How to make Culvert TSL Sheet and annotate the structures

These instructions were created July 2023 These instructions were created with:



OpenRoads Designer CE - 2021 Release 2 Update 10 Version 10.10.21.04

This is the step in the workflow where the Create Drawing dialog to automate the drawing and sheet model creation and place the views in them is used.

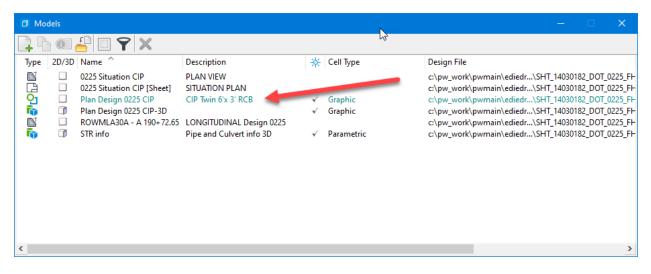
To create a Culvert TSL sheet, open the DGN file. This example will use the SHT_14030182_DOT_0225_FHWANO_CIP_Z07.dgn

For proper file naming please refer to <u>CONNECT Seed Files and Naming Conventions</u> and <u>CONNECT</u> <u>Models and Naming Convention</u>.

Note: To do this properly, establish the Design numbers for each design to name each sheet and named boundary correctly. Request design numbers and Asset ID numbers, if applicable, before proceeding with these instructions.

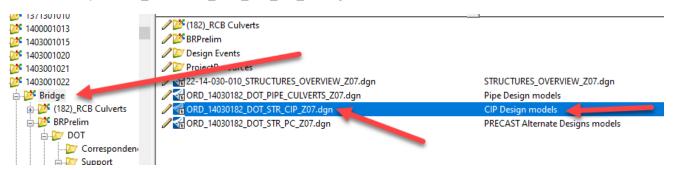
Note: Keep in mind that this process is for B01 work and not B02 work. B01 event work is for RCBs and other structures that will require Final Design detailing done to them. If designing crossroad pipes, that is B02 work and sheeting is done differently. Please refer to the <u>PW workflow documents</u> for instructions.

Rename the Default 2D model to Plan Design 0225 CIP model.



Reference the corresponding structure model file under the Bridge folder that goes with that sheet file.

For this example, ORD_14030182_DOT_STR_CIP_Z07.dgn

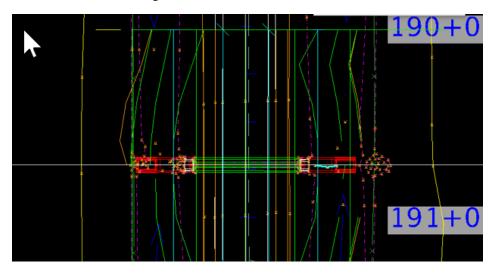


Set to Live Nesting with Nest Depth of 3

📔 Ref	renc	es (1	8 of 18	unique, 1	3 display	red)											_			×
<u>T</u> ools	<u>P</u> rop	oertie	s				-0													
•	<u>}</u>	¥		🕵 🔿	4=	26		🔁 🛃 ć	ð 📴 🛛) 🗙 <u>H</u> ili	ite Mod	e: Boundaries	•							
Slot	1		File Na	ame						Model	De	scription	Logical	Orientation	Presentation	Visible Edges [٠	å	k	(<u>A</u>
5			PW_W	ORKDIR:	1648147	14030	182_GEO	_ML030.dgn		Default	Ho	rizontal PI	Hori	Coincident - World	Wireframe	Wireframe	¥	×.	\checkmark	
4			PW_W	ORKDIR:	1648147	14030	0182_GEO	_ML030.dgn		Default	Ho	rizontal curve	Hori	Coincident - World	Wireframe	Wireframe	×	\sim	\checkmark	
3		\checkmark	SHT_1	4030182_0)OT_0225	5_FHW	ANO_CIP	_Z07.dgn		Plan Desigr	n		Ref	Coincident - World	Wireframe	Dynamic	×	\mathbf{v}	×	
2			PW_W	ORKDIR:	1606894	AVORD_	14030182	_DOT_STR_C	P_Z07.dgn	Default	Ma	ister Model		Coincident - World	Wireframe	Wireframe	× .	×	\checkmark	
1		~	SHI_1	4030182_L	101_0225	5_FHW	ANO_CIP	_207.dgn		STR info	Pır	e and Culvert		Coincident	Wireframe	Dynamic	¥	*	v	
S <u>c</u> ale	1.0000	0000	00		: 1.000	000000)	<u>R</u> otati	on 00°00'(00" (Offset <u>X</u>	0.000		<u>Y</u> 0.000						
•	🖸 🗾 🕅 🖓 🦓 🏢 🖏 🔽 🖆 🚰 🚰 🚰 🚰 🚰 🖆 🔤 detectorisation bests: Live Nesting Depth: 3 Display Overrides: Allow 🔹 Ne <u>w</u> Level Display: Config Variable 💌																			
Georef	erenc	ed:	No		•															

Next rotate the view in the 2D Model into the orientation that is needed to be displayed on the TSL sheet.

It should look something like this:



Next, under the OpenRoads Modeling workflow, select the Named Boundary tool.

Note: Working in a Multi-Model View, be sure to have the 2D view active when placing the boundary in the 2D view. Also make sure to have all the references turned on in the 3D view for the information to properly display on the plan sheet.

I	1 0	oenRoads Model	ing 🔻	😑 🖬 🛃 🕼	🗸 + 🤌 📌 昌	b 🧰 🔋 ∓ pw:\\ntPwInt1.dot.	int.lan:PWMain	\Documents\Pro	jects\zCONNECT	_PilotProject_05\Brid	dge\BRPrelim\DOT\Culverts\OR	D_06030087_DOT_CULVE	RTS_SPN_STA 1045 to 1389 Ex.
	File	Home T	'errain 🔺	Geometry Site	Layout Co	rridors Model Detailing	Drawing Produ	ction Drawi	ng View				
	() * <u>8</u> 6	} ? ∎ -	\▶ ຶ	💦 😤	÷.			A A ^B		A ABC	→ <u>/</u>	1"=50' *
	Coord Syst	inate 😽 📴 🖬 em 👒 🚰 🛽	0	Selection 🗔 🔹	Clip Volume 🔀	Create Update Saved Ap Saved View View Settings Save	oply Place d View Table	Place Place Note Label		Change Text 🙏 🔹	Element Model Annotation • Annotation •	Named Boundary -	Annotation Scale Lock
	÷H-	Geographic	Primary	/ Selection	Clip	Saved Views	🕞 Tables	Notes	Т	ext 🗔	Annotations 5	Named Boundaries 🕞	Drawing Scales

Selecting the Named Boundary tool will open the Place Names Boundary dialog box, select **From Drawing Boundary** option at the top.

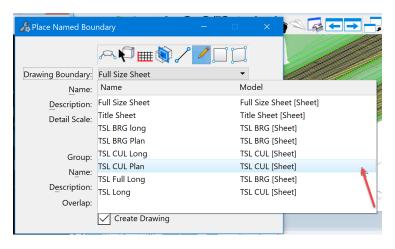
C Place Named Bour	ndary				
	R 🖓 🏢 🔇 🖊			• 💌	 View 2, CULVERTS-3D □ → 和 ☆ → ↓ ① ● ○ ①
Drawing Boundary:	Full Size Sheet	From Drawing B	oundary,		
<u>N</u> ame:	Untitled	A drawing bour	ndary is a sl	ot on a sheet	model that will contain the drawing
<u>D</u> escription:					
Detail Scale:	Full Size 1 = 1	-			
Group:	(None)	_			
	📄 Create Drawing				

In the From Drawing Boundary pull down, select the sheet seed that will best fit the desired output.

The first Drawing Boundary needed is the **TSL CUL Plan.** This will place the traditional plan view and will leave space on each side of the plan view for extra notes.

The second Drawing Boundary needed is the **TSL BRG Plan**. This will place a plan view that will cover the full width of the TSL page and is intended to be used in the bridge TSL creation process.

Decide what plan view is ideal for the design and sheet layout. For this example, use the TSL CUL Plan boundary.



In the **Name** field, name it the County number, Design number and Situation Type of structure.

For this example, it will be 0225 Situation CIP.

🔏 Place Named Bo	—		×	
	A 🖓 🏢 🕅 ,	/ 🖊	[]	1
Drawing Boundary:	TSL CUL Plan			•
<u>N</u> ame:	0225 Situation CIP			
<u>D</u> escription:				
Detail Scale:	Full Size 1 = 1			•
	•••		\triangleright	
Group:	(None)			•
	🗹 Create Drawing			

In the **Description field**, describe the structure.

For this example, use CIP Single 6x3 RCB.

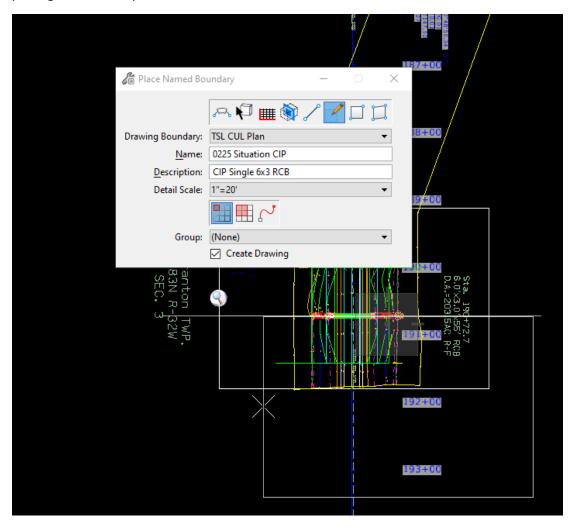
🔏 Place Named Bo	undary — 🗆 X
	~ P 🏢 🎕 🖍 🖊 🗊
Drawing Boundary:	TSL CUL Plan 👻
<u>N</u> ame:	0225 Situation CIP
Description:	CIP Single 6x3 RCB
Detail Scale:	Full Size 1 = 1
Group:	(None) 👻
	Create Drawing

Select the detail scale of 1'' = 20'.

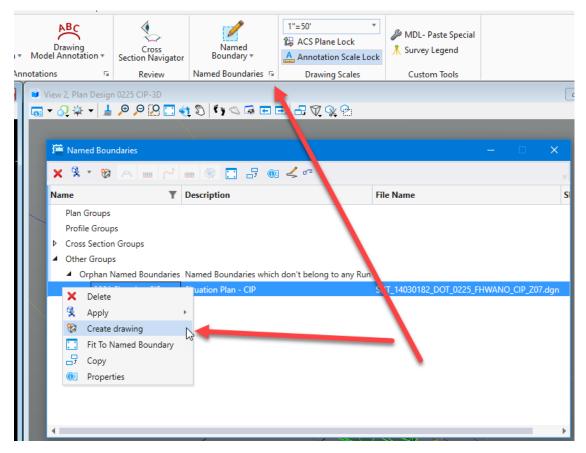
🔏 Place Named Bo	undary —		×
	R 🖓 🏢 資 🖊 🧧	/ [] (
Drawing Boundary:	TSL CUL Plan		•
<u>N</u> ame:	0225 Situation CIP		
<u>D</u> escription:	CIP Single 6x3 RCB		
Detail Scale:	1"=20'	-	•
Group:	(None)		-
\rightarrow	Create Drawing		

Now place the boundary. It will appear at the end of the cursor.

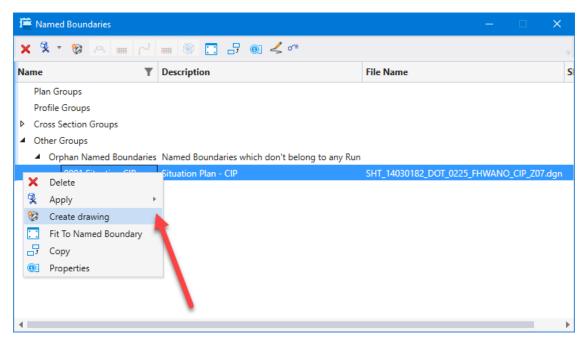
Note: It may be preferred to place it on the outer edge of the structure layout and then move it to the correct location to ensure that the center of the plan view detail on this sheet will be at the centerline of the structure = centerline of the roadway. Move the boundary before making the drawing model and sheet. Make sure to <u>not</u> have "Create Drawing" toggled on so that the named boundary can be moved after it is placed to enable an ideal position in relationship to the structure. Then the drawing and sheet model will be created. This is what will be done in the following example. If there is confidence in the initial placement of the boundary, have "Create Drawing" toggled on and skip the next few steps after placing the boundary.



To move the boundary after it is placed, use the Element Selection tool and select the boundary. Use the move command to move the boundary to the position that is needed. Once placed, then select the Named Boundaries tool to open the dialog box.



Select the boundary that was created and right click on it. Select the **Create Drawing** option.



This Create Drawing dialog box will open. The name will be filled out based on the name of the boundary. For this example, used STA 2179+27.00).

📢 Create Drawing		×
Name:	0001 Situation CIP-1]
Drawing Seed:	TSL 👻	
View Type:	Detail	
Discipline:	Civil	
Purpose:	TSL	
	Create Drawing Model	
Seed Model:	lowa_DrawingSeed.dgnlib, TSL CUL Plan]
Filename:	(Active File)	💼 🖪
A	1"=20' -	
	Create Sheet Model	
Seed Model:	lowa_DrawingSeed.dgnlib, TSL CUL [Sheet]]
Filename:	(Active File)	
Sheets:	(New) 🔻	
A	Full Size 1 = 1	
Drawing Boundary:	TSL CUL Plan 👻	
Detail Scale :	1"=20' (By Named Boundary) 🔹	
	Add To Sheet Index	P
	Make Sheet Coincident	
	Replicate Drawing in Sheet File	
	🗹 Open Model	
	<u>о</u> к	Cancel

Next, ensure the scales are set correctly for the sheet.

1. Under the Create Drawing Model section set this to 1"=20'. The scale is set to match the scale used when referencing the Drawing Model details into the Sheet Model.

2. Under the Create Sheet Model section set this to Full Size 1 = 1 and ensure that the Detail Scale is set to 1'' = 20' (By Named Boundary). The scale is set to match the scale used when referencing the Drawing Model details into the Sheet Model.

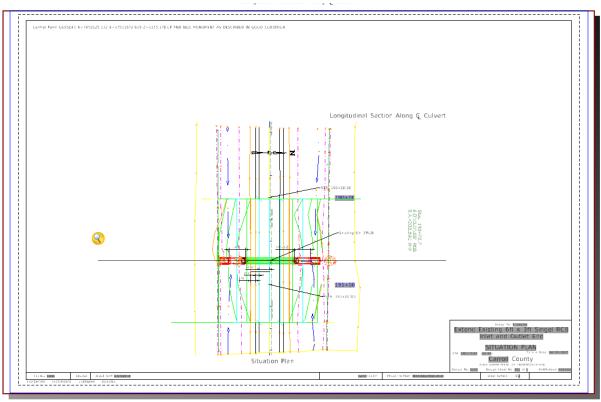
Toggle on Open Model, if desired. Add to Sheet Index may be toggled on also. Sheets may be added to the Sheet Index later in the plan sheet development process.

🞻 Create Drawing	×
Name:	0001 Situation CIP-1
Drawing Seed:	TSL 👻
View Type:	Detail
Discipline:	Civil
Purpose:	TSL
	Create Drawing Model
Seed Model:	Iowa_DrawingSeed.dgnlib, TSL CUL Plan
Filename:	(Active File) 💼 📮
	1"=20' 👻
	Create Sheet Model
Seed Model:	lowa_DrawingSeed.dgnlib, TSL CUL [Sheet]
Filename:	(Active File)
Sheets:	(New) 👻
A	Full Size 1 = 1
Drawing Boundary:	TSL CUL Plan 👻
Detail Scale :	1"=20' (By Named Boundary) 🔻
	Add To Sheet Index
	Make Sheet Coincident
	Replicate Drawing in Sheet File
	🗹 Open Model 🚽
_	<u>O</u> K Cancel

If everything is correct, then click OK.

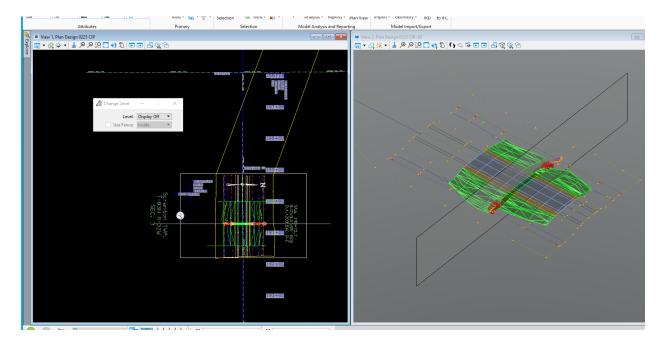
This will create the plan sheet.

It should look something like this:



Situation Plan

Next, go back to the Multi-Model View to make the Longitudinal Cross Section for the sheet.

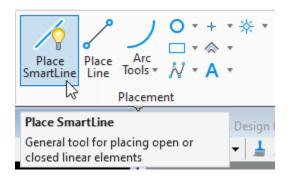


It is recommended to place a guideline for placing this cut. Work in the 2D view.

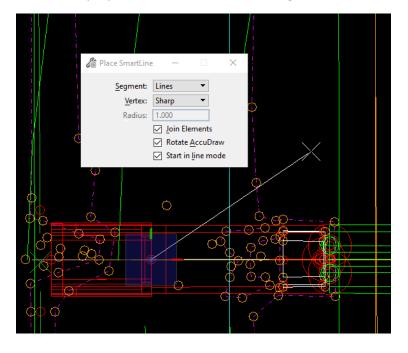
First set the symbology to level Draft_DNC which means Draft Do Not Construct and the class to Construction. The guideline will not show on the sheet and will appear as part of the design.

۶	None	* Draft_DNC	*		Q
	0 * 50 *	🔄 0 🔹 💽 0 🔹 🖓 0	*	U Con:▼	Explo
		Attributes		Primary	
ବ୍	View 1, Plan Design	0225 CIP		Constructio	
Explo	⊡ - Ø 🎘 - ₹	🗩 🔎 🎦 🔂 🔁 🖬		F 🔍 🔁	

Use the place smart line tool to place the guideline.

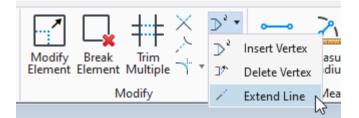


Start by placing the line at the calculated invert at one end of the structure then ending it at the other invert. The purpose of this is to ensure cutting the section at the true center of the structure.

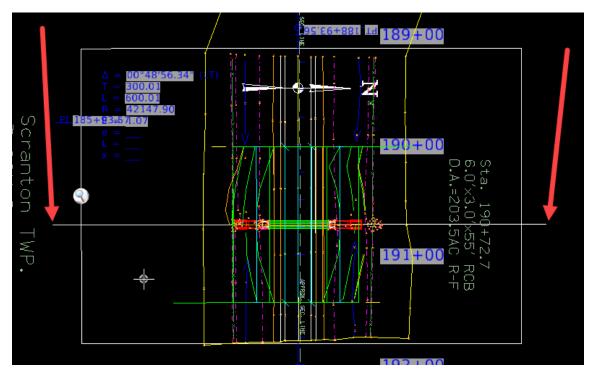


🖉 Place SmartLin	e – – X	\bigcirc	/
Segment: Vertex: Radius:	Lines Sharp I.000 Join Elements Rotate AccuDraw Start in line mode		
	0		

Use the Extend line tool to stretch the line past the plan view name boundary.



It should look something like this:



Next, make the Longitudinal Cross Section for the sheet using the **Civil Cross Section by 2 Point** boundary. This tool is also located on the Place Named Boundary dialog box.

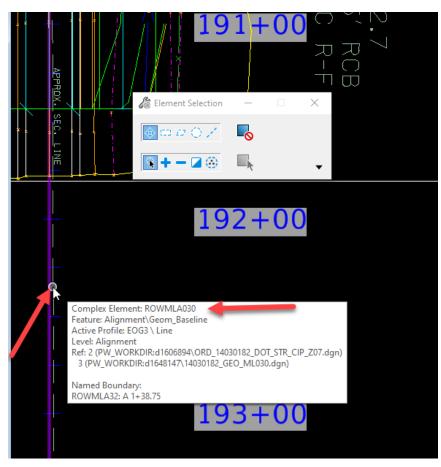
🔏 Place N	amed Boundary Civil	Cross Section 2 Points		_		×
		ぺ√┙▦▧҇ҳ	P [
	Drawing Seed:	(none)	hờ Civ	vil Cros		n 2 Point
	Group:	(New)		ni cros	s section	12 FOIL
	Name:	Untitled				
	Description:					
Ve	ertical Exaggeration:	1.000000	1			
\checkmark	Top Clearance:	40.000000	1			
\checkmark	Bottom Clearance:	20.000000				
Elevat	ion Datum Spacing:	5.000000				
		Backward Facing		1		
		Create Drawing				
		Show Dialog		1		

Select a **Drawing Seed.** For this example, use the XS 20 Scale seed to make a 1" = 20' scale cross section.

🔏 Place N	lamed Boundary Civil	Cross Section 2 Points – 🗆	×
		쨧▦ो╱┵┚┇	
	Drawing Seed:	XS 20 Scale 🖕 🗸	
	Group:	(New) 🔻	
	Name:	Untitled	
	Description:		
Ve	ertical Exaggeration:	1.000000	
\checkmark	Top Clearance:	40.000000	
\checkmark	Bottom Clearance:	20.00000	
Elevat	tion Datum Spacing:	5.000000	
		Backward Facing	$\sum_{i=1}^{n}$
		Create Drawing	
		Show Dialog	

Next identify the path element. For this process, it will be the roadway horizontal alignment that intersects the structure shown on the sheet.

Note: Selecting the alignment will also set the Group. It is very important to set this so that in a large corridor project the cross sections can be placed on their own sheets when the drainage design is complete. To identify the path element, select it in the 2D view.

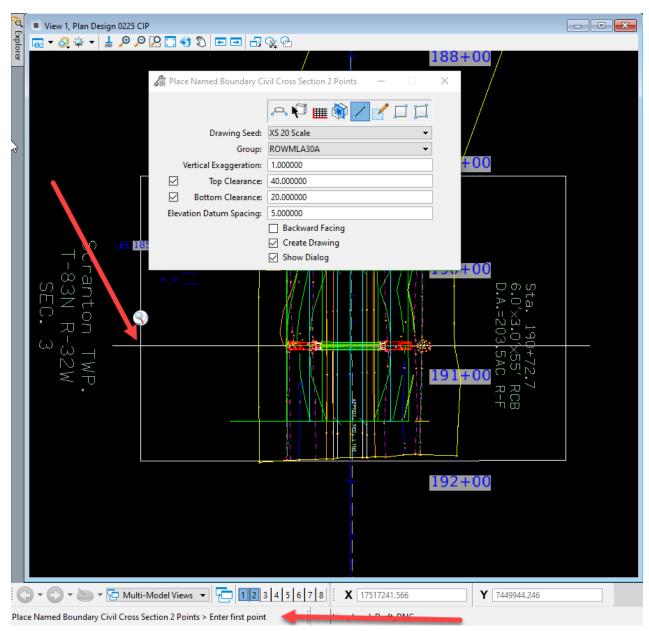


The **Group** should be named the same as the alignment.

🔏 Place Named Boundary Civil Cross Section 2 Points 🛛 🗌 🗙						
	A 🖓 🏢 🕅 🖊 🗇 🎵					
Drawing Seed:	XS 20 Scale 👻					
Group:	ROWMLA30A	_				
Vertical Exaggeration:	1.000000					
Top Clearance:	40.000000					
Bottom Clearance:	20.00000					
Elevation Datum Spacing:	5.00000					
	Backward Facing					
	Create Drawing					
	Show Dialog					

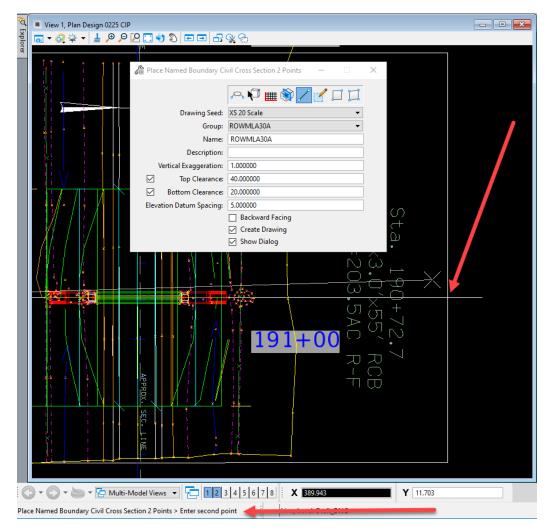
Next, identify the start point.

Snap to the intersection point of the structure centerline and the edge of the plan view boundary placed earlier.

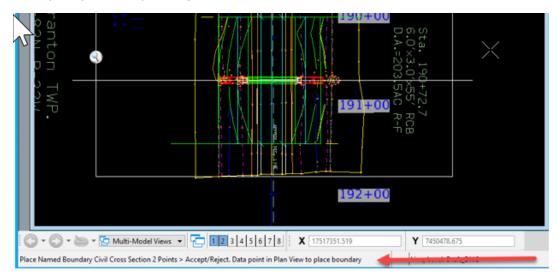


Then, identify the end point.

Snap to the intersection point of the structure centerline and the edge of the plan view boundary placed earlier.



It will prompt to Accept or Reject.



Once everything is set correctly, Data point in the plan view to accept the settings and this will open the Create Drawing dialog box.

📢 Create Drawing		×
Mod One Sheet Per Dg		•
View Type:	ROWMsA30A - A 190+72.65-1 XS 20 Scale Civil Cross Section Civil Section View	
	Drawing Model ROWMLA30A - A 190+72.65-1 Cross Section Sheet Seed 20 Scale.dgnlib, (Active File) 1"=20' XS Grid w/ Annotation 20 Scale	
Filename: Sheets:	Sheet Model Create Sheet Model ROWMLA30A - A 190+72.65-1 Cross Section Sheet Seed 20 Scale.dgnlib, (Active File) (New) Full Size 1 = 1 XS 20 Scale 1"=20'	•
Detail Scale :	 Add To Sheet Index Make Sheet Coincident Open Model 	Cancel

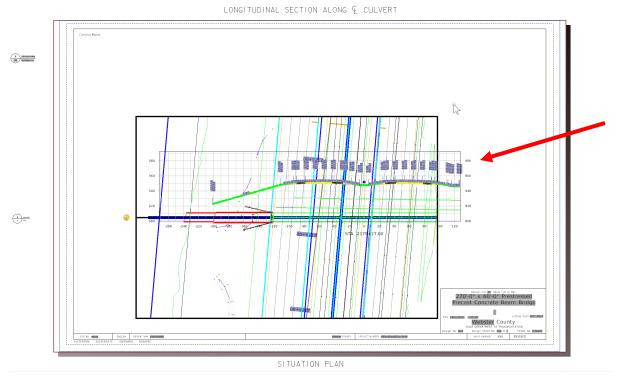
Select an **Annotation Group** and select the **Sheet** that the section will be placed on. Toggle on Open Model.

When adding a detail/cross section to an existing plan sheet, the Add to Sheet Index option is grayed out. When creating a new plan sheet, the Add to Sheet Index option will appear selectable.

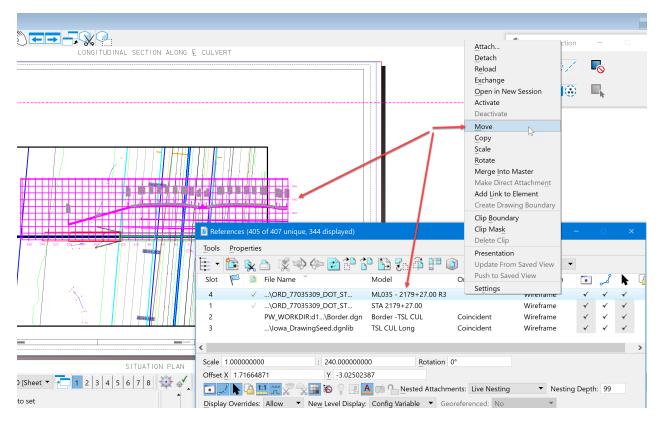
📢 Create Drawing		×
Mode: One Sheet Per Dgn:	Cross Section	•
Drawing Seed: X View Type: C	OWMLA30A - A 190+72.65-1	
	ection View awing Model	
Vodel Name: R Se d Model: C File ame: (/	OWMLA30A - A 190+72.65-1 ross Section Sheet Seed 20 Scale.dgnlib, Active File)	•
Annotation Group: X	"=20"	
	eet Model] Create Sheet Model	
Model Name: R	OWMLA30A - A 190+72.65-1	
Seed Model: C	ross Section Sheet Seed 20 Scale.dgnlib,	
Filename: (A	Active File)	
SHyets: 02	225 Situation CIP [Sheet]	
Fi	ull Size 1 = 1 ▼	
Drawing Boundary: (N	lew) 🔻	
Detail Scale : 1"	'=20' ▼	
	Add To Sheet Index 🕼 Make Sheet Coincident Open Model <u>O</u> K Ca	ancel

Click OK.

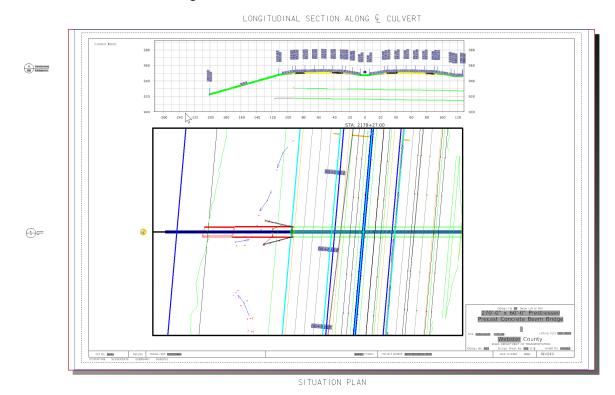
This will place the cross section on the sheet as the Longitudinal Cross Section. It will appear in the center of the sheet.



To move it to the proper placement, open the Reference dialog box. Then select it in the list, right click and select move. This is a reference so the reference move tool is used.



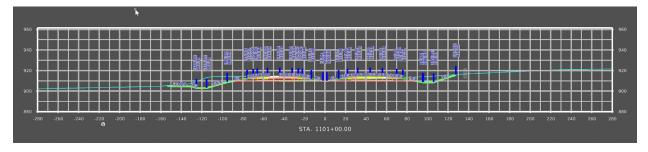
Data point somewhere outside of the sheet and with the AccuDraw compass locked vertically, move it up into the correct position.



The sheet should look something like this:

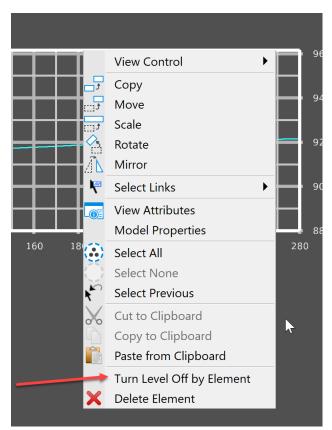
Next, annotate the structure in the Plan View drawing model and in the Longitudinal Cross Section drawing model.

For this example, start with the Longitudinal Cross Section drawing model.

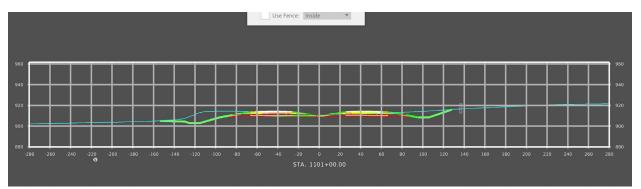


Turn off some of the automatic annotations of this Longitudinal Cross Section to make room for some of the information that needs to be displayed.

To turn off some of the automatic annotations, right click and hold to bring up the context sensitive menu.



Then select the Turn Level Off by Element option, click on the items not needed for the sheet.



It should look something like this:

When annotating a structure in the Longitudinal Cross Section, label these items listed below.

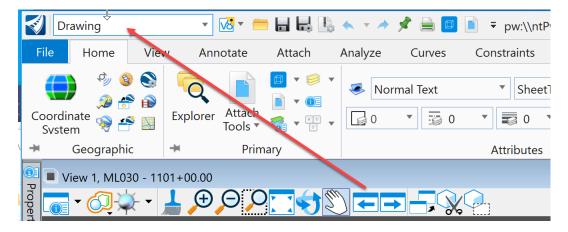
- 1. Design Cover.
- 2. Profile Grade Elevation.
- 3. Distance from centerline right.
- 4. Distance from centerline left.
- 5. Flowline Elevation at each critical point in the structure.
- 6. Structure description and any other unique items that need to be called out.
- 7. Total Distant Left and Right (if an offset baseline is need for that standard).
- 8. Also any other items that apply from the Preliminary Design RCB <u>Checklist</u>.

Some of this information is stored in the ASCII graphics input file. It is helpful to have that file open for the structure that is being annotated when doing this process. Copy and paste information from it to the Place Note tool to help save on typing.

ML and SR pipes from 1045 to 1389_4-7-21.txt - Notepad	>			- C
File Edit Format View Help				
481,3452553.930,5284214.405,908.825,PRO STA 1101+00.00 DR-201 Inlet en 482,3452560.052,5284214.321,908.656,PIP98 STA 1101+00.00 DR-601 Inlet 483,3452644.012,5284213.168,906.338,PIP98 STA 1101+00.00 DR-601 Outlet 484,3452644.012,5284213.168,906.338,PIP99 STA 1101+00.00 DR-601 Inlet 485,3452747.963,5284211.740,903.468,PIP99 STA 1101+00.00 DR-601 Outlet 486,3452754.085,5284211.656,903.299,PRO STA 1101+00.00 DR-201 Outlet e	of 24in RCP PHASE of 24in RCP PHASE of 24in RCP PHASE of 24in RCP PHASE	1 +82. E 1 -1. 2 -1.5 E 2 -10	432 RT 536 LT 36 LT 95.497 LT	
٢				
	Ln 1, Col 1	100%	Windows (CRLF)	UTF-8

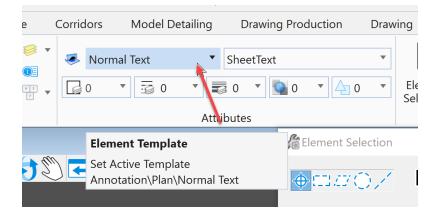
Before starting to place annotations, some settings need to be selected. The first is to change the workflow to the Drawing workflow.

Note: This may be a user's preference because some users find it easier to locate the tools to annotate in this workflow. These tools are available on other workflows as well.



The second is to select the correct Element Template for placing the annotations.

Click on the Element Template pull down in the Attributes toolbox on the home tab.



Browse down to the Annotation Plan folder and select the Dimension Text Element Template.

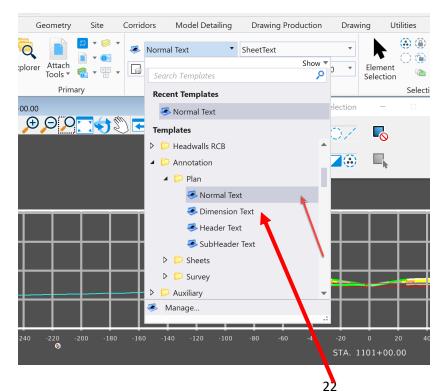
Typical use of the options is:

Normal Text - Use for any notes that are not dimension leader notes.

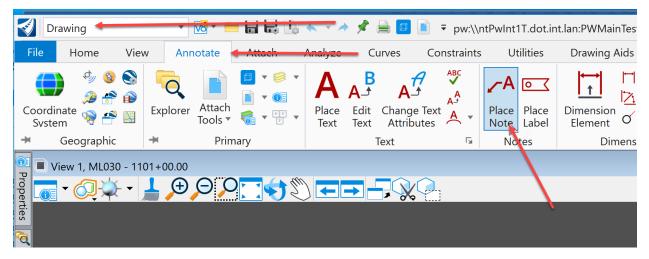
Dimension Text - Use for all dimensions, leader notes and dimensional numerical values and text used in tables or fields. See tables used on Iowa DOT Culvert Barrel Details standard sheets as an example.

Header Text - Use for all headers and title blocks.

SubHeader Text - Use when Header and Normal text do not seem appropriate. An appropriate case would be the word Notes used when labeling a group of notes or instructions.



Next, select the correct annotation tool. This example will be for placing the Flowline Elevation at the Inlet end of the apron and the offset from centerline. Use the Place Note tool.



Selecting the Place Note tool will open the dialog box. Select the correct Dimension Style.

Vie	w 1, ML030 - 1101+00.00		
	🔏 Place Note	- 🗆 X	
	Dimension Style: Text <u>R</u> otation:	► IADOT Eng. Lead ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►	
g	<u>L</u> ocation: <u>S</u> tart At: Hori <u>z</u> ontal Attachment:	 Lbl_ROW_Pln_Sta-Off_100 Lbl_SU_Plan_Node Lbl_XS_Elev Lbl_XS_Elev_Alignment_Name Lbl_XS_Off 	
9	20 -	└── _Lbl_XS_Off-Elev └── IADOT Eng. Angular Dim.	Angular Dimensions - English
g	000	HADOT Eng. Leader Note HADOT Eng. Linear Dim.	Leader Note Settings - English
8	380	→ IADOT Eng. Radial Dim. -220 -200 -180 -160 -140	Diameter, Radial, and Arcs - English ✓ -120 -100 -8 A Text Editor

For this example use the IADOT Eng. Leader Note style.

By selecting the correct Dimension Style and Element Template, this ensures the notes are placed with the correct settings. Once this is set, type in the note needed.

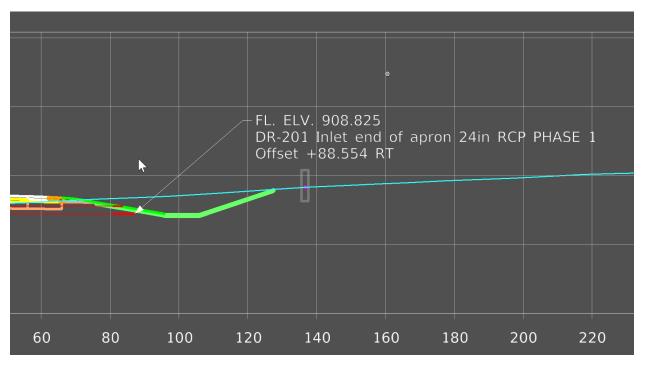
This is where the ASCII graphics input file may be used. With it opened to the specific structure, highlight the information needed to be placed and copy it from the ASCII graphics input file.

Vie File Home View Annotate	Attach Analyze Cu	irves Constraints Utilities	Drawing Aids C	ontent Mesh	Help
Coordinate Coordinate	A B Place Edit	$A^{-1}_{-} A^{ABC}_{A^{A}_{-}} A^{ABC}_{-}$	C Dimension → +	⊢ Ř ⊢ Place	$\overset{\circ}{\leftarrow} \overset{\circ}{\circ} \overset{\circ}{\circ} \overset{\circ}{\circ}$
from 1045 to 1389_4-7-21.txt - Notepad				- 🗆	× ^{put} [*] □ [*] tailing ⊑
v Help					
					^
0,5284214.405, <mark>908.825,PR0 STA 110</mark> 2,5284214.321,908.656,PIP98 STA 1				K I	
2,5284214.321,908.656,PIP98 STA 2,5284213.168,906.338,PIP98 STA 3					
2,5284213.168,906.338,PIP99 STA					
3,5284211.740,903.468,PIP99 STA					
5,5284211.656,903.299,PRO STA 110) LT	
· · ·		•			v
					>
		Ln 81, Col 109 1	00% Windows (CRLF)	UTF-8	
		Ln 81, Col 109 1	00% Windows (CRLF)	UTF-8	.::
940		Ln 81, Col 109 1	00% Windows (CRLF)	UTF-8	
940		Ln 81, Col 109 1	00% Windows (CRLF)	UTF-8	
		Ln 81, Col 109 1	00% Windows (CRLF)	UTF-8	
940 920 920		Ln 81, Col 109 1	00% Windows (CRLF)	UTF-8	
		Ln 81, Col 109 1	00% Windows (CRLF)	UTF-8	
		Ln 81, Col 109 1	00% Windows (CRLF)	UTF-8	

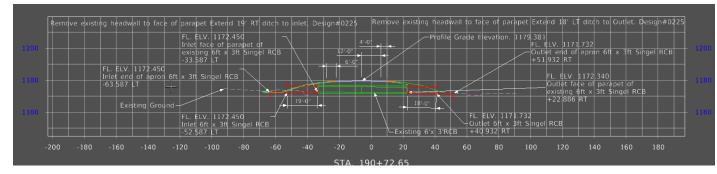
Then paste it into the text window.

Vie	w 1, ML030 - 1101+00.00									
	Place Note	<u> </u>	_		×					
	Dimension Style:	Horizontal Manual Terminator	g. Leadı × × × ×	>						
		<u>A</u> [<u>→</u>]								
							+			
	A Text Editor									
	VIADOT Norma	al Text	×	Dr 4	🗳 🗴 - 🔆 -	f(x) The Engineering Vert	~ A‡ 0.0	12 Z • B	ΙŪ	-
					1	e de la companya de l	I •	· · · I	· ·	
	FL. ELV. 9 DR-201 In Offset +8	let end	of ap T	oron 2	24in RCP F	PHASE 1				

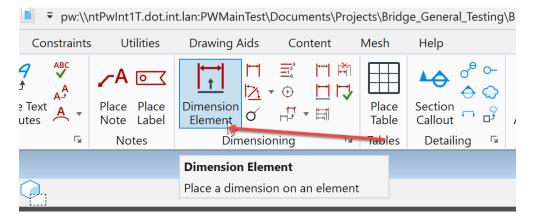
Snap to the appropriate point to locate the note and place the note.



Then repeat the same process to place all the annotation notes needed. When complete it should look something like this:



Once done placing the notes, then dimension the structure. Select the Dimension Element tool on the Annotate tab in the Drawing workflow.



unico	Drawing Aids Content	Wesh	ныр		
o ✓ Place Label	$\begin{array}{c c} \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	Place Table	$\begin{array}{c} \bullet \bullet$	Place Active Cell	Hatch Area
otes	Dimensioning 🔤	Tables	Detailing 🕞	Cells 🕞	Patter
1	Clement Dimensioning	—			
t PHASE	 IADOT Eng. Linear Din Lbl_Prof_Sta-Elev Lbl_Prof_Sta_Partial Lbl_ROW_PIn_Sta-Off Lbl_SU_Plan_Node Lbl_XS_Elev Lbl_XS_Elev Lbl_XS_Off Lbl_XS_Off-Elev 	f_100	▼ >> D,		
	IADOT Eng. Angular D	Dim.	Angular Dim	ensions - English	
	IADOT Eng. Leader N		Leader Note	Settings - English	of ap
	IADOT Eng. Linear D	im.	R.		
	IADOT Eng. Radial Dir	n	Diameter, Ra	dial, and Arcs - Engl	ish 🗸

Next, select the correct Dimension Style. This example will use the IADOT Eng. Linear Dim style.

By selecting the correct Dimension Style and Element Template, this ensures the dimensions are placed with the correct settings.

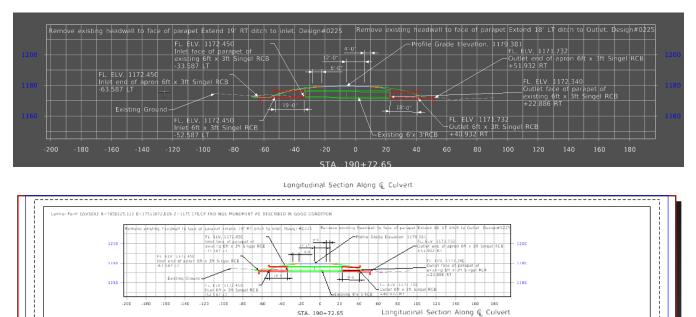
Next, set the **Alignment** to True and the **Location** to Automatic. If Association is toggled on, it will make the dimension capable of auto correcting if the structure is adjusted.

🔏 Element Dimension	ing – 🗆 🗙
IADOT Eng. L	.inear Dim. 🔹 💗 🗈
Alignment:	True 🔻
Location:	Automatic 🔹
\searrow	
Start Extension: End Extension: Text Alignment: Text Frame: Prefix Text:	I ← ✓ → I ✓ Standard ✓ Box ✓ gi ✓
Suffix Text:	ø ▼ ✓ Association

It should look something like this:

Location

65 .AU



ĨĒ

Hydraulic Design

Next, annotate the Plan View portion of the TSL Sheet.

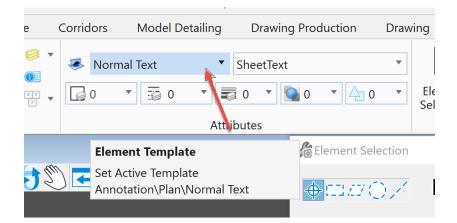
When annotating a structure in the Plan View, label these items listed below.

¥.∳

- 1. Station at centerline of structure = centerline of the alignment.
- 2. Station at Even Station tic marks before and after the structure.
- 3. Station of the outside corners of the proposed revetment.
- 4. Dimension distance from centerline left.
- 5. Dimension distance from centerline right.
- 6. Dimension to length of new structure.
- 7. Also any other items that apply from the Preliminary Design RCB <u>Checklist</u>.

Similar to annotating the Longitudinal Cross Section, make sure to select the correct Element Template for placing the annotations.

i III 🛮 III i

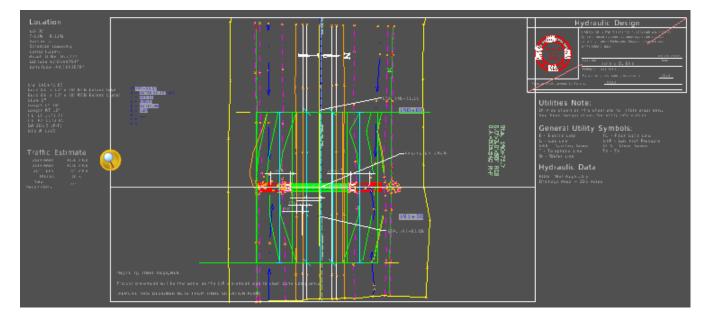


Browse down to the Annotation Plan folder and select the Dimension Text Element Template.

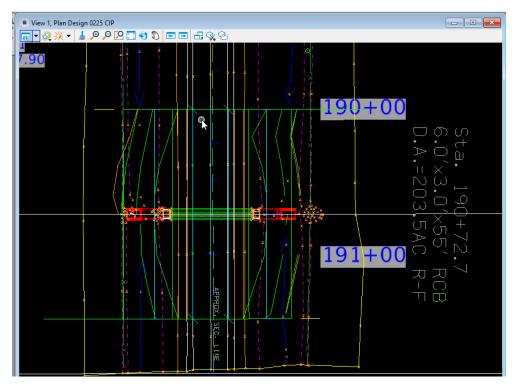
Normal Text	SheetText
-	Show 🔻
Search Templates	<u> </u>
Recent Templates	
🍜 Normal Text	3
Templates	,
👂 📁 Headwalls RCB	▲
🔺 📁 Annotation	
🔺 📁 Plan	1
🥌 Normal T	ext
🥌 Dimensic	on Text
🥌 Header T	ext
🥌 SubHead	er Text
Þ 📁 Sheets	· · · · ·
👂 📁 Survey	
👂 📁 Auxiliary	•
🥌 Manage	

By selecting the correct Dimension Style and Element Template, this ensures the notes are placed with the correct settings.

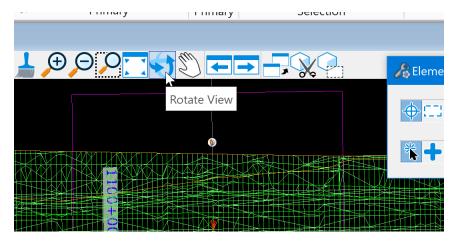
It should look something like this:



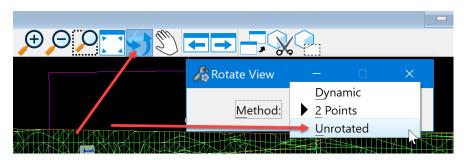
Once all the annotation is complete, then place the North Arrow in the Plan View. Go to the Multi-Model View in the 2D Design model in the SHT file.



Then reset the rotation of the view to unrotated. Select the Rotate View tool at the top of the view.

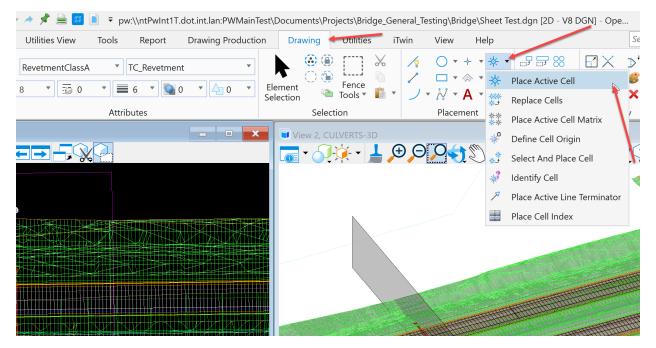


Select the Unrotated Method.



This will set it so that the Design model will have North to the top of the view.

Next, choose the Place Active Cell tool on the Drawing tab in the placement toolbox.



It will open the Place Active Cell dialog box.

hace Activ	ve Cell		×
_		ngle RCB Parallel Wing 00°00'00.0" 1.000000 1.000000 Place as Shared Cel	A
Intera	lirror: ctive: atten:	 True Scale Horizontal Scale and Rotate Top Multi-line Offsets Dimension Values Annotations Association 	

Make the North Arrow cell the active cell. Click on the three dots next to the Active Cell field.

Step Place	ce Active Cell	-	×
A	Active <u>C</u> ell: Active <u>A</u> ngle: <u>X</u> Scale: <u>Y</u> Scale:	ngle RCB Parallel Wing 00°00'00.0" 1.000000 1.000000 Place as Shared Cel	A
Cale	<u>M</u> irror: Interactive: <u>F</u> latten:	 True Scale Horizontal Scale and Rotate Top Multi-line Offsets Dimension Values Annotations Association 	

It will open the Cell Library dialog box.

2				Selection	IOOIS *		Y • A •
		Attributes			Selection	F	Placement
				X Vie	w 2, CULVERTS-3I		
S	∎⇒占		Place Active Cell		- 0		2 ~} (*) <
٥			Active <u>C</u> ell: Active <u>A</u> ngle:	ngle RCB Para	Ilel Wing		
	🔆 Cell Li	brary: [\laDOT_SUE_RCBł	dwl_SINGLE_0_15_C	PR]			
	File 🔶		hr				
	参言			*			-
		Name	Descri	ption ^			
		Headwall - 10x10 Single	RCB Paralle 0 CIP 3	3D Cell			- anti-
		Headwall - 10x11 Single					THE BULL
		Headwall - 10x12 Single					A COLORING COLORING
		Headwall - 10x4 Single R	CB Parallel 0 CIP 3	3D Cell			- ANTER
		Headwall - 10x5 Single R	CB Parallel 0 CIP 3	3D Cell			
		Headwall - 10x6 Single R	CB Parallel 0 CIP 3	BD Cell			
		Headwall - 10x7 Single R	CB Parallel 0 CIP 3	3D Cell			n
		Headwall - 10x8 Single R	CB Parallel 0 CIP 3	3D Cell			TATE
		Headwall - 10x9 Single R	CB Parallel 0 CIP 3	3D Cell			
		Headwall - 12x10 Single	RCB Paralle 0 CIP 3	3D Cell			
•		Headwall - 12x10-4 Sing	e RCB Flar 0 CIP 3	3D Cell			
		Headwall - 12x11 Single	RCB Paralle 0 CIP 3	3D Cell			ľ í
	<	Haaduuralli 10010 Cimala		>			

Click on the File menu to browse to the BridgeGeneralUseCell.cel file under PWMain\Documents\IowaDOTStandardsConnect\Configuration\Organization-Civil\IowaDOT_Standards\Cell\<u>BridgeGeneralUseCells.cel</u> and select the North Arrow cell.

🞻 Attach Cell Library			×			
Select						
Folder						
Cell	~	+ 🔰 🗮 🚉				
PN ∥ ~						
Document						
<u>^</u>						
Name	O I					
BridgeDesManua		9				
BridgeGeneralUs						
Cross Section Lab	5	1				
	1					
Address:	pw:\\ntPwInt1.dot	t.int.lan:PWMain [\]	Docun 🖂			
Description:	Bridge Notes and	Misc Cells				
File Name:	File Name: BridgeGeneralUseCells.cel					
Application:	All Applications		\sim			
Extension:	*.cel		\sim			
Open document as read-only						
		Open	Cancel			

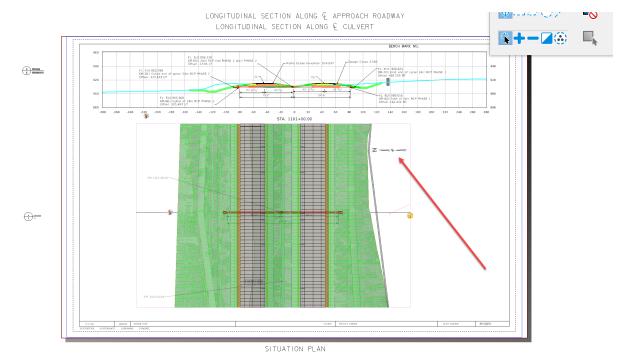
Then click on the Place Active Cell tool.

<mark>⊹</mark> Ce	ell Library: [c:\pw_work	.\BridgeGeneralUseCells.cel]					×
File							
*		×	*	# 6			
	Dame ^	Description	^		N		
S	HydaCulv	Hydraulic Data for Culverts					
S	InfoDes	Structure Design Information			4		
	InfoPipe	Structure Pipe Information			. A		
S	Location	Location Township Range Sectio	_				
S	LongitCrossSect	Longitudinal Cross Section Grid-					
S	LongitCrossSect	Longitudinal Cross Cross Sectior					
S	LongSect	Longitudinal Section - Profile Gr					
S	Direction Model				\oplus	\mathbf{N}	
S	MVC	Minimum Vertical Clearance					
	NorthArrow	North Arrow			A		
	ProfileGrade	Proposed Profile Grade			A		
	RBLT	Recoverable Berm Location Table					
<	> ntn.:	D					

Place Active Cell — — ×		
Active <u>C</u> ell: NorthArrow		∦ Ce
Active Angle: 00°00'00.0"	E.	File
<u>X</u> Scale: 1.000000		*
<u>Y</u> Scale: 1.000000		
DO+ Place as Shared Cell		
		e (ji
N True Scale		
<u>Mirror:</u> Horizontal T	~	S.
\bullet Interactive: Scale and Rotate \bullet		<u>S</u>
Flatten: Top 🔻	7	
Scale		Se de la companya de
Multi-line Offsets		
Dimension Values		
Annotations		Se of the second
		Se of
Association Association		

Place it in the Unrotated 2D design model within the plan view boundary.

This will make it appear on the sheet at the correct scale and true North Azimuth of the Design file.



Next, place any of the other notes that need added to this sheet model to properly convey the design intent of the structure.

In the plan view Drawing model, place the following cells.

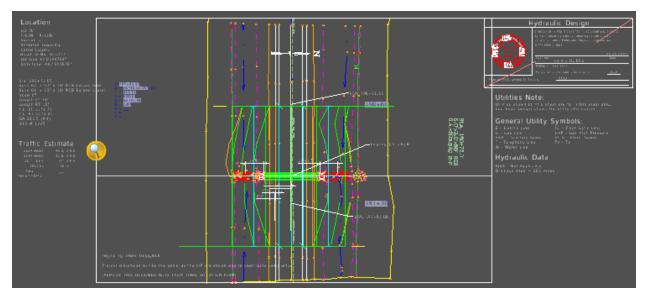
1. Hydraulic Data.

🔆 Cell Li	brary: [c:\pw_worl	k\BridgeGeneralUseCells.cel]	- 0	×
File				
* -		×		
	Name ^	Description	^	
	BidItem	Bid Item & Estimate Outlines		
	BKFL1	Backfill for Dirt/Rock		
	BKFL2	Backfill for Granular Material		
	BSLT	New Berm Slope Location Table	le Illudraulia Data	
	CulvPipe	Pipe Structure Information	Hydraulic Data	
	CulvRCB	RCB Structure Information	Drainage Area = ??.? Ac	res
	CurveData	Curve Data	$Q_{50} = ?,??? CFS$	
	Erosion	Frosion Stone Pattern	HW Elev. = ????	
	Granular 🛛 🧹	Granular Material Pattern	Stream Slope = ??.? Ft./	Mi.
	HydaBrg	Hydraulic Data for Bridges		
	HydaCulv	Hydraulic Data for Culverts		
	InfoDes	Structure Design Information		
	1-f-D:	Church and Dine Information	×	
<		,		

2. Site location.

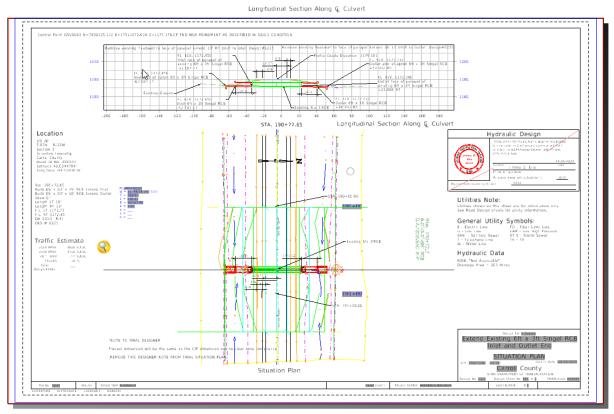
*	Cell Lik	prary: [c:\pw_work	\BridgeGeneralUseCells.cel]			_		×
F	ile							
~ 추	* =		X	*				
		Name ^	Description					
		HydaCulv	Hydraulic Data for Culverts		*	_		
		InfoDes	Structure Design Information	Ľ	ocatio	า		
		InfoPipe	Structure Pipe Information	?	? (label rou	te)		
		Location	Location Township Range Sectio	I	n City of ??		applic	able)
		LongitCrossSect	Longitudinal Cross Section Grid-		-??N R-??	N		
		LongitCrossSect	Longitudinal Cross Cross Sectior		ection ??			
		LongSect	Longitudinal Section - Profile Gr		? Township ? County			
		Model	47		HWA No. ??)		
		MVC	Minimum Vertical Clearance		Bridge Maint		??	
		NorthArrow	North Arrow		sset ID No.			
		ProfileGrade	Proposed Profile Grade		atitude ??.1			
		RBLT	Recoverable Berm Location Table		ongitude -?	?.123	3456°	
<	\sim	D = + D =: - =: -						

3. Any other notes needed to convey the design intent of the structure. Also any other items that apply from the Preliminary Design RCB <u>Checklist</u>.



Once completed, it should look something like this:

The sheet model should look something like this:



Situation Plan

Next, enter the Control Point information on the sheet. This information is in the SHT_PS_CCRRRPPPZ00.dgn file in the PrelimSurvey directory in ProjectWise. Once the correct control point for the structure is determined, edit the text on the sheet model of the TSL sheet to add this information.

The last steps in completing the TSL sheet is the Title Block information and working with the Sheet Index in the IaDOT_WS file that is accessed thru the Project Explorer. Refer to the next chapter CW07 Editing Title Block Information on TSL Sheets and Printing