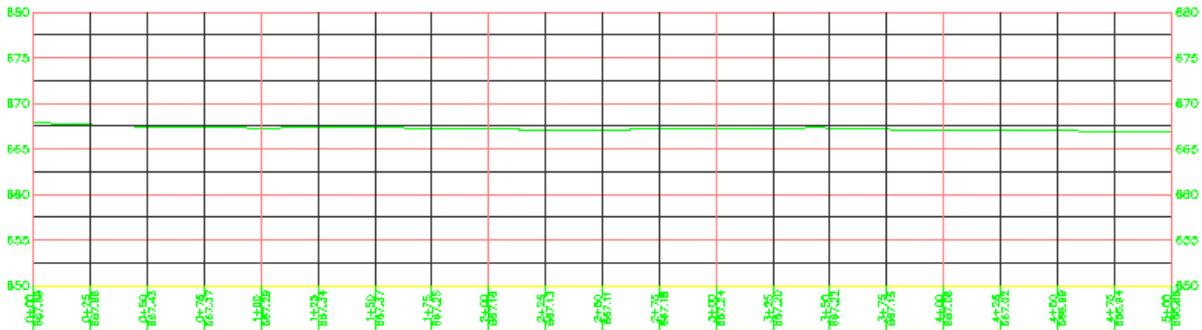
Click OK:



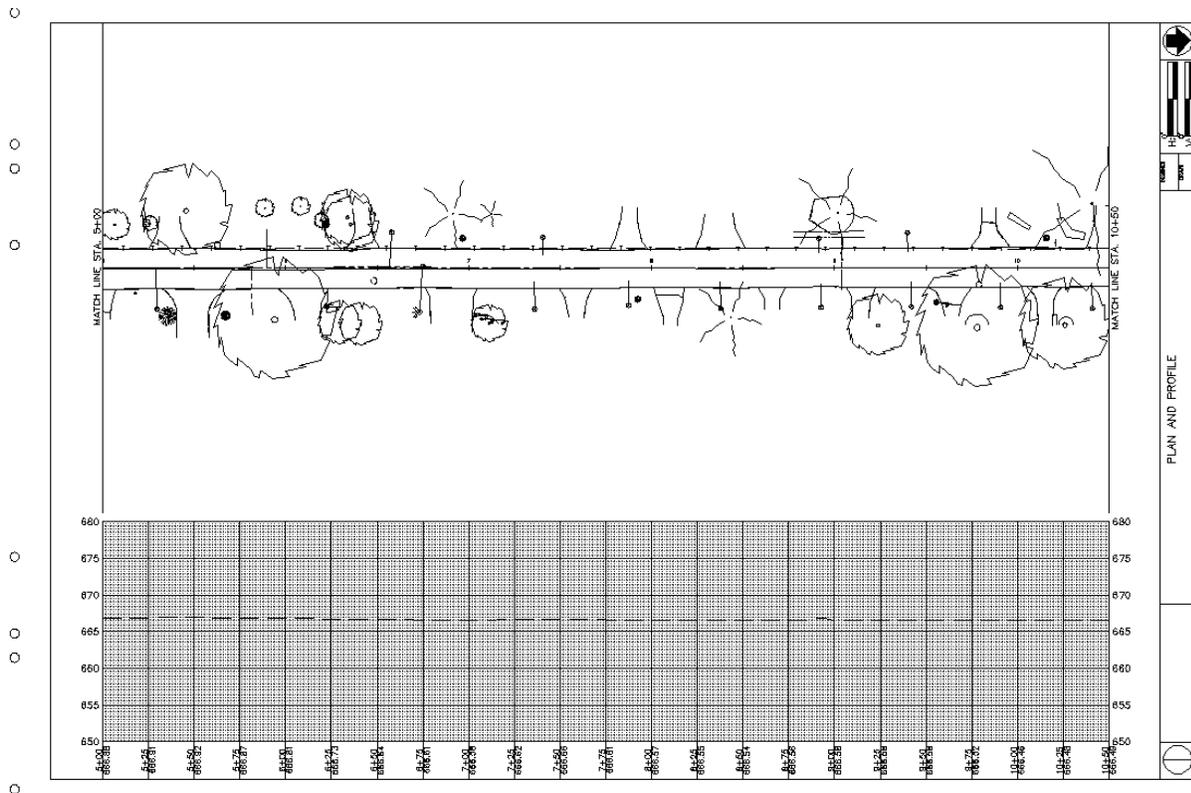
Notice the change in the view:



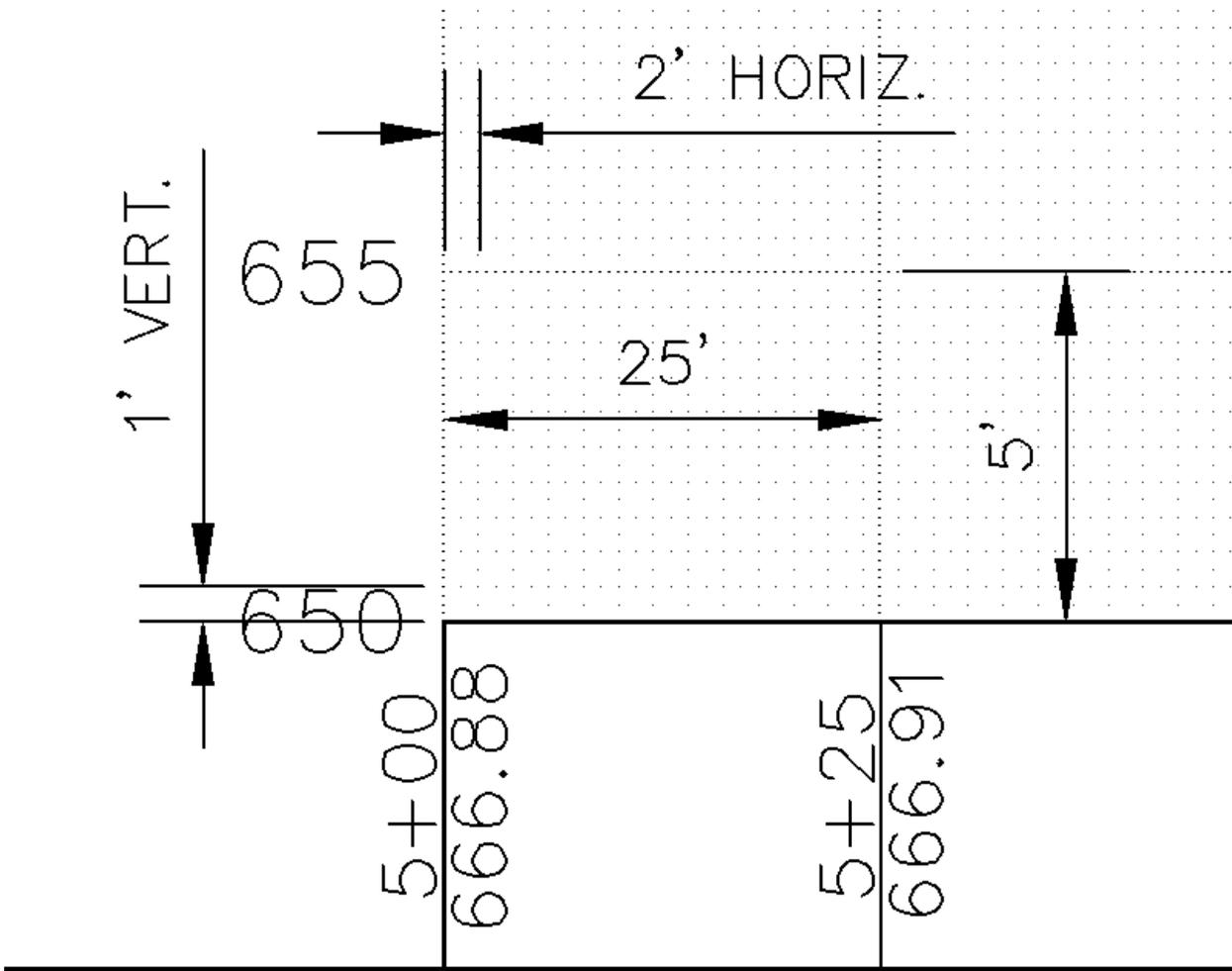
To reverse the display, just reverse the process. Select Profile View, right click, select Profile View Properties, Information Tab, change object style back to Design View, click Bands Tab, change the style under the Bands List back to Design View, and click OK and voila you're back:



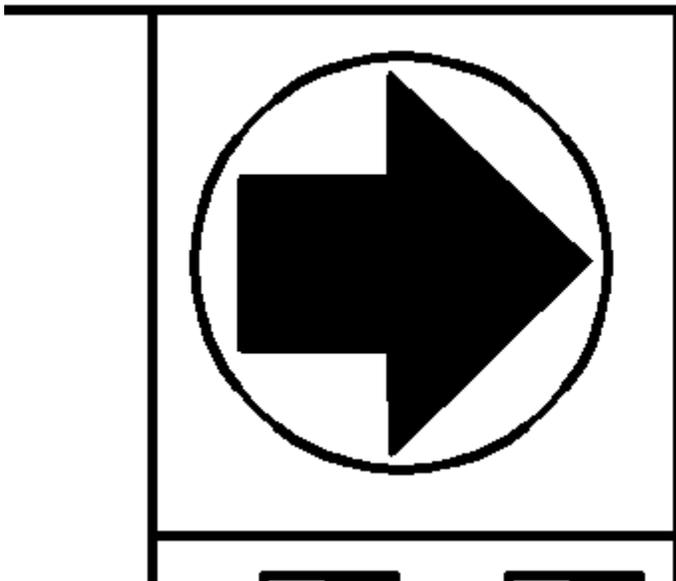
OK, back to the Plan Production drawing. Here is one of the layout sheets:



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

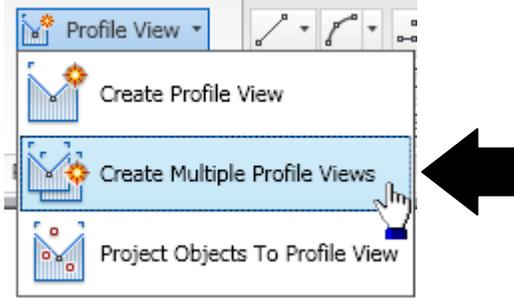
PLAN PRODUCTION SPLIT PROFILE– USING THE PLAN PRODUCTION TEMPLATE

Typical Split Left and Right Plan and Profile

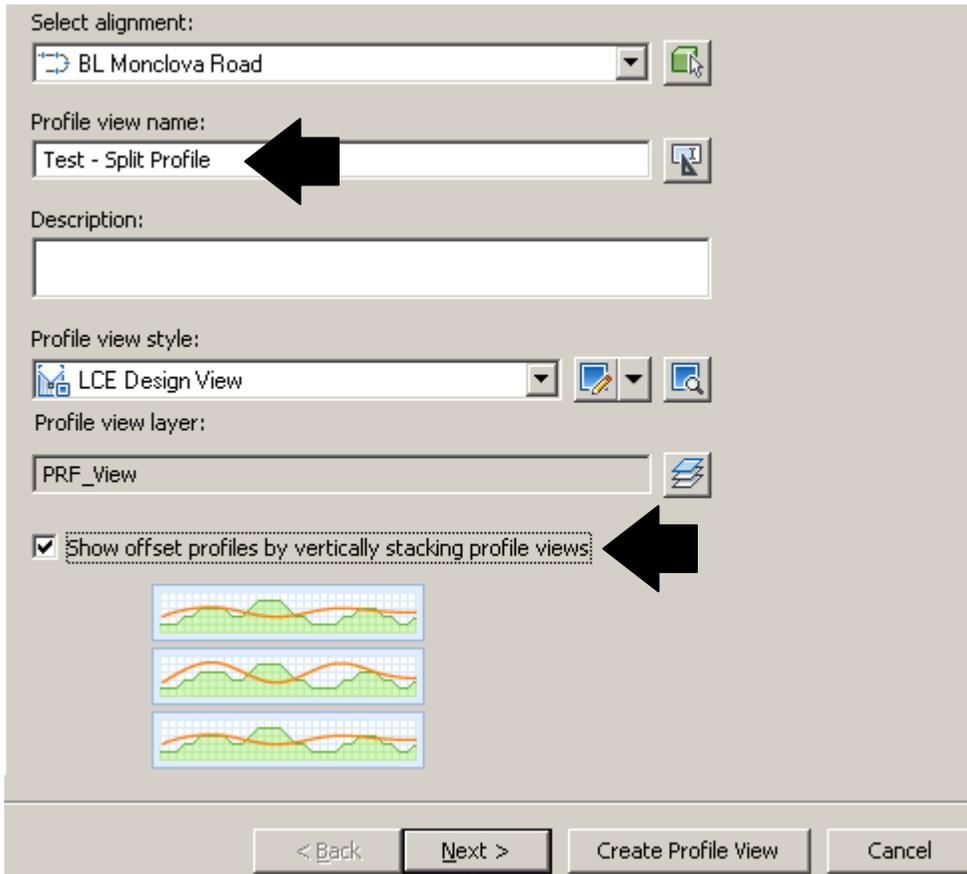
Before using this process, be sure that your pipe networks are separated by the left and right sides, because this process can take that into account and make adding your pipe networks to your split profiles that much easier.

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:

Station range

Automatic

Start: 92+00.00' End: 131+93.93'

User specified range

92+00.00' 131+93.93'

Length of each view: 550.00'

< Back Next > Create Profile Views Cancel Help

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

Profile view height

Automatic

Minimum: **Varies** Maximum: **Varies**

User specified

20.00' Profile view datum by: Mean elevation

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:

Split profile view

First split view style: LCE Design View Split station: Exact station

Intermediate split view style: LCE Design View Datum option: Exact elevation

Last split view style: LCE Design View

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.

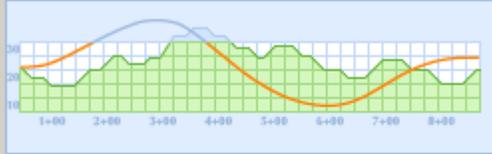
Click Next:

Split profile view:

First split view style: LCE Design View Split station: Exact station

Intermediate split view style: LCE Design View Datum option: Exact elevation

Last split view style: LCE Design View



< Back Next > Create Profile View Cancel Help



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:

Number of stacked views: 2

Gap between views: 20.00'

Top view style: LCE Design View

Middle view style: LCE Design View

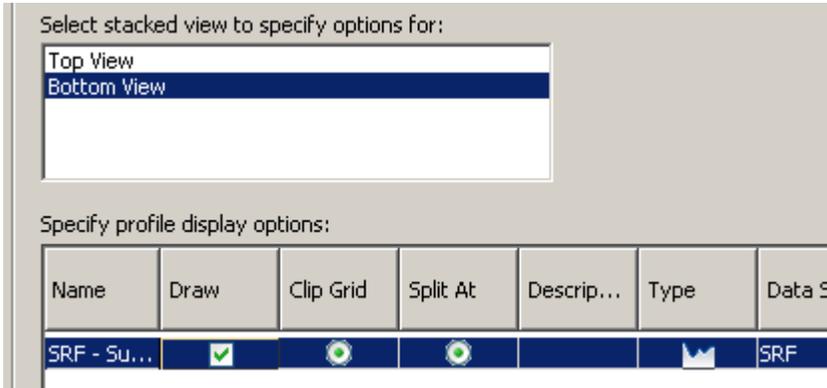
Bottom view style: LCE Design View

 Specify profile and pipe network display options for each of the vertically stacked profiles in the following two pages.

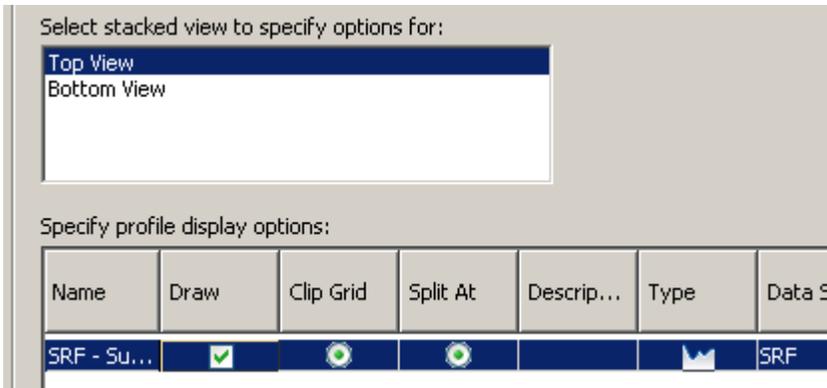
< Back Next > Create Profile Views



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



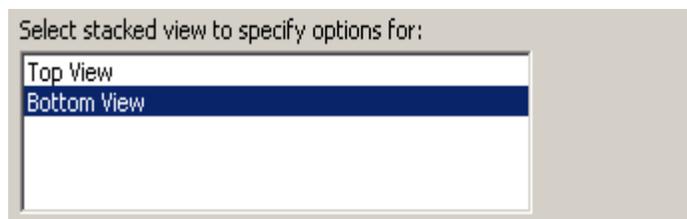
Now click the Top View and repeat the same step:



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.

Bottom View:

Top View:

Select pipe networks to draw in profile view:		
Name		Select
Pipe Crossing Test		<input type="checkbox"/>
Pipe Test 2		<input type="checkbox"/>
Monclova Ex. Stm. Pipe Network		<input type="checkbox"/>
Storm #1 (Right)		<input checked="" type="checkbox"/>
Storm #2 (Left)		<input type="checkbox"/>

25

Select pipe networks to draw in profile view:		
Name		Select
Pipe Crossing Test		<input type="checkbox"/>
Pipe Test 2		<input type="checkbox"/>
Monclova Ex. Stm. Pipe Network		<input type="checkbox"/>
Storm #1 (Right)		<input type="checkbox"/>
Storm #2 (Left)		<input checked="" type="checkbox"/>

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

Select band set:
LCE Design View

Some of the data bands needs to be associated with appropriate data sources (such as profile lines groups or materials). Please select them below.

List of bands

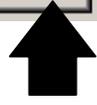
Location:
Bottom of profile view



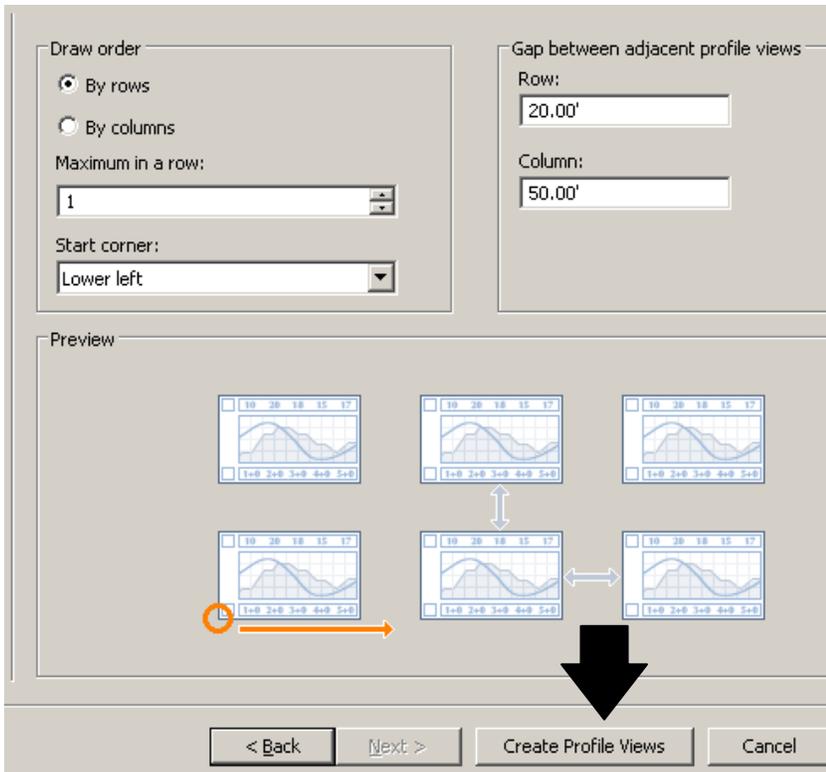
Set band properties:

Band Type	Style	Profile1	Profile2	Alignment	Geo
Profile Data	LCE Design View	SRF - Surface ...	SRF - Surface ...	BL Mondlova R...	

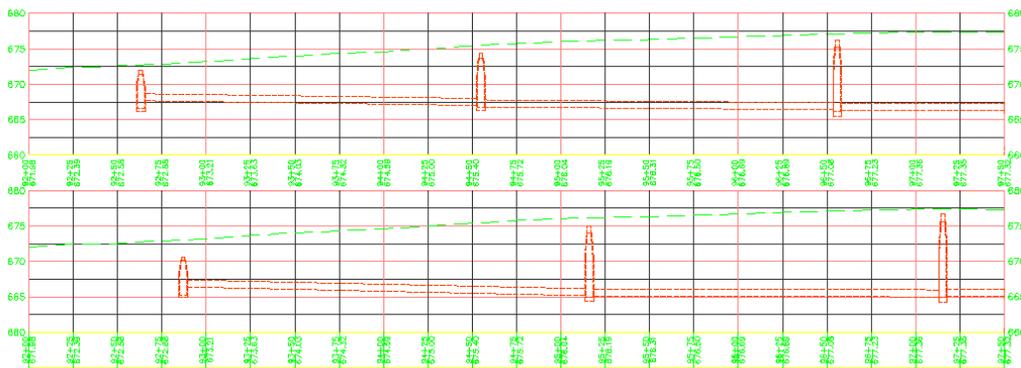
< Back Next > Create Profile View Cancel



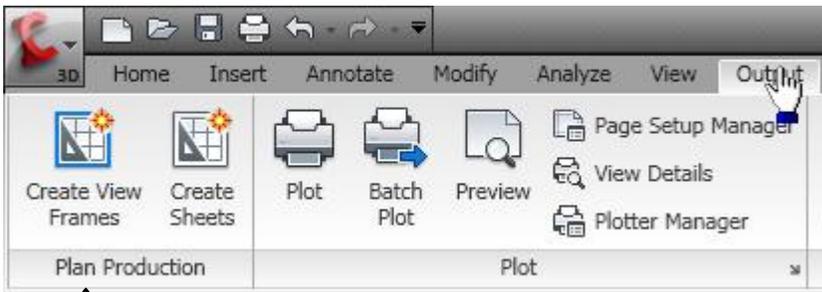
Again, do not worry about the next screen either and click Next. At the last screen, if the screen doesn't look like this, change the settings to the following, and click Create Profile Views:



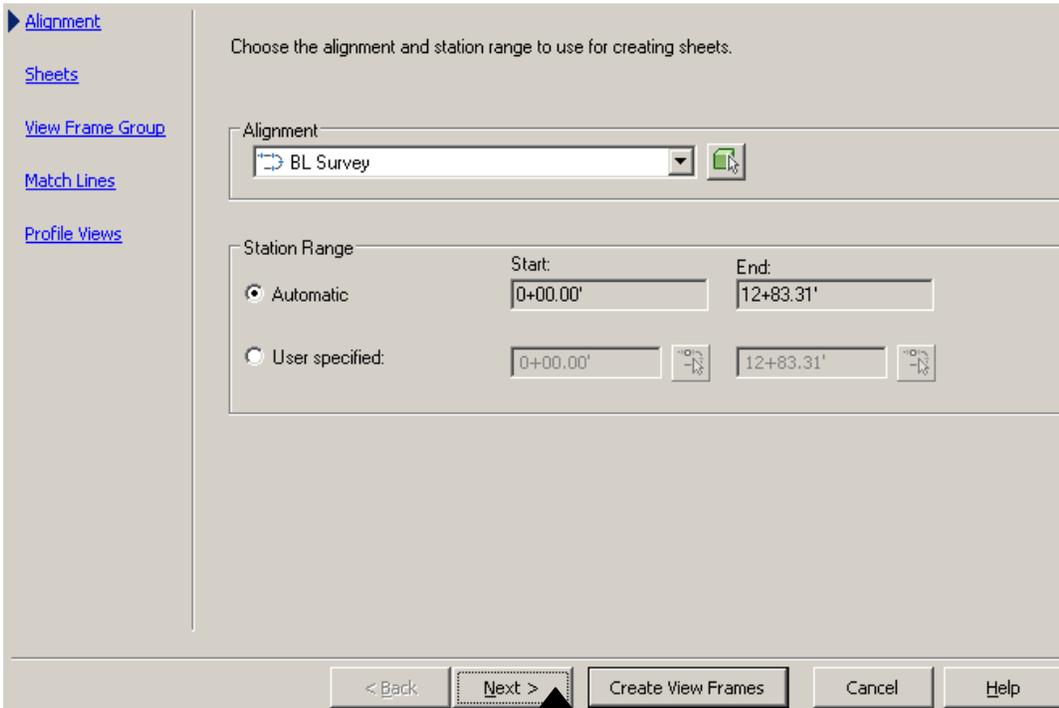
Here are the split profile views. Your Profile Views may look different in that the profiles will be lower in the profile view itself. Not to worry, we will fix this issue a little later:



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

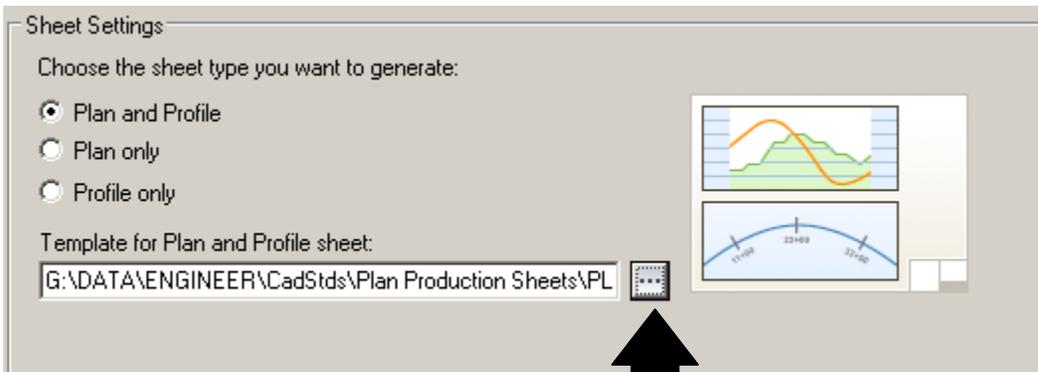


Make sure you have your proper Alignment chosen and specify the type of Station Range:

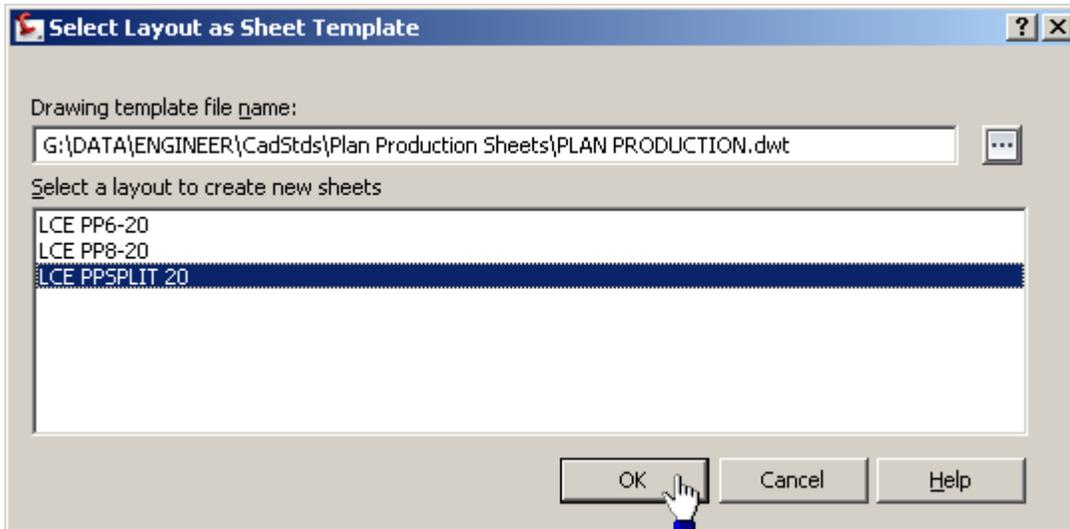


Click Next.

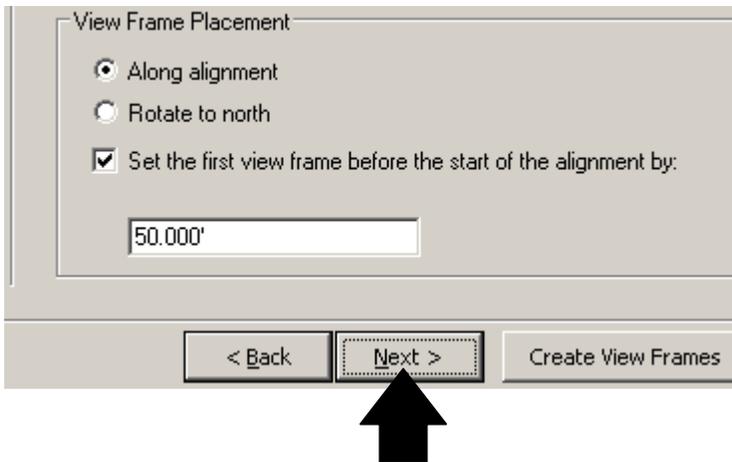
Under the Sheet Settings, the Template for Plan and Profile sheet field will probably already be set to the proper location. If not, see the Plan Production-Typical Plan and Profile tutorial to browse to select the Plan Production template. Select the Browse button next to the template field :



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:

Specify object creation criteria for the view frame group and view frames.

View Frame Group

Name:
Test - Split

Description:

View Frame

Layer:
Viewport

Name:
VF - {[Next Counter(CP)]>}

Style:
LCE Standard

Label style:
LCE Standard

Label location:
Top left

< Back Next > Create View Frames Cancel



Just click Next:

You can choose to insert match lines automatically and define how they are placed.

Insert match lines

Positioning

Snap station value down to the nearest: Allow additional distance for repositioning (increases view overlap):

50 50.000'

Match Line

Layer: Match Line Name: MATCH LINE STA. <[Match Line Statio

Style: LCE Standard

Labels

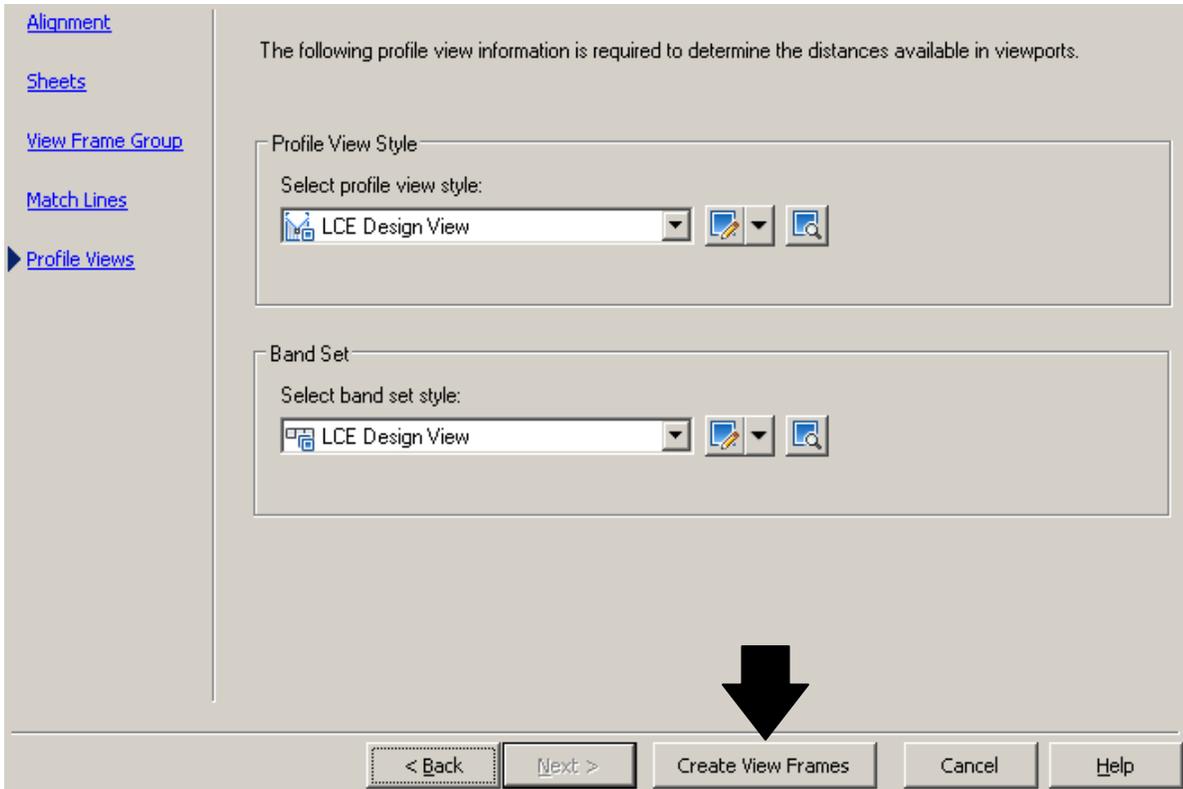
Left label style: LCE Standard Right label style: LCE Standard

Left label location: Middle Right label location: Middle

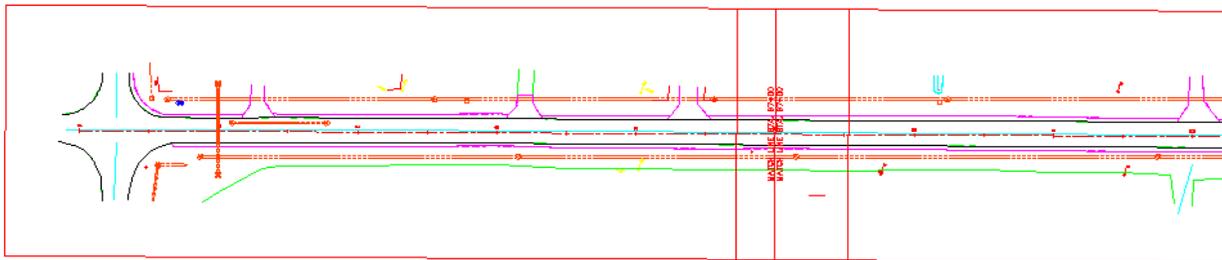
< Back Next > Create View Frames Cancel Help



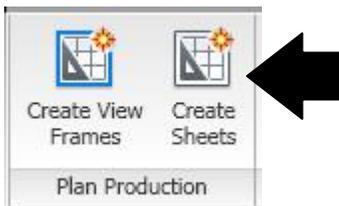
In this box, you can pre-set the type of display you wish to see when your profile views are created. For now leave these settings as they are and click Create View Frames:



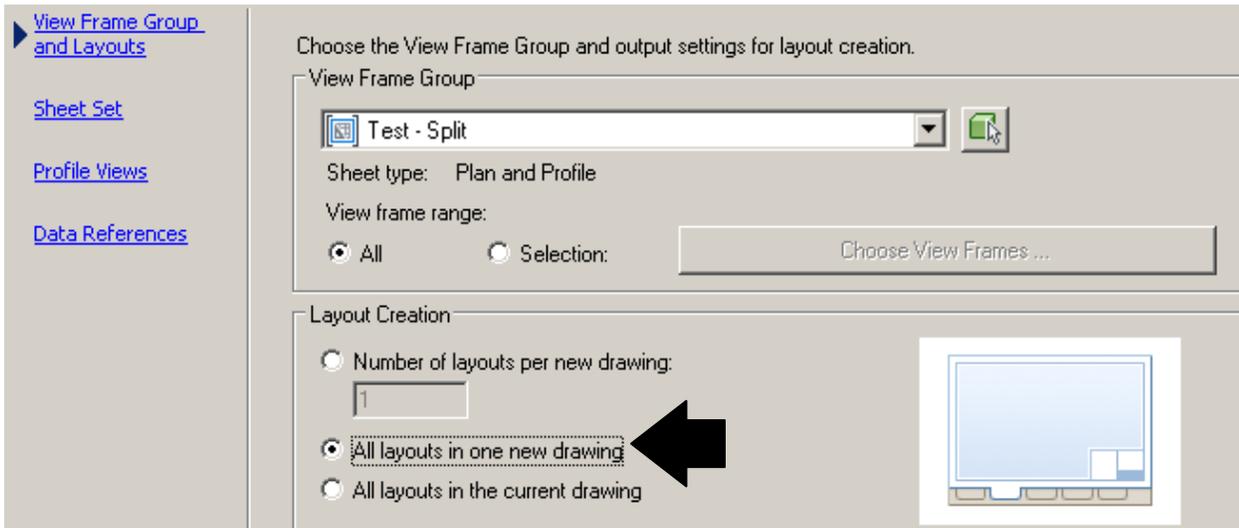
You should see your View Frames:



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:

Autodesk Vault must be installed to use this option.

Sheet Set

New sheet set:

Test - Split

Add to existing sheet set:

Sheet set file (.DST) storage location:

C:\Project\Test EP\

Sheets

Sheet files storage location:

C:\Project\Test EP\

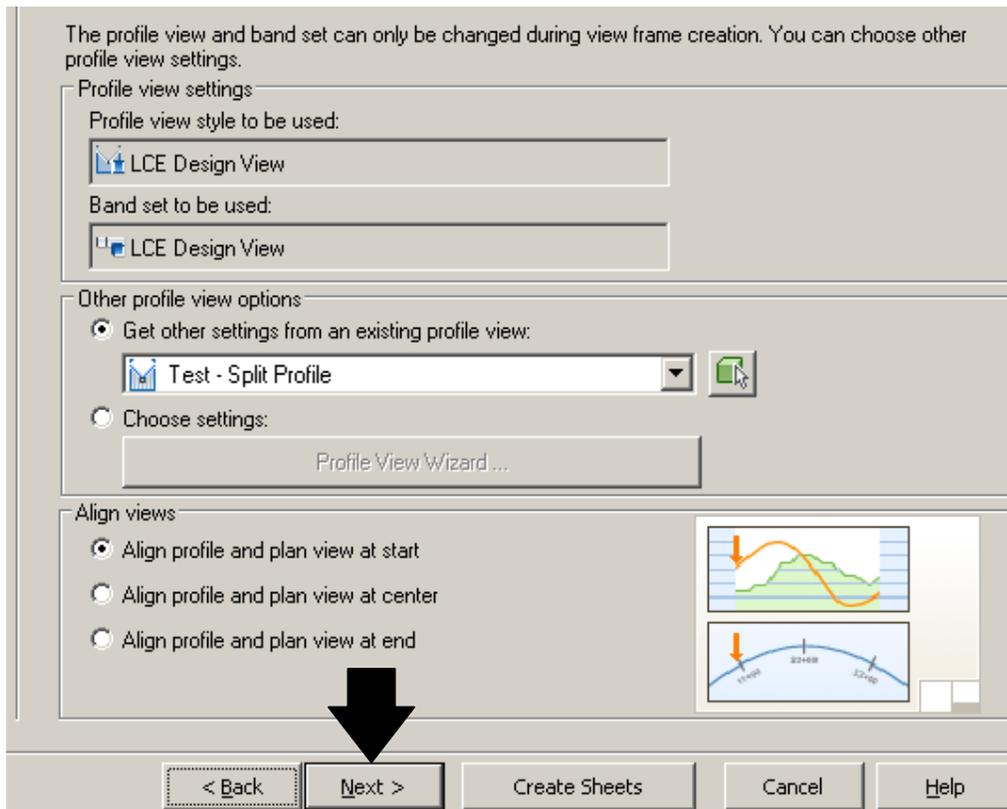
Sheet file name:

Plan Production

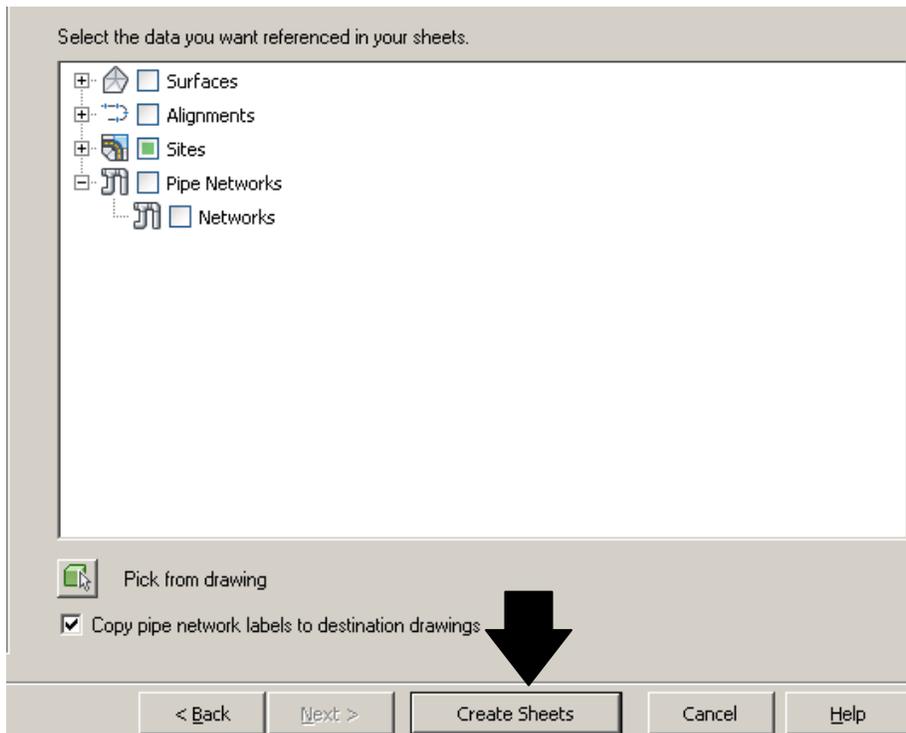
< Back **Next >** Create Sheets Cancel Help



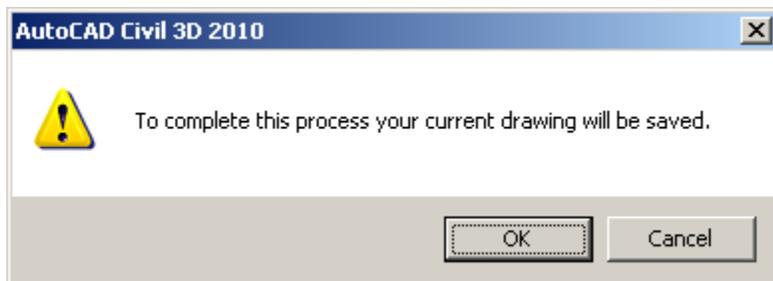
In this next box, it shows the Profile view settings styles that will be used, the profile view options. Notice that the profile I had created previous to the starting of this tutorial is called Test - Split Profile. I think this may be a good practice for all users in the future to call these elements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



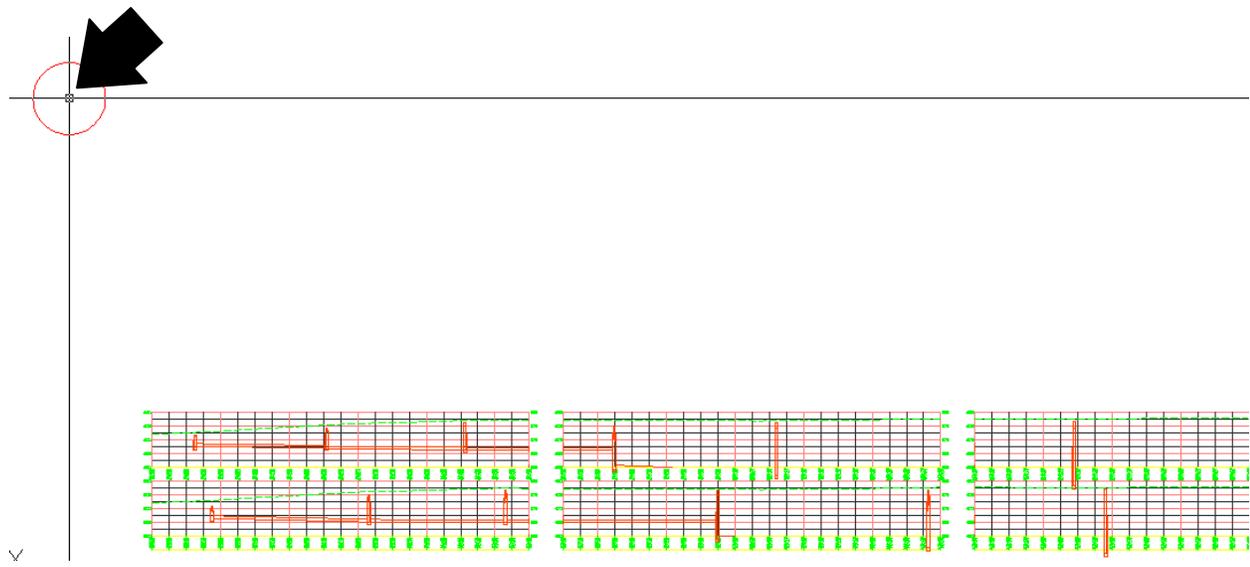
In this next box, since we are “transporting” the sheet layouts and the plan and the profile by x-ref over to a new drawing called “Plan Production”, you can include any or all data shortcuts automatically just by choosing them here. Make your choices and click Create Sheets (notice you can copy your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



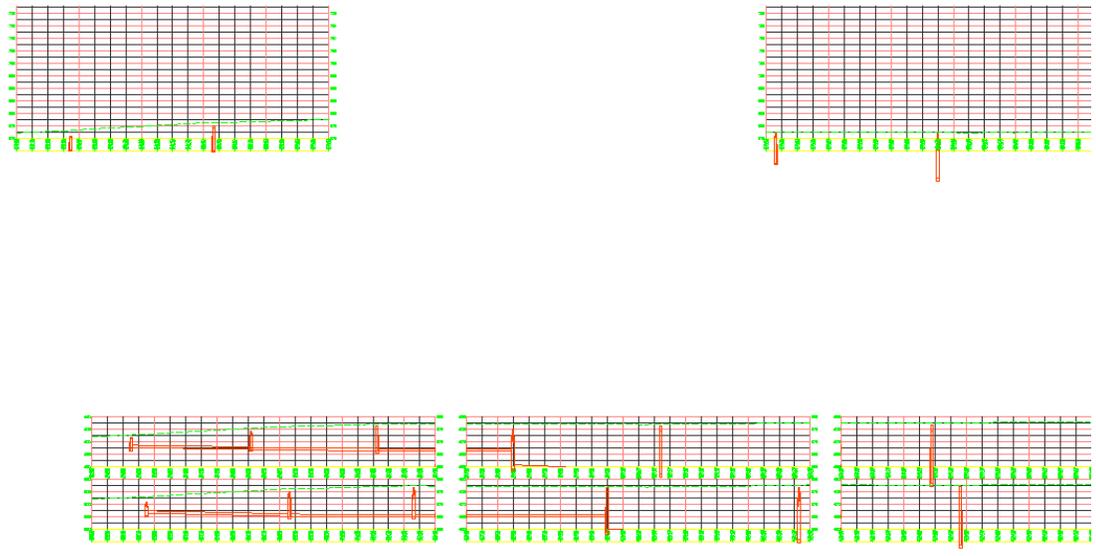
Click OK to this next prompt:



Select a location for your new profile views:

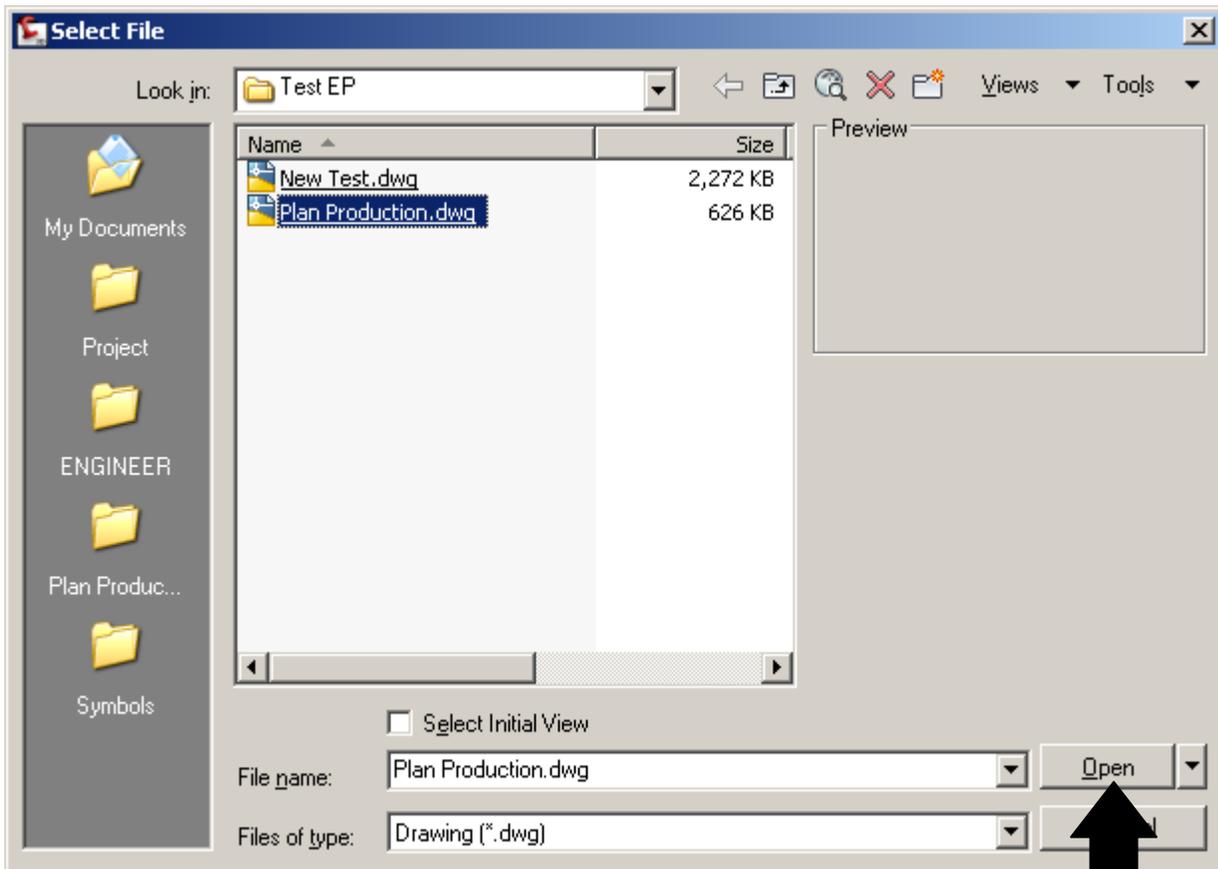


Here is the result. Notice the Profile Views it created are not split, but we're not going worry about that, as we are not going to use these Profile Views:

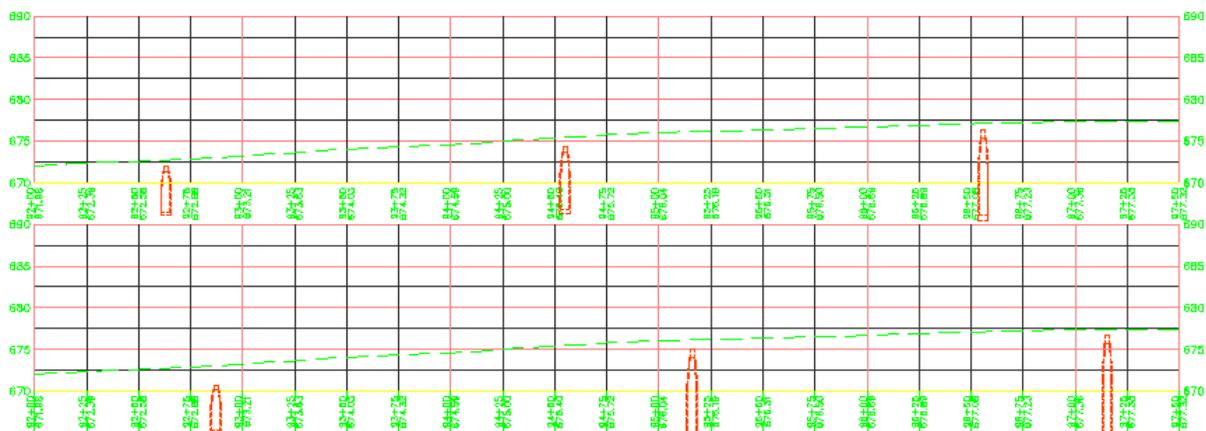


When the process is completed, if you have created the layouts in the current drawing, then the new profile views and the sheet layouts should appear in your current drawing. Since we told the wizard to create a separate drawing for the profile views and layouts, we need to open the drawing called Plan 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:

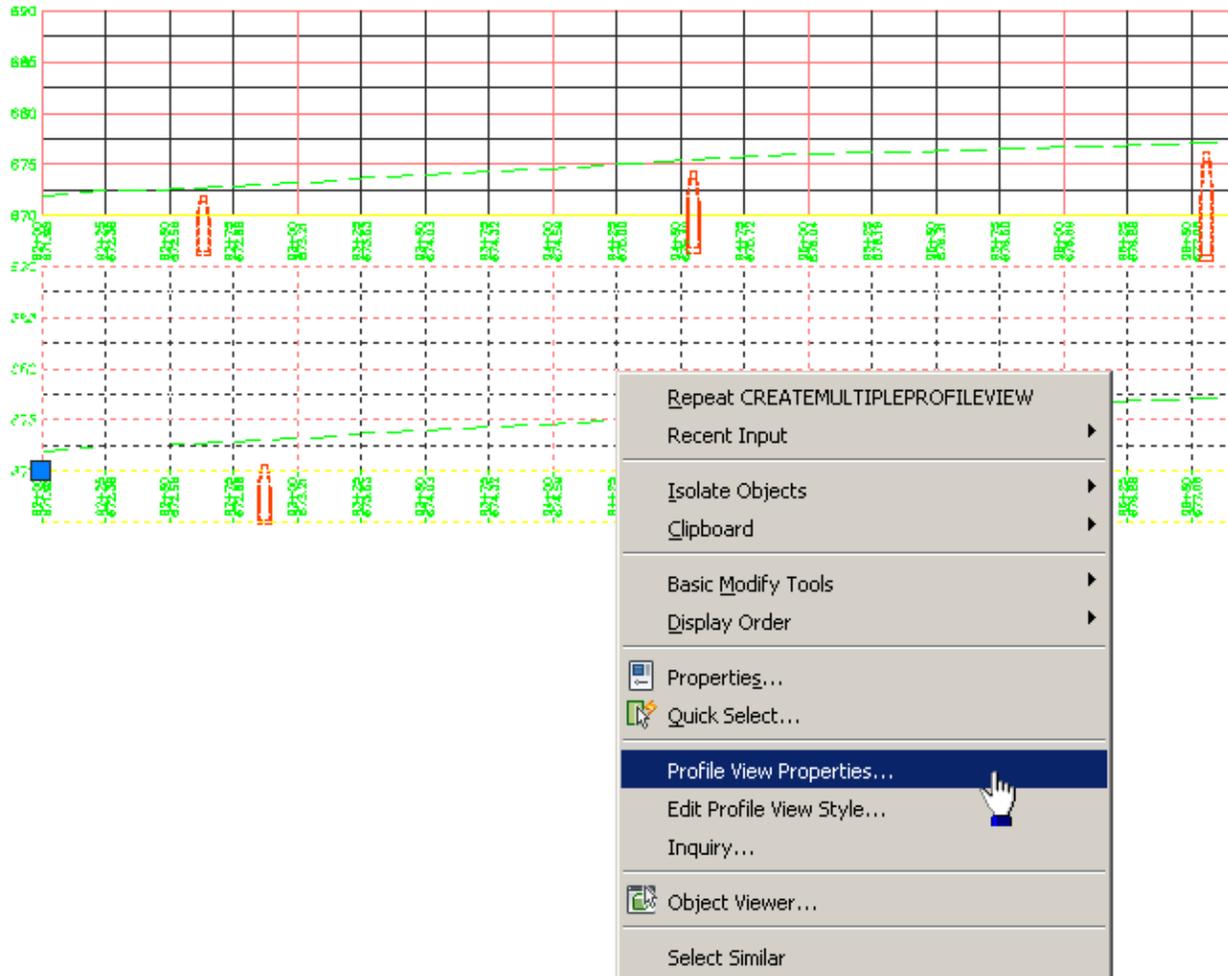


Once opened, if you zoom in on the first profile views, you will notice that the profiles are riding low in the views.

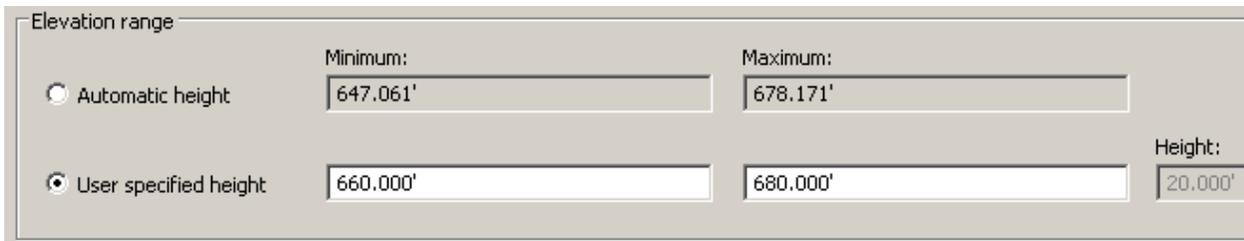


This is a small bug in the software.

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:



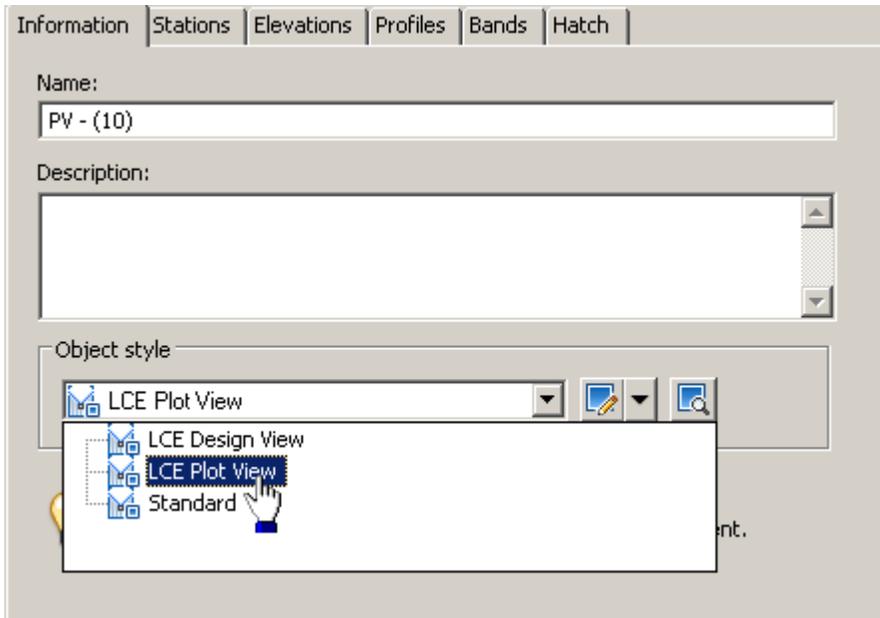
Click on the Elevations Tab, and put in a reasonable elevation range like the following:



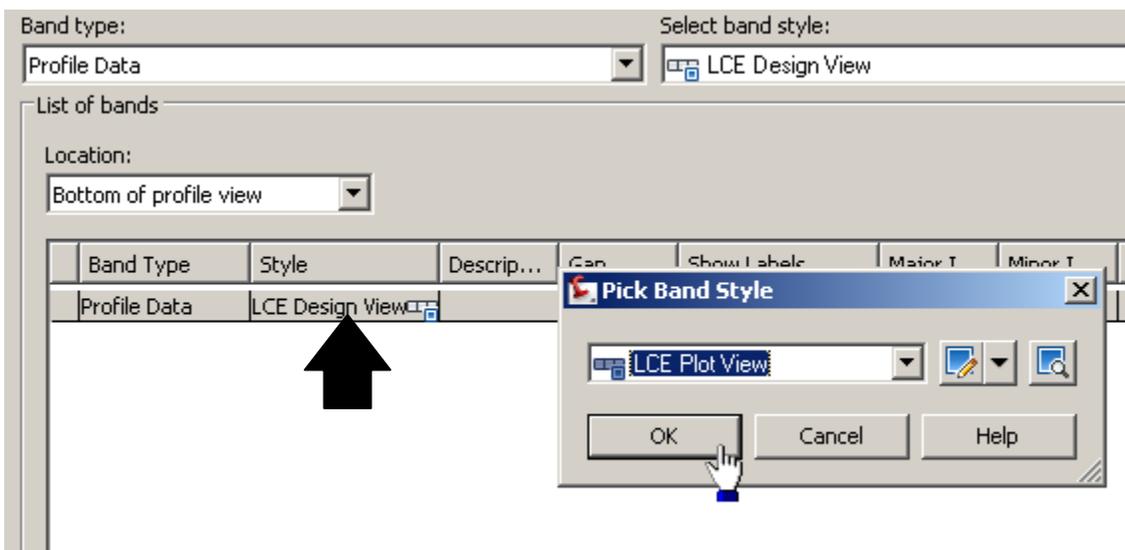
Again, you will have to do this for each profile view.

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.

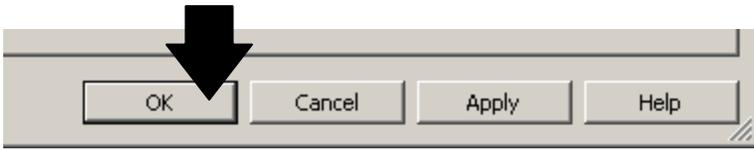
By default, the profile view and the profile view band are set to what's known as the LCE Design View styles. We are going to change it to the LCE Plot View styles. Since you have the Profile View Properties still up, click on the Information Tab and click the Object style pull down and change the style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



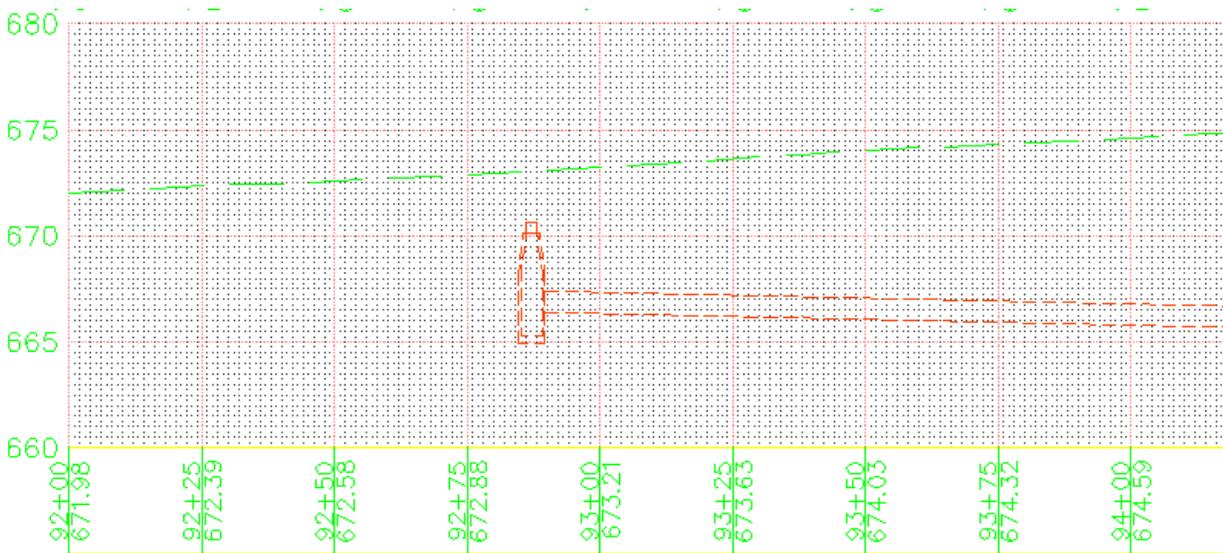
Next, click the Bands Tab, and double click the Style under the Bands List. Click the pull down and select the Plot View Style and click OK:



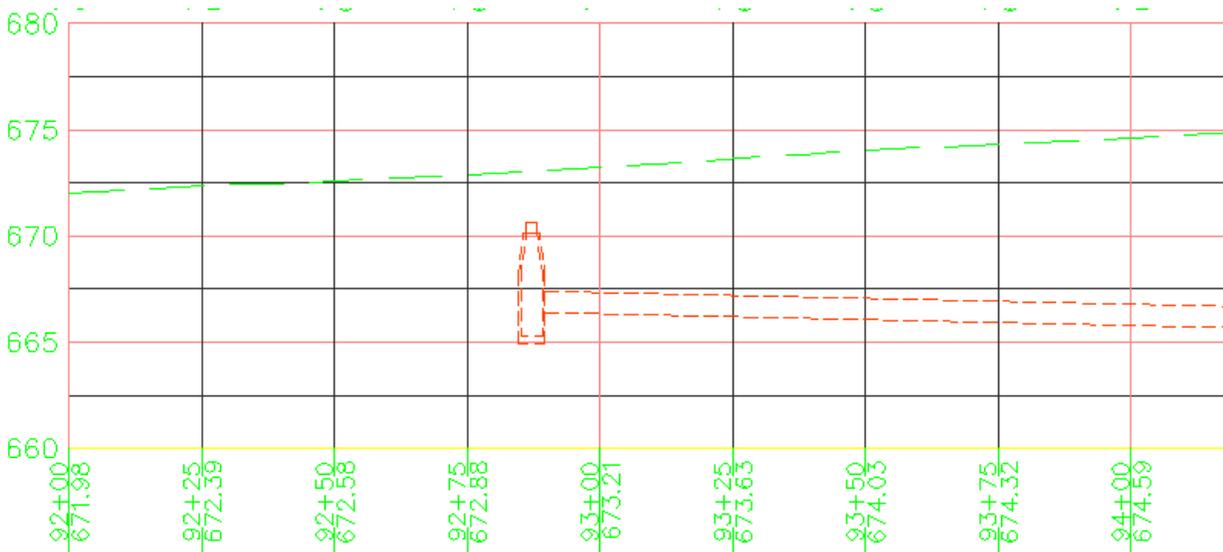
Click OK:



Notice the change in the view:

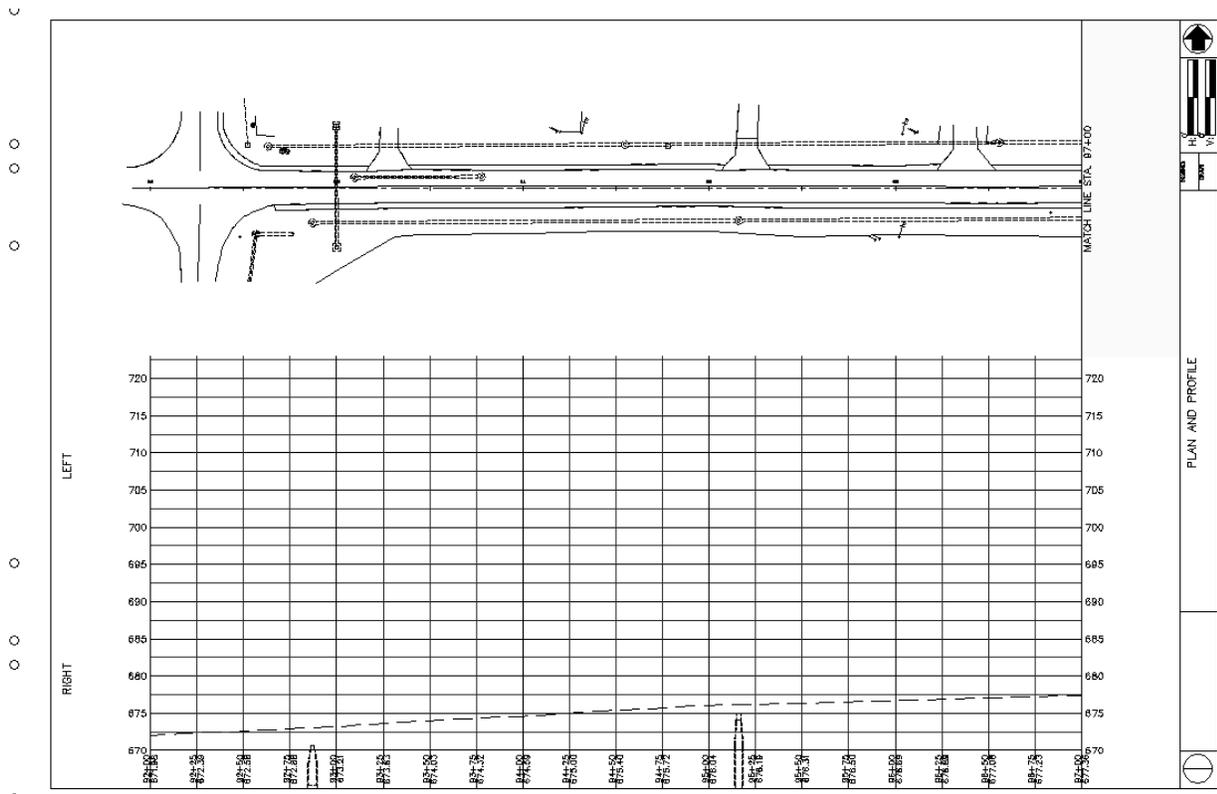


To reverse the display, just reverse the process. Select Profile View, right click, select Profile View Properties, Information Tab, change object style back to Design View, click Bands Tab, change the style under the Bands List back to Design View, and click OK and voila you're back:



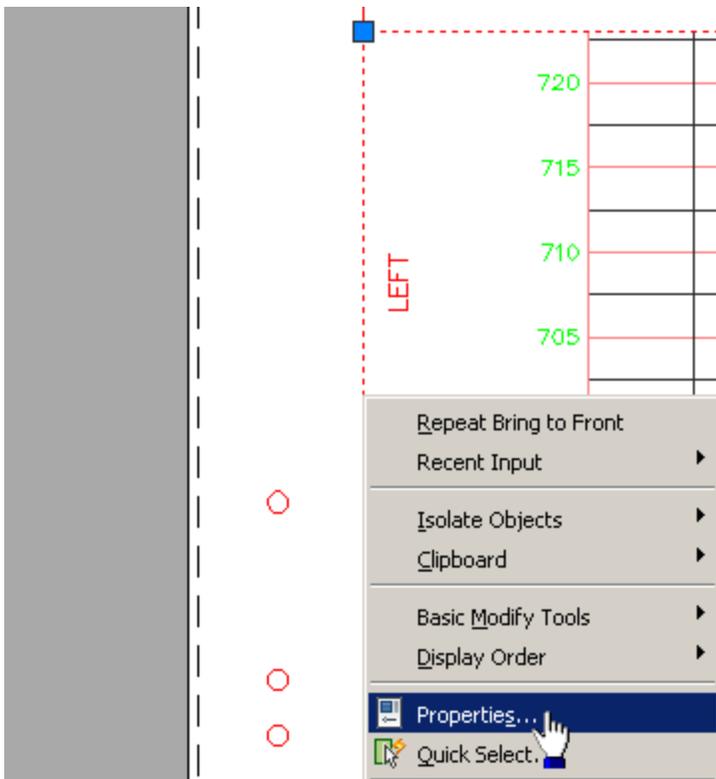
Change the Profile View settings back to Plot View or simply undo.

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

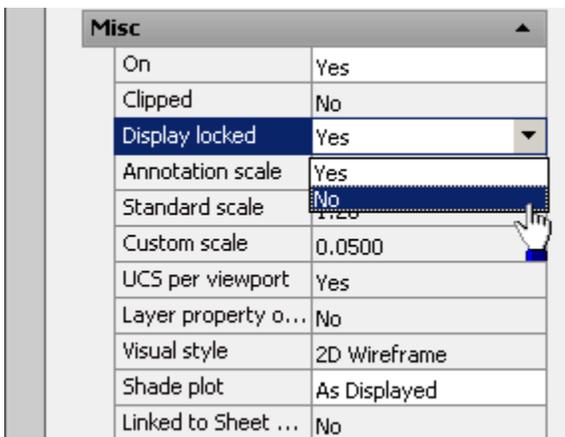


Obviously, this is not the right profile, so let's use the Align Space method to get to the split profiles we want to see (Note-you will have to use this procedure for each sheet layout.)

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):

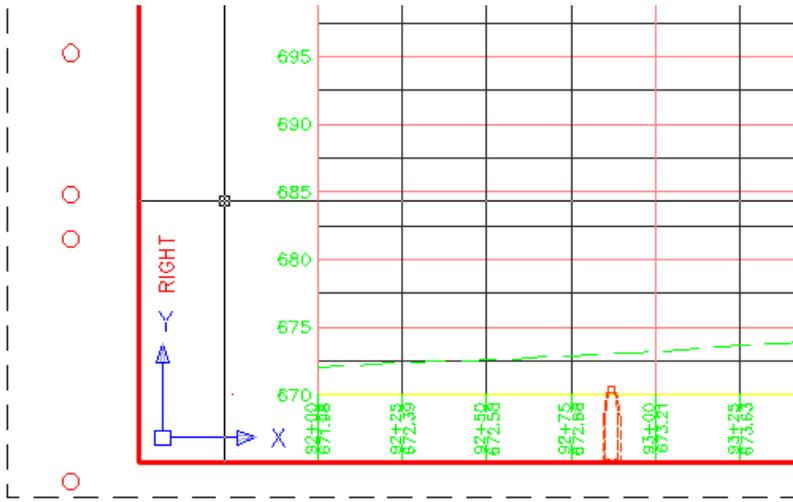


When the properties come up, change the locked setting to unlocked (No) :



Hit the Escape key afterwards.

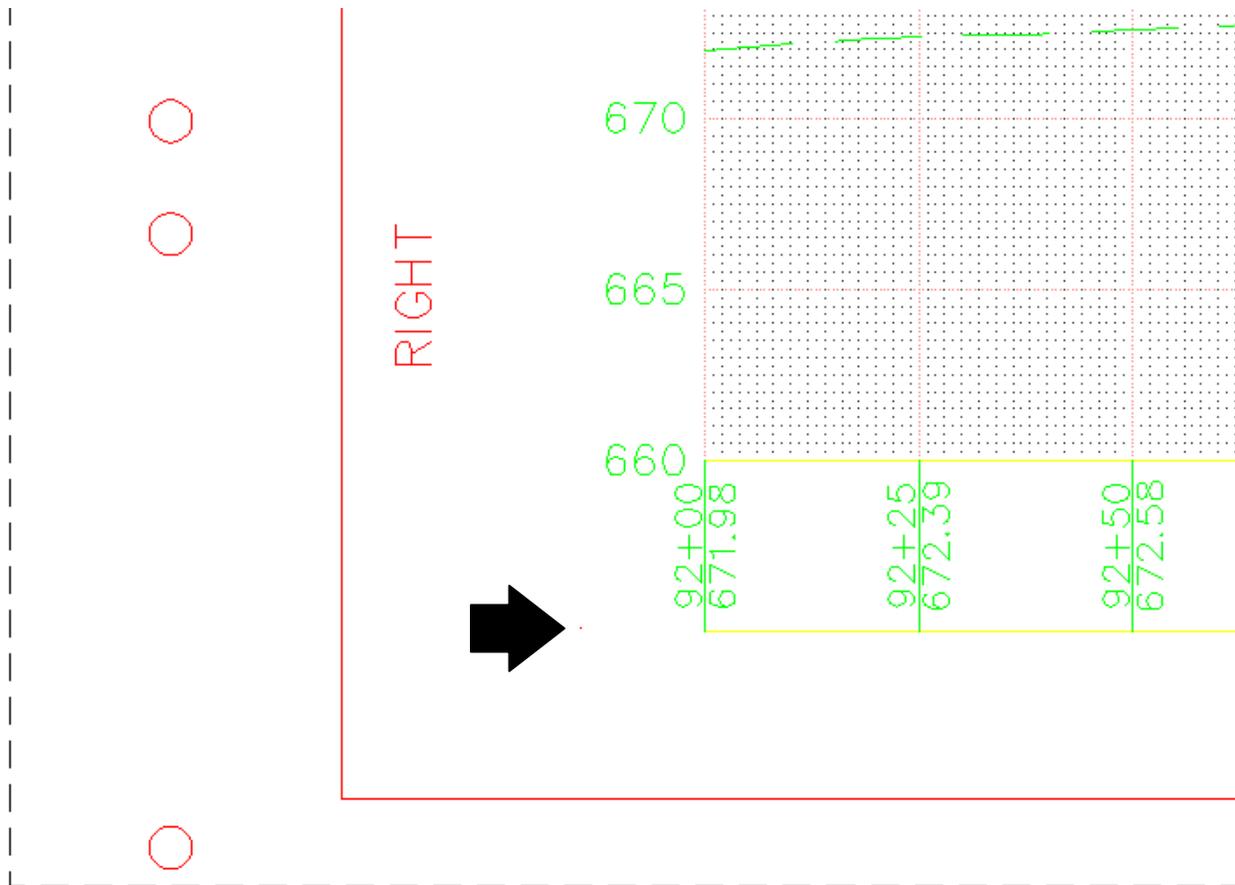
Double click inside the profile viewport:



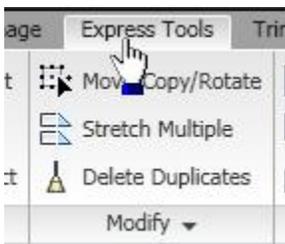
Now pan to the split profiles that are associated with this view:



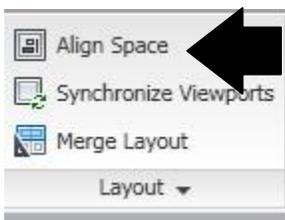
You should notice a point that's part of the border block. This will come in handy when you follow the next steps:



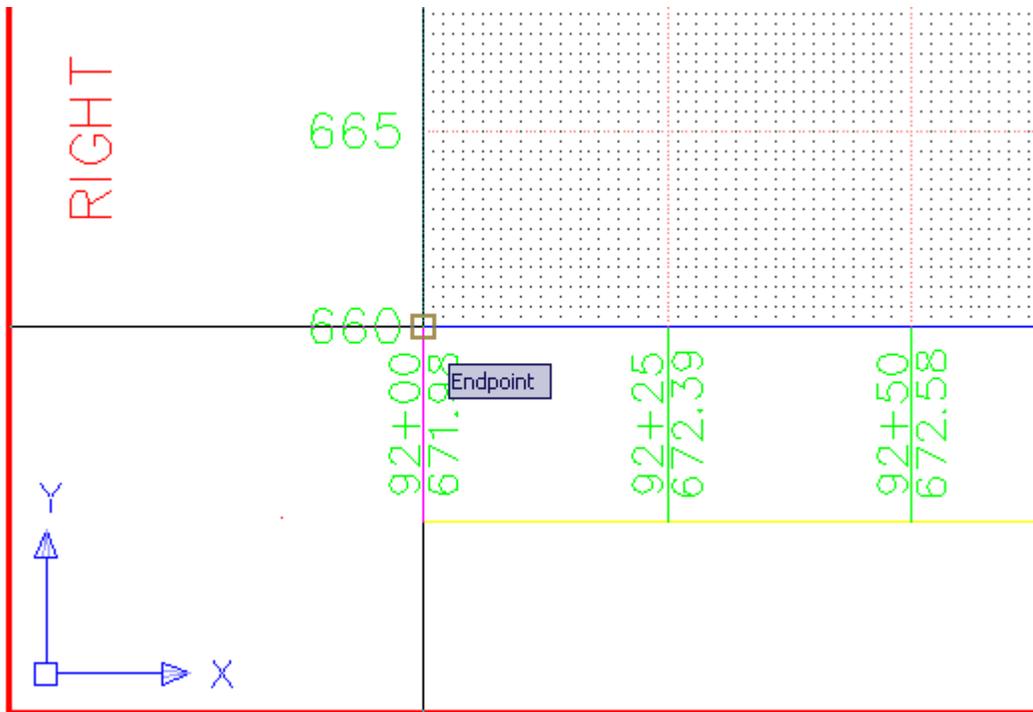
Click the Express Tools Tab:



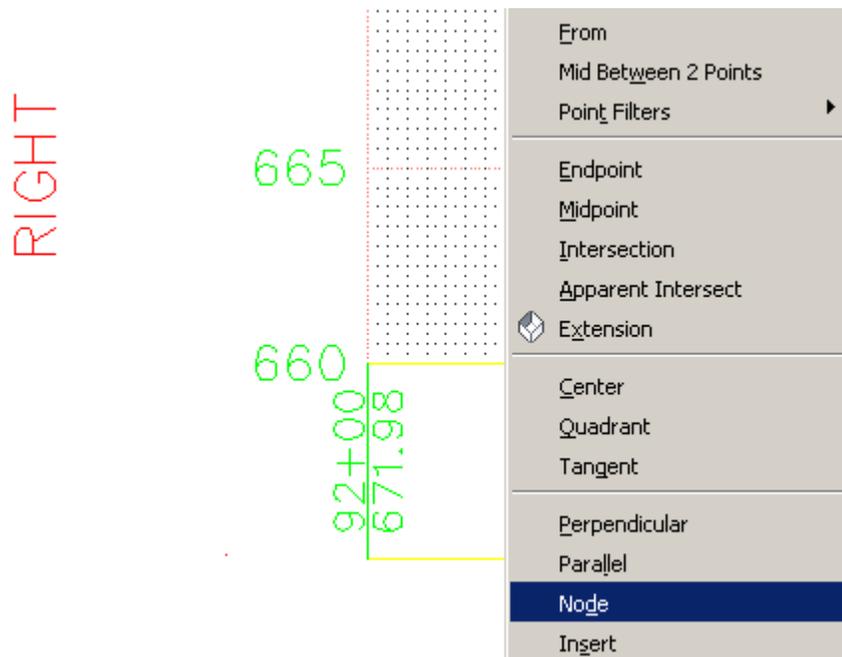
Click Align Space:



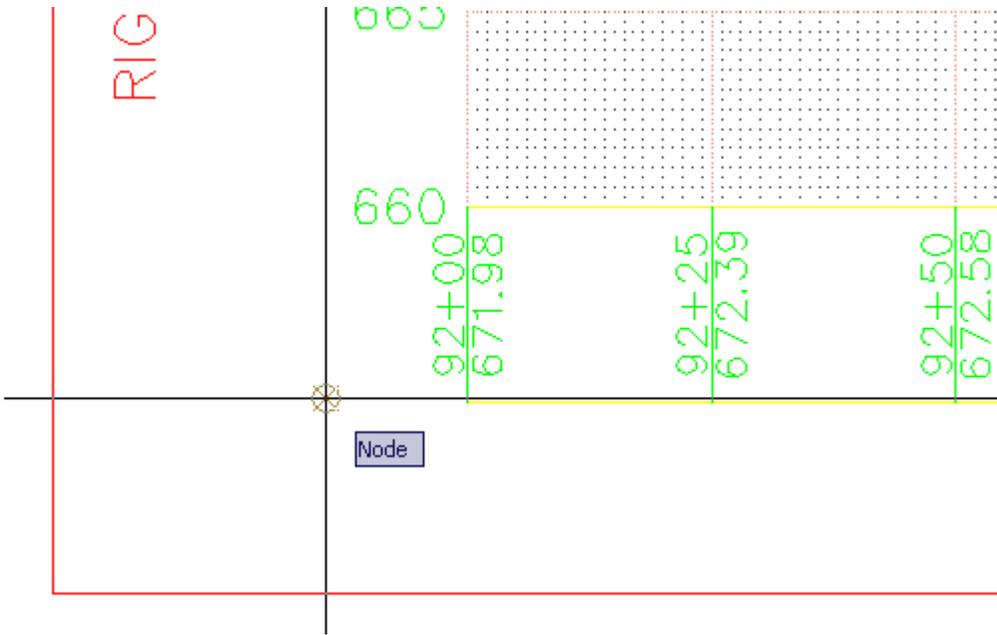
Snap by Endpoint to the location indicated:



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

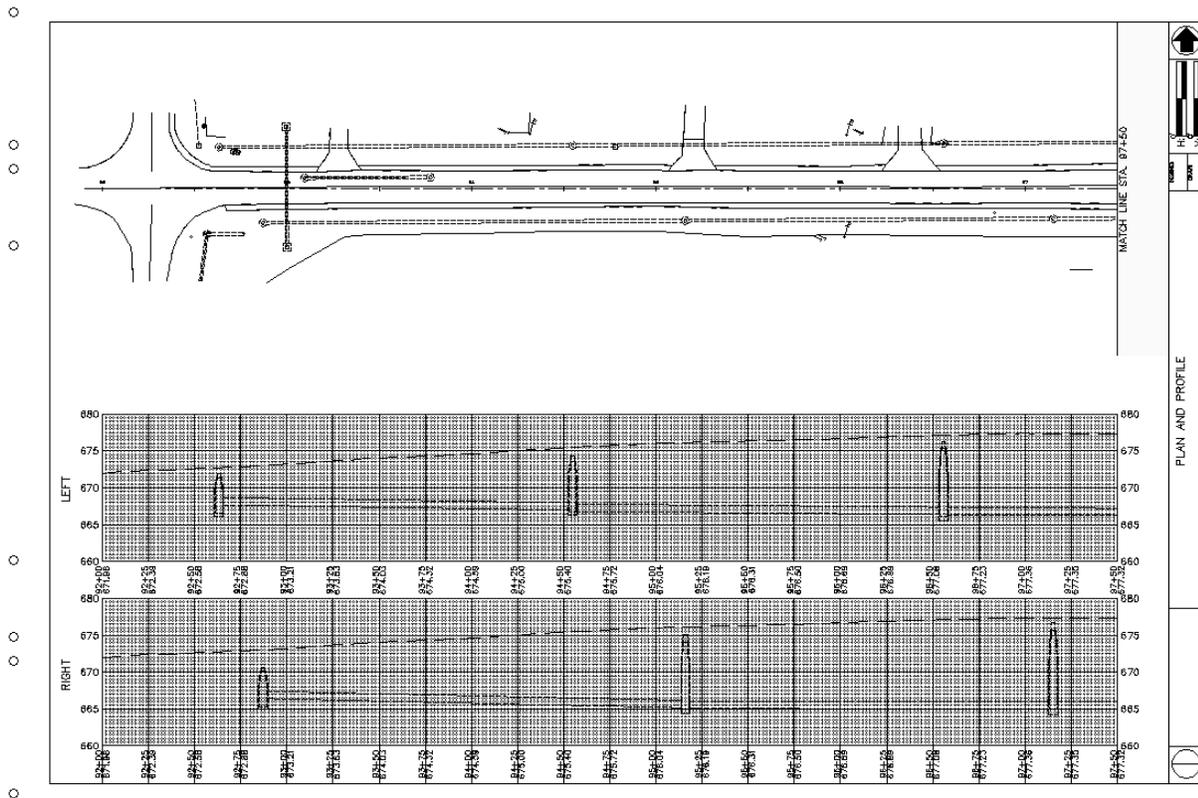


Select the point that was pointed out earlier:



Hit Enter.

Here is your Plan Production Split Profile Sheet:



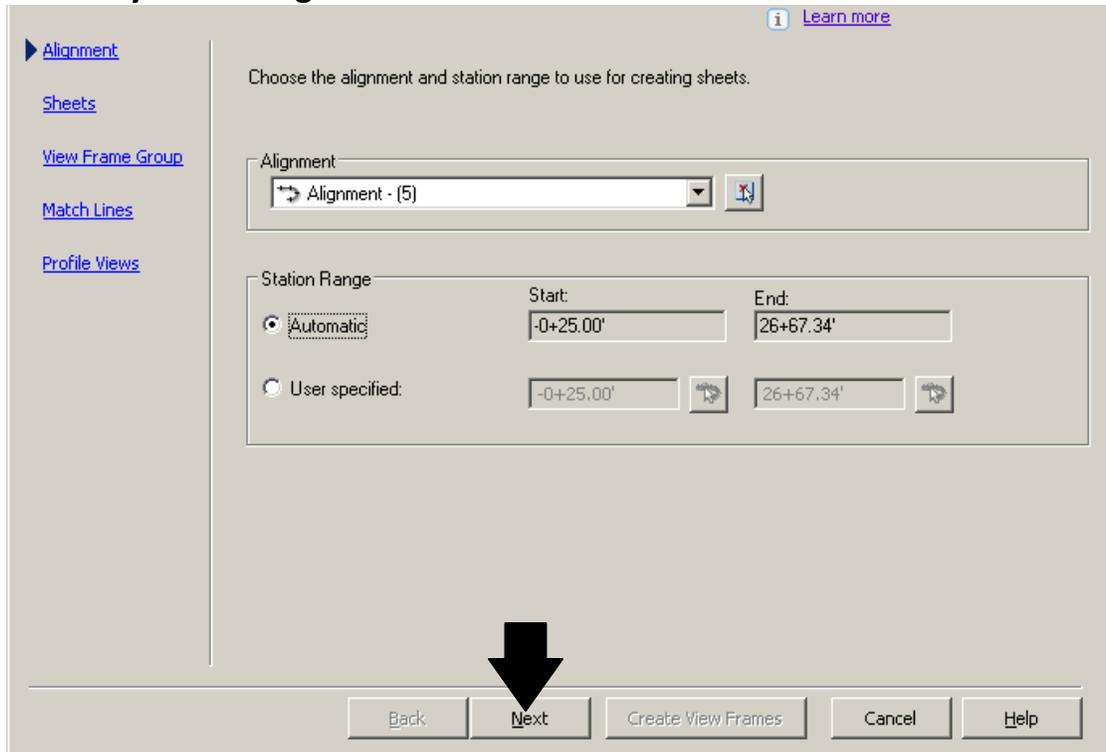
Proceed with re-aligning the rest of the sheet layouts. You can then delete the profile views that were created by the Create Sheets step of the Plan Production.

CREATING DOUBLE PLAN SHEETS USING PLAN PRODUCTION

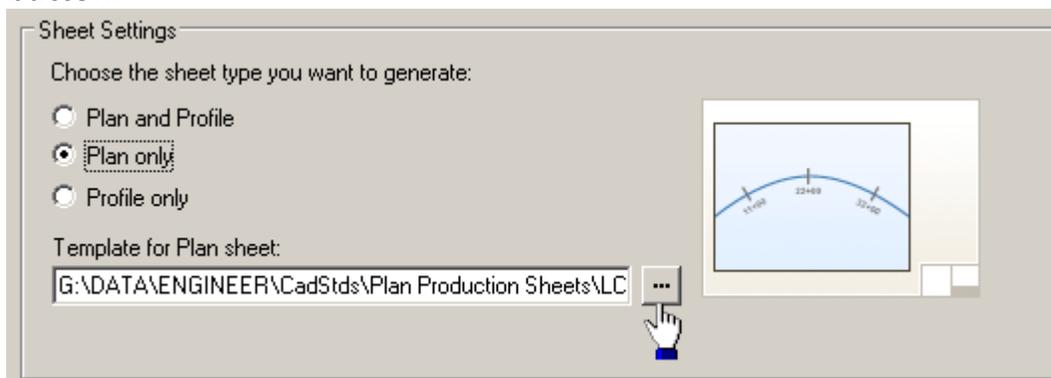
To start, go to the Ribbon Output Tab > Create View Frames:



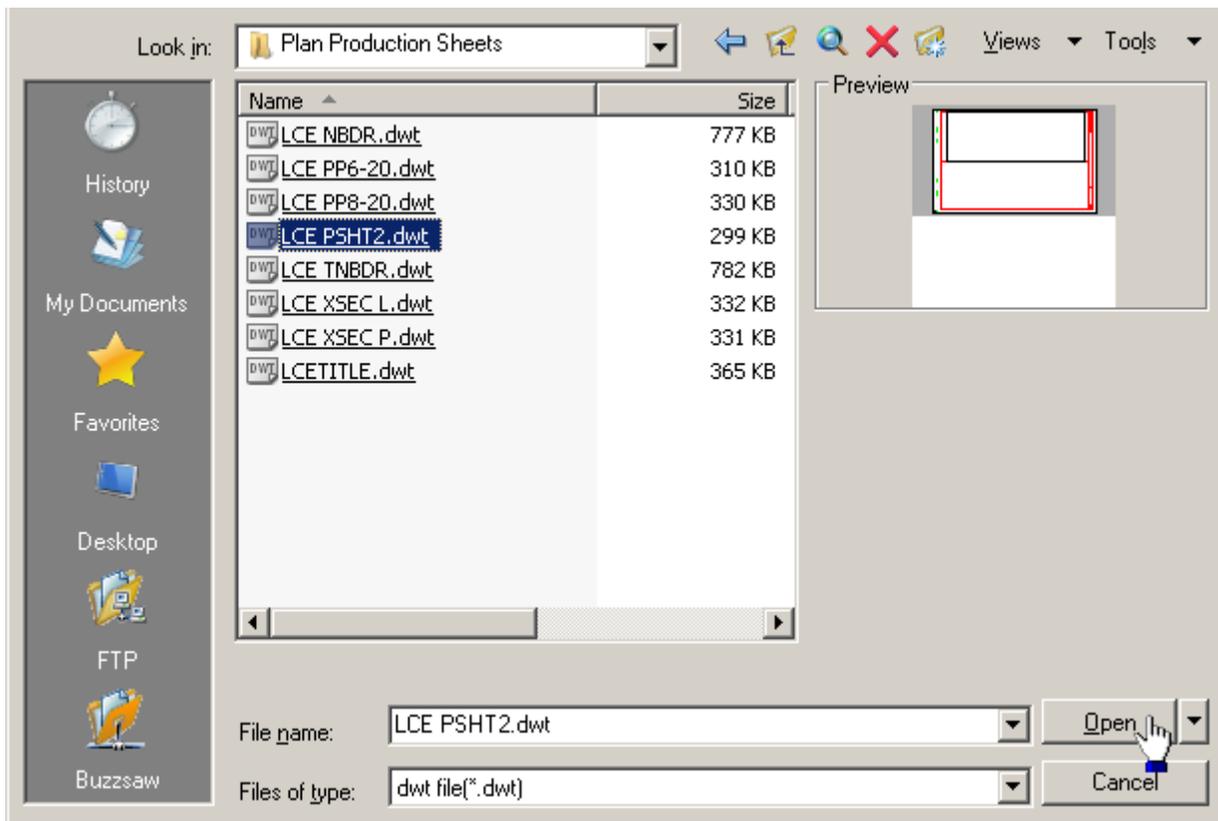
This will be similar to the process for the Plan and Profile sheet generation steps. Choose your settings or leave as is. Click Next:



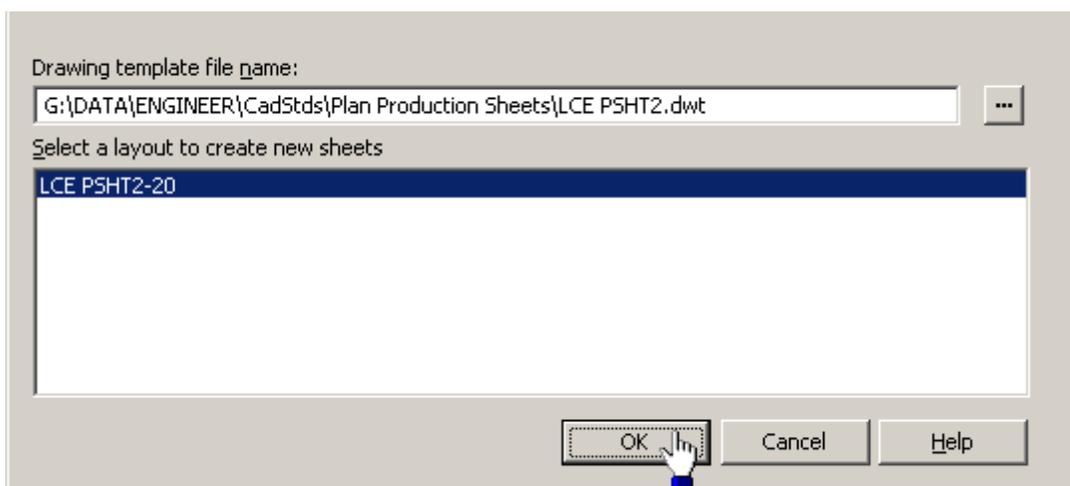
For this next setting, select Plan only and then click the Template for Plan sheet button:



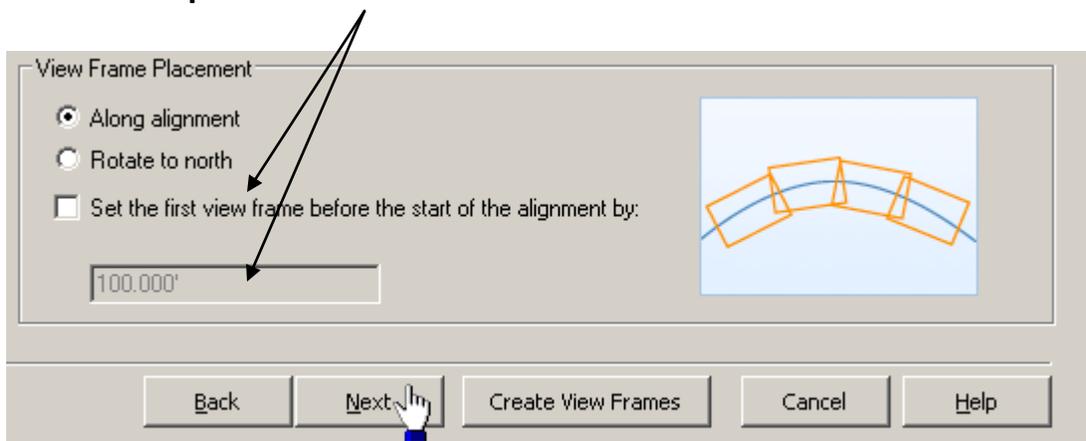
Browse to g:\data\engineer\cadstds\plan production sheets and choose LCE PSHT2.dwt and click Open:



Now, just click OK:



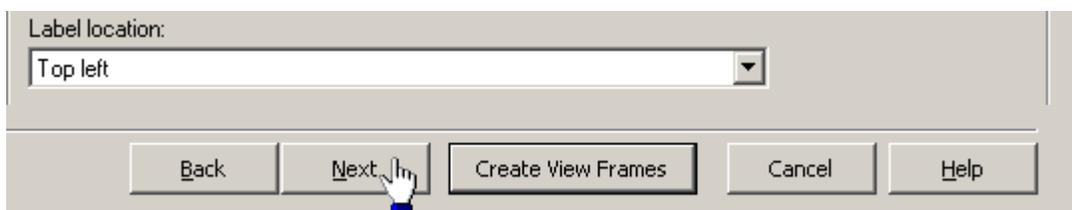
If you need to set the view frame before the start of the alignment, check the box and set the preferred distance value. Click Next:



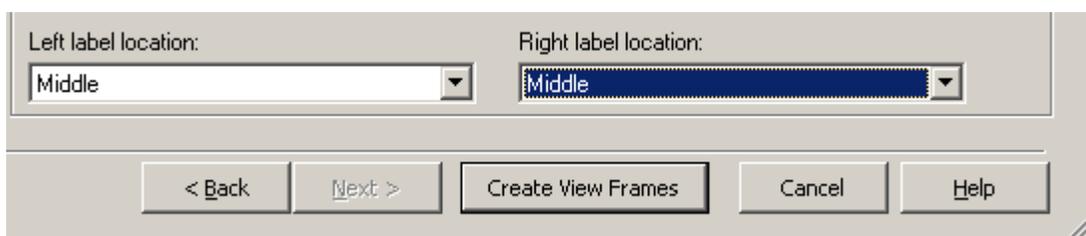
Give the View Frame Group a name:



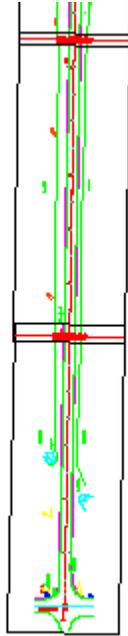
Click Next:



Click Create View Frames:



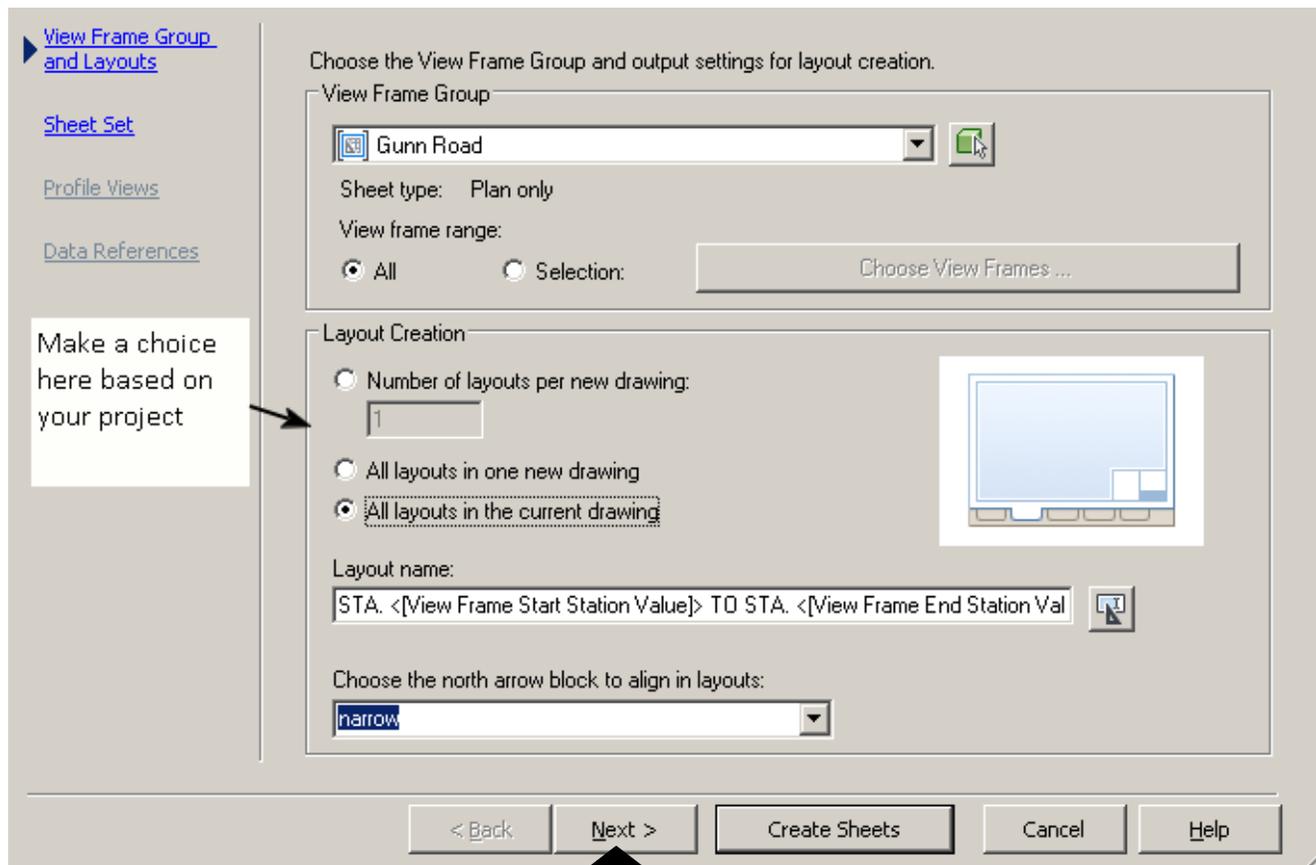
Here are your View Frames:



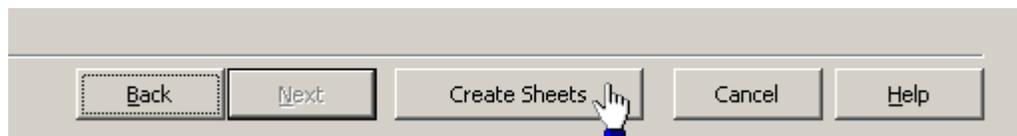
Next, go back to the Plan Production panel > Create Sheets:



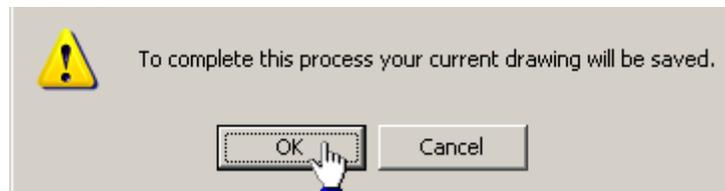
Use the following settings, then click Next:



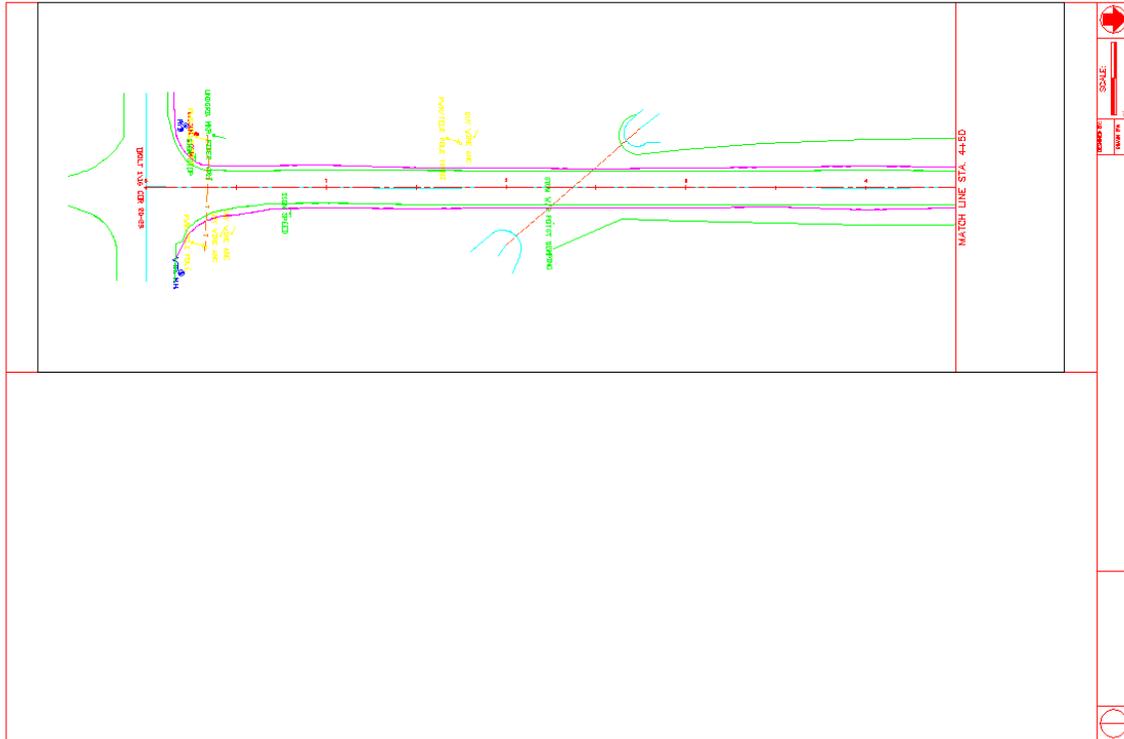
Click Create Sheets:



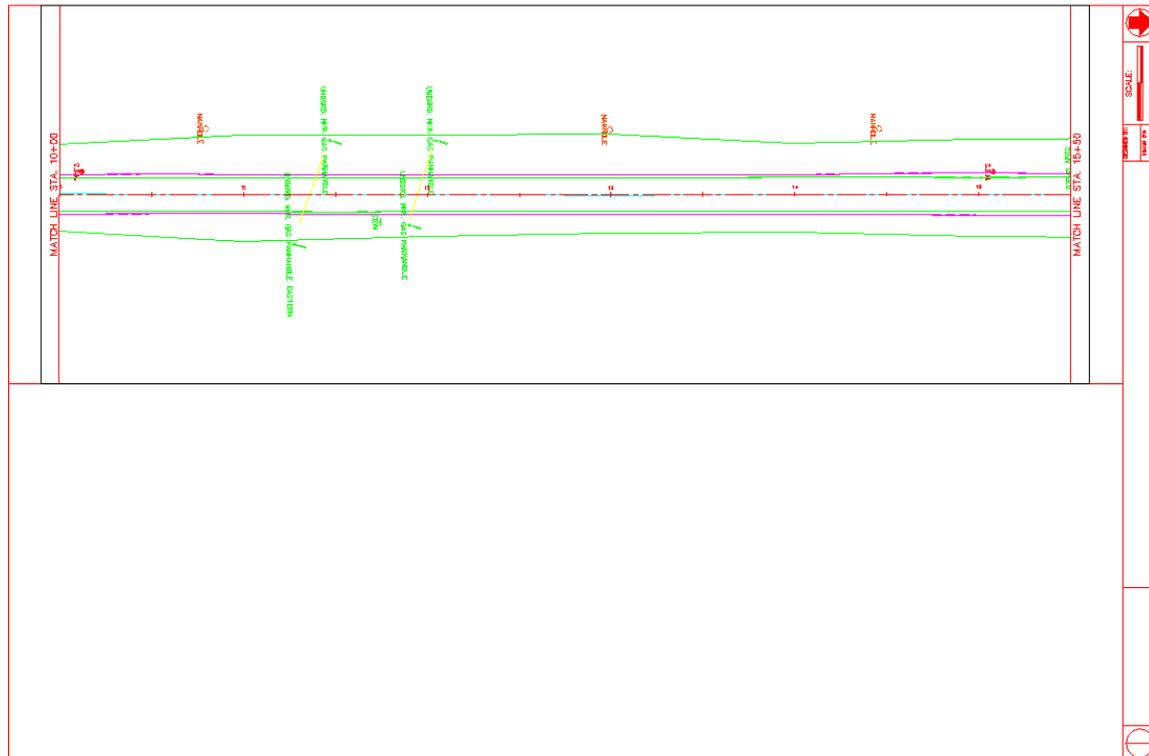
Click OK:



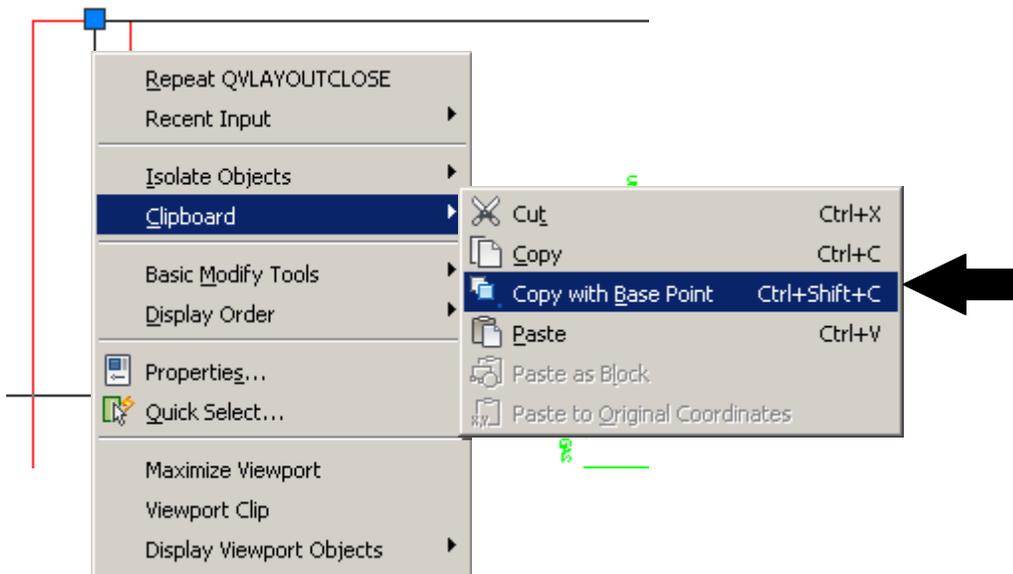
As you can see, only the top plan is created.



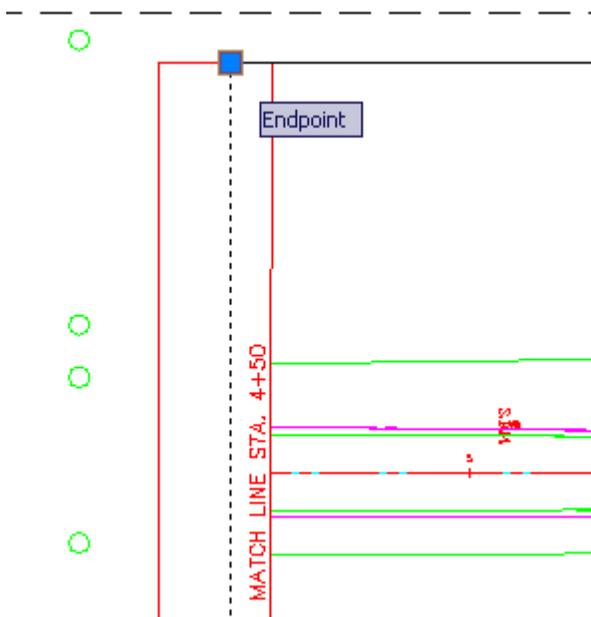
This was the only way to get this process to work; however, here is the quick workaround. Go to the quick View Layout and click on to the second layout:



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:

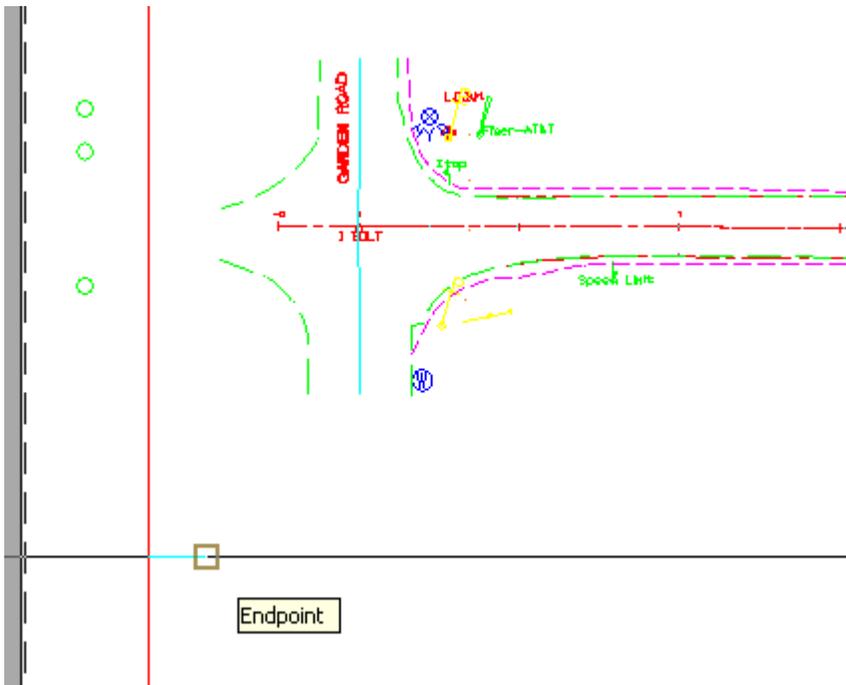


Hit Escape.

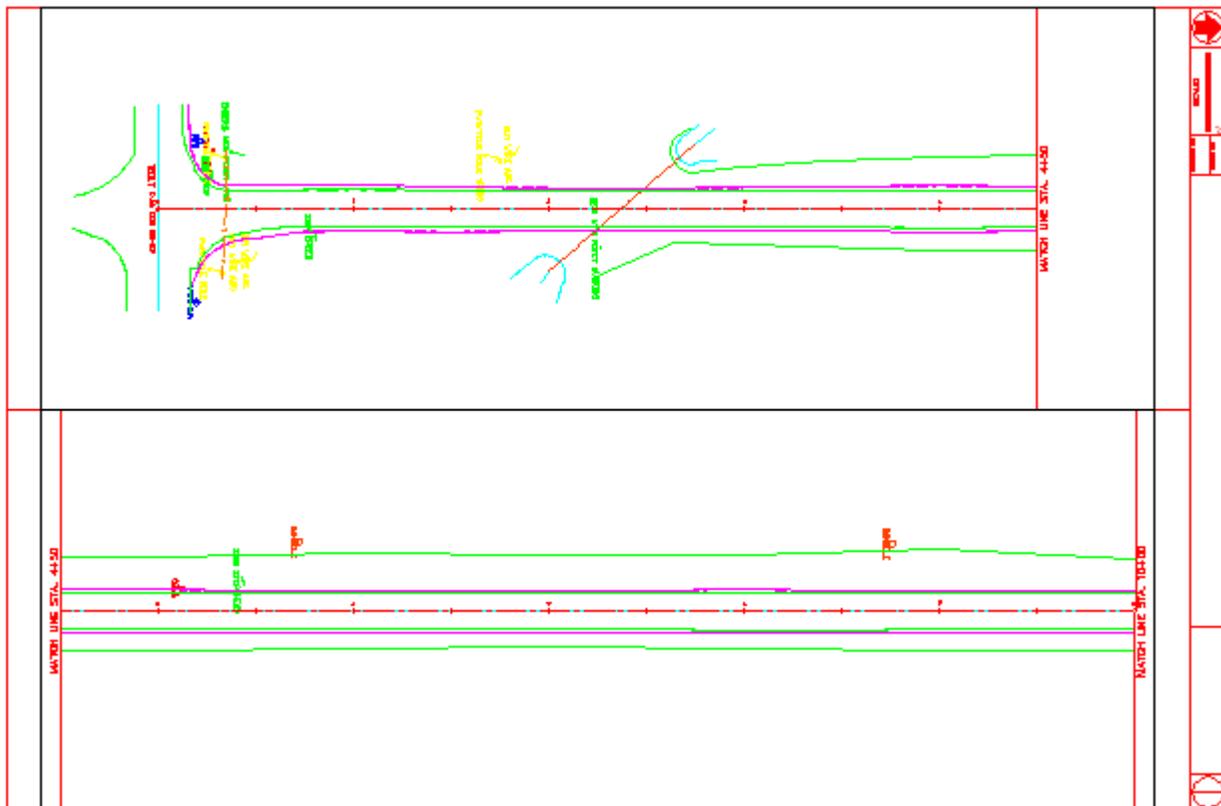
Click back on the first layout.

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

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



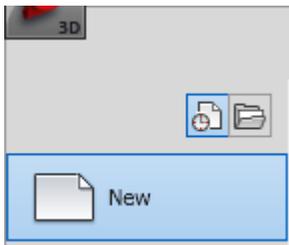
And there you are, your double plan sheet:



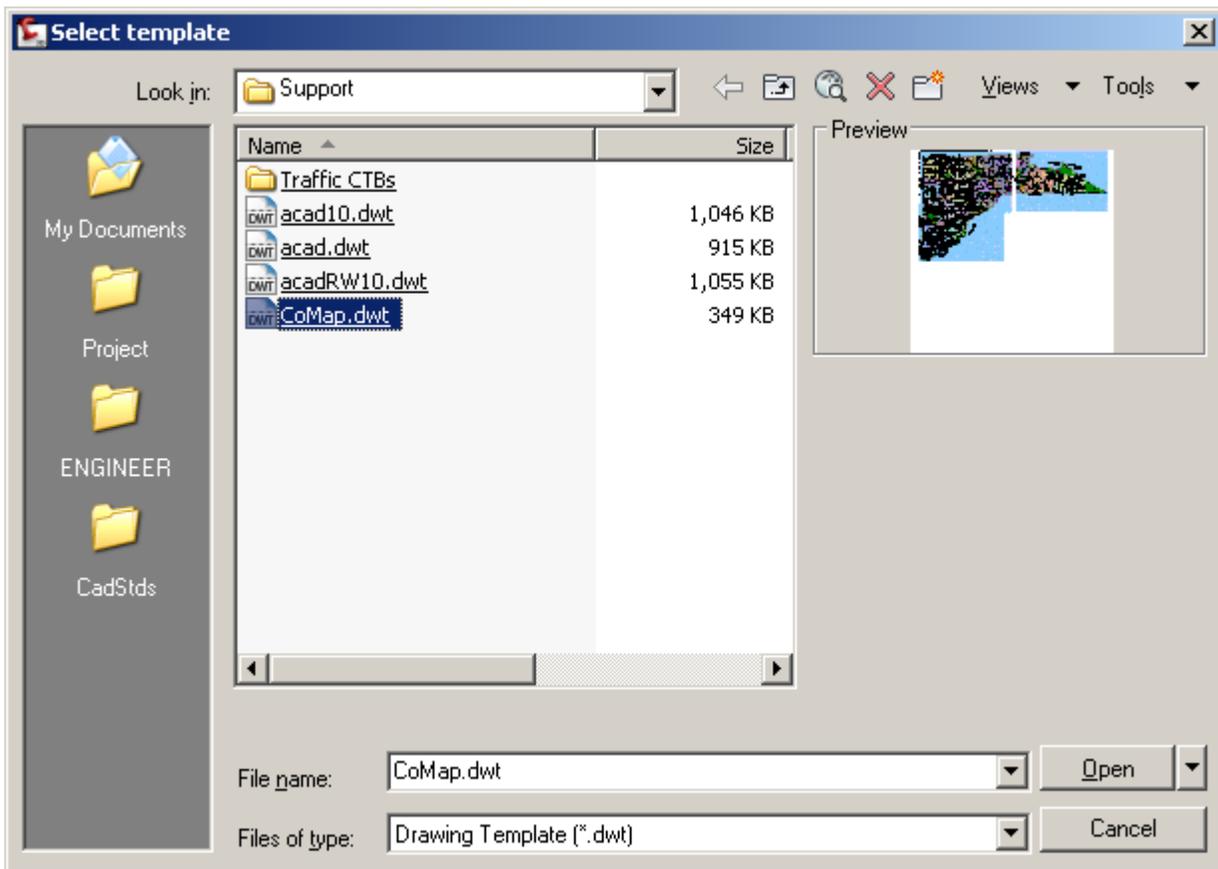
Now, using this technique, you should be able to move and copy the rest of your viewports into their respective layouts until you are done. Delete any layouts you have left over. You will have to rename your layouts to reflect the new stationing per layout.

USING MAP BOOKS TO CREATE A TITLE SHEET

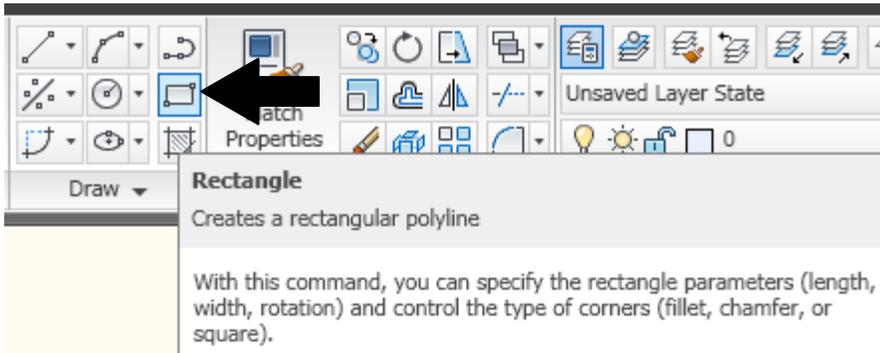
Click on the C3D Start a new drawing:



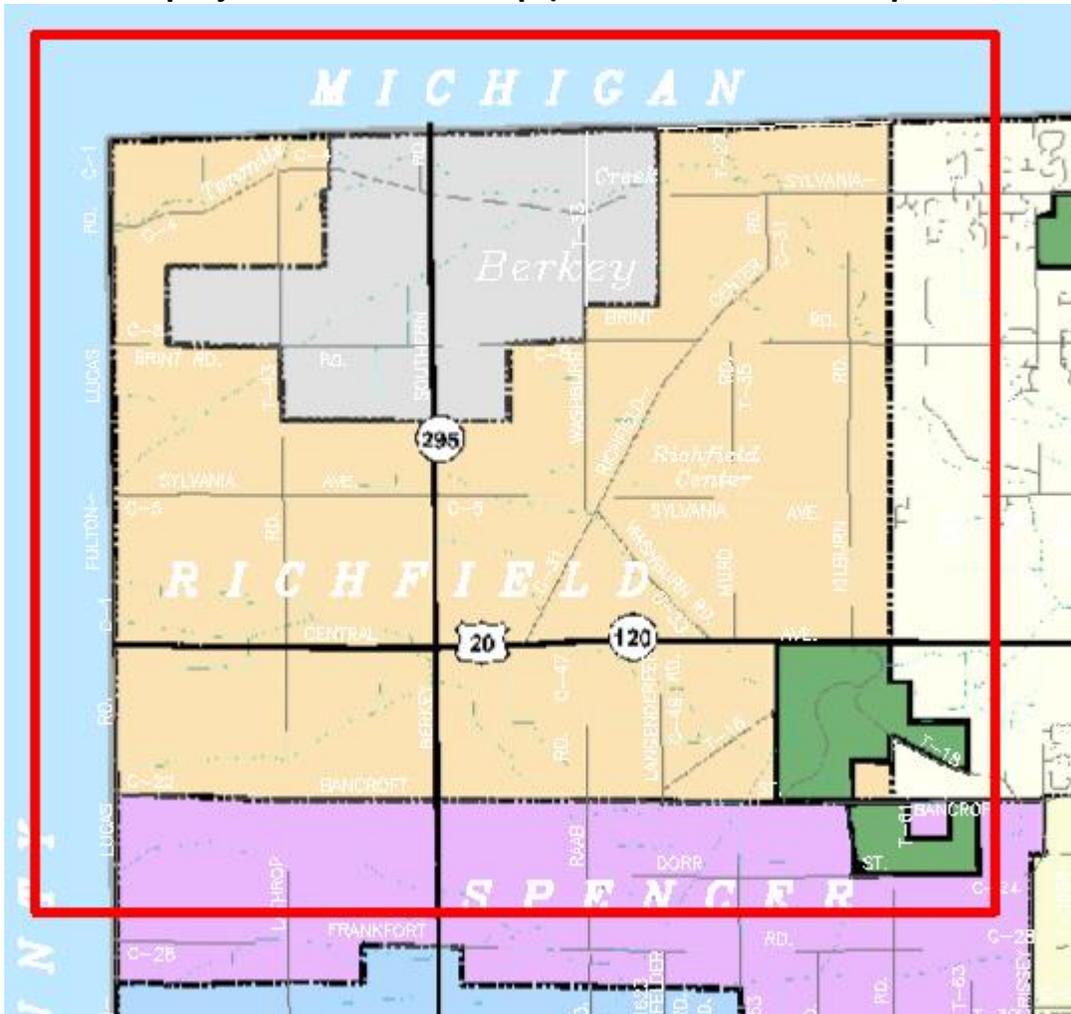
Select CoMap.dwt and click Open:



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.

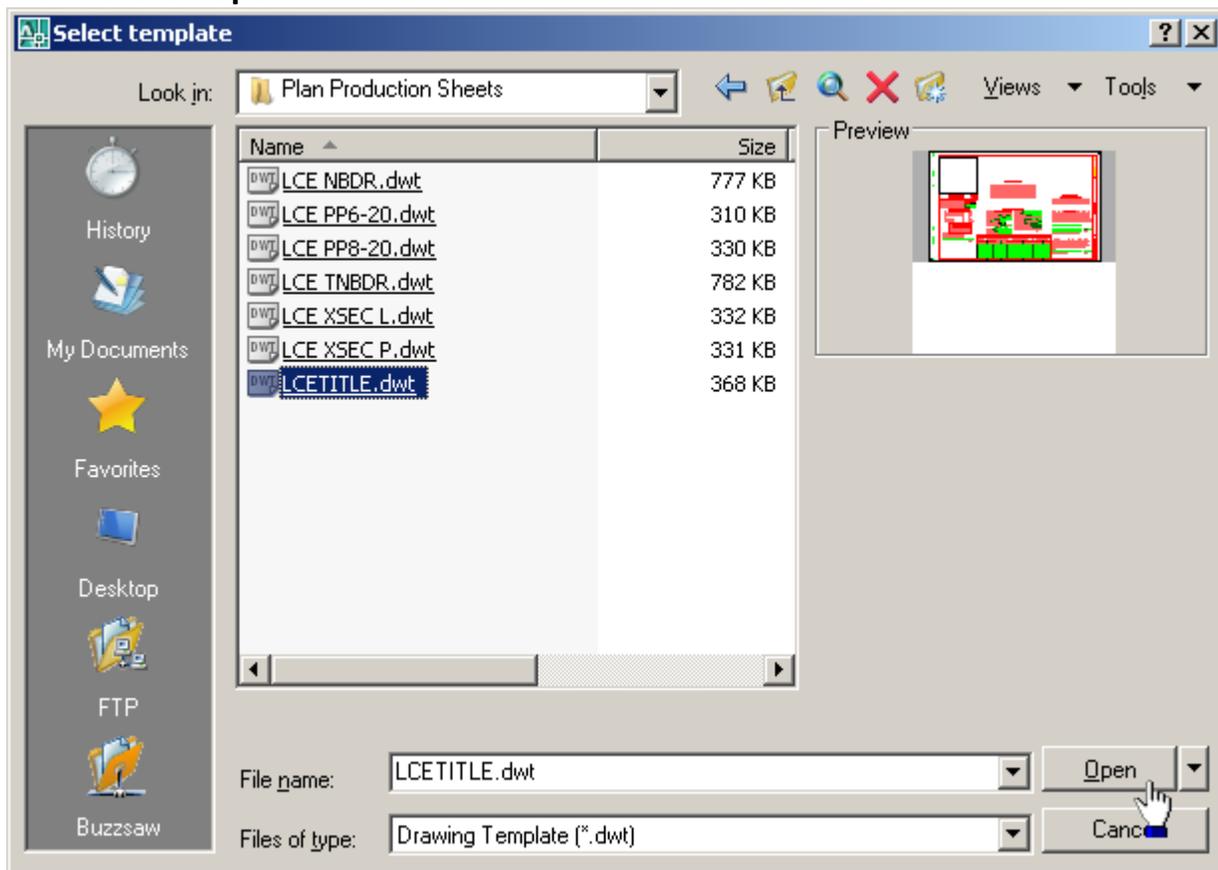
Follow these steps – give the Map Book a name:



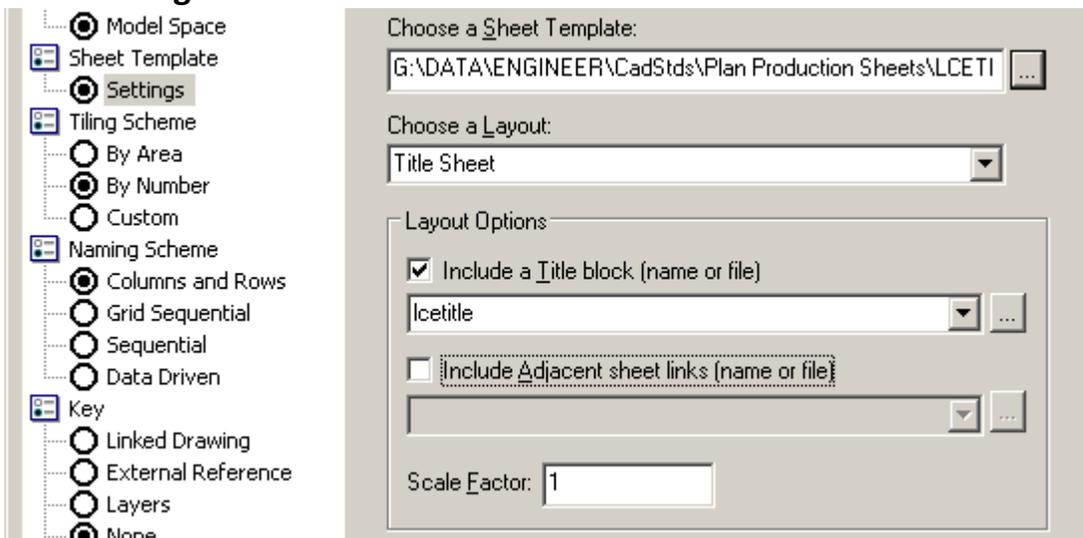
Click Settings under Sheet Template, then click the button next to the Choose Template sheet field:



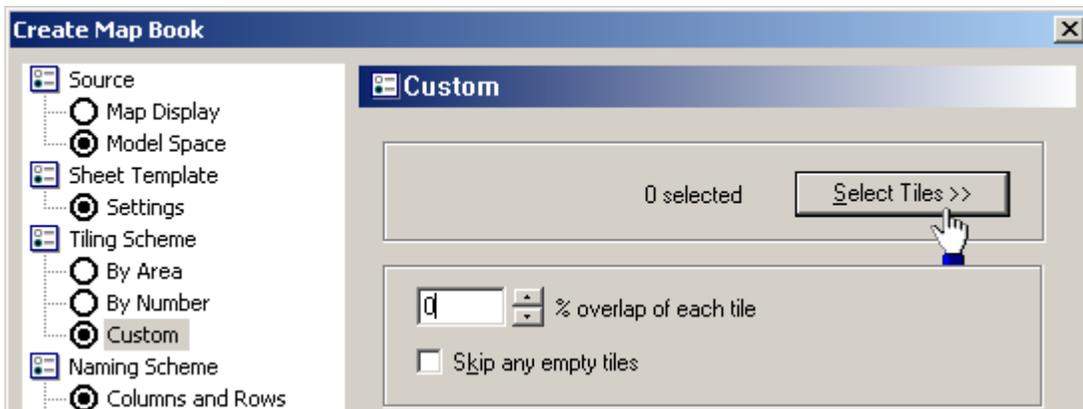
Browse to g:\data\engineer\cadstds\plan production sheets. Click the LCETITLE.dwt file and click Open:



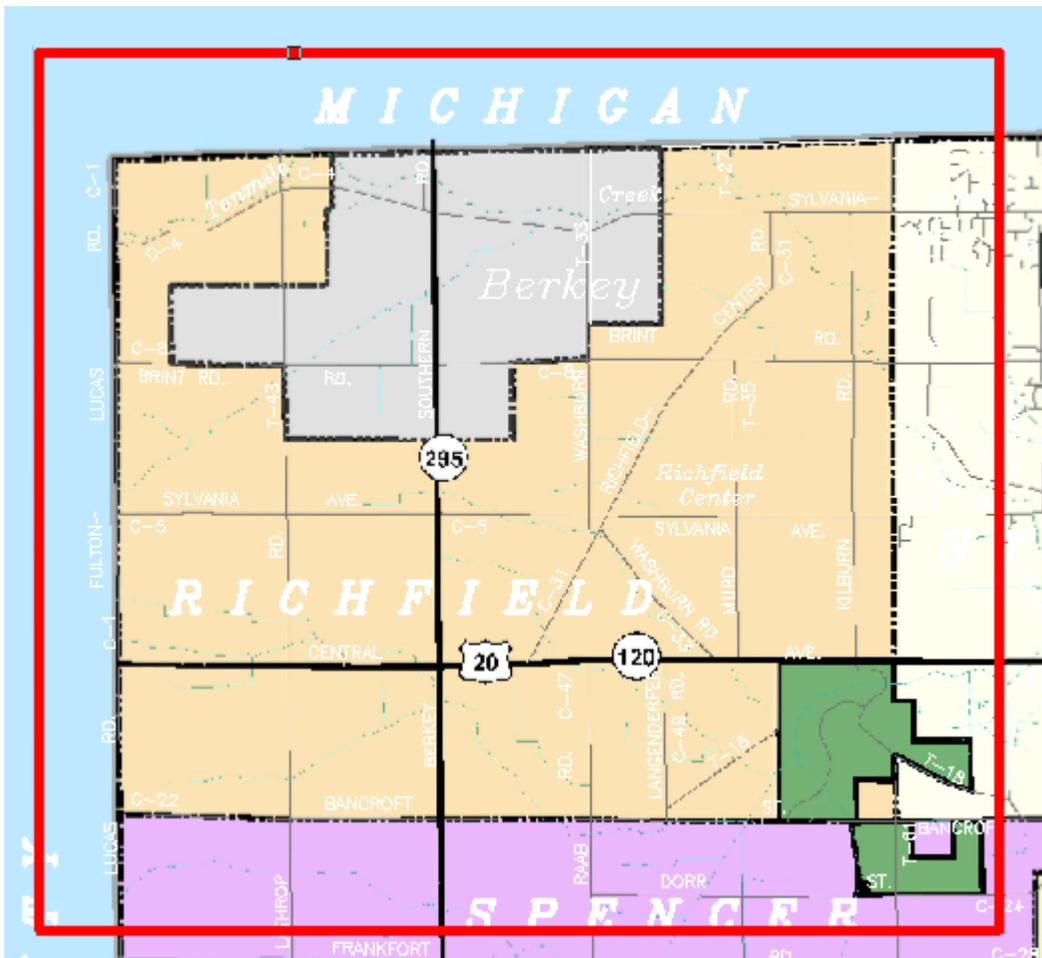
Your settings should be as follows:



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:

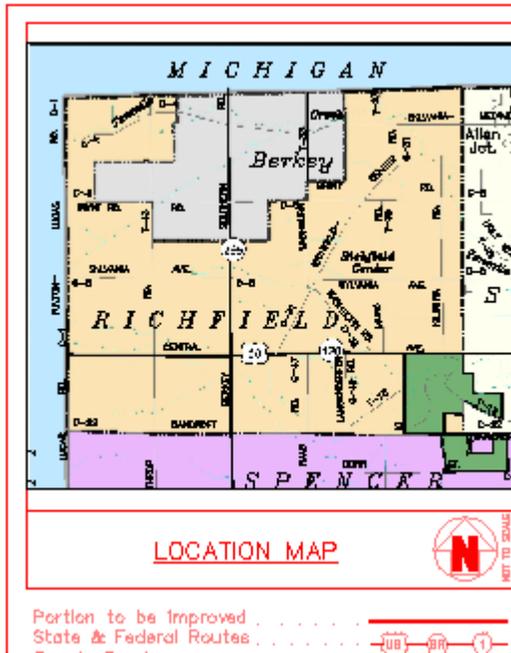


Now click the Generate button at the bottom:



And voila...here's your map:

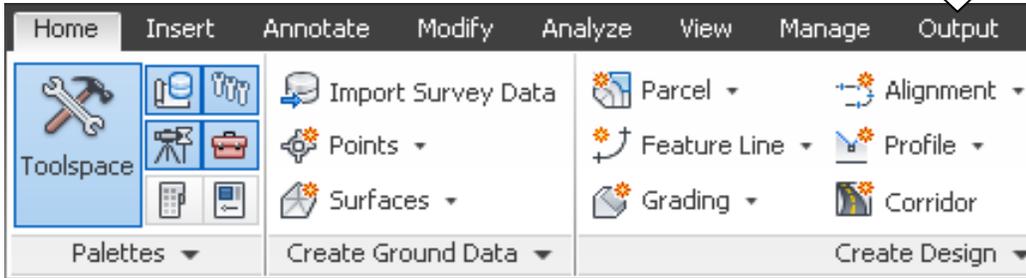
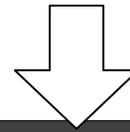
-
-
-
-



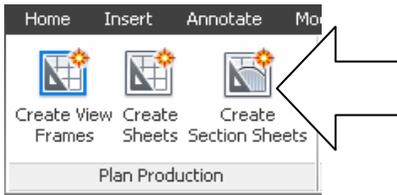
CREATE CROSS SECTION LAYOUTS

Open your Cross Sections drawing.

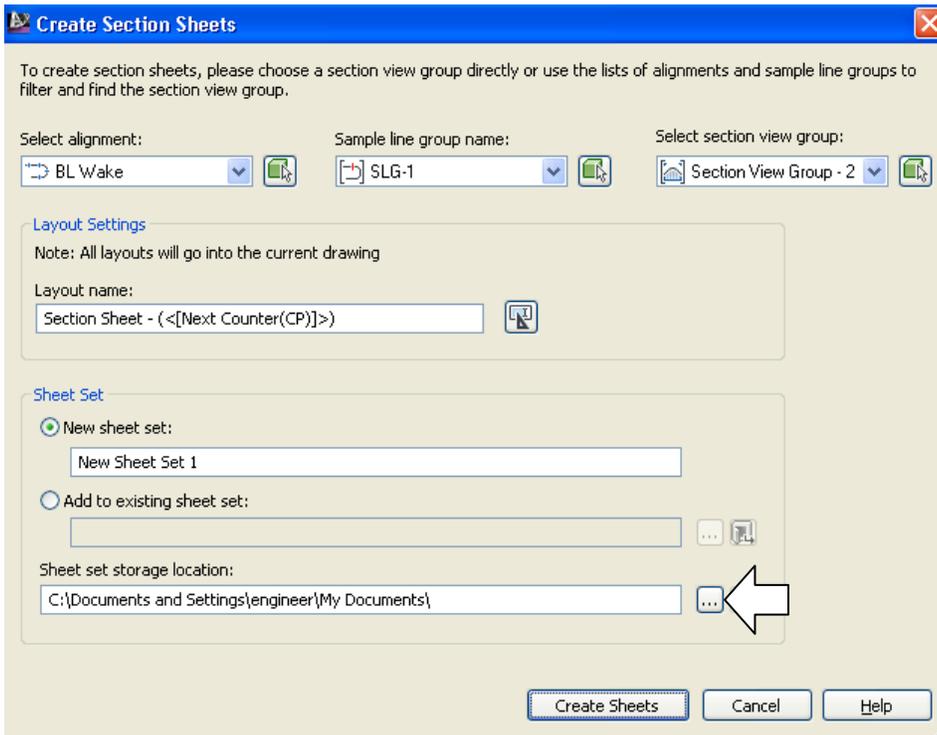
On the Ribbon toolbar, click Output:



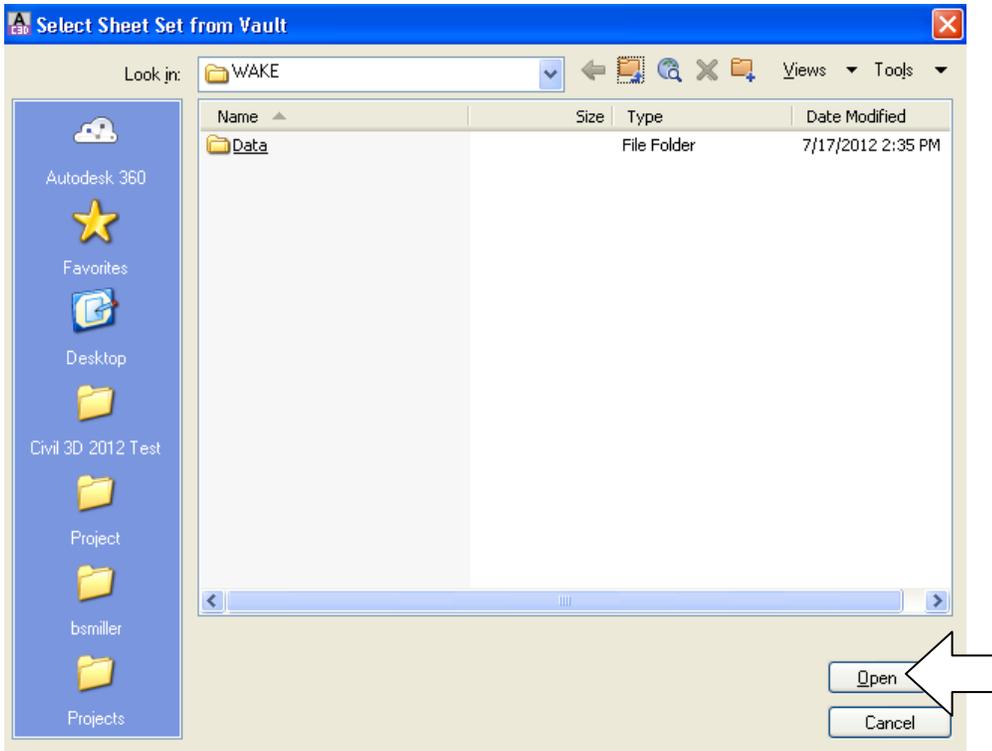
Click Create Section Sheets:



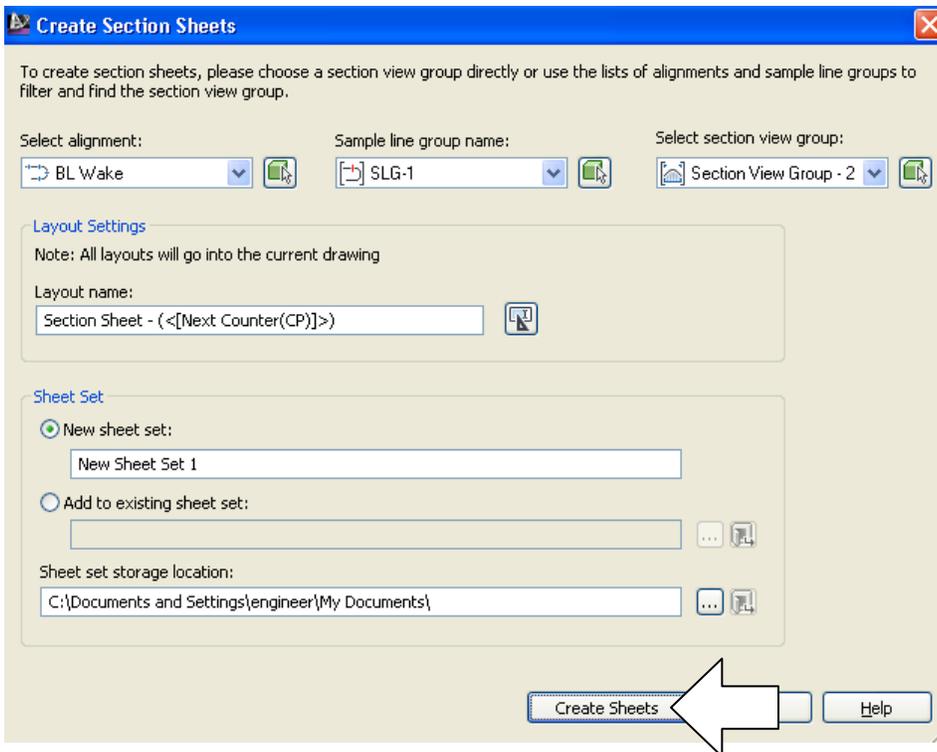
You will then see this. Change the Sheet set storage location to your project folder:



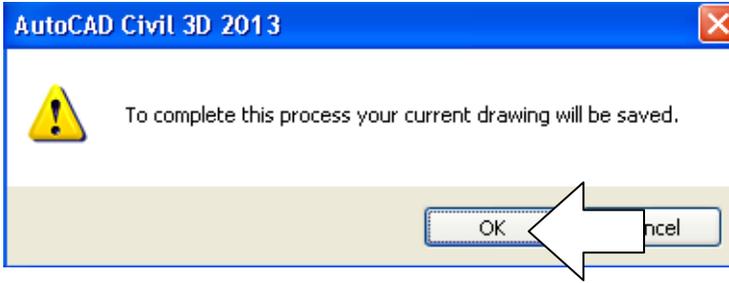
It should default to your project folder. Just click Open:



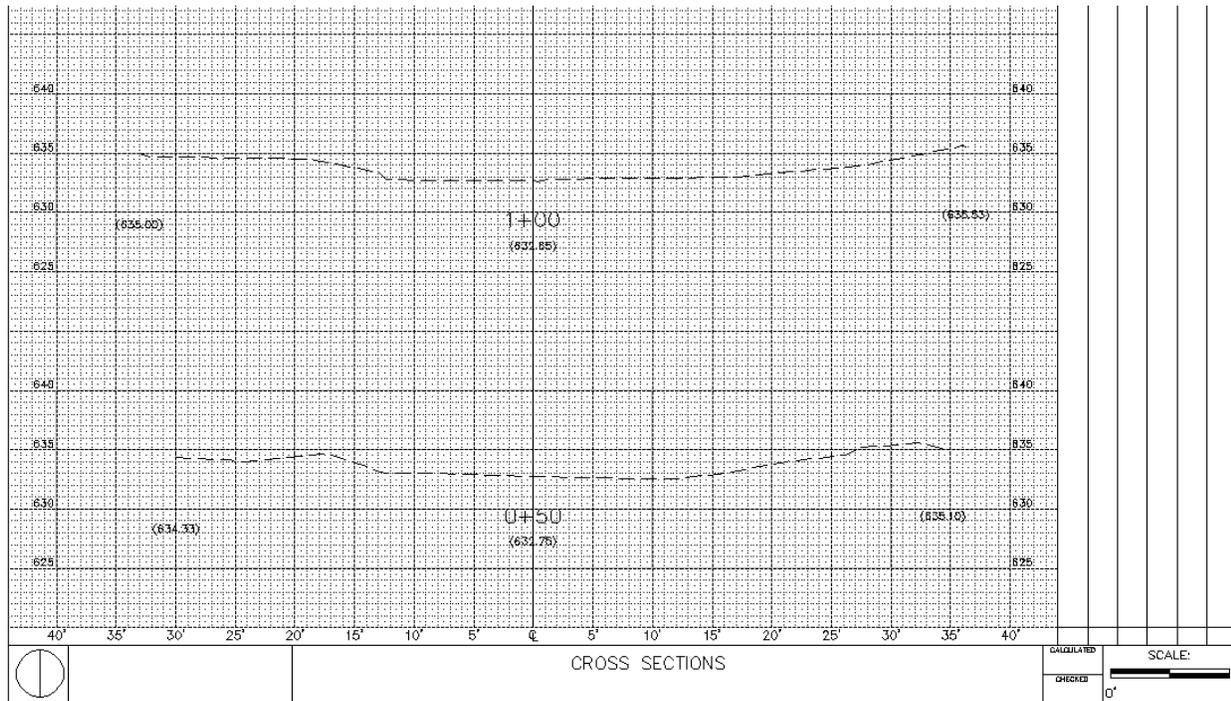
Click Create Sheets:



Click OK:



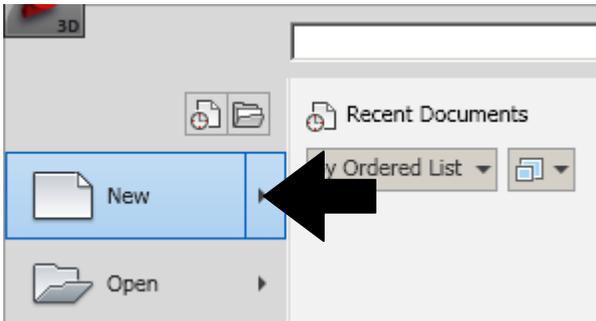
Here is a sheet example:



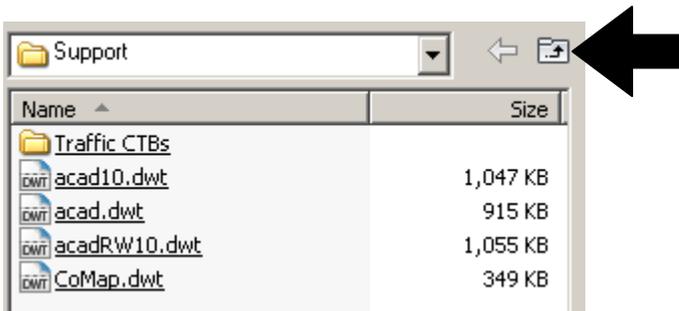
SETTING UP GENERAL NOTES AND TRAFFIC NOTES DRAWINGS

SETTING UP GENERAL NOTES OR TRAFFIC NOTES SHEETS

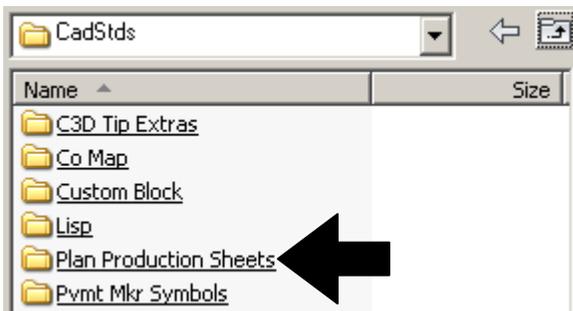
Start a new drawing. Click New:



Click the indicated icon:



Click on the Plan Production Sheets folder:



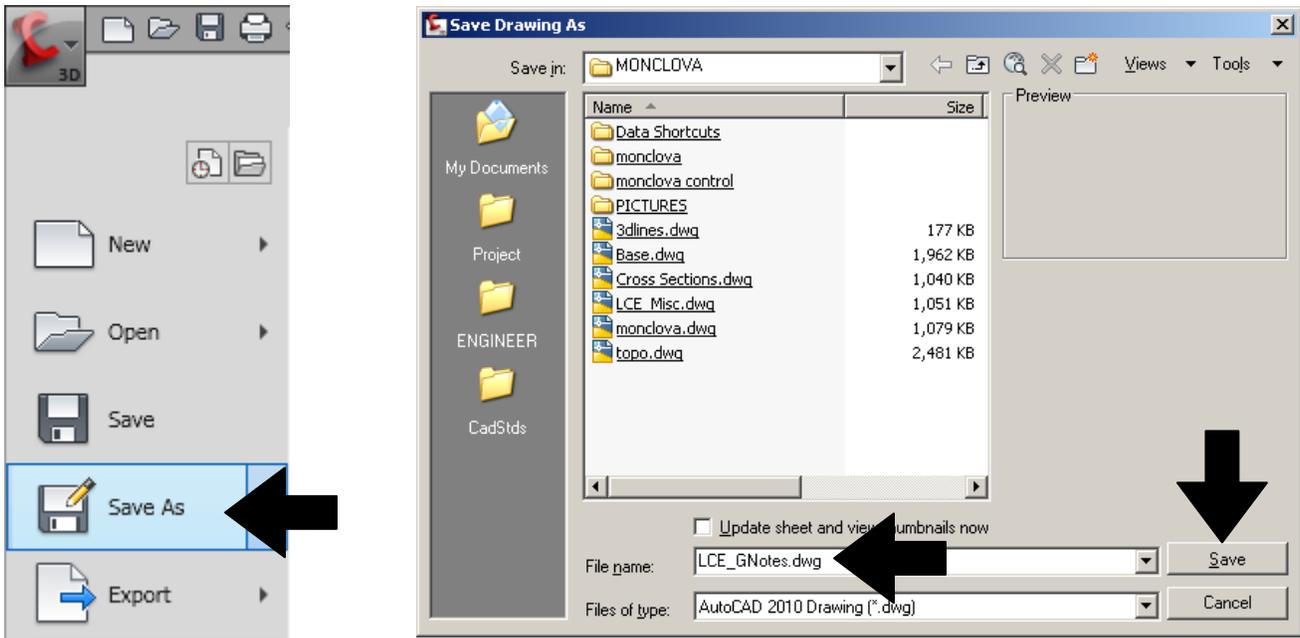
Click either of the indicated files (LCE_NBDR – General Notes or LCE_TNBDR – Traffic General Notes):

LCE BDR.RW.dwt	346 KB
LCE BDR.dwt	294 KB
LCE DP-20.dwt	327 KB
LCE NBDR.dwt	880 KB
LCE PP6-20-08.dwt	353 KB
LCE PP8-20-08.dwt	391 KB
LCE PSHT2.dwt	347 KB
LCE TNBDR.dwt	876 KB

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

CROSS SECTION.dwt	495 KB
LCE BDR.RW.dwt	346 KB
LCE BDR.dwt	294 KB
LCE DP-20.dwt	327 KB
LCE NBDR.dwt	880 KB
LCE PP6-20-08.dwt	353 KB

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

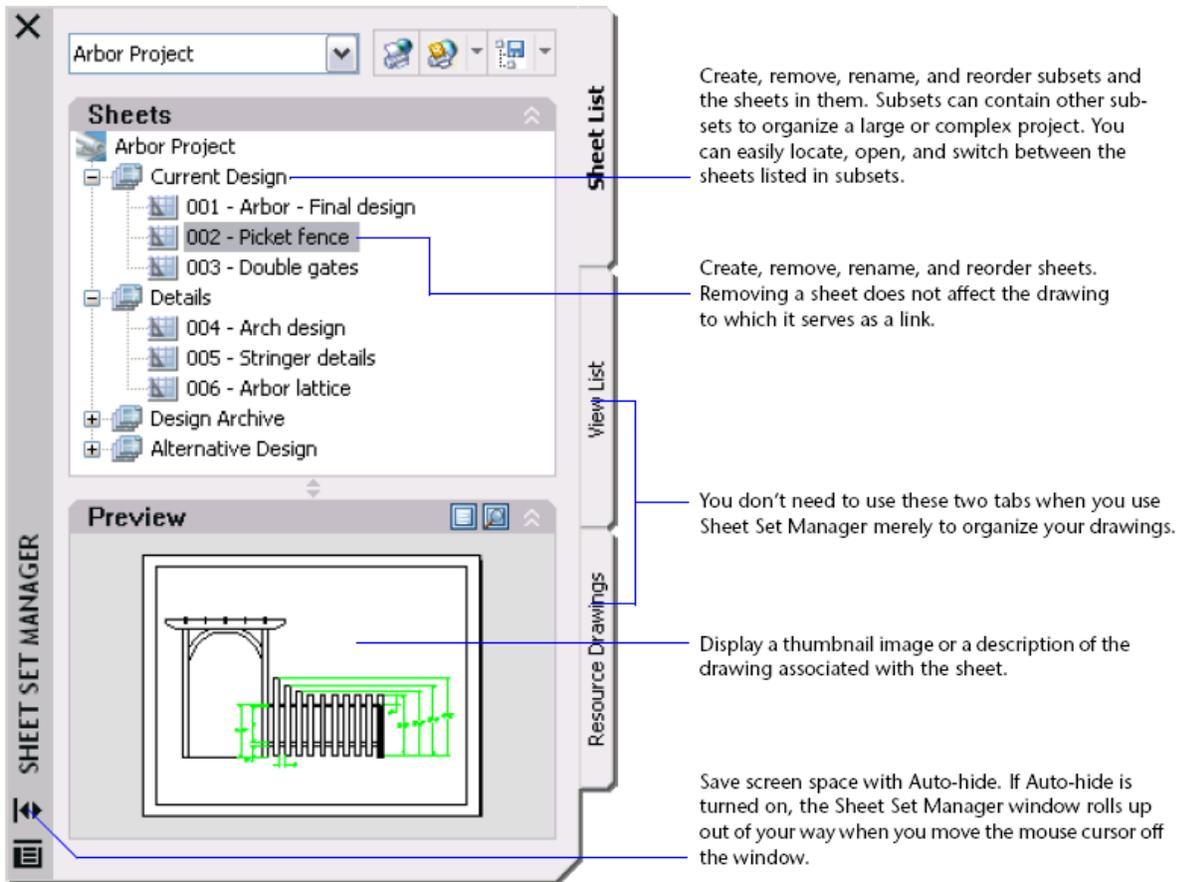


Name this file LCE_GNotes.dwg as directed in Chapter 1 and click Save.

USING SHEET SET MANAGER TO ORGANIZE YOUR PROJECTS

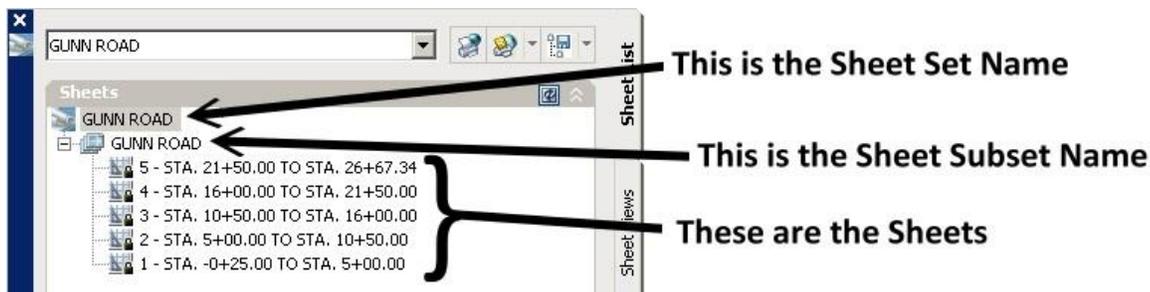
USING SHEET SET MANAGER TO ORGANIZE YOUR PROJECTS

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:



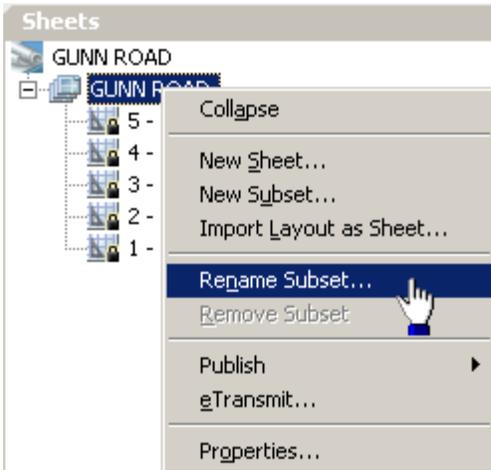
At the command prompt, type in "SSM".

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

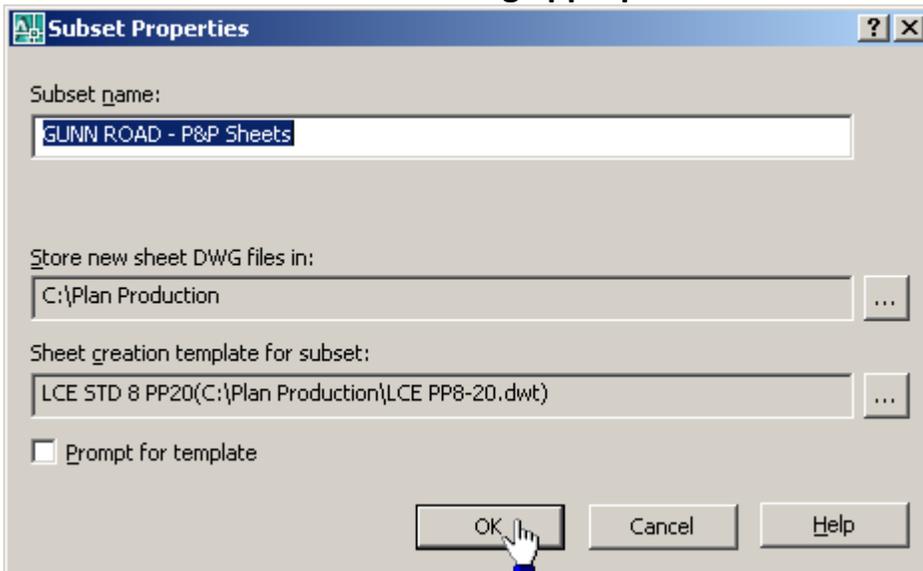


(Just a note here - Named drawing files in this example may not reflect the actual standard naming convention. Use the standard naming convention found in Chapter 1.)

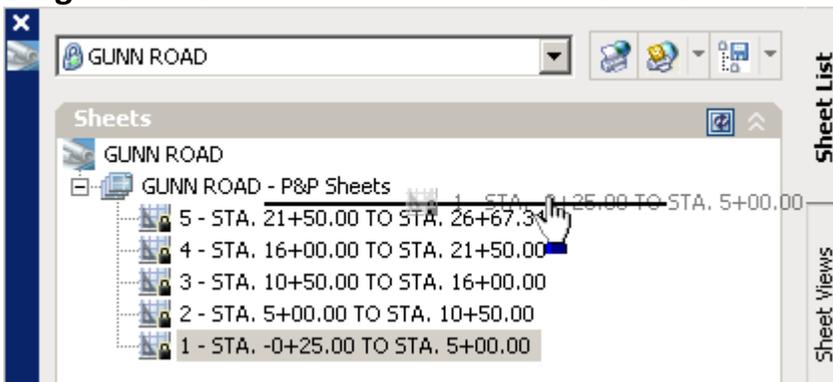
Let's do a little re-organization and renaming. Right click on the Subset Name and click Rename Subset:



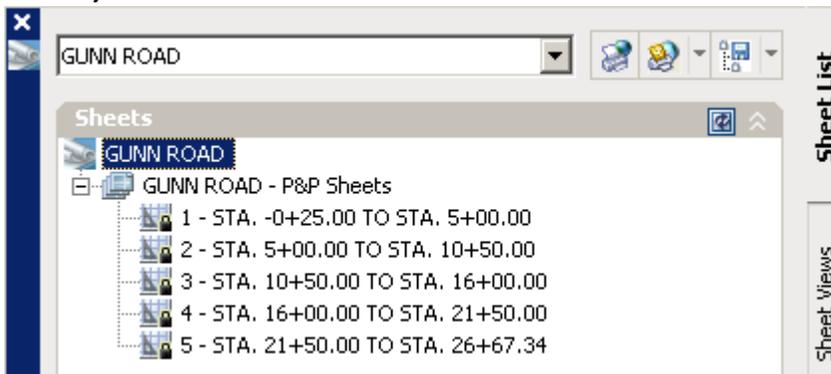
Rename this Subset to something appropriate. Click OK:



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:

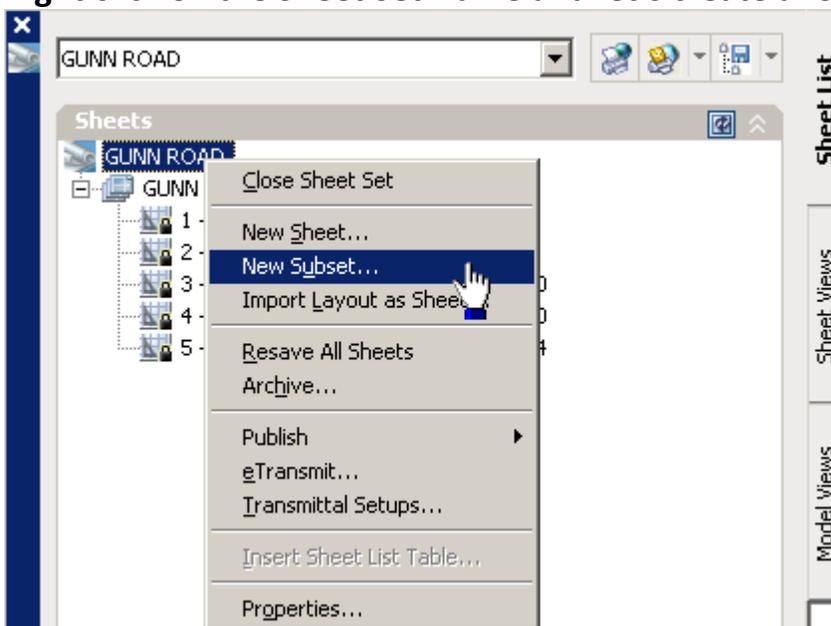


There, that's better:

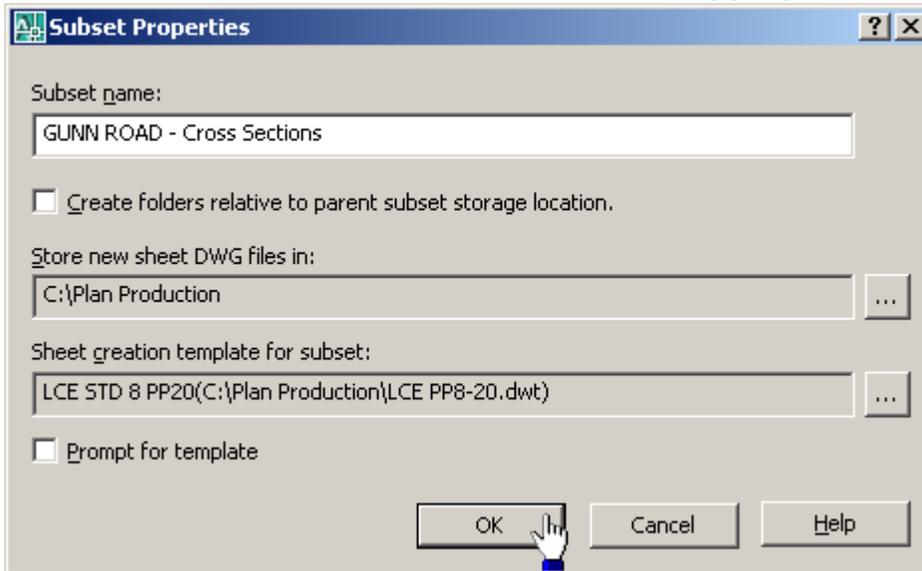


Now it's time to bring in the Cross Section Sheets. (Note-when your cross section sheets were created using Map Books, it associated your cross sections with another sheet set. You will need to delete that sheet set .DST file before moving on.)

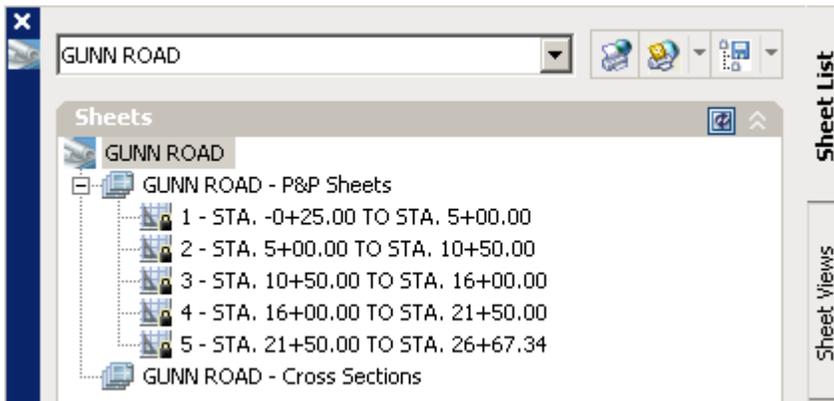
Right click on the Sheet Set Name and let's create another Subset:



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



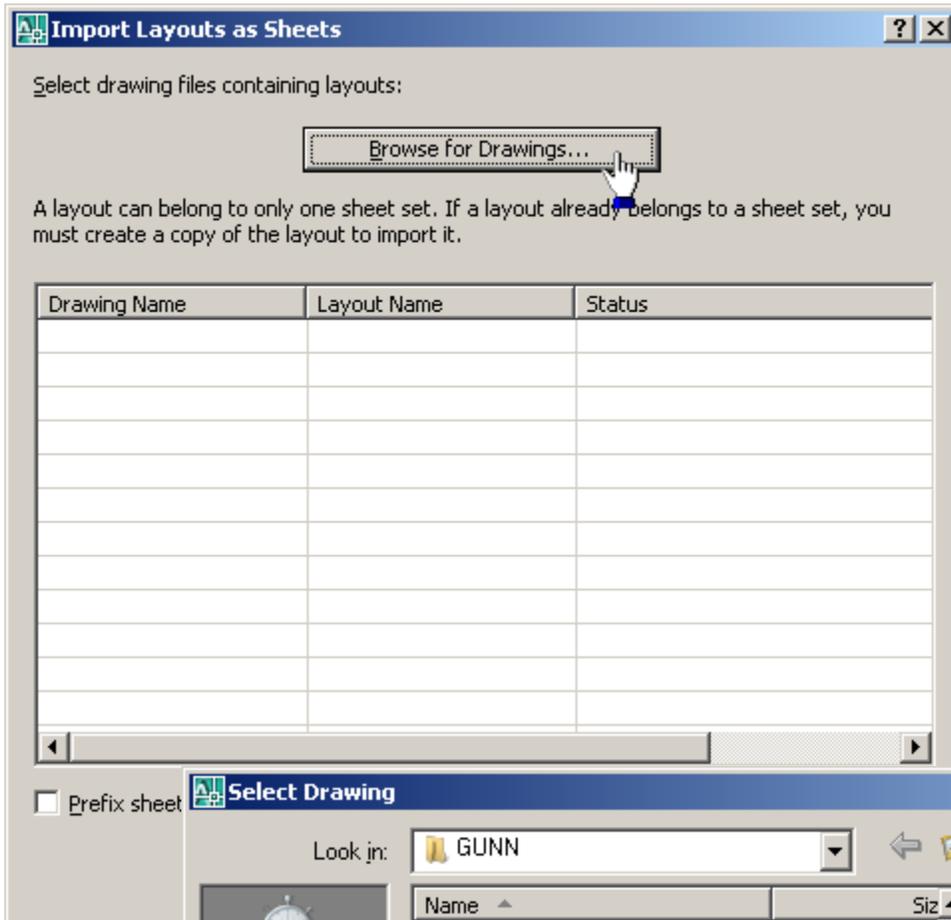
It should look like this:



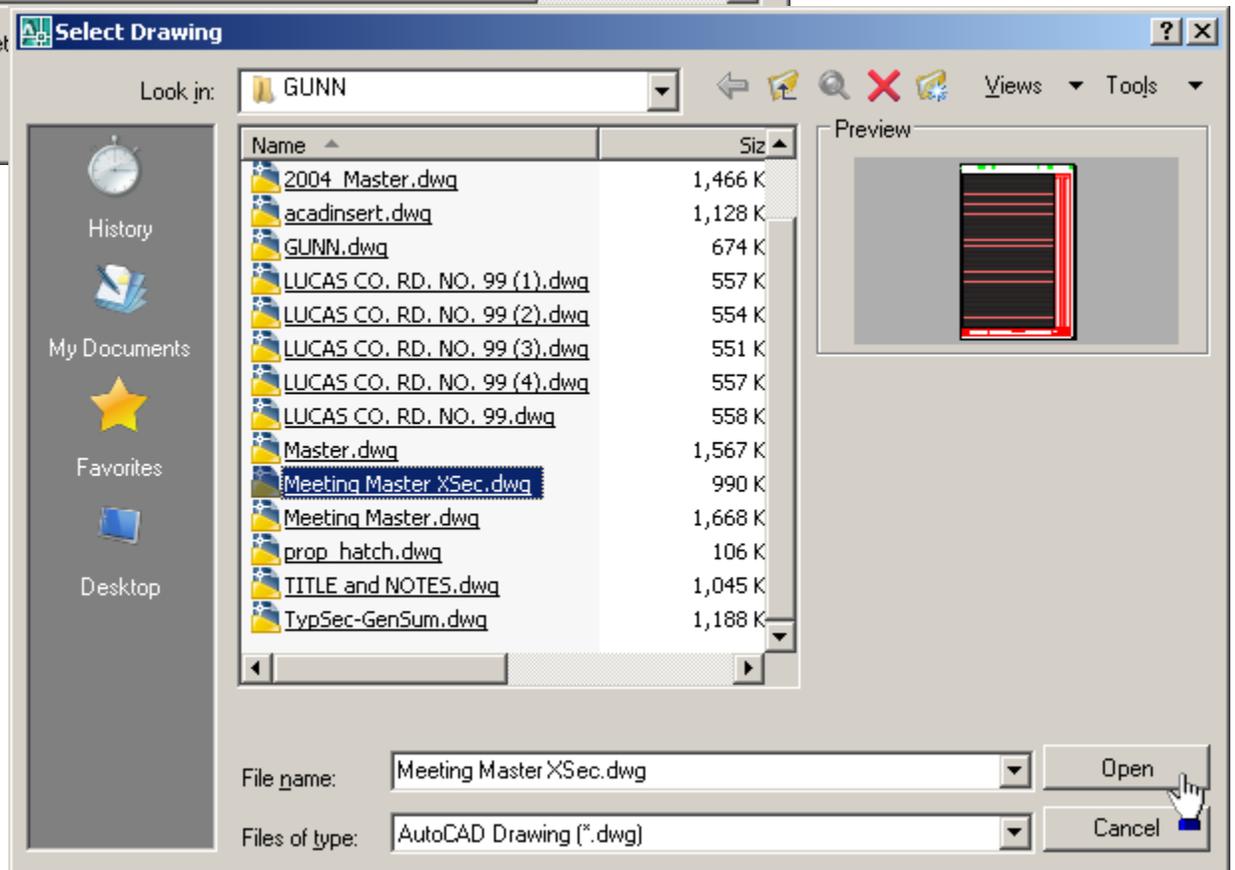
Right click on the new Subset Name and click Import Layout as Sheet:



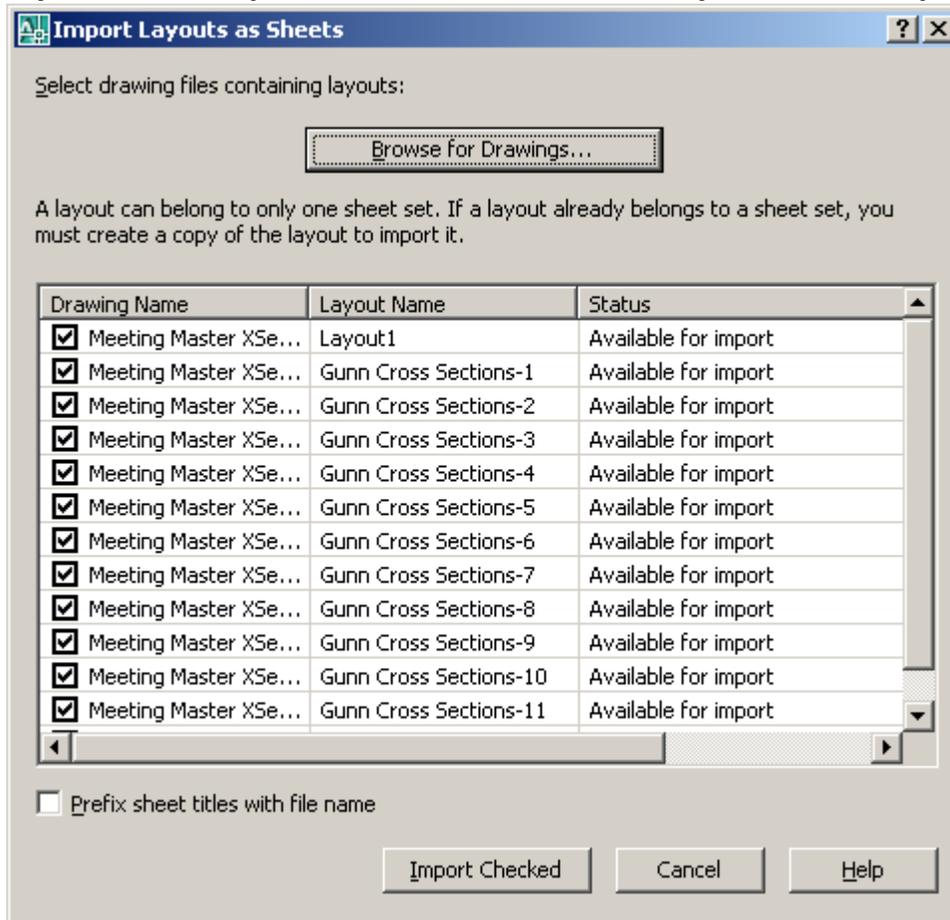
You'll see this. Click Browse:



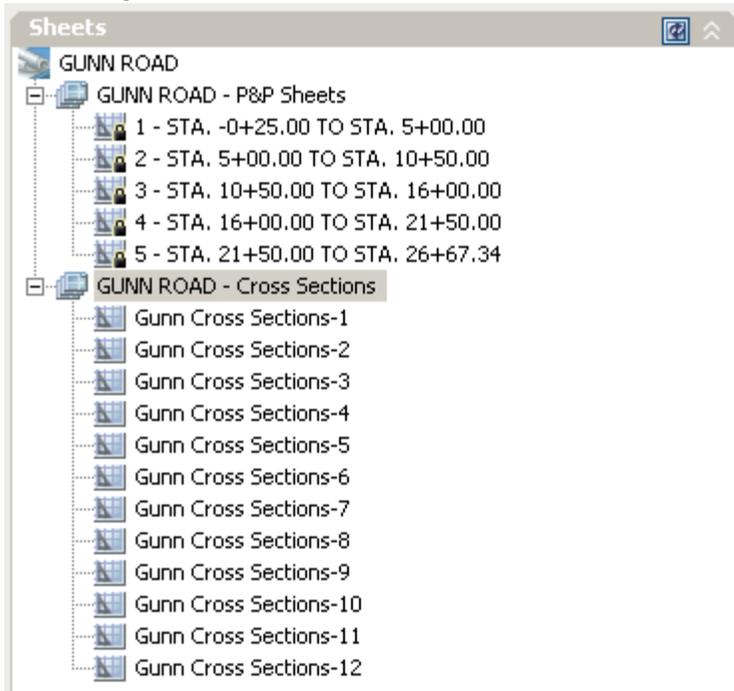
Browse to your cross section drawing, highlight it and click Open:



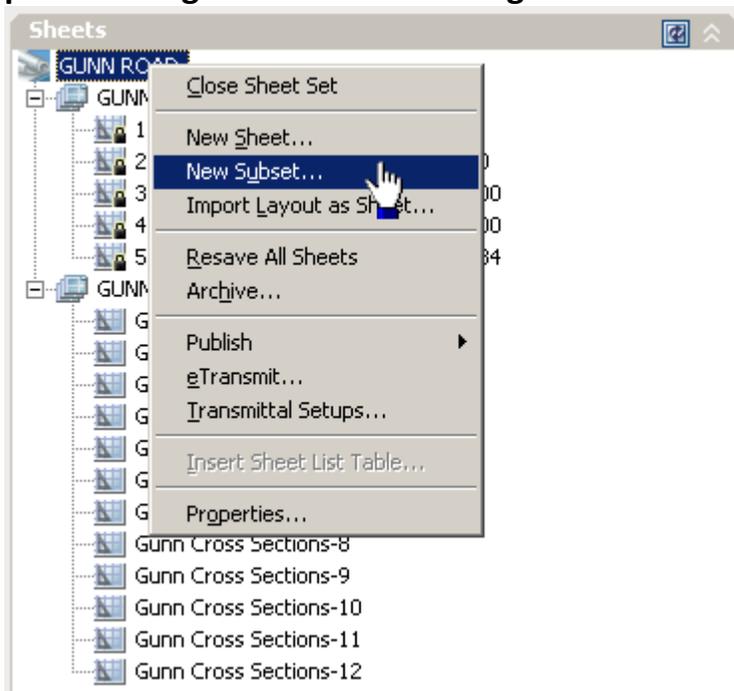
As you can see, these layouts are available for import, but prior to doing this step, I had to delete the .DST file associated with the cross sections. Now, the first layout is not part of the cross sections, so I will uncheck that box so as not to allow that layout to be imported with the rest of the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

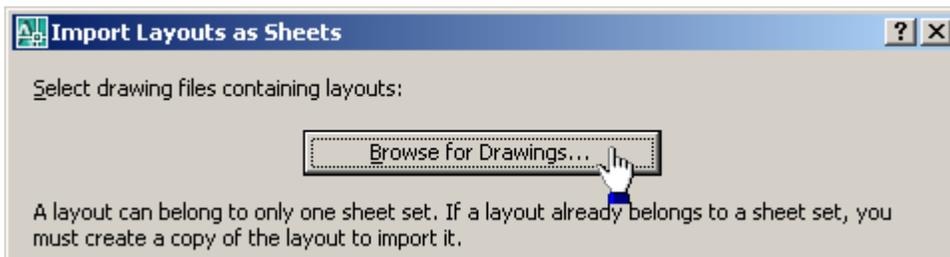
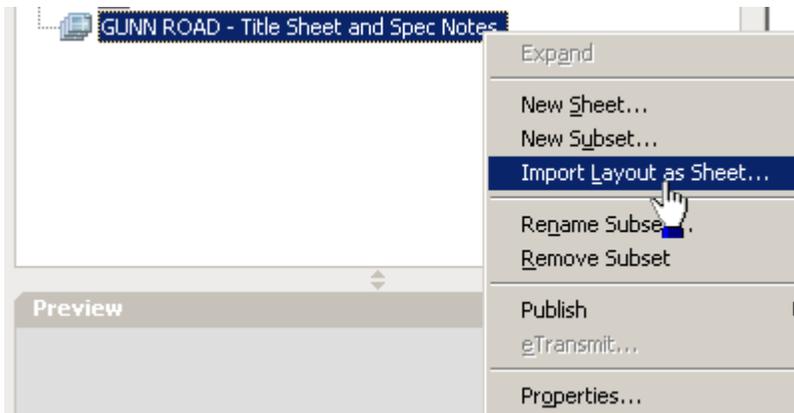
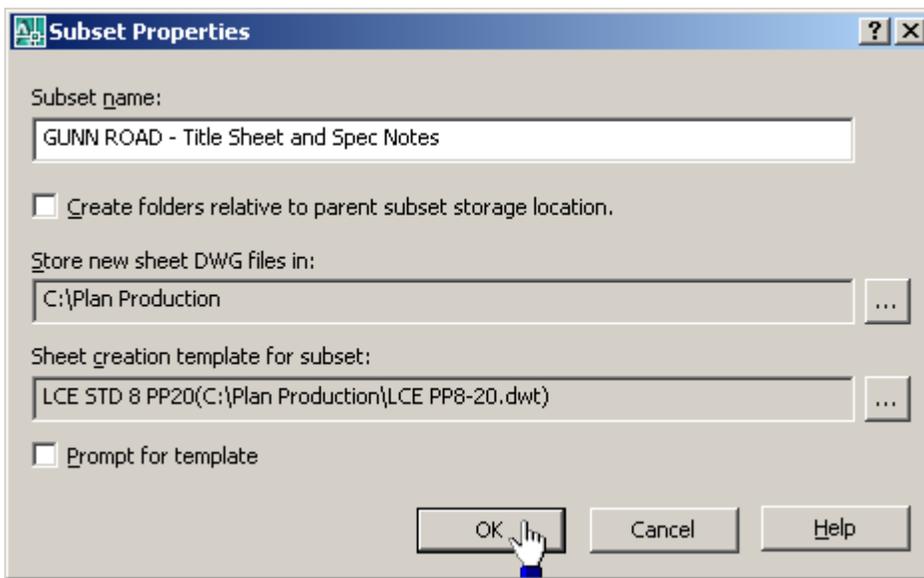


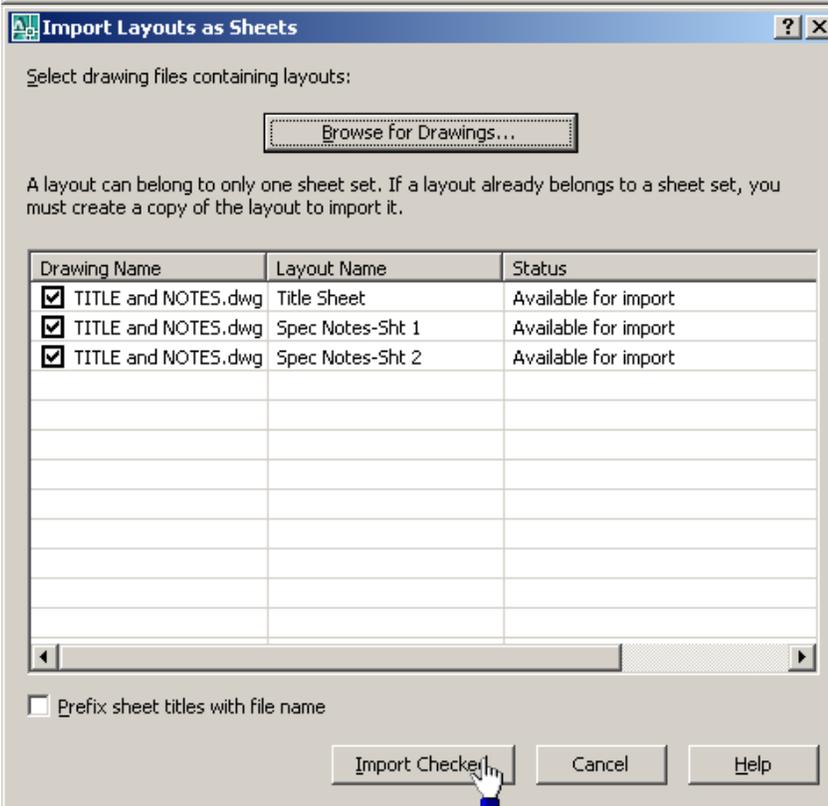
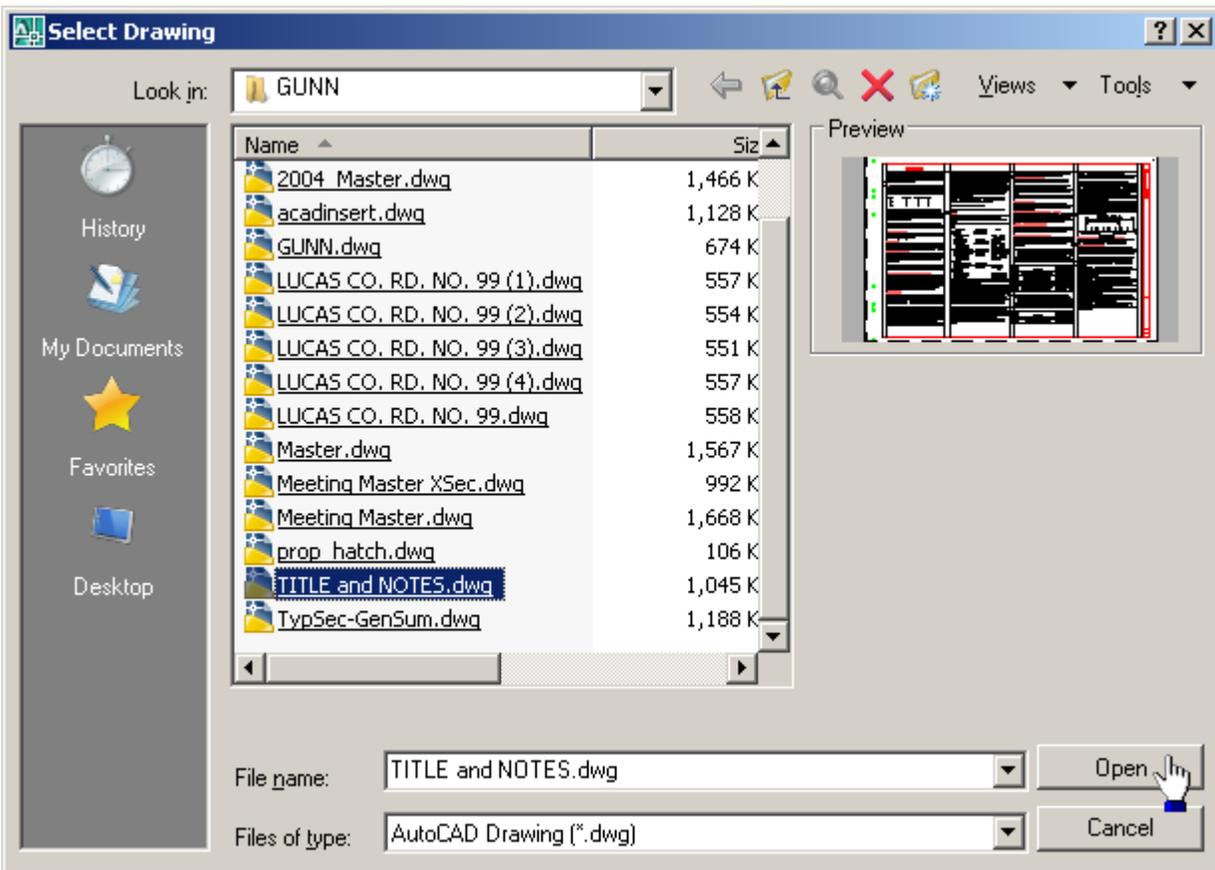
Here is your result:



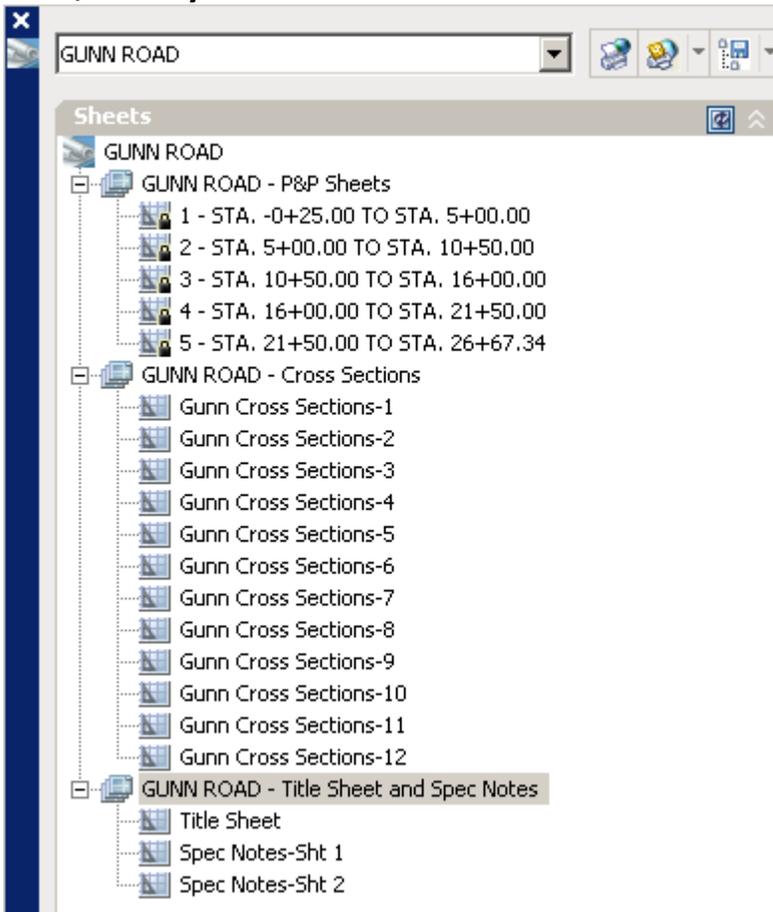
Let's do one more...the Title Sheet and some Spec Notes. We will repeat the same processes again. Just follow along:



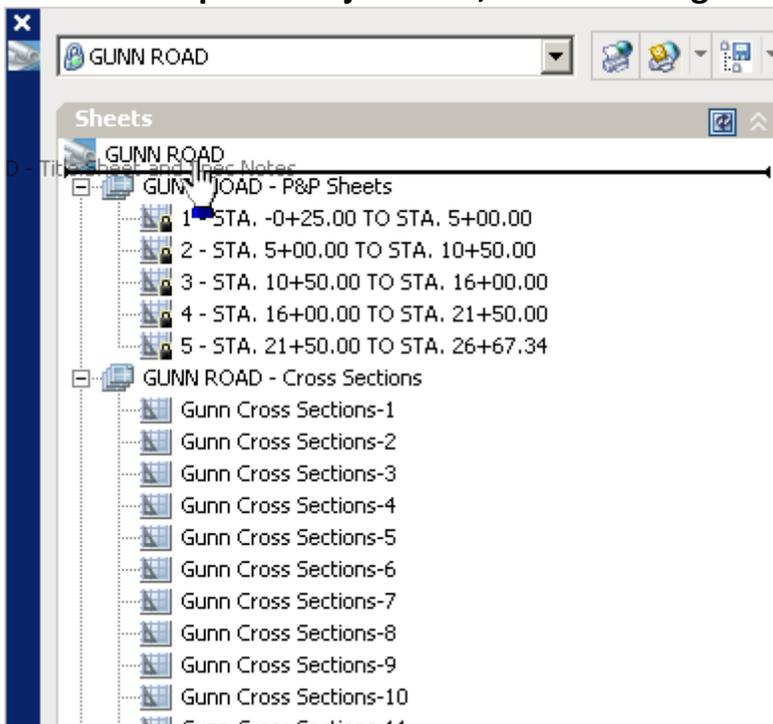




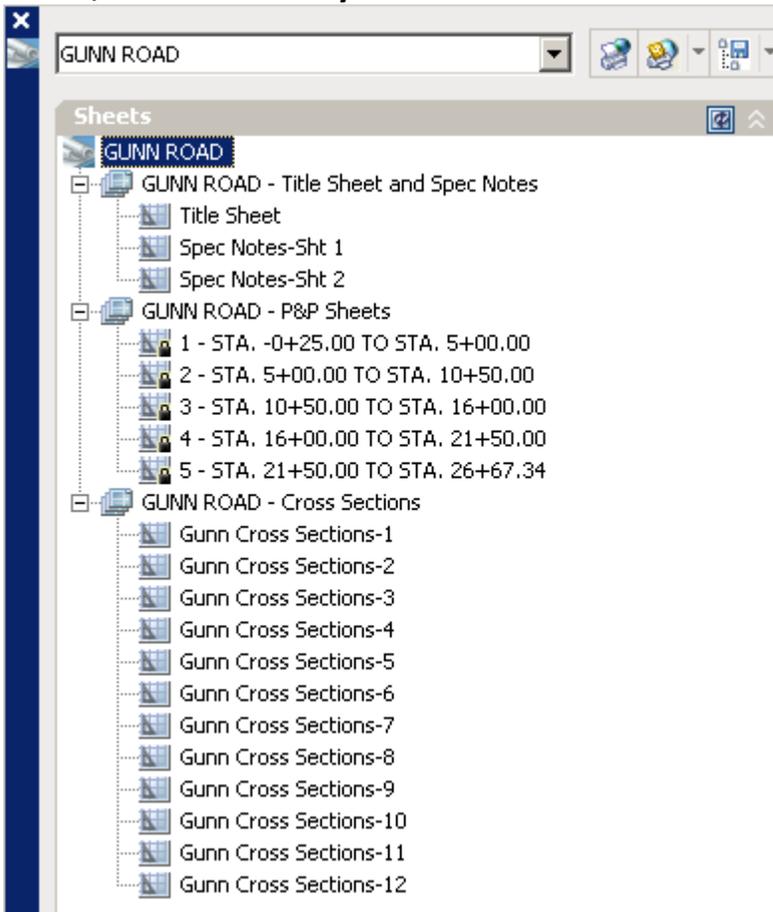
Now, there you are:



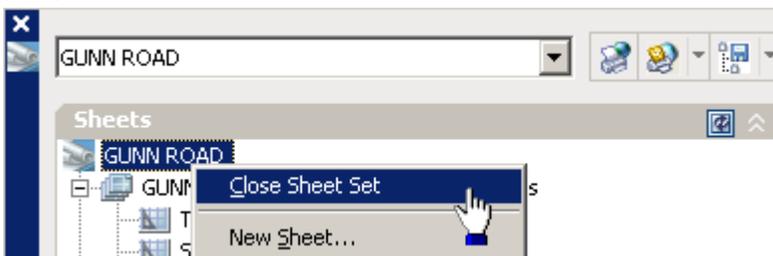
There's just one more thing. I would like to re-organize the subsets to reflect the order of our plans. I'll just click, hold and drag the last Subset to the top of the list:



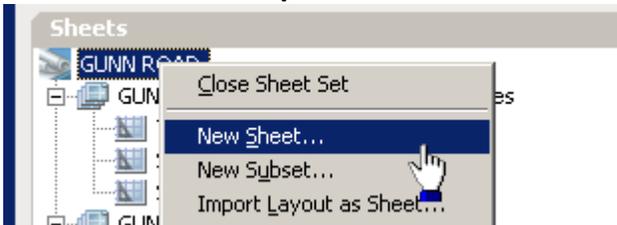
There, all nice and tidy:



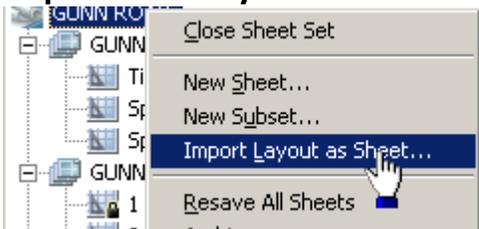
Now, some of the really cool things you can do from here. You can close the Sheet Set:



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



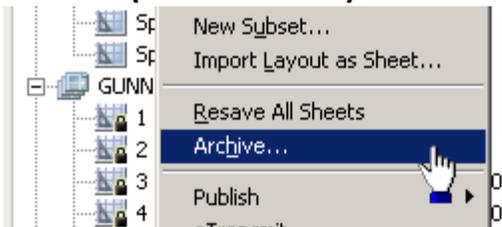
Import more layouts:



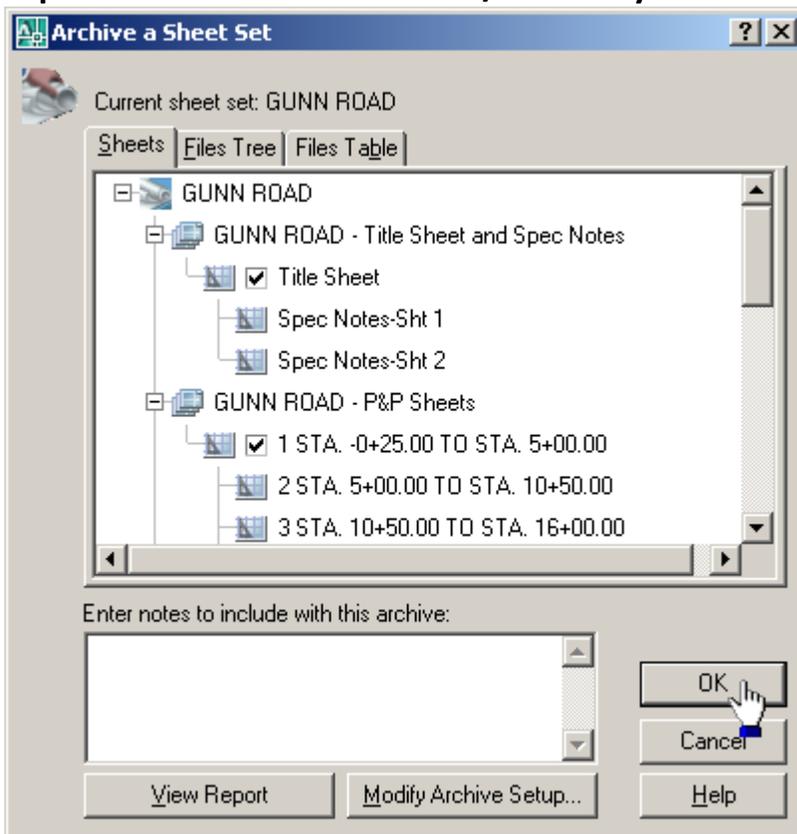
Re-Save All Sheets. This will actually save all the sheets in the list:

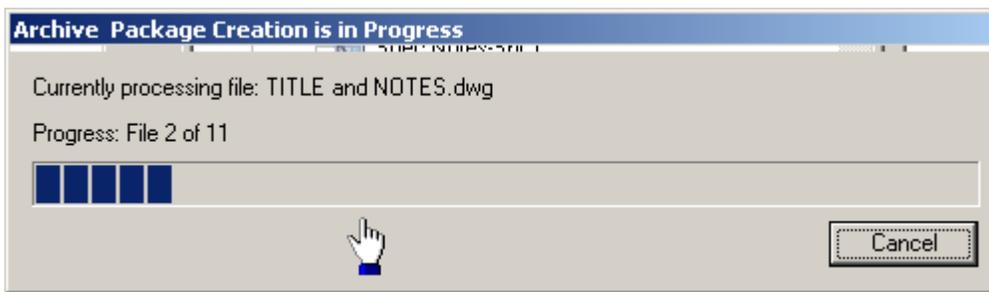


Archive (this is so cool):

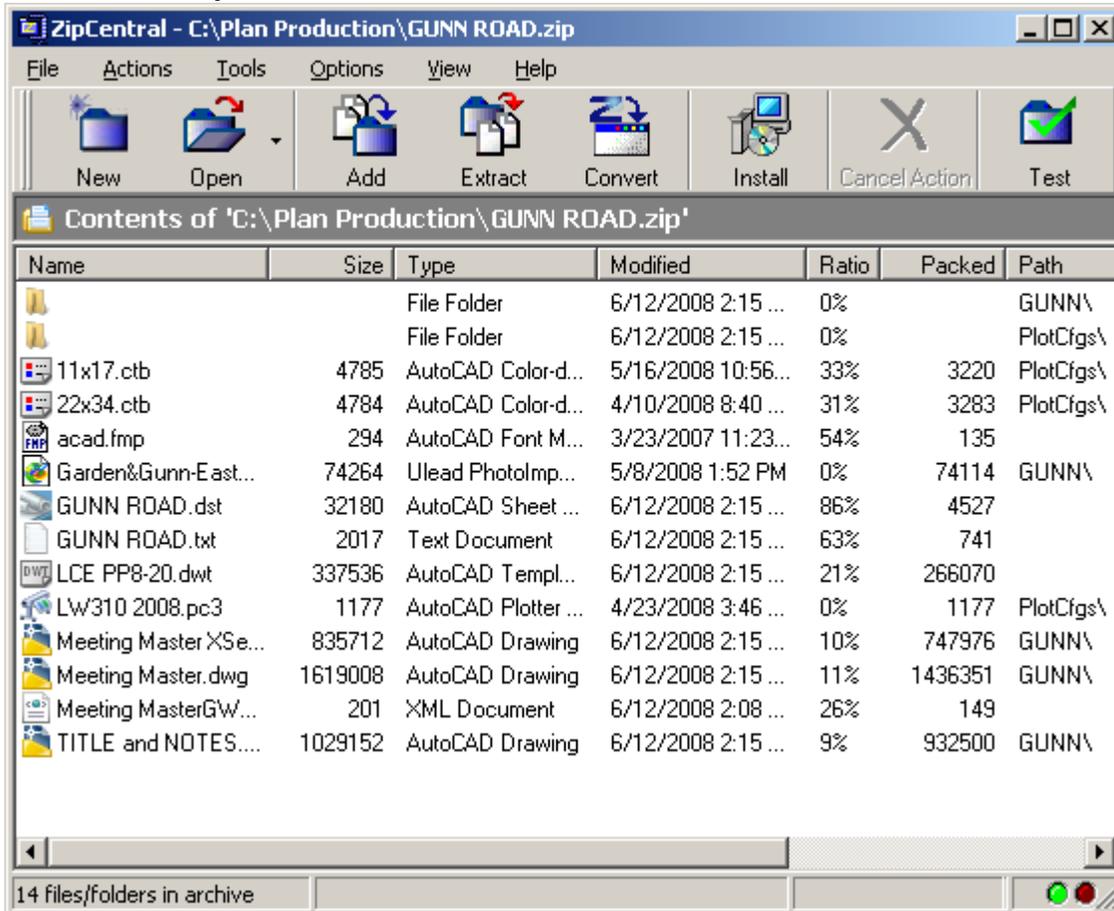


This will actually archive all the drawing files and associated files together into one .zip file. You can add notes and/or modify the archive setup. Click OK:



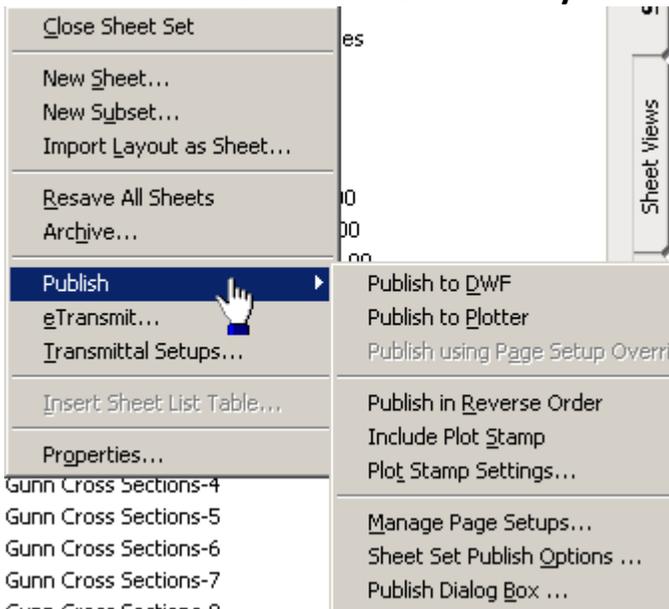


Here is the .zip file it created:

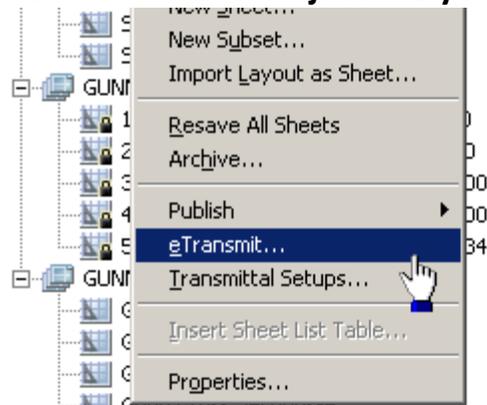


Very cool!

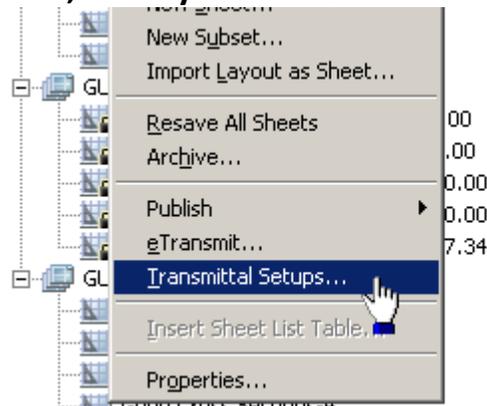
You have all the Publish features at your fingertips:



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



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



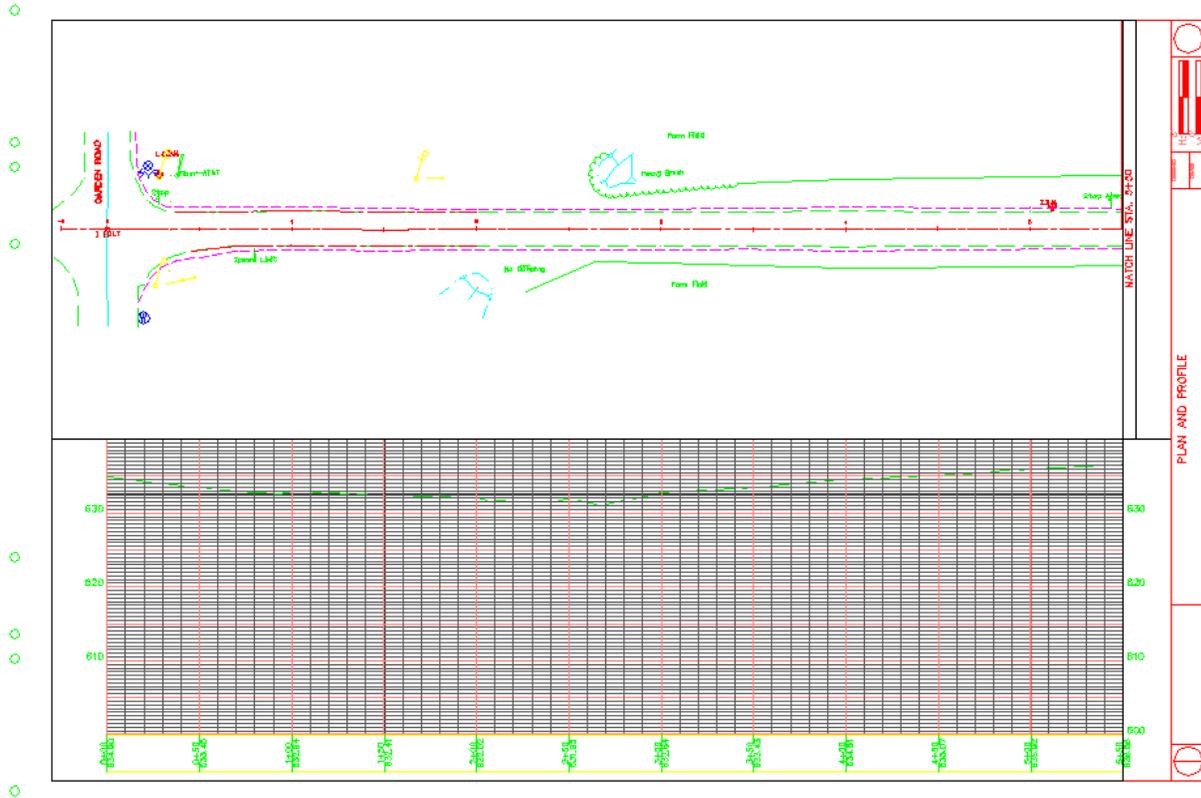
The Properties are something we are not going to deal with right now. Part of the Properties feature was to be able to use Text fields with the sheet blocks for global labeling. That did not work so well. See the P&P and Cross Section Sheets chapters.

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...

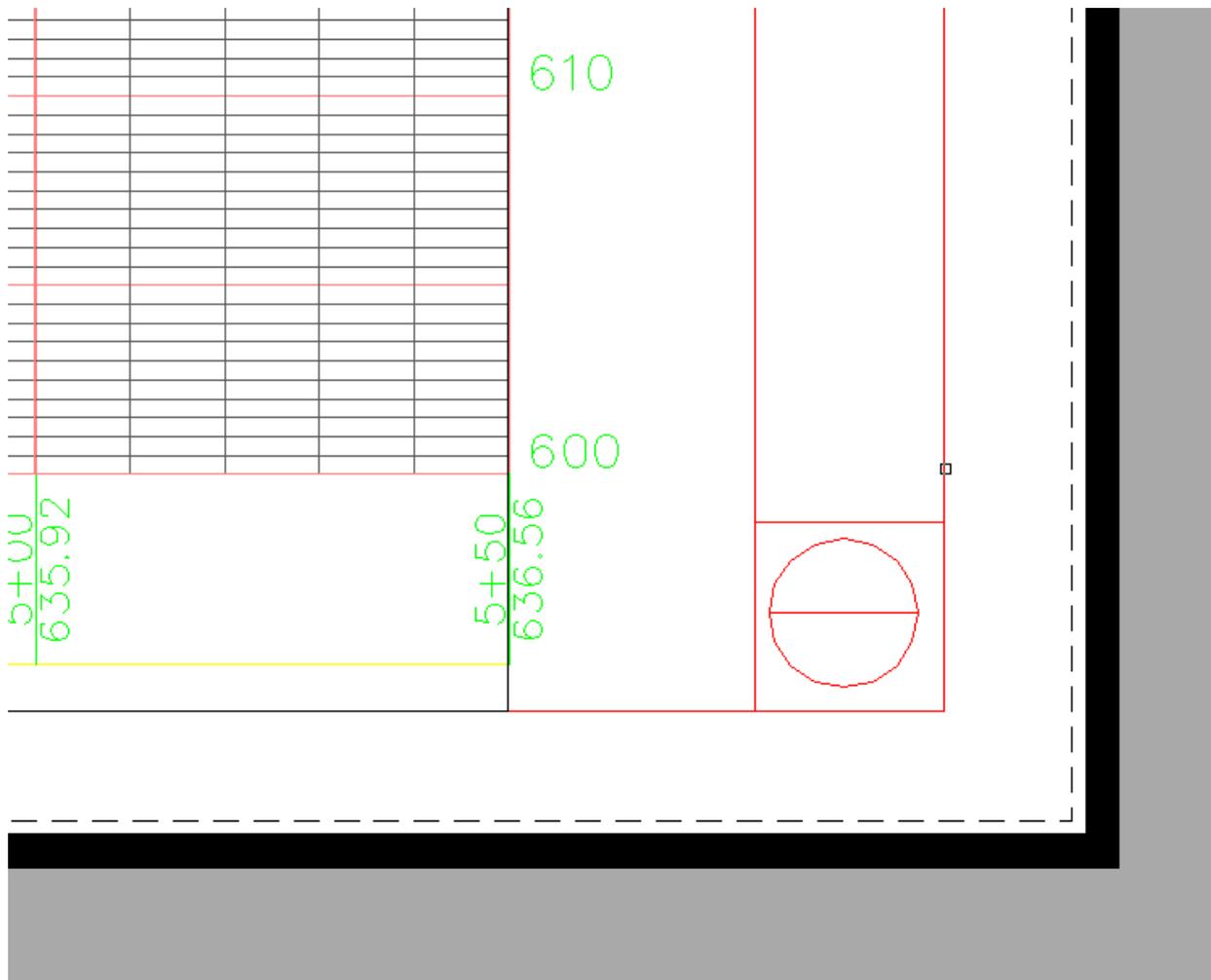
After creating and organizing your sheet layouts, click on the first layout sheet:



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

```
Command:  
Command: ssx  
_____  
Select object/<None>:  
_____
```

Select the P&P sheet block:

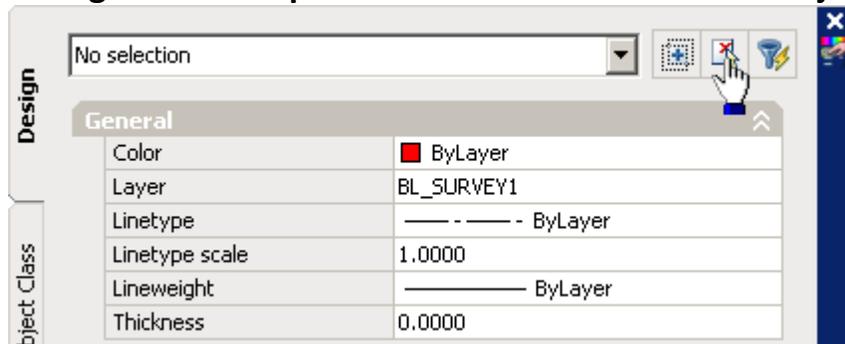


You will see this at the command prompt:

```
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:

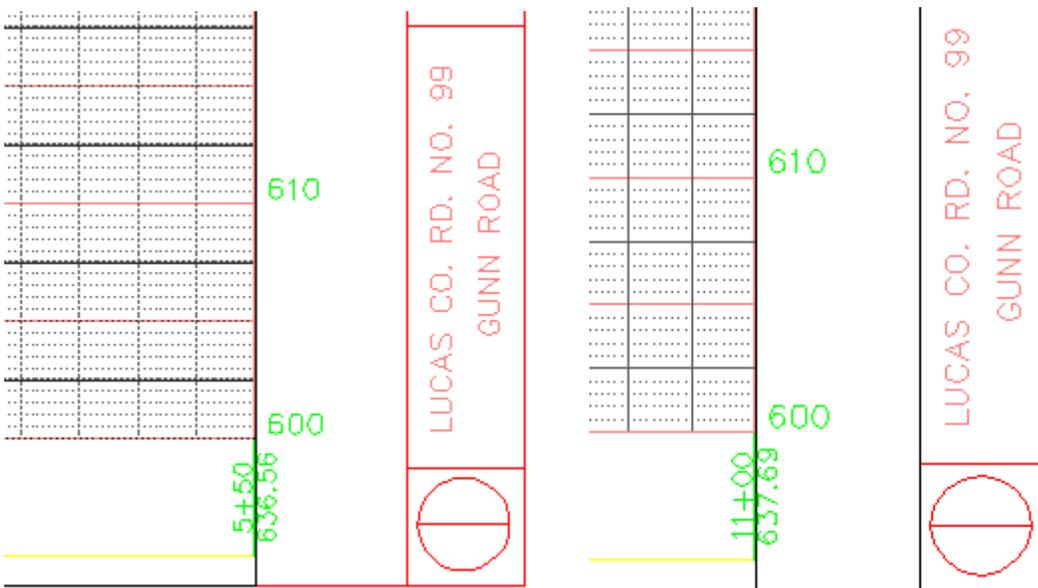
Block:lceppsht8	
DRWNNAME	
DESNNNAME	
OFSHTS	
SHTNO	
LCRN	
ROADNAME	
STATION	

Fill out the appropriate information:

Block:lceppsht8	
DRWNNAME	B.S.M.
DESNNNAME	B.W.M.
OFSHTS	
SHTNO	
LCRN	LUCAS CO. RD. NO. 99
ROADNAME	GUNN ROAD
STATION	

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.

AutoCAD Civil 3D® Tips

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CREATING A TABLE IN CIVIL 3D

CORRIDORS, OBJECT VIEWER AND PERFORMANCE.....10

CIVIL 3D TEMPLATE FILE LOCATIONS AND DESCRIPTIONS.....13

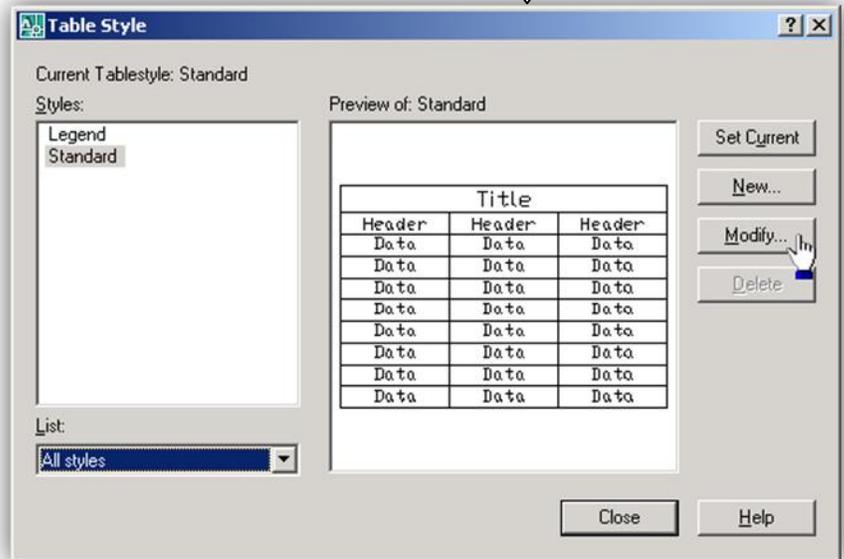
TECH. NOTE PAD.....14

CREATING A TABLE IN CIVIL 3D

Type in the command Table and hit enter



Click the button next to the Table Style selector

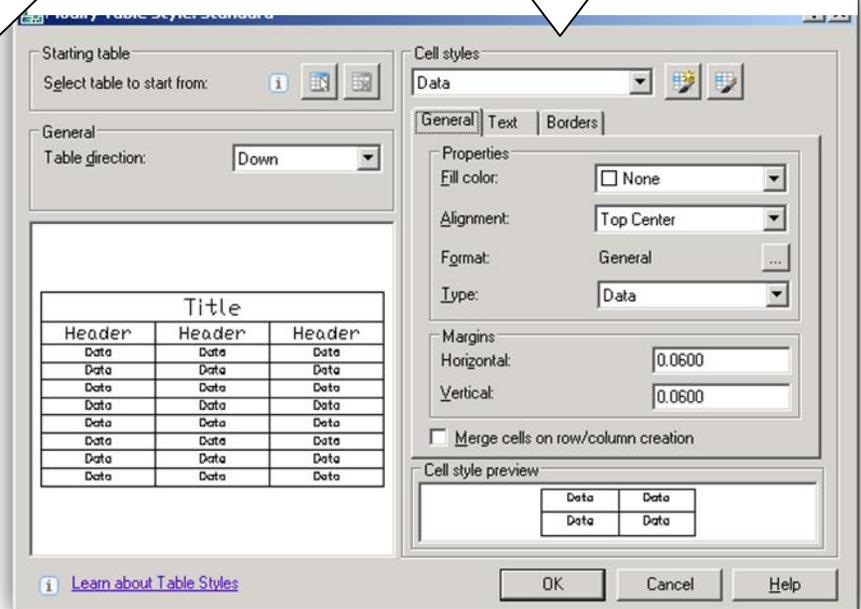


Use this Table Style dialogue box to bring up the Table Style Editor-Click New or Modify

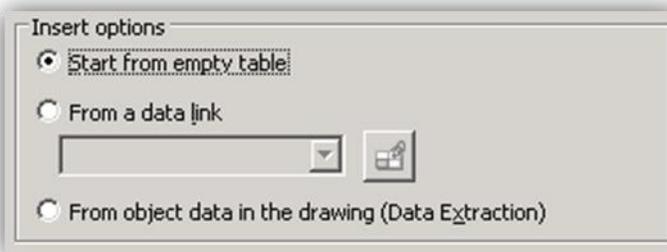


If you click New, give your Table Style a name, then click Continue

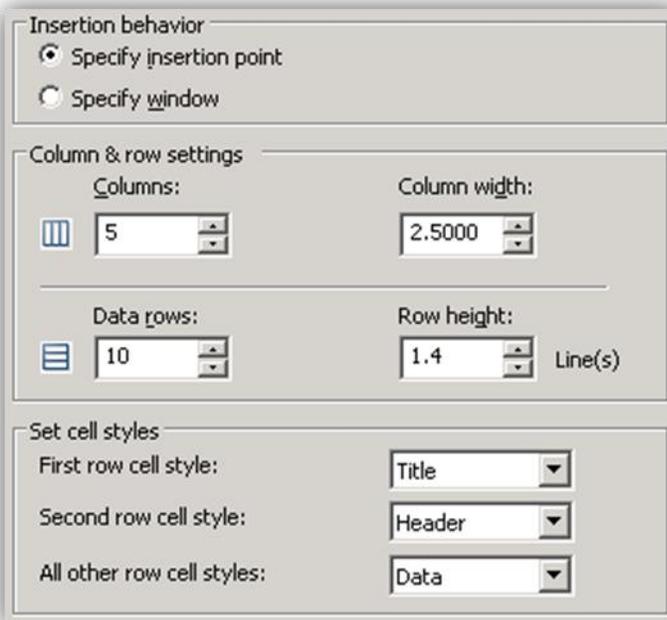
Now back at the main dialogue, you have some insert options:



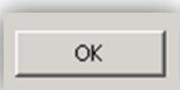
Once you have your table formatted the way you want it, click OK Set your Table Style current, then Close the previous box



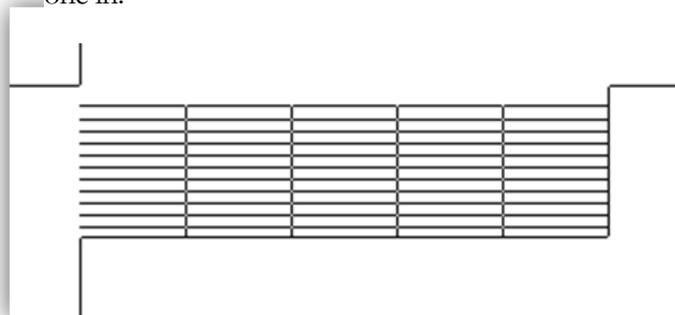
You can start from scratch using an empty table. We'll do that one first. Set your Insertion behavior, Column and row settings and cell styles:



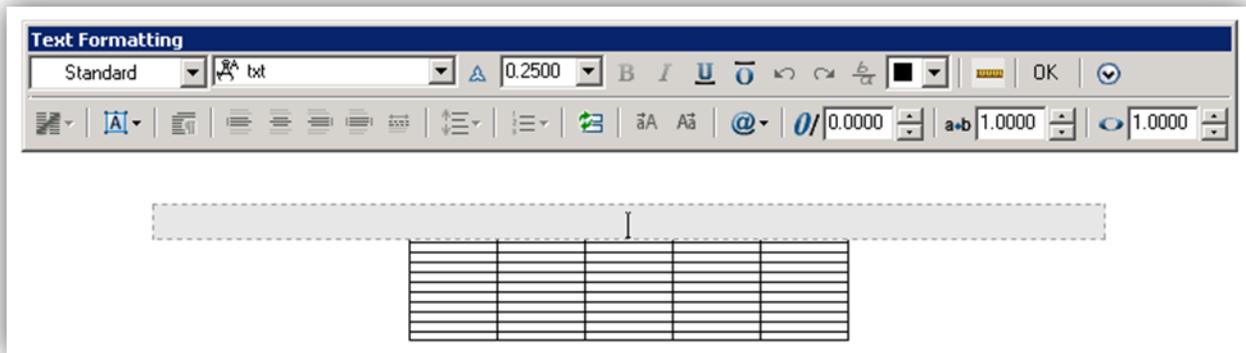
Click OK:



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

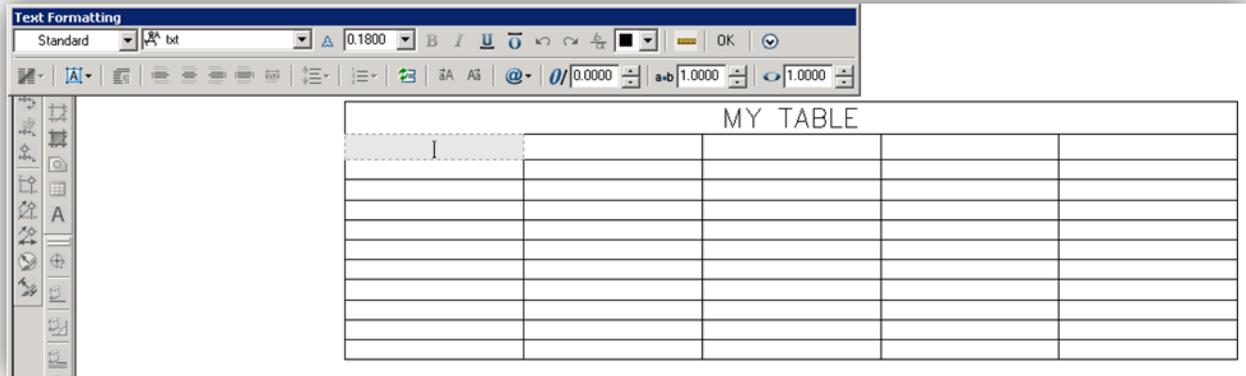


You are now presented with this (Please note the font for the style you created is not the default-will continue to check on this and bring any updates to you):

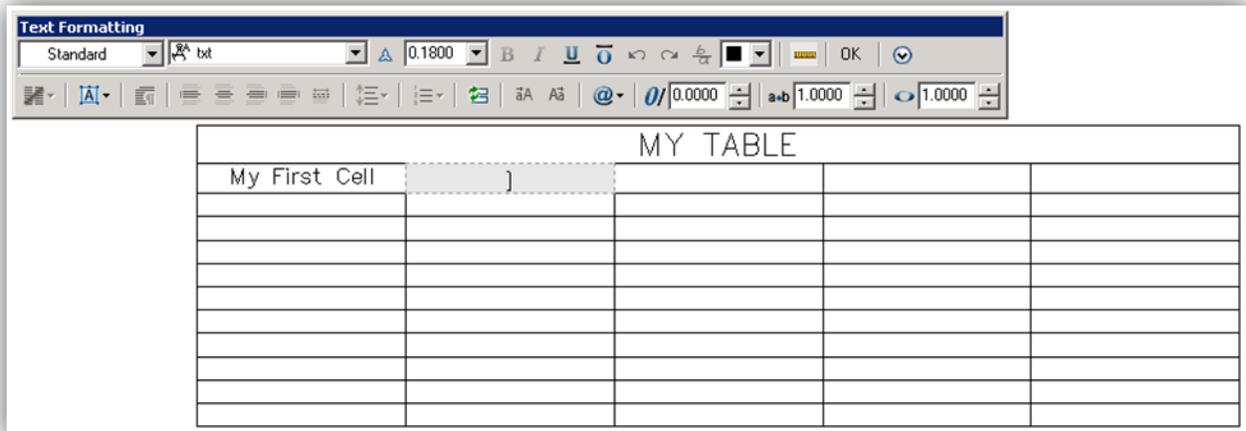


You can start typing in a label name for the table if you wish. Click OK when you're done.

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				

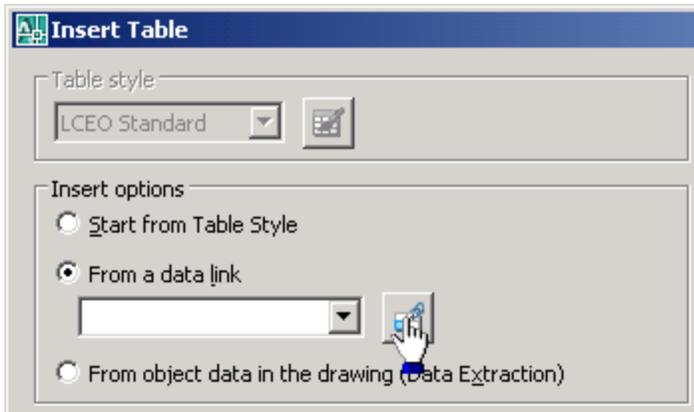
Repeat for the next cell column:



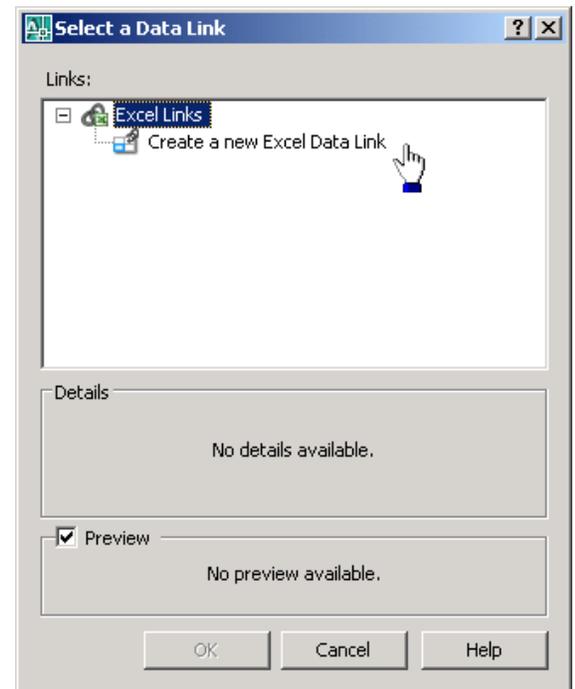
MY TABLE				
PART NO.	DATE:			
1	4/14/2008			
2	4/15/2008			
3	4/16/2008			
4	4/17/2008			
5	4/18/2008			
6	4/19/2008			
7	4/20/2008			
8	4/21/2008			
9	4/22/2008			
10	4/23/2008			

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



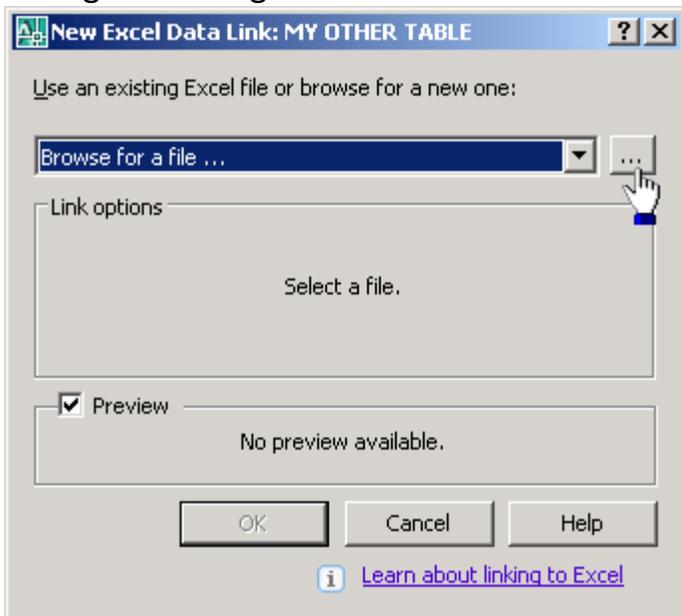
You should get the box to the right –click on Create a new Excel Data Link

You will see this:

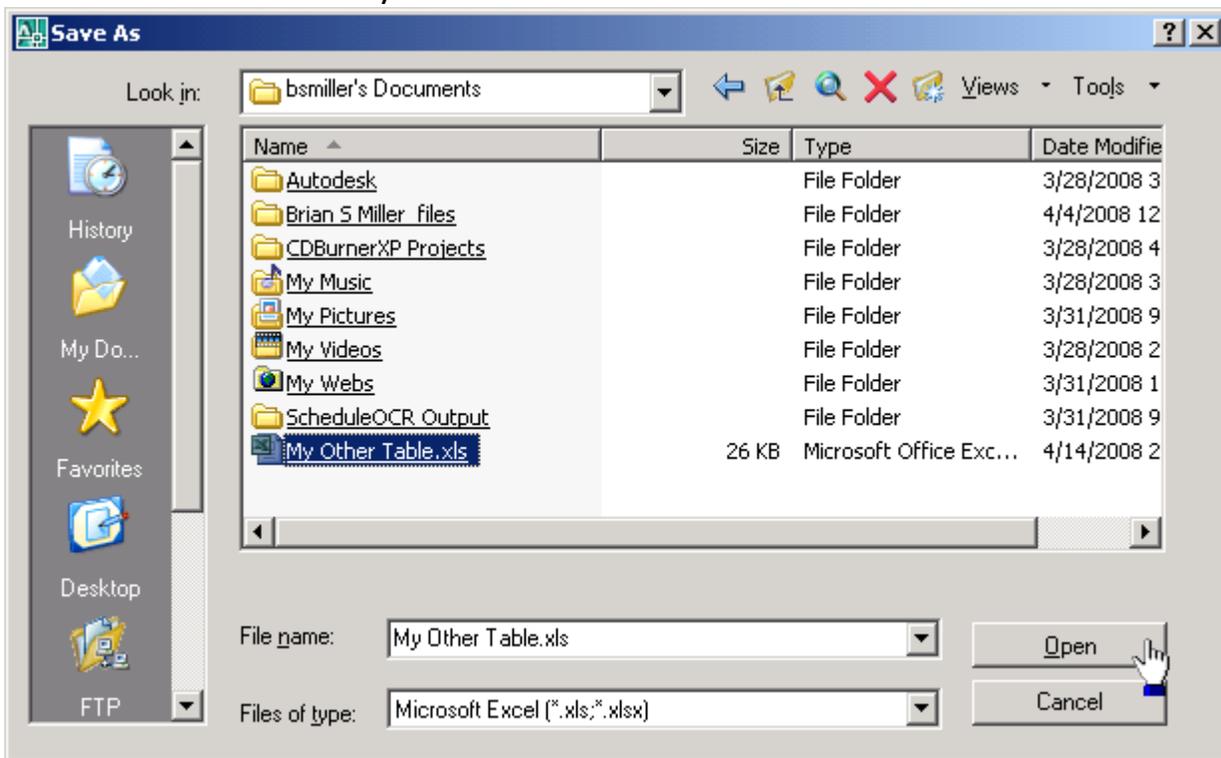


Fill in the field and click OK.

Let's go browsing:

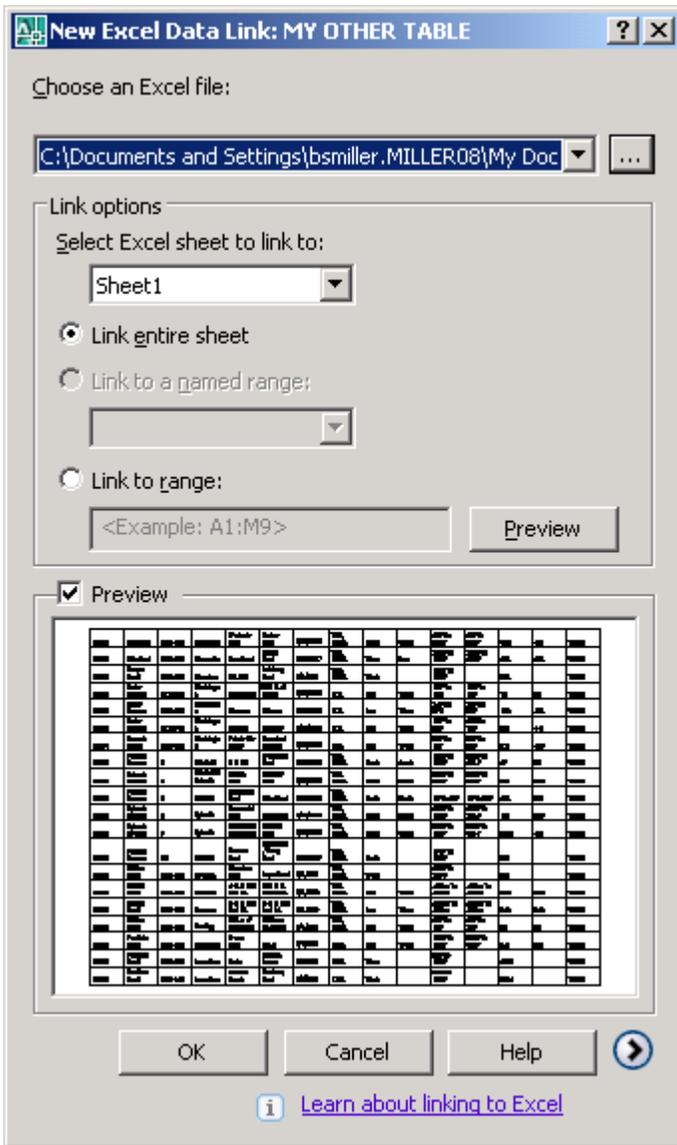


Browse for the excel file you wish to use.



Click Open.

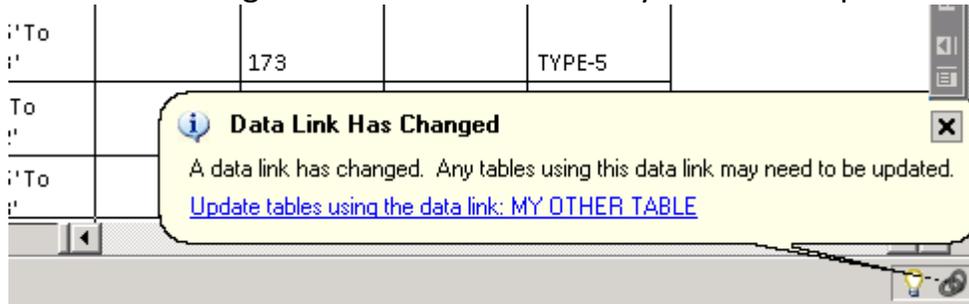
Here is the result:



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	1835' to 2199'	1835' 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. 255	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
G0202	Sylvania Avenue	5	Sylvania	Holland/Sul	Tantara	4/20/2005	W.S., D.M.L	North	South	1845' To 2249'	1811' To 2314'	428	503	TYPE-5

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	Tanara		W.S.			1945' To	2785' To			

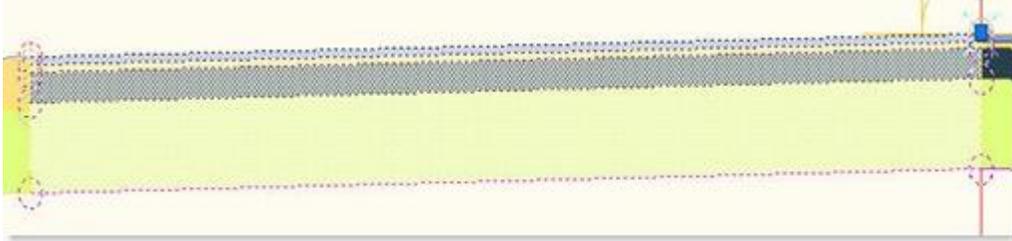
Enjoy creating tables from now on!

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.

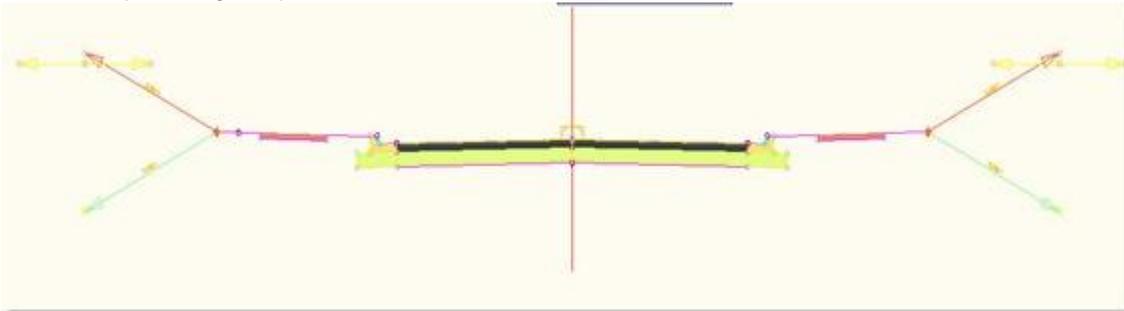
The performance of the Object Viewer seems to be inversely proportional to the amount of data you're trying to view. Corridors have a ton of information in them typically.

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.

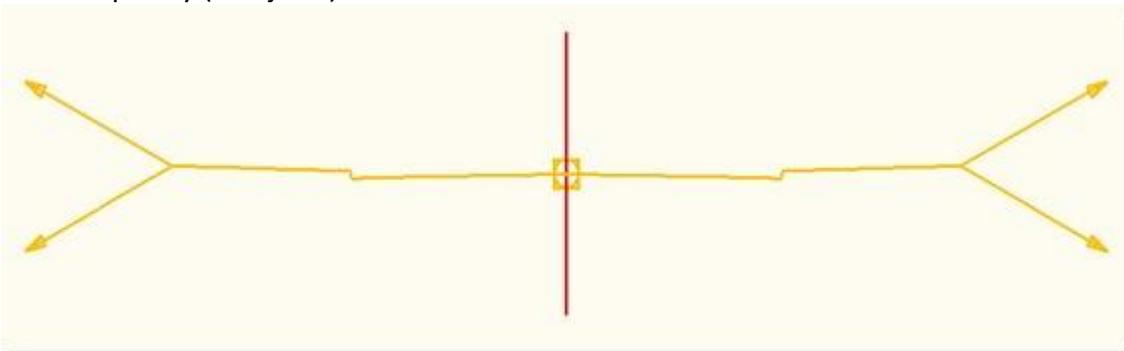


We may need all of that when we create our assembly, but we don't need to display all that info inside our corridor. Really, we just need the Top.

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.

Name	Description	Style
Link		
<default>		_None
<no codes>		_None
Top		Basic
Point		
<default>		_No Markers
<no codes>		_No Markers
Shape		
<default>		_No Shading
<no codes>		_No Shading

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

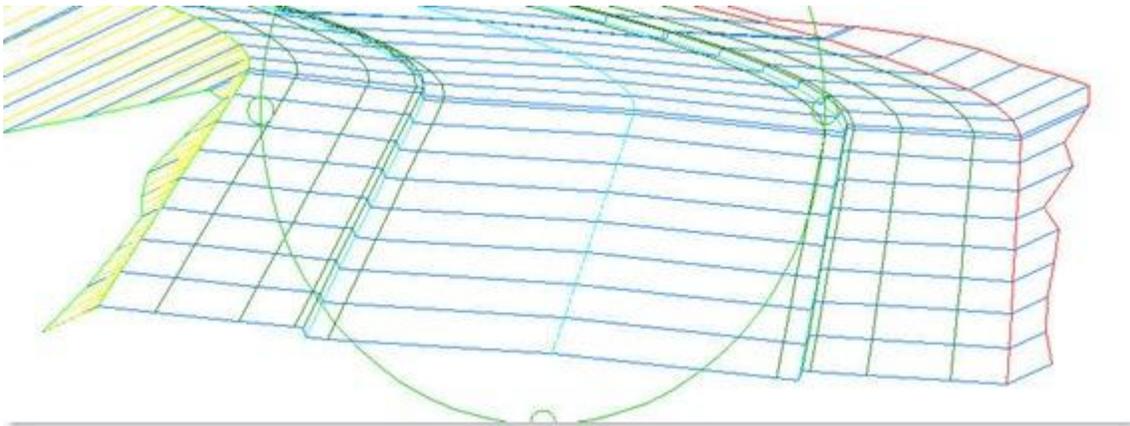


Just to make sure you're not missing anything. When you are creating those "No Markers" type of styles make sure you turn off the Links, Markers, or Shapes in both the 2D view and the 3D view. If you forget the 3D view then, well, you've done a lot of work for nothing.



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	<input checked="" type="checkbox"/>
Flange	No Description	<input checked="" type="checkbox"/>
ETW_Sub	No Description	<input type="checkbox"/>
ETW_Base	No Description	<input type="checkbox"/>
Crown_Pave2	No Description	<input type="checkbox"/>
Crown_Sub	No Description	<input type="checkbox"/>
Back_Curb	No Description	<input checked="" type="checkbox"/>
Hinge_Cut	No Description	<input checked="" type="checkbox"/>
Sidewalk_Out	No Description	<input checked="" type="checkbox"/>
Sidewalk_In	No Description	<input checked="" type="checkbox"/>
ETW	No Description	<input checked="" type="checkbox"/>
ETW_Base	No Description	<input type="checkbox"/>



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 that is used to 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
- **CROSS SECTION13.DWT** – This file is the template that is used to create the Cross Section drawing from.

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

