Setting up the OpenRoads Designer File for Drainage Design.

These instructions were created April 2024. These instructions were created with:



The first step to a culvert design, is to create the OpenRoads Designer files that will be needed. In ProjectWise, use the Copy Seed tool. Navigate to the correct project directory for the project. In the Bridge folder right click and select Copy Seed command.



The Copy Seed utility will open.

opy Seed v .08		-			
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Extension of file to	create : dgn	Scale of file to cr	eate : Z08 V		Exit

Next, name the file. For culverts, the naming convention for this file is ORD_CCRRRPPP_DOT_STR_CIP_SPN.

where

ORD=the application the work is done in **CC**=County **RRR**=Route **PPP**=Parenthesis **DOT**=company and/or source of the file **STR_CIP**=type of work **SPN**=coordinate projection of this project

For this example, the file will be ORD_86063060_ DOT_STR_CIP_Z05.dgn. Please refer to the <u>Seed File</u> document on Iowa Department of Transportation Bridge Connect Documentation page for further instructions on naming the files.

Next select the correct file type. For this work, choose the ORD STRUCTURES Seed.

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Then select the correct coordinate projection for this file. For this example, select Z05 for IaRCS Zone 05.



Once everything is set, click on the Create File button.

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Location of file to cr	eate: Projects\8606302019\Bridge		
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This creates the correct dgn file in the project directory.

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A message saying New document created successfully displays.

Then, click on the Exit button to close the Copy Seed tool.

Once the file is created, select the file and right click to rename and add the Description. For this file it will be CIP RCB model.

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Next, make a copy of the file just created and rename it to make it the precast file.

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Once the file is created, open it in the project directory. To do this, select the file, then right click and select Open with ...

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Select the OpenRoads Designer CONNECT Edition program. Then click on OK.

With the file open, rename the Default model to CIP RCB for the ORD_CCRRRPPP_DOT_STR_CIP_SPN file and rename the Default model to PC RCB for the ORD_CCRRRPPP_DOT_STR_PC_SPN file.

For more information on the model naming refer to <u>https://iowadot.gov/bridge/tools/CONNECT%20Models.pdf</u>

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Next, set the file up to use the muti-model workflow. Use the existing ground TRN file to create the 3D managed model. Reference in the existing ground TRN file to the now renamed CIP RCB model in the file that was just created.



In ORD when 3D information is leveraged in a 2D file it will automatically create the 3D managed model.

Reference in the TRN file from the survey or Photo location. For this example, it is in the Photo folder and is called TRN_EX_86063061Z05.dgn.

The content of the file should look like this:



Next, using the Element Selection tool select the boundary of the TRN file.

It should turn blue. Then hover over it to activate the heads-up toolbox.



Select the middle tool, Set As Active Terrain Model. Once selected it will change the icon.



Next, set up multi-model view to be able to use the muti-model workflow.

Next, open a second view window. Then select the Tile windows tool in the Window ribbon.



Open the View Attributes tool in view 2. Select the CIP RCB-3D model in the View Setup section of the View Attributes tool.

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Note: It is preferred to change the Display Style in this view to Transparent Modeling to make it obvious when working in 2D or 3D.



The content of the file should look like this.

Save the file and save the settings so that the next time the file is opened it will be set to these view settings.

Next, close the file just created and check it into ProjectWise.

Open the precast file ORD_CCRRRPPP_DOT_STR_PC_SPN and repeat the same steps to this file.

Once the precast model file is set up, copy the ORD_CCRRRPPP_DOT_STR_CIP_SPN file and the ORD_CCRRRPPP_DOT_STR_PC_SPN file to the (Paren)_Work Description folder then rename the files for the designs that are needed.

Files should be like this:

SHT_CCRRRPPP_DS#_001425_CIP_SPN.dgn with a description = Twin 10x10 RCB Culvert Design #

SHT_CCRRRPPP_DS#_001425_PC_SPN.dgn with a description = Twin 10x10 RCB Culvert Design #

Keep in mind, if the precast is an option; then two SHT files are needed for each location, one for CIP and one for precast. Each location will have a design number along with a FHWA number or Asset ID number. Please refer to the <u>Seed File</u> document on Iowa Department of Transportation Bridge Connect Documentation page for further instructions on naming the files.

For this example, there are two locations that will need to have new designs created for new RCB culverts:

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Next, open each of the SHT files. Then, detach the TRN file reference.

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Then attach the correct model file from under the bridge folder using live Nesting Depth of 2. Do this for each sheet file.

For the CIP sheets, attach ORD_CCRRRPPP_DOT_STR_CIP_Z01.dgn For the precast sheets, attach ORD_CCRRRPPP_DOT_STR_PC_Z01.dgn Save settings and exit the file.

In the Bridge folder and open the ORD_CCRRRPPP_DOT_STR_CIP_Z01.dgn. Attach the survey file that contains the existing 3D culvert and surrounding topo features that will be needed to do an effective design.



Next reference in the Design alignment that has an active profile. This file should be located in the Design or the District Design folder (depending what group is doing the road design portion of this project).



For this example, it is being done by the Design group. So, the alignment is under the CADD_Files\Geometry\ folder. Select the GEO Alignment file that is named GEO_CCRRRPPPZZZ.dgn.



This is the container GEO file that will contain all the Alignments for this project. Attach it using the orientation of Coincident World. Turn on the live nesting and set its depth to 1.

Next, reference the proposed corridor container file. This file should be in the Design or the District Design folder depending on what group is doing the road design portion of this project.



For this example, it is being done by the Design group. So the corridor file is under the CADD_Files\ Corridor_Files\folder. Select the COR Corridor file that is named COR_CCRRRPPPZZZ.dgn.



This is the container COR file that will contain all the Corridor for this project. Attach it using the orientation of Coincident World. Turn on the live nesting and set its depth to 1.



The file contents should look something like this:

Next, click Save Settings.



The last step to setting up the CADD files for culvert design is to make sure the CIP RCB-3D and the PC RCB-3D models are referenced into the Structures Overview file. If there is not a Structures Overview file in the project directory, create it with the Copy Seed tool.

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The Structures Overview file will only contain the 3D information from the model files under the Bridge folder. Make sure only the 3D model is referenced from the ORD_CCRRRPPP_DOT_STR_CIP_Z01.dgn and the ORD_CCRRRPPP_DOT_STR_PC_Z01.dgn into the overview file.

Other designers will be referencing this file nested and don't need to be pulling in any information, but the models that were just created. Make sure all references to the overview file are not nested.

Now that the file is set up, start designing and calculating the culvert inverts from the project information.

CW02 Laying out Culverts in Connect

Laying out Culverts and Drainage Design in Connect

These instructions were created April 2024. These instructions were created with:



OpenRoads Designer CE - 2022 Release 3 Update 12 Version 10.12.02.4

This product is licensed to:

First, review the project information and determine where the best locations for the structures that are needed. Once a location is determined, calculate the correct size. Refer to the BDM Chapter 4 https://iowadot.gov/bridge/policy/04-01-00Prelim.pdf. When the correct type, size and location are determined, design the new structure.

Two methods can be used to analyze the corridor to design the new structures. If designing a structure that is perpendicular to the alignment, use the first method of Cutting a Dynamic Section.

First Method

Cutting a Dynamic Section - The tool needed to do this is in the OpenRoads Modeling workflow on the Corridors tab in the Review group or on the Drainage Utilities workflow on the Utilities View tab in the Drawing Views group. Keep in mind that these tools work well if the structure is placed 90 degrees from the alignment. If the desired design is not, then use the second method.

When using this tool, the recommendation is to turn the corridor reference display off in the 2D model View 1. This was done previously when setting up the CADD file. The reason for this, is this tool will ask to select a corridor or alignment. With the corridor turned off, selection of the alignment is easier. To do this, make sure the View 1 is set to be the active view and open the Reference dialog box and turn off the corridor.

Next, open a view to display the section in. For this example, use View 7.

In the OpenRoads Modeling workflow; on the Corridors tab in the Review group, select the Dynamic Sections tools.



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Then select the Open Cross Section View tool.

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		Remove All Temporary Dimensions			

It prompts to locate the alignment.

Data point on the alignment in the 2D view. In this example View 1.





Then select the Offset Left. This will determine how far left the section will cover.

Then select the Offset Right. This will determine how far right the section will cover.



Then select the Station.

Note: This does not need to be perfect when selecting it here, it can be adjusted later to a specific station.



Select the Interval.

Note: Recommend an interval of 0.5 = 6" for culvert design.





Select the View. Data point in View 7 and the section will appear.

Adjust the Station with the pull down at the top of view window.





Then type the Station value needed and hit enter.

Or use the arrow buttons on each side of the Station value field to change the station at the Interval that was selected when the section was created. The value $0.5 = 6^{"}$ was used so it will advance or move back every 6" by clicking on the buttons.



Now that there is a section cut in the area for placing the new structure, place the headwall cell that corresponds with the structure design.

To do this, make the View 1 = 2D model active and use the place cell tool.



Select the correct cell library

pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Resources\ClientWorkspaces\IowaDOT\IowaDOTProdu ction\Organization-Civil\IowaDOT_Standards\Cell\Headwalls_CIP.cel and Headwalls_Precast.cel

Click on the dots next to the Active Cell field.

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This will open the following dialog box. Then click on the File menu.



Then click on Attach File....

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Once the correct cell library is attached, select the correct cell that corresponds with the structure that is being designed.

For this example, use the single 8' x 5' 15-degree CIP RCB. The cell needed is 0805B1P

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0	0805B2F	8x5 15 TWIN FLARED	Graphic			
0	0805C1F	8x5 30 SINGLE FLARED	Graphic			
0	0805C1P	8x5 30 SINGLE PARALLEL	Graphic			
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0	0805D1F	8x5 45 SINGLE FLARED	Graphic			
0	0805D1P	8x5 45 SINGLE PARALLEL	Graphic			
0	0805D2F	8x5 45 TWIN FLARED	Graphic			
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Then place this cell in the 2D View 1 next to the location of the structure being designed.



Copy the profile part of the headwall into the cross-section model in View 7.

To do this, make the View 1 active by clicking on top of the view.



Then select the drop element tool.



Select complex.

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Then click on the cell, which allows selection of just the profile part of the headwall cell.

Then use the element selection tool and select the profile part of the headwall cell that was just placed.



Press the Ctrl + C key on the keyboard to do a copy. Then make the View 7 active by clicking on top of the view. In View 7, right click and hold for a second to access the right click menu.

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Select Paste from Clipboard. The profile part of the headwall cell should appear on the end of the cursor in that view. Datapoint to place the cell.



This was done to provide a copy of the profile part of the headwall cell in the Cross Section Dynamic view window that will be used to determine the invert locations of the structure. These are intended to be used as temporary graphics and will remain in this view no matter what section is cut until deleted. Once done using them it is good practice to delete them.

Next, select the profile part of the headwall cell that was just placed in the Dynamic Cross Section view with the element selection tool. Use the Mirror tool, set it to Vertical direction and toggle on Make Copy to make the cell for the other side of the structure. This is used to determine the invert locations at the other end of the structure.

Attao Tools) 🗇 י 🥯 i · @: · 🏀 · 🕆	Element Selection	Fence	Hace SmartLin	Place Arc Line Tools *) • + • * • □ •	Move Copy Rotate	₽ 88 ▲ ■	Modify Break Element Element	t Multiple → ×	Measure Distance	Measure Radius	Measure Angle
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These graphics can be moved and placed anywhere they are needed to design the new structure.



If designing a structure that is not perpendicular to the alignment, use the second method of Designing in the Profile Window.

Second Method

Designing in the Profile Window - To start, place a line where the structure should be placed.



Then, cut a section on that line where it intersects the alignment. This will give us a station value for the new structure.

For this example, it will be STA 1766+36.14



Next, place a geometry base line on the line placed as the structure alignment, the red line in the image above. Change the workflow to OpenRoads Modeling workflow. On the Geometry tab select the Line tools in the Horizontal group.

OpenRoads Modeling	🔶 🔀 - 💼 🖬 🗤 🗋	, (, - ,)	📌 🔒 🧧 📄 🔻 pw:\\ntPw	/Int1.dot.int.lan:PWMain\Documents\Pr	ojects\7703504015\Bridge\OR[
File Home Terrai	n Geometry Site	Corridors	Model Detailing Draw	ving Production Drawing Utilit	ies iTwin View H
Coordinate Svstem	Explorer Attach Tools • •	r € ∎ * 0	Element Selection 🗍 🔹	↓Z Import/Export ▼	gles \mathbf{v} $$
+ Geographic -	Primary	Primary	Selection	General Tools	Horizontal

Select the Line Between Points tool.



Then set the Feature to Geom_Baseline



Name the feature as the station location of the proposed structure in the Feature Name field.

Primary -Primary Selection General loois 可 View 2, PIPES Li. \times Parameters ^ Distance 21.484 N90°00'00.0"E Line Direction ^ Feature Feature Definition Geom_Baseli Enter Start Name STA 1766+36.14 Point Line Level: brgPreStructureNew

For this example, it will be STA 1766+36.14.

Select a start point by snapping on the end of the line placed as the structure alignment, the red line in the image above.



Then enter the end point.

It should look something like this:



Next with the element selection tool, select the geometry just created.



Open a window to view the profile in. The recommendation is to use View 8 for the profile window and View 7 for the cross section window.

Note: Do not try to use the same window for both.

For this example, use View 8. Once the view is open, return to View 1 that has the geometry just created already selected. Hover over it to open the heads-up tools.

Select the Open Profile Model tool.



It will prompt to Select or Open View. Data point in the open profile window View 8.



It should look something like this:



Explorer Attach Tools 🗳 🔛 📻 View Attributes - View 8 Stanc ^{Prir} View Number: 8 - 🔁 🛋 hic -14 Presentation 🛬 - 上 🕀 🗩 Display Style: (Wireframe Display) ~ ... So 🔒 ACS Triad 🔆 Fast Cells Background 📄 Fill Boundary Display Grid Camera 🚝 Level Overrides View 8, Pro Clip Back Line Styles **▼** -(Clip Front Line Weights <u>i</u> 💑 Clip Volume Markers 975-974-973-972-971-969-968-968-966-966-966-966-Patterns Constructions 🥖 Default Lighting 0 Tags Δ Dimensions Text + Text Nodes ----] Data Fields Displayset Transparency Height Field Global Brightness: > () or long of the state of the sta 🛃 View Setup ^ Saved Views: Selec... ... Models: Profile ~ analytic Symbology \sim Civil ^ Exaggeration 10 ~ 10 20 50 1 2 3 4 5 6 7 8 💥 💉 🗶 26.938 → 🔽 Multi-Model Viev 100

Next, set the exaggeration to 1 in the View Attributes dialog box.

It is recommended to have the fill and line weights turned off.

F View Attrik	outes - View 8		×
View Number:	8 - 🔁 🛋		
闵 Presenta	tion	===	^
Display Style:	(Wireframe	Display) ~	
🔒 ACS Triad		🔆 Fast Cells	
Backgroun	ıd	📄 Fill 🔶	
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Camera		Level Overrides	
Clip Back		Line Styles	
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Civil			^
Exaggeration			
1 ~		-	

Next, create a 3D cut along this geometry.

Vie	ew 8, Profile - STA 1766+36.14			X
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1040-	7			
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To do this, select the Create 3D Cut tool.



Use the Corners method. Data point to accept the method.



It will prompt to locate the start point. Make sure the start is all the way to one side or the other. It is recommended to start at the top right and end at the lower left.



View 8, Profile - STA 1766+36.14		
	$\blacksquare \blacksquare \bigcirc \frown \frown \neg \frown \frown \blacksquare \boxtimes \blacksquare \bigcirc \blacksquare \bigcirc$	
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1100-		
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1000-		
950-		
900-		
850-		
800-		
750-		
700-	i i i i i i i i i i i i i i i i i i i	
650-		
600-	Locate End Point	
	Line: STA 1766+36.14	
	ໍລິພິພິພິພິພິພິພິພິພິພິພິພິພິພິ	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	No Active Profile	ちょうちゃくくちゃちゃ

After the data point, it will start drawing a box in the view that the 3D cut is in.

Data point the end point to complete the 3D cut.

It should look something like this:

View 8, Profile - STA 1766+36.14	
1020- 1015-	
1000- 1005- 1000-	
995- 990- ore	
980- 980- 973-	
90-	
865- 950-	
¹⁶⁶ ¹⁶⁰ کې لو کې کې لې کې	Ch Ch Ch Ch Ch Ch Ch Ch Ch

Now that there is a 3D cut created in the area for placing a structure, one more thing needs added to the view to do the design. Place the headwall cell into the profile model in View 8.

To do this, follow the same steps used in the first method to get the headwall cell into the Dynamic Cross Section view. Move headwall cells to correct design standards locations.

Next, measure the distance and adjust this line between the headwall cells to make it be an even 1' interval.

Once the structure design is as desired, then record the invert elevations and offsets of each key point.

If using the ASCII graphics input file method demonstrated in these instructions, that is the location to record that information. For more information about the ASCII graphics input file, please refer to <u>CW03_ASCII Graphics Import Input File</u> chapter.
To record the invert elevations and offsets of each key point, make sure the AccuDraw is toggled on.

Note: AccuDraw toggle is located in the Primary group on the More tool pulldown.



Then snap to each key point. The AccuDraw coordinate readout box will display each point coordinates. The X = offset and the Y = elevation.



III *Untitled - Notepad	– – ×
File Edit Format View Help	
100,0000000.000,00000000.000,967.228,PRO STA 1742+27.76 DR-201 Flowline e	nd of apron -95.606 LT
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Ln 1, Col 96 100%	Windows (CALF) UTF-8
View 7, Cross Section - Complex Element: ML035	
View Properties 1/42+27.76 R3	
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	- 4005 - 4003 - 4003 - 4004 - 4005 - 4005 - 4005 - 4005 - 4005 - 4005
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🗩 🕆 Multi-Model Views 🔹 🔁 1 2 3 4 5 6 7 8 💥 🗸 🗴 -95.606	Y 967.228
dentify elements to modify (i 1-95.606, 967.228 KeyPt 🧳	□ brgPreStructureNew 万

Record each of these values for each point in the ASCII graphics input file.

Next, repeat this for each key point that is needed to model the culvert.



Once all the values are recorded, calculate the X and Y coordinates. Use Civil AccuDraw or standard AccuDraw.

Note: When using Civil AccuDraw make sure standard AccuDraw is turned off before toggling on Civil AccuDraw. MicroStation does not perform well with both toggled on at the same time.

The standard AccuDraw method will be covered in another chapter.

Locate the correct station for the structure along the alignment. For this example, it will be 1742+27.76. Once this location is known, select the smart line tool and snap to that point or station along the alignment to start the line.



With the line started, type R Q on the keyboard to rotate quick the AccuDraw compass. Then with a Nearest snap, snap to the alignment.



This will rotate the AccuDraw compass so that it is set to the alignment's axis. Pull the line in the direction needed to calculate the coordinate and type in the distance of the offset of that point.

For this example, it will be -95.606. Pull the line to the left of the alignment and type in 95.606.

Note: Negative numbered offsets are to the left and positive numbered offsets are to the right.



Then data point to accept it. This way, a perfect 90-degree line from the CL is drawn that is the correct distance for the offset. Then snap to the end of this line.



AccuDraw will display the X and Y Coordinates of that point.

Then place these coordinates in the ASCII graphics input file. Repeat this process for each input point.

ASCII Graphics Import Input File

Once the invert coordinates of the culverts to be modeled are determined, there are two options to place it. 1st is with Civil AccuDraw; 2nd is with the ASCII graphics.

The format of the ASCII graphics input file will be covered first. In a Notepad file, make a comma delimited format file. This consists of the point number, Y coordinate, X coordinate, Z coordinate, feature and description.

It should look something like this:

ML pipes from 795 to 1389_8-18-20.txt - Notepad		×
File Edit Format View Help		
190,3452326.737,5254394.771,943.340,LIN7 CL of type M dike at STA 802+80.00 191,3452379.584,5254394.771,943.340,LIN7 CL of type M dike at STA 802+80.00	Point Number	-
192,3155346.145,723414.001,940.384,PRO STA 803400.00 DR-201 Inlet end of apron 24in RCP Median Drain 193,3452340.200,5554414.832,939.458,PIP22 STA 803400.00 DR-601 Inlet 24in RCP Median Drain 194,3452248.291,5254415.294,934.022,pr72 CTA 803400.00 DR-601 Outlet 24in RCP Median Drain 195,3452242.166,5254415.325,624.300,PRO STA 803400.00 DR-201 Outlet 24in RCP Median Drain		
196,3452179.936,5255740.655,930.942,000 STA 815+25_00 DR-201 outlet end of apron 36in RCP PHASE 1 197,3452187.936,5255740.615,930.988,PIP2- STA 816+25.00 DR 601 Outlet of 36in RCP PHASE 1 198,3452395.934,5255739.568,932.180,PIP23 STA 916+25.00 DR 601 Dutlet of 36in RCP PHASE 1 199,3452395.934,5255739.568,932.180,PIP24 STA 916+25.00 DR 601 Dutlet of 36in RCP PHASE 2 200,3452521.932,5255738.933,932.92,PIP24 STA 916+25.00 DR 601 Dutlet of 36in RCP PHASE 2 201,3452521.932,5255738.933,932.948,PRO STA 816+25.00 DR 201 Talet of 36in RCP PHASE 2	Y = coordinate	
202,3452362.023,5256714.769,946.846,PRO STA 826+00.00 DR-205 Inlet end of apron 24in RCP Median Drain 203,3452355.879,5256714.829,945.739,PIP25 STA 826+00.00 DR-601 24in RCP Median Drain 204,3452266.133,5256715.758,941.239,PIP25 STA 826+00.00 DR-601 24in RCP Median Drain 205,3452260.008,5256715.768,940.990,PRO STA 826+00.00 DR-201 Outlet end of apron 24in RCP Median Drain	X = coordinate	
206,3452393.506,5256734.709,949.610,LIN8 CL of type M dike at STA 826+20.00 207,3452342.891,5256734.709,949.610,LIN8 CL of type M dike at STA 826+20.00	Z= coordinate	
209,3452365.676,5257714.721,941,722,9126 STA 836+00.00 DR-601 Z4in RCP Median Drain 210,3452271.980,5257715.699,935.348,PIP26 STA 836+00.00 DR-601 Z4in RCP Median Drain 211,3452265.856,5257715.759,935.000,PRO STA 836+00.00 DR-201 Outlet end of apron Z4in RCP Median Drain		
212,3452403.303,5257734.661,944.610,LIN9 CL of type M dike at STA 836+20.00 213,3452352.689,5257734.661,944.610,LIN9 CL of type M dike at STA 836+20.00	Feature	
214,3452383.679,5258314.634,939,565,PRO STA 842+00.00 DR-201 Inlet end of apron 24in RCP Median Drain 215,3452377.554,5258314.694,938.314,PTP27 STA 842+00.00 DR-601 24in RCP Median Drain 216,3452369.854,5258314.769,936.671,PTP27 STA 842+00.00 DR-601 Outlet of 24in RCP Median Drain 217,3452273.875,5258315.709,928.897,PTP27 STA 842+00.00 DR-601 Outlet of 24in RCP Median Drain 218,3452260.074,5258315.845,928.439,PRO STA 842+00.00 DR-201 Outlet of apron 24in RCP Median Drain	ain +13.825 RT	
219,3452238.993,5258576.064,919.750,PRO STA 844+50.00 DR-201 outlet end of apron 42in RCP PHASE 1 220,3452246.992,5258575.985,919.968,PIP28 STA 844+50.00 DR-601 42in RCP PHASE 1 221,3452410.917,5258574.379,924.436,PIP28 STA 844+50.00 DR-601 42in RCP PHASE 1 222,3452410.917,5258574.379,924.436,PIP29 STA 844+50.00 DR-601 42in RCP PHASE 2 223,3452500.912,5258573.497,926.888,PIP29 STA 844+50.00 DR-601 42in RCP PHASE 2	Discription	Ŧ
• III		► a

The first number is the point number. This number can start as any number but cannot be repeated in the ASCII file. It is a good idea not to repeat it per project either. This number needs to increase as the file grows.

The Second number is the Y coordinate of the invert.

The third number is the X coordinate of the invert.

The fourth number is the Z coordinate of the invert.

The fifth value is the feature. The feature can map or draw many different lines and/or cells. For this process, the feature will be PIP which is the survey feature for pipes. To make each feature unique, add a number to the feature so that the application knows what features points should be connected.

The first feature will be PIP1, the next one will be PIP2 and so on.

The sixth value is the point description of each point. This value is a little different than the previous values because it is not separated from the other values by a comma. A space between it and the feature is used instead. Also, up to 256 characters can be used to describe the point that will be mapped. For this process describe the point by design station, design standard, indicate inlet or outlet, include size and last the type of structure.

This is an example for a 24 inch RCP median drain at station 803+00.00

193,3452340.020,5254414.832,939.458,PIP22 STA 803+00.00 DR-601 Inlet 24in RCP Median Drain

Once all the invert coordinates are recorded in the ASCII graphics import input file, it should look something like this:

190,3452326.737,5254394.771,943.340,LIN7 CL of type M dike at STA 802+80.00	
191,3452379.584,5254394.771,943.340,LIN7 CL of type м dike at STA 802+80.00	
192,3452346.145,5254414.801,940.584,PRO STA 803+00.00 DR-201 Inlet end of apron 24in RCP Median Drain	=
193,3452340.020,5254414.832,939.458,PIP22 STA 803+00.00 DR-601 Inlet 24in RCP Median Drain	
194,3452248.291,5254415.294,934.622,PIP22 STA 803+00.00 DR-601 Outlet 24in RCP Median Drain	
195,3452242.166,5254415.325,934.300,PRO STA 803+00.00 DR-201 Outlet end of apron 24in RCP Median Drain	
196,3452179.936,5255740.655,930.942,PRO STA 816+25.00 DR-201 Outlet end of apron 36in RCP PHASE 1	
197,3452187.936,5255740.615,930.988,PIP23 STA 816+25.00 DR-601 Outlet of 36in RCP PHASE 1	
198,3452395.934,5255739.568,932.180,PIP23 STA 816+25.00 DR-601 Inlet of 36in RCP PHASE 1	
199,3452395.934,5255739.568,932.180,PIP24 STA 816+25.00 DR-601 Outlet of 36in RCP PHASE 2	
200,3452521.932,5255738.933,932.902,PIP24 STA 816+25.00 DR-601 Inlet of 361n RCP_PHASE 2	
201,3452521.932,5255738.933,932.948,PRO STA 816+25.00 DR-201 Injet end of apron 36in RCP PHASE 2	
202,3452362.023,5256714.769,946.846,PRO_STA 826+00.00 DR-201 Inlet end of apron 24in RCP Median Drain	
203,3452355.879,5256714.829,945.739,PIP25 STA 826+00.00 DR-601 24in RCP Median Drain	
204,3452266.133,5256715.738,941.293,PIP25 STA 826+00.00 DR-601 24in RCP Median Drain	
205,3452260.008,5256715.768,940.990,PRO STA 826+00.00 DR-201 Outlet end of apron 24in RCP Median Drain	
206,3452393.506,5256/34.709,949.610,LIN8 CL of type M dike at STA 826+20.00	
207,3452342.891,5256734.709,949.610,LIN8 CL of type M dike at STA 826+20.00	
208,3452371.800,5257714.721,941.846,PRO STA 836+00.00 DR-201 Inlet end of apron 241n RCP Median Drain	
209,3452365.0/6,525//14./81,940./02,PIP26 STA 836+00.00 DR-601 241n RCP Median Drain	
210,3452271.980,5257715.699,935.348,PIP26 SIA 836+00.00 DR-601 241n RCP Median Drain	
211,3452265.856,5257715.759,9955.000,PRO STA 836400.00 DR-201 OUTlet end of apron 241n RCP Median Drain	
212,3452403.303,5257734.661,944.610,LIN9 CL OT TYPE M dike at STA 836420.00	
213,3492352.089,5257734.061,944.610,LIN9 CL OT TYPE M DIKE at SIA 836420.00	
214,3452383.679,5258314.634,999.565,PRO SIA 842400.00 DR-201 Inlet end of apron 241n RCP Median Drain	
213,3422377.554,5228314.694,938.514,PTP27 STA 842+00.00 DR-601 2411 RCP Median Drain	
210,3472309.634,3236314.709,930.071,PT27 STA 642+00.00 DR-141 1-7.3 degree D Section of 241n RCP Median Drain +13.823 RT	
21/,34322/3.873,3238313.709,928.897,PT2/ STA 842+00.00 DR-801 Outlet of 24 IN RCP Median Drain	
218,3432200.074,3238313.845,928.439,PR0 STA 842400.00 DR-201 Outlet end of apron 241n RCP Median Drain	
219,342236.995,3236376.004,919.730,PRO SIA 644-50.00 DR-201 OUTEC END OF APTON 4211 RCP PRASE 1	
220,3412240.392,32301/3.901,919,300,71720 STA 044130.00 DR-001 4211 KCF PHASE 1	
221,3412410.91/,32301/4.3/9,924.450,PIP20 STA 044430.00 DR-001 4211 KCP PHASE 1	
222,3412410.917,1230174.579,924.430,91929 51A 044150.00 DR-001 42111 RCP PRASE 2	
223,3412,00,912,32,007,3497,920,000,F1729 STA 0447,0,00 DR 001 42111 KCF FHASE 2 324,245,500,012,525027,410,027,106 DR0 614,044,50,00 DR 001 TR164 and 65 append A2in BCB BUASE 2	
224,342500,322,52073,425,927,100,FRO STA 949400.00 DR-201 Inlet and of append 24in RCF Madian Drain	
225,3422385,270,556274,685,020,920,040,9700,574,856400,000,0700,000,000,000,000,000,000,000	
227,3453207,30,5255715,348,921,465, ptp20,514,856400,00 pp_601 outplat of 24in pro Madian prain	
228 3452301 266 5250715 508 921 350 PDO STA 856400 00 DP-201 Outlet end of annon 24in pre Median Drain	
220 3453372 283 5259734 565 926 510 INTO CL of type M dike at STA 856400 00	
220 3452422 808 5250734 565 526 610 LIMIO CE OF type M dike at STA 85620.00	
1000.3452403.131.526104.573.906.596.PRO STA 869+00.00 DR-201 Thlet of DR-641 end of annon 24in RCP	
	-
4 III	- F - 1

Once the input file is complete then it can be loaded in the application file. <u>CW04 Loading ASCII Graphics Input File into ORD File</u>.

Loading the ASCII Graphics Input File into ORD File

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These instructions were created on 3/23/2021. These instructions were created with:

OpenRoads Designer CONNECT Edition - 2020 Release 3 Update 9 - Version 10.09.00.91

Once the ASCII graphics input file is done then the file is ready to load in the OpenRoads Designer file. With the file open, go to the Models dialog box and select the STR info to make it the active model.

🗇 Mode	ls					×
Туре	2D/3D	Name	Description	*	Cell Type	Design File
ပ		PIPES	Road Pipes	\checkmark	Graphic	\OR
	1	STR info	Pipe and Culvert info 3D	\checkmark	Parametric	\OR
		PIPES-3D		\checkmark	Graphic	\OR
<						>

In Project Explorer under the Survey tab select Field Books under STR info, then right click and select New. The name of the Field Book is automatic using a sequential number starting with 1. This will make a new field book that will be used to load the ASCII graphics input file that contains the invert coordinates.



Next select the new field book, then right click and select import. Select the ASCII graphics input file that was created.



Select file		×
Select		
Documents		
Folder 💕 Bridge	-	- 🗭 🔛 📖 🔍
M <u></u>		-
Name	*	*
🥒 🌽 bridge iso		
✓ ✓ dsnOpenRa	ads2D.dgn	
ML pipes.tx	t	
New File sw	Aobdx 1206 0118 DOT SBN fixed dan	
	1206_0110_DOT_SPN IA20.0001	.
· ·		•
Application:	All Applications	•
Selected Documents -	Add Remove	
Name		Fo
		F
		OK Cancel

Then browse to where the Survey input file that contains the invert coordinates is stored. Click OK.

It will prompt for the data format. Select the Iowa format and then click Apply All.



This will map all the points and lines in the survey input file.



Once the points and lines from the ASCI graphics input file are loaded and the correct location is verified, then start creating the structures.

How to place Box Culverts with the Drainage and Utilities tools Connect Edition

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



OpenRoads Designer CE - 2021 Release 2 Update 10 Version 10.10.21.04

Reference everything that will be used to design the structure, all the source information that will be needed and/or wanted displayed on the TSL sheet in the plan view. The TXT_CCRRRPPP.dgn file from the Design folder will be needed to get the station and tick marks for the alignment. For more information on this, please refer to <u>CW01_Setting up ORD File for Drainage Design</u>.

Once the invert coordinates of the RCB to be modeled are determined, there are two options to place it. Place nodes with civil AccuDraw or ASCII graphics. The method used in these instructions will be the ASCII graphics file. Refer to <u>CW04_Loading_ASCII Graphics Input File into ORD File</u> for the instructions on importing this information.



Once the points and lines from the ASCII input file are loaded, then verify that the locations are correct. At this point, you are ready to start creating the structures.

Open the correct model that the RCB will be modeled in and reference in the STR info model.

For this example, a CIP RCB will be modeled so it will be placed in the file named

ORD_CCRRRPPP_DOT_STR_CIP_ZZZ.dgn. Refer to the <u>CONNECT Seed Files</u> and the <u>CONNECT Models</u> for more information on correct file naming and structure of the files. The modeling should always be done in the Bridge folder.



In the Default 2D model, create the structures.

Note: Creation of the structures needs to be done in the 2D model not the 3D model.

Activate the utility model by clicking on the Place Node tool on the Drainage and Utilities workflow on the Lay out tab.



A warning will display.



Click Yes button. This will create the utility model database that will store all the utility information.

Next, start placing the headwalls. With the STR info model referenced to the CIP model, select the Place Node tool.



Then select the feature of the node to be placed. For this example, place a P 06 x 03 CIP SGL PW 0

Use the description field from the ASCII file to fill in the Name Prefix.

06,7450175.351,17517388.285,1172.450,PRO STA 190+72.65 Inlet end of apron 6ft x 3ft Single RCB -63.587 LT Remove existing headwall to face of parapet Extend 19' RT ditch to inlet. Design#0225

107,7450186.351,17517388.179,1172.450,PIP3 STA 190+72.65 Inlet 6ft x 3ft Single RCB -52.587 LT

108,7450205.350,17517387.995,1172.450,PIP3 STA 190+72.65 Inlet face of parapet of existing 6ft x 3ft Single RCB -33.587 LT

109,7450261.877,17517387.447,1172.340,PIP4 STA 190+72.65 Outlet face of parapet of existing 6ft x 3ft Single RCB +22.886 RT

110,7450279.866,17517387.273,1171.732,PIP4 STA 190+72.65 Outlet 6ft x 3ft Single RCB +40.932 RT

112,7450290.866,17517387.166,1171.732,PRO STA 190+72.65 Outlet end of apron 6ft x 3ft Single RCB +51.932 RT Remove existing headwall to face of parapet Extend 18' LT ditch to Outlet. Design#0225

It should look something like this:

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	ß	Place Node	- 0	×
		Feature		^
	Feat	ture Definition	P_06x03_CIP_SGL_PW_0	\sim
	Nam	ne Prefix	STA 190+72.65 Inlet end of apron 6ft x 3ft Single RCB -63.587 LT	
		Elevation		^
		Elevation is the Invert		
	\checkmark	Elevation	1172.450	
		Vertical Offset	0.000	
-		Baseline Referenc	e 🖓	^
2	Base	eline Reference		
5		Rotation		^
		Rotation Mode	Absolute	
		Rotation	N90°00'00.0"E	

Once that is set, then move the cursor to the 2D view. It will prompt to Select Reference Element or to Reset to Type an Elevation. Reset and type the elevation.



For this example, use 1172.450, the invert flowline elevation of the design structure. Then, hit the enter key and it will lock this elevation.





Snap to the ASCII graphics to place the apron or node.

Data point to accept it and it will prompt to select which rotation mode.

For this example, use the absolute mode.

Select Rotation Mode Rotation:Rotation Mode Absolute	
Select Rotation Mode Rotation:Rotation Mode Absolute	
Select Rotation Mode Rotation:Rotation Mode Absolute	
Select Rotation Mode Rotation:Rotation Mode Absolute	\times
Rotation:Rotation Mode Absolute	Select Rotation Mode
	Rotation:Rotation Mode Absolute

Data point again and the apron will rotate until the data point to accept the rotation is entered.



Snap to the ASCII graphics to set the rotation to the PRO graphic from the ASCII input. Then data point to accept.

Once it is done placing the node, hit the escape key to exit the tool.

It should look like this:



Repeat this on the other end and/or at any vertices along the conduit using the appropriate node in each location.

Keep in mind, that the elevation typed in is the invert elevation not the ground elevation that the software is asking for.

Hint: If a bad elevation is used, look at the node in the 2D view and select it with the element selection tool. Bring up the properties of the element and edit the invert elevation to match the design invert elevation.





This will correct the elevation placement.

Once nodes are placed at each end of the structure, then connect the nodes with the appropriate conduit. To do this, select the place conduit tool.



Then select the feature that is needed to model the structure.



For this example, use the Proposed CIP Box Culverts Single.

Use the description field from the ASCI file and place it in the name prefix field. Then select the size of the structure in the description field.

- 78- E.I		
	🔏 Place Link Betwo	een Nodes — 🗆 🗙
	Curve Variabl	es 🔺
	Pull	0.025
	Segment Length	2.440
	Parameters	*
	Slope	0.00%
	Feature	^
	Feature Definition	Proposed CIP Box Culverts Single 🗸 🗸
_	Name Prefix	STA 190+72.65 Inlet 6ft x 3ft Single RCB
₩ - ⁴ - ₩	Туре	Conduit Catalog
	Description	06 x 03 RCB CIP Single Span
		\sim

Select the inlet node to start from and then select the next node along the structure.

It should look something like this:



Turn on the reference COR files and see how the drainage design correlates to the Road Designs earth work and grading design.

-s 🖉 Element Selection — 🗆 🗙	and the second
() () () () () () () () () () () () () (

If everything looks good, then proceed to making the TS&L sheet of the structure.

Refer to CW06 How to Create Culvert TSL Sheet and Annotate Structures

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

🗋 References (18 of 18 unique, 18 displayed) — 🗌 🗙									
Tools Properties									
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Slot 🏴 🛅 File Name	Model	Description	Logical	Orientation	Presentation	Visible Edges 🗔	1 🖌	1	A
5 PW_WORKDIR:d1648147\14030182_GEO_ML030.dgn	Default	Horizontal PI	Hori	Coincident - World	Wireframe	Wireframe	1	V	
4 PW_WORKDIR:d1648147\14030182_GEO_ML030.dgn	Default	Horizontal curve	Hori	Coincident - World	Wireframe	Wireframe	1 1	1	
3 V SHT_14030182_DOT_0225_FHWANO_CIP_Z07.dgn	Plan Design		Ref	Coincident - World	Wireframe	Dynamic	< <	\checkmark	
2 PW_WORKDIR:d1606894\ORD_14030182_DOT_STR_CIP_Z07.dgn	Default	Master Model		Coincident - World	Wireframe	Wireframe	1 1	\checkmark	
1 √ SHT_14030182_DOT_0225_FHWANO_CIP_Z07.dgn	CTR info	Pipe and Culvert		Coincident	Wireframe	Dynamic	¥ ¥	V	
Scale 1.000000000 : 1.000000000 Rotation 00°00'00" Offset X 0.000 Y 0.000									
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Georeferenced: 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.

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	File	Home Te	rrain 👌	Geometry Site	Layout Co	rridors Model Detailing	Drawing Prod	uction Drawi	ng View				
	() 🥠 🧐 🚯	ିଷ୍ ଭ	\ ▶ 😤	🙀 😤	Grand Contraction of the second secon	X	<u>∕</u> A ⊡∢	A _A ^B		A ABC	→ 📝	1"=50" T
	Coord Syst	inate 😽 🚰 📓	0	Selection 🗔 🔹	Clip Volume 🔍	Create Update Saved A Saved View View Settings Save	pply Place d View Table	Place Place Note Label	Place Edit Text Text	Change Text 🛕 🔹	Element Model Annotation • Annotation •	Named Boundary +	Annotation Scale Lock
	-14	Geographic	Primary	Selection	Clip	Saved Views	🖙 Table	s 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
Drawing Boundary:	Full Size Sheet	From Drawing B	oundar	у,	
<u>N</u> ame:	Untitled	A drawing bour	ndary is	a slot 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	undary	—		×
	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	—		×
	A 🖓 🏢 🏹	/ 📝][]]	1
Drawing Boundary:	TSL CUL Plan			•
<u>N</u> ame:	0225 Situation CIP			
Description:	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	Traft_DNC	*		G
	0 * 50 *	30 ▼ (200 ▼ 400 0)	٣	U Con:▼	Explo
		Attributes		Primary	
ବ୍	View 1, Plan Design	0225 CIP		Constructio	
xplo	🖬 - 🔕 🎘 - 🛓	P P 🛛 🔂 🕄 🕎 🖾		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 ▼ 1.000 ✓ Join Elements ✓ Rotate <u>A</u> ccuDraw ✓ Start in <u>J</u> ine 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		_		×
		~~ \	P			
	Drawing Seed:	(none)	hờ Civ	vil Cros		a 2 Point
	Group:	(New)		ni cros	s section	12 FOIL
	Name:	Untitled				
	Description:					
Ve	ertical Exaggeration:	1.000000	1			
	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	amed Boundary Civil	Cross Section 2 Points – 🛛	×
		∞√≡®╱┵╘┇	
	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	ion 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		×
Mode	Cross Section	•
View Name: Drawing Seed: View Type: Discipline: Purpose:	ROWMA30A - A 190+72.65-1 XS 20 Scale Civil Cross Section Civil Section View	
Model Name: Seed Model: Filename:	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	1
Model Name: Seed Model: Filename: Sheets: Drawing Boundary:	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	A 1
Detail Scale :	1"=20' ▼ Add To Sheet Index Make Sheet Coincident Open Model <u>OK</u>	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	Cross Section	•
View Name: Drawing Seed: View Type: Discipline: Purpose:	ROWMLA30A - A 190+72.65-1 XS 20 Scale Civil Cross Section Civil Section View	
Model Name: Se d Model: File.ame:	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	•
Model Name: Seed Model: Filename: Styrets: Drawing Boundary: Detail Scale :	Sheet Model Create Sheet Model ROWMLA30A - A 190+72.65-1 Cross Section Sheet Seed 20 Scale.dgnlib, (Active File) 0225 Situation CIP [Sheet] Full Size 1 = 1 (New) T"=20'	•
	Add To Sheet Index Make Sheet Coincident Open Model	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	d of apron 24in R(of 24in RCP PHASE of 24in RCP PHASI of 24in RCP PHASE of 24in RCP PHASI nd of apron 24in F	CP PHAS 1 +82. 5 1 -1. 2 -1.5 5 2 -10 8 CP PHA	E 1 +88.554 RT 432 RT 536 LT 536 LT 55.497 LT SSE 2 -111.619	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.

View 1, ML030 - 1101+00.00		
🕕 🎢 🏀 Place Note	- 🗆 X	
Dimension Style: Text <u>R</u> otation: Location: Start At: Horizontal Attachment:	 IADOT Eng. Leadi Lbl_Prof_Sta-Elev Lbl_Prof_Sta_Partial Lbl_ROW_Pln_Sta-Off_100 Lbl_SU_Plan_Node Lbl_XS_Elev Lbl_XS_Elev_Alignment_Name 	
920	 LbI_XS_Off LbI_XS_Off-Elev IADOT Eng. Angular Dim. IADOT Eng. Leader Note IADOT Eng. Linear Dim. IADOT Eng. Radial Dim. 	Angular Dimensions - English Leader Note Settings - English Diameter, Radial, and Arcs - English V
-280 -260 -240	-220 -200 -180 -160 -140	-120 -100 -80 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.

	•
Coordinate	
trom 1045 to 1389_4-7-21.txt - Notepad - U X	ling 🗔
v Help	
0 5284214 405 908 825 PRC STA 1101+00 00 DR-201 Thiat and of annon 24in RCP PHASE 1 +88 554 RT	
2.528/214.321.908.656 PTP98 STA 1101+00.00 DE 201 Inlet of 24in RCP PHASE 1 +82.432 RT	
2,528/213,168,906,338,PTP98,STA 1101+00.00 DR-601 Outlet of 24in RCP PHASE 1 -1.536 LT	
2.5284213.168.906.338.PIP99 STA 1101+00.00 DR-601 Inlet of 24in RCP PHASE 2 -1.536 LT	
3.5284211.740.903.468.PIP99 STA 1101+00.00 DR-601 Outlet of 24in RCP PHASE 2 -105.497 LT	
5,5284211.656,903.299,PRO STA 1101+00.00 DR-201 Outlet end of apron 24in RCP PHASE 2 -111.619 LT	
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Ln 81, Col 109 100% Windows (CRLF) UTF-8	
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Then paste it into the text window.

Vie	w 1, ML030 - 1101+00.00									
	Place Note		_		×					
	Dimension Style: Text Rotation: Location: Start At: Horizontal Attachment:	A A I IADOT En Horizontal Manual Terminator Auto	g. Leadı ¥ ¥ ¥	🍞 🖻);					
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	A Text Editor									
	💎 IADOT Norma	al Text	×	1 (s - 🛠	• f(x) The Engineering \	/ert ~ A‡ 0.0	012 Z - B	ΙŪ	
	X <u>····</u>	• 1		•	1	e l'est	· · · ·	· · · 1	· ·	
	FL. ELV. 9 DR-201 In Offset +8	008.825 let end 8.554 R	of ap T	oron 2	24in RCP	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.



unues	Drawing Alds Content	Wiesh	ncip		
<mark>○ 〈</mark> Place Label	$\begin{array}{c c} & & & \\ \hline \\$	Place Table	$\begin{array}{c} \bullet \bullet$	Place Active Cell	Hatch Area
otes	Dimensioning 🕞	Tables	Detailing 🛛 🖻	Cells 🕞	Patter
	Selement Dimensioning	_	□ ×		
	 IADOT Eng. Linear D Lbl_Prof_Sta-Elev Lbl_Prof_Sta_Partial Lbl_ROW_Pln_Sta-O Lbl_SU_Plan_Node Lbl_XS_Elev Lbl_XS_Elev_Alignmed 	im. ff_100 ent_Name	▼ >>		
t PHASE 2	 Lbl_XS_Off Lbl_XS_Off-Elev IADOT Eng. Angular IADOT Eng. Leader IADOT Eng. Linear I 	Dim. Note Dim.	Angular Dim Leader Note	ensions - English Settings - English	of ap tT
	IADOT Eng. Radial Di	im.	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.

Calement Dimension	iing — 🗆 X
IADOT Eng. I	Linear Dim. 🔹 😽 🗈
Alignment:	True 🔻
Location:	Automatic 🔹
6	
Start Extension: End Extension: Text Alignment: Text Frame: Prefix Text:	H← ▼ →H ▼ Standard ▼ Box ▼ Ø ▼
Suffix Text:	ø ▼ ✓ Association

It should look something like this:

Location

65 .AU



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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	A
🔺 📁 Annotation	_
🔺 📁 Plan	
🥌 Normal Tex	rt 📄
🥌 Dimension	Text
🥌 Header Tex	t
🥌 SubHeader	⁻ Text
> 📁 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 🄏	Active Cell		×
A Act	active <u>C</u> ell: ive <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 Cell	A
Scale –	<u>M</u> irror: nteractive: <u>F</u> latten:	 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.

🔏 Pla	ce Active Cell	-	×
ŀ	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	vlacement
				X Vie	w 2 CLIIVERTS-3	D	
S		* *	Belace Active Cell		- 0		2 ~} (*) *
0			Active <u>C</u> ell: Active <u>A</u> ngle:	ngle RCB Para 00°00'00.0"	illel Wing		
	🔆 🔆 Cell Li	brary: [\IaDOT_SUE_RCB	ndwl_SINGLE_0_15_C	PR]			
	File 🔙		<u>h</u>				
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		Headwall - 10x11 Single	RCB Paralle 0 CIP 3	BD Cell			THE BULL
		Headwall - 10x12 Single	RCB Paralle 0 CIP 3	BD Cell			And the second
		Headwall - 10x4 Single F	CB Parallel 0 CIP 3	BD Cell			
		Headwall - 10x5 Single F	CB Parallel 0 CIP 3	BD Cell			TT HILL
		Headwall - 10x6 Single F	CB Parallel 0 CIP 3	BD Cell			
		Headwall - 10x7 Single F	CB Parallel 0 CIP 3	BD Cell			n
		Headwall - 10x8 Single F	CB Parallel 0 CIP 3	BD Cell			
		Headwall - 10x9 Single F	CB Parallel 0 CIP 3	BD Cell			
		Headwall - 12x10 Single	RCB Paralle 0 CIP 3	BD Cell			
١		Headwall - 12x10-4 Sing	le RCB Flar 0 CIP 3	BD Cell			
		Headwall - 12x11 Single	RCB Paralle 0 CIP 3	BD Cell			
	<	Llaaduudlii 10010 Ciaala	DCD Davalla O CID C	>			

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	~	+ 👂 💷 🛃	
Document			
Name	O	Fi 🔨	
BridgeDesManual	CaddNotes	9	
BridgeGeneralUse	Cells.cel 🗕		
Cross Section Lab	eling.cel	1	
DISTRICTROW.cel		1 🗸	
<	i	>	
	pw/\\ptDwIpt1_do	t int lan; DW/Mair	
Address:	pw.\\ntPwinti.do		
Description:	Bridge Notes and	Misc Cells	
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Application:	All Applications		\sim
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Open document as r	ead-only		A
		Open	Cancel
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Then click on the Place Active Cell tool.

*	☆ Cell Library: [c:\pw_work\BridgeGeneralUseCells.cel] – □ ×								
F	ile								
2	* =		×	*					
		Name ^	Description	^		N			
		HydaCulv	Hydraulic Data for Culverts						
		InfoDes	Structure Design Information			l.			
		InfoPipe	Structure Pipe Information			A			
		Location	Location Township Range Sectio						
		LongitCrossSect	Longitudinal Cross Section Grid-						
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		LongSect	Longitudinal Section - Profile Gr						
		Model				\bigcirc	\mathbf{N}		
		MVC	Minimum Vertical Clearance						
		NorthArrow	North Arrow			A			
		ProfileGrade	Proposed Profile Grade			Λ			
		RBLT	Recoverable Berm Location Table						
<	\sim	D + D	D	•					

Place Active Cell — 🗆 🗙		
Active <u>C</u> ell: NorthArrow		i ∰ Ce
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X Scale: 1.000000		*
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00+ Place as Shared Cell		
N True Scale		y Ce
Mirror: Horizontal		
Interactive: Scale and Rotate		
Flatten: Top 🔻	Z	<u> </u>
Scale	- [Se de la companya de
Multi-line Offsets		
Dimension Values		
Annotations		
00+841 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_wor	k\BridgeGeneralUseCells.cel]	- 🗆 ×
Ī	File			
3	* =		X	
		Name ^	Description	
		BidItem	Bid Item & Estimate Outlines	
		BKFL1	Backfill for Dirt/Rock	
		BKFL2	Backfill for Granular Material	
		BSLT	New Berm Slope Location Table	e Uudraulia Data
	CulvPipe		Pipe Structure Information	
		CulvRCB	RCB Structure Information	Drainage Area = ??.? Acres
		CurveData	Curve Data	Q50 = ?,??? 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	
		I-f-D:	Church and Dire Information	

2. Site location.

-H	🔆 Cell Lil	orary: [c:\pw_work	\BridgeGeneralUseCells.cel]	- 🗆 X
	File			
	* =		×	
		Name ^	Description	
		HydaCulv	Hydraulic Data for Culverts	
		InfoDes	Structure Design Information	Location
		InfoPipe	Structure Pipe Information	?? (label route)
		Location	Location Township Range Sectio	In City of ??? (if applicable,
		LongitCrossSect	Longitudinal Cross Section Grid-	T-??N R-??W
		LongitCrossSect	Longitudinal Cross Cross Sectior	Section ??
		LongSect	Longitudinal Section - Profile Gr	22 County
		Model	h2	FHWA No 22
		MVC	Minimum Vertical Clearance	Bridge Maint. No. ??
		NorthArrow	North Arrow	Asset ID No. ??
		ProfileGrade	Proposed Profile Grade	Latitude ??.123456°
		RBLT	Recoverable Berm Location Table	Longitude -??.123456°
	<	Davie Duidaa	Dtt.Ot.t	

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

Editing Title Block information on TSL Sheets and Printing Sheets

These instructions were created with:



OpenRoads Designer CONNECT Edition - 2020 Release 3 Update 9 - Version 10.09.00.91

When using the Sheet Models in the Iowa DOT Bridge Bureau seed files, the Title Block and sheet border have text fields that are set up to work with the **IaDOT_WS.dgnws** Sheet Index file. This file is in the **ProjectResources\Workset** folder of every Bridge Project Directory. The IaDOT_WS.dgnws Sheet Index file is specific to each WorkArea that it resides in. The Sheet Models are added to the Sheet Index to autofill the text fields. Access the Sheet Index thru the Project Explorer. The Sheet Index can only be edited by one user at a time.



Project Explorer displays the Sheet Index as shown below.

Explorer	▼ # ×
🔀 File	~
📦 Items	~
😝 Resources	~
🤮 OpenRoads Model	~
🕼 Sheet Index	^
🗘 👷 🔜 🔎 📲	
IaDOT_WS (5)	
\sim	
🔁 Links	~
🖯 OpenRoads Standards	~
😫 Drainage and Utilities Model	~
🖯 Survey	~

Next, open the Sheet Index for editing. Click on the Open Sheet Index for Edit 🗱 button.



Add the folders that the sheets will reside in. Typically, the process is to create a folder for each Structure Design Number.

Note: At this stage the design number may not be known for each structure, so name it something specific to the structure. Once the design number has been assigned then rename the folder. This example will use the Design Station of the structure. To add a folder, click on the structures folder so that it is highlighted and click on the create folder is button.



The folder will be added and named Untitled. To rename the Untitled folder, either right click and select Rename or edit it in the folder properties. Rename it the Design Number or the Station of the structure.



Once the folder is created for the design then add the sheets to it. Select the folder that the sheet will reside in and click on the Add Sheet button.



The Add Sheet dialog box will open. Browse to and select the DGN file the sheet is in thru the Select tab.

🞻 Add Sheet			
Select			
Documents			
Folder Bridae			
are num		1.1.1 *	
A NIA WAR	^		
	DOT 700 I		
CBM_PO_7785035_		11/2/20 10906 2.	
CRD_77035309_DC	DI_PIPE_CULVERTS_X_Sec_208.d	. 11/10/2 10906 10,1.	
CRD_77035309_DC	DI_PIPE_CULVERIS_208.agn	11/10/2 10906 19,6	
V © ORD_77035309_DC	DT_STRUCTURES_FHWANO_Z08	e 11/15/2 10906 4,9	
CRD_Berms_EW_D	JI_223_208.agn	4/22/20 10906 9:	
CRD_Berms_EW_DO	JI_323_142nd SI_208.dgn	6/15/20 10906 1,2.	
<		>	
Application:	All Applications	\vee	
	Add Remove	2	
Selected Documents			
Name	O File Upd Folder File	e Size Status File U Description	
<pre></pre>	DT e 11/15/2 10906 4,9	16 KB Che ediedri ORD_CCRF	
<		>	
		-	
		OK Cance	

Click the Add button.

Click the OK button.

The list of available sheets will display. Select the sheet that will reside in this folder. The Add Sheet list will only show Sheet Models that are not part of any Sheet Index. A Sheet Model is only allowed to be assigned to one Sheet Index, not multiple indexes.



In the Properties of the Sheet Model it will show if the sheet is part of a Sheet Index or not.

Example below is showing the Sheet Model is Not in a Sheet Index.



If the Sheet Model was in a Sheet Index then the Remove from Sheet Index option would be selectable.

6	Mo	dels									
	1) O E	4 0	Y X							
1	ype	2D/3D	Name ^		Description		Sheet Numbe	r 🔆	Cell Type	A	Design File
	იე ≧		Design Drawing Model					*	Graphic Graphic Graphic		c:\pw_wor c:\pw_wor
	Ä		New Sheet	t Bridge	Bridge Plan Sł	neet/Title	000	Oper	n		w_wor
	🕒 🗋 New Sheet Culvert			t Culvert	Culvert Plan Sheet/Title	000	Remove from Sheet Index Copy Add Link to Element Navigate to Sheet Index				
							-	Delet Rena Prop	e me erties		

The image below shows the Sheet Model is in a Sheet Index.

roperues	
Models (1)	
▲ 📑 770423 Sht_005	
Border.dgn,	Border - Bridge
B OBM 77035	245 DOT 0423 040791 708 dop Default
	245_561_6425_646751_28614g1,521441
Undate Fields Automat	
Sheet	
Show Sheet Boundary	True
Sheet Number	000
	1
Sequence Number	1
Sequence Number Border Attachment	(None)
Sequence Number Border Attachment Sheet Size	(None) ANSI D
Sequence Number Border Attachment Sheet Size Height	(None) ANSI D 22.0000"
Sequence Number Border Attachment Sheet Size Height Width	(None) ANSI D 22.0000" 34.0000"
Sequence Number Border Attachment Sheet Size Height Width Sheet Unit	(None) ANSI D 22.0000" 34.0000" Inches
Sequence Number Border Attachment Sheet Size Height Width Shat Unit > Origin	(None) ANSI D 22.0000" 34.0000" Inches 0.0000000ft 0.0000000ft
Sequence Number Border Attachment Sheet Size Height Width Shin (Unit > Origin Rotation	(None) ANSI D 22.0000" 34.0000" Inches 0.0000000ft.0.0000000ft 0.0000

Right clicking on the Sheet Model it can be removed from the Sheet Index, if desired. Sheet Models may also be removed from the Sheet Index through the Sheet Index Explorer.

🙆 Moo	lels							
1	0	<u>¥ 7 🛛 X</u>						
Туре	2D/3D	Name ^	Description	Sheet Number	🔆 Cell Type	🛔 🛔 Design	n File	
B		770423 Sht_001	Estimate	000		c:\pw_	worl	
Là		770423 Sht_002	Summary	000		c:\pw_	worl	
Là		770423 Sht_003	General Notes	000		c:\pw_	work	
Là		770423 Sht_004	Situation Plan	000	-	-^	work	
		770423 Sht_005	Site Plan	000	Open		worl	
Ľ,	🖹 🔲 770423 Sht_006		Detail Sheets	000	Remove from Sheet Index			
0 1		Design			Conv		worl	
		Detail Model			copy		worl	
I	C)	OBM_Model			Add Link to I	lement	work	
	Ű	Pier_Model			Navigate to S	Sheet Index	work	
					Delete			
					Delete	I		
					Kename			
<					Properties			

The sheet will appear in the index as shown below.



Next, set the Index Properties at the index level. Click on the **IaDOT_WS** in the Sheet Index Explorer so that it is highlighted and open the Properties. Set the Bridge File Number, County, Letting Date, PIN Number and Project Number. Completing these values will fill out the corresponding text fields in the Border and Title Block of the plan sheet, as well as the corresponding text fields on the Title Sheet.

The 3 Project Location Lines and 3 ROW Project Number lines are used to populate text fields on the Title Sheet. The Index Properties will set these fields in **all** the sheets in this index.

Explorer	- 4 ×	Properties (Sheet Index)	→ ₽ X
🔀 File	~	Link Tree (1)	
📦 Items	~)	☑ IaDOT_WS (5)	
😝 Resources	~)		
JopenRoads Model	~		
☑ Sheet Index	^		
		Index Properties	^
🔺 🔄 IaDOT_WS (😜		Bridge File Number 000000	
▷ 📁 Road		Contract ID ID	
Structures (5)		Design Team	-
N C Title Chart		FRA Number FRA #	
D D Title Sneet		PIN 15-77-035-040-01	
Plan Sheets Design XXXX		Project Location Line Location	
TSL Plan Sheet STA 2179+27.00 (1)		Project Location Line Location Project Location Line Location	
TSL Plan Sheet STA 2165+70.11 (1)		Project Number IM-035-4(309)9513-77	
Image: State St		ROW Project Numbe 12345 ROW Project Numbe 56478	
N C TSI Plan Shoot STA 1970+98 75 (1)		ROW Project Numbe 98765	
		work type type	
ISL Plan Sheet SIA 1774+79.60 (1)		Sneet Numbering Controls	
		Automatic Naming of On	
		Inherit Naming Rule Off	
		Number of Digits 3 Shoet Number Profix	
		Sheet Number Suffix	
E Links	~	Show Leading Zero Off	
JopenRoads Standards	~)	Total Sheets Count 5	
😌 Drainage and Utilities Model	~		
3 Survey	~		

Next, set the text fields that are design number specific for each structure. Select the folder created earlier for each structure in Project Explorer so that it is highlighted and open the Folder Properties.

Explorer	- 4 ×	Properties (Sheet Index) 🔻 🖣	×
🔀 File	~)	🔺 📂 Folder Link (1)	
📦 Items	~	芦 TSL Plan Sheet STA 1774+79.60	
🕞 Resources	~		
😌 OpenRoads Model	~		
☑ Sheet Index	^		
		General	^
		Folder Name TSL Plan Sheet STA 1774+79.60	
▲ 🕼 IaDOT_WS (5)		Folder Properties	^
🕨 📁 Road		Bridge Design Team AAA\BBB\CCC	ר
Structures (5)		Bridge Project Number NHSX-092-9(007)-3H-58	
		County County Test Name	
D D Title Sheet		Cross Section Road Name Road Name	
Plan Sheets Design XXXX		Design Team Iowa DOT	-
		End Spans 10'-0"	-
D D ISL Plan Sheet STA 2179+27.00 (1)		FHWA or Asset ID Number 223344	
ISL Plan Sheet STA 2165+70.11 (1)		Interior Span 10'-0"	
		Plan Sheet Description Description	
₽		Skew and Direction 30 Degree RA	
ISL Plan Sheet STA 1970+98.75 (1)		Station 10+45.89	_
		Turn-in Date Jan 01 2025	
V V ISL Plan Sheet STA 1774+79.60 (Type and Size of Structure 1 Type and Size of Structure	1
		Type and Size of Structure 2 Type and Size of Structure 2	<u> </u>
		Sheet Numbering Controls	^
		Automatic Naming of Sh On	
		Increment 1	
	~	Inherit Naming Rule Fro Off	
		Number of Digits 1	
🖯 OpenRoads Standards	~	Sheet Number Prefix Sheet Number Suffix	
		Sheet Number Suffix	_
Urainage and Utilities Model	×	Start Number 1	-
📋 Survey	~	Total Sheets Count 0	-

Edit the following Folder Properties:

- Bridge Design Team
- Bridge Project Number
- County
- Cross Section Road Name
- Design Number
- Design Team Use Iowa DOT or Consultant Name
- End Spans and Interior Span Culvert sheets will not use the Span fields.
- FHWA or Asset ID Number
- Skew and Direction (e.g. 30 Degree RA)
- Station of structure
- Turn-in Date
- Type and Size of Structure There are two fields for Type and Size of Structure.

Some of the text fields may not be used on every sheet.

Completing these properties will fill out the corresponding text fields in the Title Block on each sheet that resides in this folder. Each folder must be edited for the specific information that applies to each structure.



The Plan Sheet Title Block below shows all text fields.

The **Plan Sheet Description** and **Design Sheet No.** text fields are linked to the model properties of the sheet model.

🙆 Mo	dels							
]) ØI							
Туре	2D/3D	Name ^	Description	Sheet Number	券	Cell Type	A	De
Q		Design			~	Graphic		c:\
		Drawing			\checkmark	Graphic		c: \
r,	Ũ	Model			\checkmark	Graphic		c:\
Ŀà		New Sheet Bridge	Bridge Plan Sheet Description/Title	000				c:\
ß		New Sheet Culvert	Culvert Plan Sheet Description/Title	000				c: \

All other text fields in the Title Block are linked to the Sheet Index Folder Properties.

Once this information is set, stop editing of the Sheet Index. Click on the Make Sheet Index Read Only icon in Project Explorer. The Sheet Index can only be edited by one user at a time.



ProjectWise will notify the user to Check In the index. Click on the Check In button.

Check In				×
General Co	mment			
Documents	5			
Name		O File Upd Fold	er File Size Status Fi	le U Description
√ ⊇laDC	DT_WS.dgnws	e 11/16/2 118	50 77 KB Che eo	diedri IaDOT_WS
<				>
Folder:	Projects\7	703504015\Bridge\Projec	tResources\WorkSets	
Create	e new version du	ring Check In		
Version:				
Chec	k In	Update Server Copy	Free	Cancel

Next, set the Sheet Title and Design Sheet Number by opening the Models dialog box to set these two text fields that are configured to read the model properties. The Sheet Title is reading the sheet model Description.



For this example, it is a Situation Plan sheet, and the Design Sheet No. is sheet 1.

Note: If all the values that are entered are not reflecting the same data on the sheet, use the Update All Fields tool. This will reread all the assigned text fields.



To print the TS&L sheet, use the Print Organizer. To access this tool thru the backstage, click on the **File** menu in the file the sheets are in.



The Print Organizer may also be accessed through the Sheet Index which will be covered in a future document.

🕼 Sheet Index 🔹
0 🕱 🗟 🦉
▲ laDOT_WS
P Road
▲ [₱] Structures
▷ 芦 Title Sheet
Plan Sheet Design XXXX

The backstage will show the Print option, select Print.



Select Print Organizer.

		1
€	lot.int.lan:PWMain\Documents\Projec	.ts\7703504015\Bridge\OBM_77035305_DOT_0724_041891_Z08.dgr
New	Print	
Open	Print	Print to a printer or to a file
Save		
Save As	Print Preview	Open the resizable print preview window
Update Server Copy		
Save Settings	Print to PDF	Print to a PDF document
Send Mail		
Close	Print Styles	Create, edit, and delete print styles
Tools	*	<u>م</u>
Settings	Print Organizer	Print multiple files using Print Organizer
Properties		

In Print Organizer set the **Default Print Definition Name** and **Output File Names** expressions to use **<model name>** before printing the sheets to the PDF.

Select File menu.

Select Default Print Definition Name...

							•					i.	
_	4	Untitled.pset - Print Org	anizer										
	F	ile Edit View Tools		-									
er		New	Ctrl+N	K		~ ~	V	V 📮	-				
е	-	Open	Ctrl+O				Duint	1.1	Demo	Quala	X Oine	X 0:	X Ori
-	6	Save	Ctrl+S	ei	view	view	Phnt	Units	Раре	Scale	X SIZE	r Size	X On
eme		Save As											
so		Default Print Definition N	lame 🙀										
ee.		Output File Names	h	Ì									
	-	Add Folder to Set	Sets t	he	default	express	ion for a	a print o	definitio	n name			
۱ks	ා	Add Files to Set											
ber		Add Active File to Set											
	9,	Print Preview											
7		Printer Setup											
р в	8	Print											
		Exit											
				-									

1		6	₽×		~ ^	\sim	⊻ [≣	-									
Ontitled	Name	File N	. Model	View	View	Print	Units	Pape	Scale	X Size	Y Size	X Ori	Y Ori	Rota	Mirror	Rast	De
		De	efault Pri	nt Defin	ition N	ame Exp	pression						×	(
			Expressi	on name	:												
			<source< td=""><td>file name</td><td>)></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>\sim</td><td></td><td></td><td></td><td></td></source<>	file name)>								\sim				
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			<source <sheet n<br=""><print co<br=""><print co<="" td=""><td>file name umber> unter>-< unter>-<</td><td>⊳-<moc source f model n</moc </td><td>lel name ile name ame></td><td>></td><td></td><td></td><td></td><td></td><td></td><td>~</td><td></td><td></td><td></td><td></td></print></print></sheet></source 	file name umber> unter>-< unter>-<	⊳- <moc source f model n</moc 	lel name ile name ame>	>						~				
		[Previe	ew Name	S												
										ОК		Can	cel				

The **Default Print Definition Name Expression** dialog box will display, select **<model name>** option.

Click the OK button.

Then select File menu again for the second setting.

Select Output File Names...

	1	Untitled.pset - Print Org	anizer											
	F	File Edit View Tools												
		New	Ctrl+N			<u> </u>	\sim		. A					
	-	Open	Ctrl+O							<u> </u>				
	۲	Save	Ctrl+S	el	View	View	Print	Units	Pape	Scale	X Size	Y Size	X Ori	Y Ori.
15		Save As												
Э		Default Print Definition N	lame											
2.		Output File Names												
-		Add Folder to Set		V.										
5	<u>с</u> р	Add Files to Set	Sets	the	express	sion for	output	file nan	nes					
r		Add Active File to Set			\									
	Q.	Print Preview			\									
		Printer Setup												
B	9	Print			_ \									
		Exit												
				-		Υ.								
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Untitled.pse	t - Print C	rganizer						. –			```		_		_		
File Edit Vie	w Tools																
		_ \$			~ ^	V	<u> </u>										
-> Untitled	Name	File N	Model	View	View	Print	Units	Раре	Scale	X Size	Y Size	X Ori	Y Ori	Rota	Mirror	Rast	De
		Out	put File	Name	Express	sion							×				
		E	xpressio	on name	:												
			print cou sequenc sequenc	unter>-< ce>- <sou ce>-<sou< td=""><td>print set urce file urce file</td><td>name> name> name></td><td><model i<="" td=""><td>name></td><td></td><td></td><td></td><td></td><td>✓</td><td></td><td></td><td></td><td></td></model></td></sou<></sou 	print set urce file urce file	name> name> name>	<model i<="" td=""><td>name></td><td></td><td></td><td></td><td></td><td>✓</td><td></td><td></td><td></td><td></td></model>	name>					✓				
	<pre><source file="" name=""/> <source file="" name=""/>-<model name=""> <sheet number=""></sheet></model></pre>																
													•	1			
			Previe	w Name	9S												
										ОК		Can	cel				

The **Output File Name Expression** dialog box will display, select **<model name>** option.

Click the OK button.

🗥 U	ntitled.	pset -	Print O	rganizer											_		_		×
File	Edit	View	Tools																ſ
				-	€ X		~ ^	\sim	⊻ [- A									
-⊳ Un	titled	1	Name	File N	Model	View	View	Print	. Units	Pape	. Scale	X Size	Y Size	X Ori	Y Ori	Rota	Mirror	Rast	Desi Pe
				Ou	tput File	e Name	Expres	sion							×	<		/	
				E	xpressio	on name	:												
					model r	ame>									~				
				E	xpressio	on:													
				P	rintDefir	nition.Ma	isterMoo	ielName)						1				-
														/					1
					Previe	w Name	əs												-
												-		-					
												OK		Can	cel				

Next, select the Add Active File to Set... option thru the File menu.

	Untitled.pset - Print Org	anizer	-	
	File Edit View Tools			
	New	Ctrl+N		
	Open	Ctrl+O		
6	Save	Ctrl+S	el View View Print Units Pape Scale X Size Y Size X Ori Y Ori Rota Mirror	Rast
	Save As			
	Default Print Definition N	lame		
	Output File Names			
9	Add Folder to Set			
3	Add Files to Set			
	Add Active File to Set			
9	Print Preview			
	Printer Setup		Adds the active file to the print set	
6	Print			
	Exit			
			Λ	

The Create Print Definition dialog box will open to select the print style. Click on the browse button next to the Print style name.

Create Print Definitions	×
Input Files	
pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7703504015\Bridge\0	Add
	Remove
< >	
Print Definition Creation Options	J
Print style name:	
Manually Specified Options	Brows
ОК	Cancel

Then select the desired print style option from the Apply Print Style list. For this example use CLR_overrides_pdf_SheetModel.

Create Print	: Definitions						×
Input Files	Apply Print Style				×		_
pw:\\ntP	Select a print style to apply:					dd	11
	Print Style Name	File Name					_
	©PDF © Printor	PrintStyles.d	gnlib gnlib			move	
	&BW_pdf_SheetModel	lowaDOT_Pr	rintStyles	.dgnlib			
	<pre> «CLR_as_is_pdf_SheetModel</pre>	lowaDOT_Pr	intStyles	dgnlib			
	CLR_overrides_pdf_SheetMode	el lowaDOT_Pr	rintStyles rintStyles	.dgnlib danlib			
			interfice	agrino			
Print Defin							_
Print styl							
						7	
Ma							
				Cancel			_
-			UK		U	ncel	

Click the OK button.


The selected print style should	display in the field as shown below.	Click the OK button.
---------------------------------	--------------------------------------	----------------------

Create Print Definitions	×
Input Files	
pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7703504015\Bridge\(Add	
Remove	
Print Definition Creation Ontions	
Print style name:	
CLR_overrides_pdf_SheetModel	
Manually Specified Options	
OK Cancel	

After the Print Organizer compiles the sheets with the model name output, adjust the print property setting for rasters. Currently the print styles are set to print raster images in grayscale. This will need changed in the Properties of the print styles to have the raster images print in color.

Select all the sheets to print, select Edit menu and select the Properties option.



The Properties dialog box will open. Select Advanced tab, then uncheck "Print raster in grayscale".

gar ols	lizer 710120s000a Properties	×
1	Main Advanced Fence Display Levels References	
	WorkSpace: IowaDOT_Standards	_
	WorkSet:	
	Color Options	_
τ	Color: True Color	
	Raster Options	_
	✓ Print raster images	
	Raster Color: Raster quality factor: 50.0	
	Print raster in grayscale Printer resolution (dpi): 600	
	Print monochrome raster as-is Raster resolution (dpi): 300	
	Brightness: 0.0	
	Contrast: 0.0	
	PDF Property Publishing	_
	Include properties: None ~	
	Property filter file:	
	Update Options	_
	Update from design file Update print definition name	
	OK Cancel	

Click the	OK	button.
-----------	----	---------

Janua

710120s000a Properties	×
Main Advanced Fence Display Le	vels References
WorkSpace: lowaDOT_Standards	
WorkSet:	~
Color Options	
Color: True Color	$\overline{}$
Raster Options	
Print raster images	
Raster Color:	Raster quality factor: 50.0
Print raster in grayscale	Printer resolution (dpi): 600
Print monochrome raster as-is	Raster resolution (dpi): 300
Brightness: 0.0	
Contrast: 0.0	
PDF Property Publishing	
Include properties: None	~
Property filter file:	
Update Options	
Update from design file	Update print definition name
	OK Cancel

The Print Organizer will display the sheets it will be printing to the PDF. Confirm the sheets needed to print are listed and click on the printer icon at the top of the Print Organizer.

Muntitled.pset - Print Organizer		⊳				-		×
File Edit View Tools								
Intitled Name	File Name	Model	View Group	View	Print Area	Units	Paper	Scale
TSL_77_0724_01 TSL_77_0724_01	СБМ_77035305_DOT_0724_041891_Z08.dgn	TSL_77_0724_01	SHEET Views	View 1	Sheet	ft	11x17	2.0
1SL_//_0/24_02	OBM_77035305_DOT_0724_041891_208.dgn	TSL_//_0/24_02	TSL_//_0/24_02	View 1	Sheet	π	11x17	2.0
< >> <								>
				[⊜] 11x17	_pdf.pltcfg	2 item	ıs (0 selec	ted)

Next set the destination of the PDF file. Click on the Browse button next to the Destination field.

	Print		×
11	Printer Driver Co File name: Type:	onfiguration 11x17_pdf.pltcfg Bentley PDF printer driver Printer Set	up
	Print Range	Number of copies: 1	
	Submit as: Destination:	Create print file Single print job WorkSpaces\lowaDOT_Standards\WorkSets\laDOT_WS\out\Untitled.pdf	Browse
		OK Canc	el

This will open the Select a Wizard dialog box. Select the No Wizard option.

🖊 Select a Wizard	×
Document Creation Wizards	OK Cancel

Click the OK button.

The Save Ouput File dialog box will open. Verify the folder is set to the correct location for the PDF. Then Name the PDF.

For this example, it is a bridge TS&L sheet so name it TSL_County #_Design#.pdf or TSL_77_0724.

Next, enter a short description so that users know that this is for the bridge over I-35 on NE 158th Ave.

Click the Save button.

Folder				Save
B01			Select	Cance
Document				
Name:	TSL_77_0724.pdf		• 🗹	
Description:	NE 158th Ave over I-	35		
File Name:	TSL_77_0724.pdf			
Format:	pdf		Eormat	
				4
Application:		Department:		
Acrobat PDF		<none></none>	~	

Click the OK button.

Print						×
Printer Driv	ver Co	onfiguration				
,)2 File na	ame:	11x17_pdf.pltcfg				
т	уре:	Bentley PDF printer driver			Printer Setup	
Print Range	e —		Copies			
() All			Number of co	opies: 1	\$	
O Selecti	ion					
Submit —						
		Create print file				
Submi	it as:	Single print job \sim				
Destina	ation:	ments\Projects\7703504015\B	ridge\Design Eve	nts\B01\TSL_7	77_0724.pdf	
		Open print file after creation	ı			
				ОК	Cancel	

Then Print Organizer will create the pdf of the plan sheets.

When closing, Print Organizer will display a message asking if the pset needs to be saved. This is optional.



Saving a pset may be helpful when choosing to reprint the set again. However, if sheets have been added or there are changes to existing sheets, then the existing pset will need to be edited. Sheets may need added to be included and the existing sheets with changes may need updated from design file to see changes. The recommendation is not to save the pset and just recreate a new one, as needed. This ensures all changes to the Sheet Models are read from the CADD file.

Entering Structure Information into Database

Once the cross sections are cut on each culvert and have been annotated as described in <u>CW06 How to</u> <u>Create Culvert TSL Sheet and Annotate Structures</u>, then input the annotated information in the Bridges&Structures.accdb.

There are two ways this can be done. The first way is intended for internal Iowa DOT employees and the other way is for outside employees or consultant projects.

How to get started for internal Iowa DOT employees is covered first.

First place a short cut of the Bridges&Structures.accdb database on to the desktop. Open a Windows file explorer and browse to W:\Highway\Design\CADD\Access\<u>Bridges & Structures Database</u>. Select the <u>Bridges&Structures.accdb</u> and right click and drag to the desktop.



Then select Create shortcuts here.



Note: By making a short cut, the system administrators can make changes to the database, and it will always open the latest version.

The second way to use the Bridges&Structures.accdb is intended for outside employees or consultant projects. A different consultant version of the database is located in ProjectWise at: pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Resources\ClientWorkspaces\IowaDOT\IowaDOTProd uction\Organization-

Civil\lowaDOT_Standards\Seed\<u>Access</u>\Bridges&Structures_ConsultantVersion.accdb.

This file should be copy to a local work directory then renamed to Bridges&Structures_CCRRRPPP.accdb. This is because Access does not work properly in ProjectWise.

Once the data entry is completed in this database, it should be placed in the project directory that it corresponds with.

Now that the correct database for both internal and external users has been explained, open it and get started with data entry. The welcome screen appears as shown below.

	ۍ چ.	≠ Bridg	es&Structures : Datab	ase- W:\Highway\D	esign\CADE)\Access	\Brid	Diedrich, Eric	• <u>\</u>	י× ע
File	Home	Create	External Data	Database Tools	Help	Q	Tell me w	hat you want	to do	
0	READ-ONLY	This databas design chan	e has been opened re ges, save a copy of th	ead-only ^{Im} ou can o e database.	nly change o	data in li	nked tables	To make	Save As	×
	N	lcome	ediedri to the	Bridge and	<u>Culvert</u>	Sche	dule Da	<u>itabase</u>		
			Enter Database	?	Ex	rit Data	base			
										(

It will display a warning that it is READ-ONLY. Don't be concerned, this is normal. This is indicating that the database design can't be changed. However, the data entry will be stored in a table that is read by this database. Click on the X to close the warning.

File Hor	ne Create	External Data	Database Tools	Help	9 Tell	me what you	want to c	ot	
READ-ON	ALY This databased of the sign chan	se has been opened re iges, save a copy of th	ead-only. ¹⁵ ou can on e database.	ly change da	ita in linked i	tables. To make	'	Save /	As
	Walcoma	adjadri ta tha	Pridao and	Culuart C	Schodul	Databa			
	weicome	ediedri to the	Briage and	Luivents	schedule	Databas	se		
		Enter Database	2	Exit	t Database				
		Enter Database	•	Exit	t Database	,			
		Enter Database		Exit	t Database				
	[Enter Database		Exit	t Database	,			
	[Enter Database		Exit	t Database	,			
		Enter Database	2	Exit	t Database	,			
	[Enter Database	2	Exit	t Database	,			

The next step is to make a working directory on the local C:\ drive. For this example, a folder named WORK was created.



Next, change a few security settings in Access to avoid seeing the warning shown below when the survey information is imported.

f	Microsoft Ac	ccess Security N	otice	?	×	
e	A pc	otential security	concern has b	een iden	tified.	10
i(5	Warning: It is content came leave this con critical funct	s not possible to e from a trustwo ntent disabled u ionality and you	o determine th orthy source. ' nless the cont trust its sour	nat this You shoul tent provi ce.	d ides	2
_		ionanty and you				ın
_	File Path: C:	\WORK\5103415	9_PINKS.accdb			
	This file might computer. Do operation?	t contain unsafe c you want to ope	ontent that co n this file or ca	uld harm y ncel the	our	
	<u>More informa</u>	<u>ition</u>				się
=			Open	Cano	cel	5

Click on the File tab at the top of the database.

	\$ · ∂ ·	• Bridge	es&Structures : Datal	base- W:\Highway\De	esign\CADD	Access\Bridges &	Structures Database\Brid
File	Home	Create	External Data	Database Tools	Help	✓ Tell me v	what you want to do
	<u>wa</u>	elcome	ediedri to the	e Bridge and e	Exi	Schedule De	atabase

This will open the backstage to access Options. Click on Options to open the Access Options dialog box.

	Bridges&Structures : Database- W:\High
Ð	Good morning
斺 Home	✓ New
🗅 New	
▷ Open	
	Blank database
Save As	
	🔎 Search
	Recent Pinned
	🗅 Name
	Bridges&Structures W: » Highway » Design :
	Bridges&Structures W: > /lighway > Design :
	W: » Highway » Design :
	IN PROGRESS Bridg W: » Highway » Design :
Feedback	Bridges&Structures
Options	Seed_Pink_Sheets.m

Access Options			?	×
General Current Database	General optio	ins for working with Access.		
Datasheet	User Interface option	15		
Object Designers	Enable Live Previe	0 we		
Proofing	ScreenTip style: Sh	ow feature descriptions in ScreenTips		
Language	Show shortcu	t keys in ScreenTips		
Client Settings	Disable hardware	graphics acceleration		
Customize Ribbon	Creating databases			
Quick Access Toolbar	Default file format fo	r Blank Database: Access 2007 - 2016		
Add-ins	Default database folder: C:\Users\ediedri\Documents\	der: C:\Users\ediedri\Documents\	Browse	
Trust Center	New database sort o	rder: General - Legacy 👻		
	Personalize your copy	y of Microsoft Office		
	User name:	Diedrich, Eric		
	Initials:	DE		
	Always use these	values regardless of sign in to Office.		
	Office Background:	Calligraphy 👻		
	Office Iheme:	Colorful 🝷		
		ОК	Cance	əl

Next, click on the Trust Center option and then click on the Trust Center Settings button.

General Current Database Datasheet Object Designers Proofing Language Client Settings Customize Ribbon Quick Access Toolbar Add-ins Trust Center The Trust Center contains security and privacy settings. These settings help keep your computer Settings	ccess Options		?
Datasheet Security & more Object Designers Visit Office.com to learn more about protecting your privacy and security. Proofing Microsoft Trust Center Client Settings Microsoft Access Trust Center Duck Access Toolbar The Trust Center contains security and privacy settings. These settings help keep your computer secure. We recommend that you do not change these settings. Irust Center Settings.	General Current Database	Help keep your documents safe and your computer secure and healthy.	
Object Designers Proofing Language Client Settings Customize Ribbon Duick Access Toolbar Add-ins Trust Center	Datasheet	Security & more	
Language Microsoft Trust Center Client Settings Microsoft Access Trust Center Customize Ribbon The Trust Center contains security and privacy settings. These settings help keep your computer secure. We recommend that you do not change these settings. Trust Center Settings. Add-ins Interconter Interconter Interconter	Object Designers Proofing	Visit Office.com to learn more about protecting your privacy and security.	
Client Settings Microsoft Access Trust Center Customize Ribbon The Trust Center contains security and privacy settings. These settings help keep your computer secure. We recommend that you do not change these settings. Trust Center Settings. rust Center If the trust Center Settings help keep your computer secure. We recommend that you do not change these settings. If the trust Center Settings.	anguage	Microsoft Trust Center	
Customize Ribbon The Trust Center contains security and privacy settings. These settings help keep your computer secure. We recommend that you do not change these settings. Trust Center Settings. Indd-ins Inst Center Inst Center	lient Settings	Microsoft Access Trust Center	
Add-ins Trust Center	Customize Ribbon Quick Access Toolbar	The Trust Center contains security and privacy settings. These settings help keep your computer secure. We recommend that you do not change these settings.	Irust Center Settings
	400-INS		

That will open the Trust Center dialog box. Click on the Add new location button.

Trust Center	?	×
Trusted Publishers	Trusted Locations	
Trusted Locations	Trusted Educations	
Trusted Documents	Warning: All these locations are treated as trusted sources for opening files. If you change or add a location, sure that the new location is secure.	make
Trusted Add-in Catalogs	Path Description Date Mod	dified 🔻
Add-ins	User Locations C:\)\Microsoft Office\Root\Office16\ACCWIZ\ Access default location: Wizard Databases	
ActiveX Settings		
Macro Settings	Policy Locations	
Message Bar		
Privacy Options		
	he he	
	Path: C:\Program Files (x86)\Microsoft Office\Root\Office16\ACCWIZ\	
	Description: Access default location: Wizard Databases	
	Date Modified:	
	Sub Folders: Disallowed	
	Add new location Remove Mo	odify
	Allow Trusted Locations on my network (not recommended)	
	Disable all Trusted Locations	
	ОК	Cancel

This will open the Trusted Location dialog box. Click the Browse button to navigate to the temporary work directory created to place the survey information in.

Microsoft Office Trusted Location	?	×
Warning: This location will be treated as a trusted source for opening file change or add a location, make sure that the new location is secure.	es. If yo	u
C:\Program Files (x86)\Microsoft Office\Root\Office16\ACCWIZ\		
Subfolders of this location are also trusted Description:	Brc	owse
Date and Time Created: 12/27/2021 7:22 AM	Ca	ancel

For this example, select the WORK folder that was created.

Microsoft Office Trusted Location	?	×
Warning: This Id _v ation will be treated as a trusted source for opening fil change or add a location, make sure that the new location is secure. <u>P</u> ath:	es. If you	
C:\WORK		
Subfolders of this location are also trusted Description:	<u>B</u> row	/se
Date and Time Created: 12/27/2021 7:22 AM	Can	cel

Then click OK.

Note: If the same working directory is available and used for all projects, this will only need set once.

The next step is to check for the file to import the survey records for the project. The file is also a database that should be located in the project directory in the PrelimSurvey folder structure under the unique id number SAP folder in the DrainageStructures subfolder.

For example: PWMain\Documents\Projects\5103401021\PrelimSurvey\9730\DrainageStructures\ The file will be named CCRRRPPP_PINKS.accdb or for this example it will be 51034159_PINKS.accdb



Once the Survey Records are located, export to a local work directory. Select the file, right click and select the Export option.



When the Document Export Wizard opens, select the Send to Folder with unmanaged local copy option. Then click the Next button.

Document Export Wizard		×
	Welcome to the Document Export Wizard Choose an action togerform Export - Locks file, changes can be re-imported Send to Folder - Creates unmanaged local copy The Send to Folder option will download unmanaged local copies of the selected documents so they can be sent out for review.	
	< Back Next > Cancel	

Browse to the local WORK folder created earlier. Then click the Next button.



A progress bar for exporting will display.

Exportin	g
	Receiving changes for '\$1034159_PINKS.accdb' (1/1)
	1.62 MB transferred so far
	Cancel

When it is finished, it will display a message indicating a successful export. Click on the Finish button.

Document Export Wizard	×
Review document export results Review the information below about document export results.	
Document Export was successfully completed. Press Finish button to exit.	
I	/
< Back	-inish Cancel

Now return to the Bridges&Structures.accdb database.

The next step is to Create New Project File. Click on the Enter Database button.



The Main Menu will display.



File Home Create Mathabase Mathabase Project List • Project List • Survey Records • Export to 104-3 • Export to 104-3 • Export Schedule Sheet • Exit Database		5· @·	≠ IN PR	OGRESS Bridges&Str	uctures : Database- \	W:\Highway	\Design\CA[D Diedrich, Eric		\leq		\sim
Project List • Survey Records • Create New Project File • Export to 104-3 • Export Schedule Sheet • Exit Database	File	Home	Create	External Data	Database Tools	Help	, РТе	ll me what you want to	o do			
 Project List Survey Records Create New Project File ◆ Export to 104-3 Export Schedule Sheet Exit Database 				Main	Menu							
 Survey Records Create New Project File Export to 104-3 Export Schedule Sheet Exit Database 				<u>□ Proje</u>	ect List							
Create New Project File *_Export to 104-3 •_Export Schedule Sheet * Exit Database				<u>Survey</u>	<u>Records</u>							
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 Export Schedule Sheet Exit Database 				Export	to 104-3							
✓ Exit Database				Export Sch	edule Sheet							6
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Error Minu	Farm Mi										A	/

Next, click on the Create New Project File button.

The data entry form will display as shown below.

Home create Extern		ricip /- reinne what you war	
	<u>Create</u> F	Project File	
Project Number:		 File No. 	
Location		Pin No.	
Design Team		Station From	
Bridge Team		Station To	
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A		TrafficCount	
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с			
Z		Received	
Е		TaDaaiaa	
Μ		ToDesign	
T		ToFinalDesign	
X		NoDesigns	
CLEAN		NoPipes	
Road Typical		Designs	
Typical Date			
	<i>■<u>Save</u></i>	× <u>Cancel</u>	

The first step to start a new project is to import the Survey Records into the new project. Click on the magnifying glass next to the Import Path field.

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e Home Create	External Data	Database Tools	Help 🔎	Tell me what you want	to do	
		Create P	Project File	5		
		<u>creater</u>		~		
Project Number	:		\sim	File No.		
Location				Pin No.		
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		<u>■ Save</u>	× <u>_</u> Cc	ancel		
/Iew						-= <u>.</u>

It will open a message to select the database. Click on the OK button.

	<u>Create Project File</u>
Project Number:	 File No.
Location	Pin No.
Design Team	Station From
Bridge Team	Station To
Import Path	
B Micros BW Please C Please F M T X MW CLEAR Road Typical	solt Access x x x x x x x x x x x x x x x x x x
i pical Date	

Next, browse to the location that was used to export the Survey Records to and select the CCRRRPPP_PINKS.sccdb file that corresponds with the project. For this example, it will be 51034159_PINKS.accdb in the C:\WORK folder.

Please select a pink sheet database.	_	
← → ~ ↑ 🖡 - Windows (C:) > WORK ← ~	Ü	∽ Search WORK
Organize - New folder) · 🔲 🧿
🣜 Windows	^	Name
WORK -		51034159 PINKS.accdb
ediedri (\\ntdfs\HomeFolders\UserE) (P:)		
🛶 u (\\dot.int.lan\atscore) (U:)		
🛫 (W)DataStor (\\ntdfs) (W:)		
📌 Network		
LIIT004.44	~	< > >
File name: 51034159_PINKS.accdb	~	Access Databases (*.accdb) 🛛 🗸
Tool	s 🔻	OK Cancel

Then click the OK button.

Next, set the project number.

Click on the pulldown in the Project Number field and find the project number from the list and select it. Otherwise, start typing the project number in the Project Number field and the number should autofill as it is typed. Select the correct number. For this example, the project number is

NHSN-034-8(159)—2R-51. This will also autofill the PIN No. field once selected since these numbers are tied to each other. It should fill in as shown below.

Home Create	External Data	Database Tools	Help 🔎	Tell me what you wa	nt to do
		<u>Create P</u>	roject Fil	<u>e</u>	
Project Number:	NHSN-034-	-8(159)2R-51		File No.	
Location			\mathbf{i}	Pin No.	21-51-034-010
Design Team		I		Station From	t
Bridge Team				Station To	
Import Path C:\\	WORK\5103415	9_PINKS.accdb		\mathbf{h}	٩
Α.				TrafficCount	
В				mannecount	
BW				VPD_YR	
с					
Z				Received	
E					
M				ToDesign	
т				ToFinalDesign	
x				NoDesigns	
				Robesigns	
LLEAK				NoPipes	
Road Typical				Designs	
Typical Date					
		<u>Save</u>	× <u>(</u>	Cancel	

Next, fill out the Location field with the project description. For this example, it will be 0.3 mi E of Bus 34 Interchange to 0.4 mi E of Umber Ave (5 Locations).

Project Number: NHSN-034-8(159)-2R-51 File No. 21-51-034-010 Location 0.3 mi E of Bus 34 Interchange to 0.4 r Pin No. 21-51-034-010 Design Team Station From	Home Create	External Data	Database Tools	Help 🔎	Tell me what you war	nt to do
Project Number: NHSN-034-8(159)2R-51 File No. 21-51-034-010 Location 0.3 mi E of Bus 34 Interchange to 0.4 n Pin No. 21-51-034-010 Design Team Station From			<u>Create Pro</u>	oject File		
Location 0.3 mi E of Bus 34 Interchange to 0.4 r Pin No. 21-51-034-010 Design Team Station From	Project Number:	NHSN-034-	8(159)2R-51	~	File No.	
Design Team Station From Bridge Team Station To Import Path C:\WORK\51034159_PINKS.accdb A TrafficCount B TrafficCount BW VPD_YR C C Z C Z C M ToDesign T ToFinalDesign X NoDesigns MW NoPipes CLEAR Designs	ocation	0.3 mi E of	Bus 34 Interchar	nge to 0.4 n	Pin No.	21-51-034-010
Bridge Team Station To Import Path C:\WORK\51034159_PINKS.accdb Import Path A Import Path TrafficCount B Import Path VPD_YR BW Import Path VPD_YR C Import Path VPD_YR C Import Path Received C Import Path ToDesign M Import Path ToFinalDesign X Import Path NoPipes Road Typical Designs Designs	Design Team				Station From	
Import Path C:\WORK\51034159_PINKS.accdb A TrafficCount B VPD_YR BW VPD_YR C C Z Received E ToDesign T ToFinalDesign X NoDesigns CLEAR NoPipes Road Typical Designs	Bridge Team				Station To	
A TrafficCount B VPD_YR BW VPD_YR C C Z Received E ToDesign M ToFinalDesign X NoDesigns MW NoPipes CLEAR Designs	mport Path C:\W	/ORK\5103415	9_PINKS.accdb			9
B VPD_YR BW VPD_YR C Image: Constraint of the second of the s					TrafficCount	
BW VPD_YR C C Z Received E C M ToDesign T ToFinalDesign X NoDesigns CLEAR NoPipes Road Typical Designs	3					
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Z Received E Image: Constraint of the sector of the secto	:					
E ToDesign ToDesign ToFinalDesign WW MODEsign NoDesigns CLEAR NoPipes Designs Designs Designs MODEsigns MO					Received	
M IoDesign T ToFinalDesign X NoDesigns MW NoPipes Road Typical Designs						
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Road Typical Designs	LEAN				NoPipes	
Typical Date	Road Typical				Designs	
	ypical Date					
<i>■<u>Save</u>×<u>Cancel</u></i>			<u>■_Save</u>	× <u>_Ca</u>	ncel	

Next, fill out the Design Team. For this example, it will be Holst\Ackerman.

Home Create	External Data Database Tools	Help 🔎 Tell me what you wa	int to do	
	<u>Create P</u>	roject File		
Project Number:	NHSN-034-8(159)2R-51	 File No. 		
Location	0.3 mi E of Bus 34 Intercha	ange to 0.4 n Pin No.	21-51-034-010	
Design Team	Holst\Ackerman 🔍	Station From		
Bridge Team		Station To		
Import Path C:\\	WORK\51034159_PINKS.accdb		Q.	
A		TrafficCount		
B		VPD_YR		
C				
Z		Received		
E M		ToDesign		
Т		ToFinalDesign		
X MW		NoDesigns		
CLEAR		NoPipes		
Road Typical		Designs		
Typical Date				
	<i>■<u>Save</u></i>	× <u>Cancel</u>		

•	5 · ∂ · Home	 Bridg Create 	ges&Structures : Datal	oase- W:\Highway\De Database Tools	esign\CADD\Acce Help ک	ss\Bridges&Structures.ac) Tell me what you wa	Diedrich, Eric	~	/
				<u>Create P</u>	roject Fil	<u>e</u>			
	Project N	umber	NHSN-034-	8(159)2R-51	~	File No.			
	Location		0.3 mi E of	Bus 34 Interch	ange to 0.4	n Pin No.	21-51-034-010		
	Design Te	eam	Holst\Acker	rman		Station From			
	Bridge Te	am	Claman\Die	edrich 🔪		Station To			
	Import P	ath C:\	WORK\5103415	9_PINKS.accdb				٩	
	A					TrafficCount			
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	C 7								
	E					Received			
	М					ToDesign			
	т					ToFinalDesign			
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	Road Typ Typical D	oical ate				Designs			
				■ <u>Save</u>	× <u>(</u>	Cancel			
/ie	2W							==	Þ

Next, add the Bridge Team. For this example, it will be Claman\Diedrich.

Next, fill out the File No. and Station From and Station To.

Note: If the File No. and Station From and Station To are not known at the time of the project creation, leave it blank and fill it in later. Also, creation of the project as a new project is only need once. It will be accessed from the list button from then on.

Click the save button. The New Project will open at the first record. If the Survey Records (CCRRRPPP_PINKS.sccdb) was imported, it will open at the first record that was imported. For this example, the imported Survey Records (CCRRRPPP_PINKS.sccdb) contained two structures so it will show record 1 of 2 as shown at the bottom left.



If survey records were not imported, it will show 1 of 1 records. Since the survey records were imported, the Survey Station, the Drainage Area, Terrain Type and Description of the existing structure are shown.

🗖 5·ð·	■ Bridges&Struct	ures : Database- W:\Highway\Design	\CADD\Access\Bridges &	& Structures Data	Diedrich, Eric		×
File Home	Create Extern	al Data Database Tools H	lelp 🔎 Tell me	what you want to do			
BRIDGE AND CU PROJECT NO NHSN-032 LOCATION 0.3 mi E o	LVERT SCHEDU 1-8(159)2R-51 f Bus 34 Interchange to 0	E FILE NO PIN NO 21-51-034-010 .4 m TO	DESIGNER IN CH ROAD Holst\Ac DRAINAGE Claman\ TRAFFIC COUNT	HARGE :kerman Diedrich VPD YR	A B BW SEE ROAD	C Z E DESIGN TYPICA	M T X L NO.
Present Structu	ire	/	-				
Design No.		Drainage Area 19.15	acres TerrainTy	pe:Rolling 🛹	Disposition o	f Present St	ructure:
Survey Station	414+91.90	Description 54"x289'					
Remove Apron	~	Remove Headwall To Face Par	apet	~			Sort C
PROPOSED STRU	CTURE						
Station:		Bedding Class:	~		DIKE		
Offset:		Proposed Camber DR102:		Control			
Kind:	~	Design Cover:		Left/Right			~
Size:	~	Pipe Class:	\sim	Location Statio			
Design No:		Length New Construction:		Top Elevation			
Design Q:		Proposed Apron In:		Туре			
Headwater:		Proposed Apron Out:					
Standard		Connection Type:	~				
DR	~	Flume Description:					
A		Grade:					
в		Flowline Left:		Apron Guard (DR2	213)		
c		Flowline Right:		Diaphragm (DR50	1)		
		Flowline Other		Tee Section (DR14	12)		
E		Flowline Other		Reducer			
		DR205 Inlet Apron Ton					
Record: I 1 of 2	No Fi	Iter Search					

This is the form that will need to be filled out for each structure in the new drainage design. If the existing structure is being replaced with a new one, fill out the proposed structure information on the record of the existing structure that will be replaced. If the existing structure will be left in place and used as constructed in the new drainage design, leave the proposed structure portion of this record blank. For this example, the existing structure (54" pipe) is being replaced with a new 54" pipe and the Proposed Structure information needs filled out on this record.

The first thing to fill out is the Design number of the existing structure if it is an RCB. This information can be acquired from the as-builts and entered here.

Present Stru	cture				
Design No.			Drainage Area	19.15 ~ acres	TerrainTyp
Survey Station		414+91.90	Description	54"x289'	
Remove Apron	Both	\sim	Remove Headwa	all To Face Parapet	
PROPOSED ST	RUCTUF	RE			

This example is a pipe, so there is not a design number. Leave it blank.

The next thing to do is decide what will be done with the existing structure. If the structure is a pipe, click on the pulldown on the Remove Apron field. This will provide 3 options, Left, Right and Both. If the pipe is being extended, select the end that is being extended. However, if the pipe is being replaced select Both.

₽ \$ * ∂ *	, Bridges	&Structu	res : Datab	ase- W:∖I	Highway\De	sign\CAD	D\Acces	s\Bric
File Home	Create	Externa	l Data	Databa	ase Tools	Help	Q	Te
BRIDGE AND PROJECT NO NHSN LOCATION 0.3 m	CULVERT SC -034-8(159)2R-51 i E of Bus 34 Interc	HEDUL L hange to 0.4	E FILE NO PIN NO 4 m	то	21-51-034-0 D	10	DESIG ROAD DRAINA TRAFFIC	NER H GE C COUN
Present Struc	cture							
Design No.			Drainage	e Area	19.1	L5 v acr	es	Terra
Survey Station	414	+91.90	Descripti	ion	54"x289'			
Remove Apron		~	Remove	Headwa	all To Face	Parapet		
PROPOSED ST	Left Right							
Station:	Both		Bedding (Class:				
Offset:			Proposed	l Cambe	er DR102:			
Kind:		\sim	Design Co	over:				
Size:		\sim	Pipe Class	s:				
Design No:			Length New Construction:					
Design Q:			Proposed	Apron	ln:			

If the structure is an RCB, click on the pulldown on the Remove Headwall field. This will provide 3 options, Left, Right and Both. If the RCB is being extended, select the end that is being extended. However, if the RCB is being replaced select Both.

🖬 🐬 े	Bridges&Structu	ıres : Database- W:\	Highway\Design\	CADD\Access\Bridges &	Structures Data
File Home	Create Externa	al Data Datab	ase Tools He	elp 🔎 Tell me w	hat you want to do
BRIDGE AND PROJECT NO NHSN LOCATION 0.3 m	CULVERT SCHEDUL 4-034-8(159)2R-51 ni E of Bus 34 Interchange to 0	E FILE NO PIN NO 4 m T	21-51-034-010 O	DESIGNER IN CHA ROAD Holst\Acke DRAINAGE Claman\Di TRAFFIC COUNT	ARGE erman ledrich VPD YR
Present Strue	cture				
Design No.		Drainage Area	19.15 ~	acres TerrainType	e: Rolling D
Survey Station	414+91.90	Description	54"x289'		
Remove Apron	~	Remove Headw	all To Face Para	pet	~
PROPOSED ST	RUCTURE			Left Right	
Station:		Bedding Class:		Both	\ i
Offset:		Proposed Cambe	er DR102:		Control
Kind:	\sim	Design Cover:			Left/Right
Size:	\sim	Pipe Class:		~	Location Statio
Design No:		Length New Con	struction:		Top Elevation

For this exam	nle it is a 54-inc	nine and is being	replaced with a	new structure s	o select Both
I OI LIIIS EXAIII	pie, it is a 54-inc	i pipe and is being	s replaced with a i	new shuttine s	o select Doth.

🔒 🔊 e	- - Bridges	&Structure	es : Databa	se- W:\I	 Highway∖De	esign\CAD	D\Access\	Bridges & St
File Home	Create	External	Data	Databa	ise Tools	Help	Q	Tell me wh
BRIDGE AND PROJECT NO NHSN LOCATION 0.3 m	CULVERT SCH I-034-8(159)2R-51 ni E of Bus 34 Interch	HEDULE	FILE NO PIN NO m	т	21-51-034- D	010	DESIGN ROAD DRAINAGE TRAFFIC C	IER IN CHAF Holst\Ackern Claman\Diec OUNT
Present Stru	cture							
Design No.			Drainage	Area	19.	15 – acr	es Te	errainType:
Survey Station	414-	+91.90	Descriptio	on	54"x289'			
Remove Apron	Both 🔪	\sim	Remove l	Headwa	all To Face	Parapet		
PROPOSED ST	RUCTURE		\searrow					
Station:		P	edding C	lass:				\sim
Offset:		F	Proposed	Cambe	r DR102:			(
Kind:		~ C	Design Co	ver:				l
Size:		~ F	Pipe Class					~ I
Design No:		L	ength Ne	w Cons	struction:			-
Design Q:		P	Proposed	Apron	ln:			-

Next, fill out the Station of the Proposed Structure. This is the station value that is the intersection point at the centerline of the Proposed Structure and the centerline of the design alignment. For this example, it will be 414+29.00.

Note: When entering this station value, do not place the plus+ just the numeric value and then click in the next field. The database will put in the plus+ as shown below.

Present Str	ucture					Present Stru	icture			
Design No.		Drainage Area	19.15 v acre	s TerrainType	e: Rollir	Design No.		Drainage Area 19.1	5 v acres Terrain	Type: Rol
Survey Statior	414+91.90	Description	54"x289'			Survey Station	414+91.90	Description 54"x289'		
Remove Apro	n Both 🗸	Remove Headwa	all To Face Parapet		\sim	Remove Apron	Both 🗸	Remove Headwall To Face	Parapet	\sim
PROPOSED	STRUCTURE					PROPOSED ST	TRUCTURE			
Ctations	41 430 00	Bedding Class:		~		Station:	414+29.00	Bedding Class:		e
station:	41429.00	Deciding class.	TRIAN			Offset:		Proposed Camber DR102:		Contr
Offset:		Proposed Cambe	er DR102.		Control	Kind:	~	Design Cover:		Left/F
Kind:	~	Vesign Cover:			Left/Rig	Size:	~	Pipe Class;	·	Locat
Size:	~	Pipe Class:		\sim	Locatio	Design No:		Length New Construction:		Top F
Design No:		Length New Cons	struction:		Top Ele	Design O:		Proposed Apron In:		Type
Design Q:		Proposed Apron	In:		Type	Headwater:		Proposed Apron Out:		, ypc
Headwater:		Proposed Apron	Out:			Standard		Connection Type:		-
Standard		Connection Type	2:	\sim		DR	~	Flume Description:		-
DR	~	Flume Descriptio	on:			A		Grade:		
A		Grade:				в		Flowline Left:		Apron
R		Flowline Left:			Apron G	C		Flowline Right:		Diaph

The next field is Offset field. This is used if the structure is on a divided highway. This will be the distance from the mainline centerline to the Base Line as described in the standards.



If designing a two-lane highway like in this example, leave this blank.

The next field is the Kind of structure. This refers to what kind of structure is the proposed structure.

Present S	tructure				
Design No.			Drainage Area	19.15 $\scriptstyle{\vee}$ acres	TerrainType
Survey Statio	on	414+91.90	Description	54"x289'	
Remove Apr	on Both	\sim	Remove Headw	all To Face Parapet	
PROPOSED	STRUCT	JRE			
Station:	/	414+29.00	Bedding Class:		~
Offset:			Proposed Camb	er DR102:	
Kind:		~	Design Cover:		
Size:	CMP		Pipe Class:		~
Design No:	EXST	· · · · · · · · · · · · · · · · · · ·	Length New Cor	struction:	
Design Q:	LCP		Proposed Apron	In:	
Headwater:	RCB		Aroposed Apron	Out:	
Standard	RCP		Connection Type	e:	~
DR	UNCL		Fluine Description	on:	
А			Grade:		
-			Flowline Left:		

For this example, select RCP.

Next, select the size.

Present S	tructure				
Design No.			Drainage Area	19.15 \lor acres	Terra
Survey Stati	on	414+91.90	Description	54"x289'	
Remove Apr	on Both	~	Remove Headw	all To Face Parapet	
PROPOSED	STRUCT	URE			
Station:		414+29.00	Bedding Class:		
Offset:			Proposed Cambo	er DR102:	
Kind:	RCP	~	Design Cover:		
Size:		×.	Pipe Class:		
	12	~	Length New Con	struction:	
Design O:	15		Proposed Apron	In:	
Headwater:	18		roposed Apron	Out:	
Chan dand	21		Connection Type	s,	
Standard	24		Elurno Doscriptio		
DR	30		Carally Caral	/II.	
A	36		Grade:		
В	42		Flowline Left:		
С	48		Flowline Right:		
D	54		Flowline other		
-	60		Flowline Other		
E	20			-	
Record: I4 4 1	78	Fi	Iter Search		
Proposed Size	84	~			

For this example, it will be 54"

Present Str	ucture							
Design No.		Drainage Area	19.15 v acres	TerrainType: F	tollin			
Survey Station	414+91.9	0 Description	Description 54"x289'					
Remove Apror	Both	Remove Headw	Remove Headwall To Face Parapet					
PROPOSED S	TRUCTURE							
Station:	414+29.00	Bedding Class:	.0	~				
Offset:		Proposed Camb	er DR102:	Cor	ntrol			
Kind: R	CP 🗸	Design Cover:		Lef	t/Rig			
Size:	54 ~	Pipe Class:		~ Loc	atio			
		Length New Con	struction:	Тор) Elev			
Design Q:		Proposed Apron	In:	Тур	e			
Headwater:		Proposed Apron	Out:					
Standard		Connection Type	e:	~				
DR	~	Flume Description	on:					
A		Grade:						
В		Flowline Left:		Apr	on G			
C		Flowline Right:		Dia	phra			
D		Flowline Other		Tee	Sect			
F		Flowline Other		Red	lucer			



The Next field is the Design Q. Obtain the value from the ICH program that is used to determine the size of the proposed structure. This comes from the Iowa Runoff Chart.

Iowa Runoff Chart Drainage Area (Acres, 1 to 1280) 19.15	Com	oute Q's	Prir	nt
Land Use and Slope	Chart C	Q (ft^3/s) 7(
Land Use Mixed Cover		Return Period (Years)	Frequency Factor (FF)	Q (ft^3/s)
Slope Rolling	•		0.5	21
		10	0.7	29
C Specify		25	0.8	34
Description		50	1	42
Description		100	1.2	51
LF (0 to 1)				

For this example, it will have a Design Q of 42 because it is designed for the 50-year flood event.

Present St	ructure					
Design No.			Drainage Area	$19.15 \lor$ acres	TerrainType:	Rolling
Survey Statio	'n	414+91.90	Description	54"x289'		
Remove Apro	on Both	\sim	Remove Headw	vall To Face Parapet		\sim
PROPOSED	STRUCT	JRE				
Station:		414+29.00	Bedding Class:		\sim	
Offset:			Proposed Camb	er DR102:		Control
Kind:	RCP	\sim	Design Cover:			Left/Righ
Size:		54 ~	Pipe Class:		\sim	Location
			Length New Cor	struction:		Top Eleva
Design Q:	42		Proposed Apron	i In:		Гуре
Headwater:			Proposed Apron	Out:		
Standard			Connection Type	e:	\sim	
DR		\sim	Flume Description	on:		
A			Grade:			
В			Flowline Left:		ŀ	Apron Gu
С			Flowline Right:		[Diaphrag
D			Flowline Other		٦	Tee Sectio

The Next field is the Headwater. This will need to be calculated for the larger structures. However, the example is small enough it is left blank.

The next field is the design Standard of the proposed structure. Select the correct Standard from the Proposed Structure field by clicking on the pulldown in the DR field. For the example it will be a <u>DR-601</u>.



Note: For more information on the Iowa Department of Transportation drainage standards see the web page at this link. <u>https://iowadot.gov/design/stdplne_dr</u>





Depending on the DR Standard that is selected the appropriate information fields will become active. For example, assume the standard used is <u>DR-641</u>

The information fields A,B,C,D,E and L are now active and the corresponding information will be filled in.



Note: When entering a <u>DR-641</u> use two records in the database. One for the concrete or RCP portion of the structure and one for the CMP or plastic letdown section of the structure. Enter RCP portion on the first record with all special dimensions. Then just the letdown dimensions on the second record. This will allow the structure to be tabulated correctly.

For this design example, use a <u>DR-601</u>.

Next, select the Bedding Class:

÷.

วนเพยุ วเลเต	911 414+91.90	Description 54 X289							
Remove Apr	on Both \checkmark	Remove Headwall To Face	Parapet 🗸						
PROPOSED STRUCTURE									
Station:	414+29.00	Bedding Class:		DI					
Offset:		Proposed Camber DR102:	B Control						
Kind:	RCP 🗸	Design Cover:	Left/Right						
Size:	54 ~	Pipe Class:	Cocation Station						
Design No:		Length New Construction:	Top Elevation						
Design Q:	42	Proposed Apron In:	Туре						
Headwater:		Proposed Apron Out:							
Standard		Connection Type:	~						

For pipes it will usually be Class C. However, refer to the <u>DR-101</u> to verify.

Next, enter the Design Cover for the pipe design. This is the distance from the top of the pipe to the shoulder of the roadway. Refer to the <u>DR-102</u> to verify. For this example, it will be 2.42

Present S	tructure						
Design No.				19.1	.5 – acres	TerrainType:	Rolling
Survey Statio	on 414+	91.90	Description	54"x289'			
Remove Apr	on Both	\sim	Remove Headw	all To Face	Parapet		\sim
PROPOSED	STRUCTURE						
Station:	414+29.00		Bedding Class:		С	\sim	
Offset:			Proposed Camber DR102:			(Control
Kind:	RCP	\sim	Design Cover:			2.42	_eft/Right
Size:	5	4 ~	Pipe Class:			~ L	ocation Statio
Design No:			Length New Con	struction:			op Elevation
Design Q:	42		Proposed Apron	ln:			Гуре
Headwater:			Proposed Apron	Out:			\mathbf{N}
Standard			Connection Type	:		\sim	N
DR	DR-601	\sim	Flume Descriptio	n:			

Next, decide what class of pipe is used for this design. This is determined by the design cover and Bedding Class. Refer to the <u>DR-104</u> to verify. Use 2000 for this example.

Present S	tructure						
Design No.			Drainage Area	19.3	15 v acres	TerrainType	e: Rolling
Survey Stati	on	414+91.90	Description	54"x289'			
Remove Apr	on Both	\sim	Remove Headw	all To Face	Parapet		\checkmark
PROPOSED	STRUCTUR	RE					
Station:		414+29.00	Bedding Class:		С	~	
Offset:			Proposed Cambe	er DR102:			Control
Kind:	RCP	~	Design Cover:			2.42	Left/Right
Size:		54 ~	Pipe Class:			×	Location Statio
Design No:			Length New Con	struction:	2000		Top Elevation
Design Q:	42		Proposed Apron	ln:	3000		Туре
Headwater:			Proposed Apron	Out:	4500		∖ _
Standard			Connection Type	:	Unclassified		\
DR	DR-601	~	Flume Descriptio	in:			\ \
А			Grade:				\ \
В			Flowline Left:				Apron Guard (DR21
С			Flowline Right:				Diaphragm (DR501)
D			Flowline Other				Tee Section (DR142
1							- ·

Next, enter the Length New Construction value. This is the total length from connection point of inlet apron to connection point of outlet apron. For the example it will be 290'.

The next two fields are Proposed Apron In and Proposed Apron Out. This is used to determine how many aprons will be needed to construct the new pipe. So, for the example place a (1) in each field so that there are two 54" pipe aprons on the 104-3 tab sheet. If the design was to only extend the pipe, place a (1) in the field of the end of the pipe that was being extended, Inlet or outlet.

PROPOSED	STRUCTURE			
Station:	414+29.00	Bedding Class:	C	·
Offset:		Proposed Camber DR102:		Control
Kind:	RCP v	Design Cover:	2.4	2 Left/Right
Size:	54 ~	Pipe Class:	2000	Location Statio
Design No:		Length New Construction:	29	0 Top Elevation
Design Q:	42	Proposed Apron In:		1 🔪 Туре
Headwater:		Proposed Apron Out:		1
Standard		Connection Type:		
DR	DR-601 ~	Flume Description:		\setminus
А		Grade:		\setminus
В		Flowline Left:		Apron Guard (DR213
С		Flowline Right:		Diaphragm (DR501)
D		Flowline Other		Tee Section (DR142)
E		Flowline Other		Reducer
F		DR205 Inlet Apron Top		Demerika
G1		Total Length Left		Remarks.
G2		Total Length Right		

The next field, Connection Type, is for indicating if the design requires a connection type, either a <u>DR-122</u> or <u>DR-141</u>. Select the correct standard and the additional field will appear for the corresponding information for that standard. This will not be used for this design.

The next field is if the design uses a flume. Enter the size and type of flume in this field. This will not be used for this design.

The next field is for the Grade. This is going to be the Profile Grade Elevation that was determined while designing the structure and annotated on the cross section. For this example, it will be 972.50.

414+29.00 Bedding Class: Station: С Proposed Camber DR102: Offset: Control Design Cover: 2.42 Kind: RCP Left/Right 54 ~ Pipe Class: 2000 Location Statio Size: Length New Construction: 290 Top Elevation Design No: Proposed Apron In: 1 Design Q: 42 Туре 1 Headwater: Proposed Apron Out: Connection Type: Standard Flume Description: DR DR-601 Grade: 972.50 А Apron Guard (DR2 Flowline Left: В Diaphragm (DR50 Flowline Right: Lee Section (DR14 Flowline Other D Reducer Flowline Other F DR205 Inlet Apron Top F Remarks: Total Length Left **Total Length Right** Trenchless Total 0 L Extension Left

Note: The cross section is a great source to use to fill out the following data.

The next 2 fields will be Flowline Left and Flowline Right. This is the elevation of the flowline at the end of the pipe apron.

Note: The information was determined during the design process and annotated on the cross section for the next several fields. The cross section is a great source to use to fill out the following data.

PROPOSED	STRUCTURE			
Station:	414+29.00	Bedding Class:	C ~	
Offset:		Proposed Camber DR102:		Control
Kind:	RCP v	Design Cover:	2.42	Left/Right
Size:	54 ~	Pipe Class:	2000 ~	Location Statio
Design No:		Length New Construction:	290	Top Elevation
Design Q:	42	Proposed Apron In:	1	Туре
Headwater:		Proposed Apron Out:	1	
Standard		Connection Type:	~	
DR	DR-601 ~	Flume Description:		
А		Grade:	972.50	
В		Flowline Left:	971.69	Apron Guard (DR213
С		Flowline Right:	969.95	Diaphragm (DR501)
D		Flowline Other		Tee Section (DR142)
E		Flowline Other		Reducer
F		DR205 Inlet Apron Top		Pomarke
G1		Total Length Left		Netharks.

The next fields are used if the standard requires other flowline elevations to be reported, for example a <u>DR-632</u>.



The next field , DR205 Inlet Apron Top, is for the elevation at the top of the end wall of a <u>DR-205</u>. If this apron is used in the design, enter the elevation here.



The next two fields are to report on the Total Length Left and the Total Length Right. This is the distance from center line to end of the apron.

Note: If there is not an offset base line, this will be the offset of the point at the end of the apron.

Size:		54 ~	Pipe Class:	2000		\sim	Location Statio
Design No:			Length New Construction:			290	Top Elevation
Design Q:	42		Proposed Apron In:			1	Туре
Headwater:			Proposed Apron Out:			1	
Standard			Connection Type:			\sim	
DR	DR-601	\sim	Flume Description:				
4			Grade:	972.50			
3			Flowline Left:	971.69			Apron Guard (DR2
0			Flowline Right:	969.95			Diaphragm (DR50:
С			Flowline Other				Tee Section (DR14
Ξ			Flowline Other				Reducer
:			DR205 Inlet Apron Top				Demonster
31			Total Length Left	145.00		_	Remarks:
32			Total Length Right	145.00	-	_	
_			Trenchless Total		I	0	
N			Extension Left				
٦			Extension Right				
			CI AL				

The next field is for reporting the Trenchless Total. This will refer to a pipe that requires to be jacked in place during installation as opposed to being replaced by cut and cover. This field is to enter the total distance of that pipe that is to be jacked.

····						,
Size:		54 ~	Pipe Class:	2000	\sim	Location Statio
Design No:			Length New Construction:		290	Top Elevation
Design Q:	42		Proposed Apron In:		1	Туре
Headwater:			Proposed Apron Out:		1	
Standard			Connection Type:		\sim	
ЭR	DR-601	\checkmark	Flume Description:			
4			Grade:	972.50		
3			Flowline Left:	971.69		Apron Guard (DR2
0			Flowline Right:	969.95		Diaphragm (DR50:
С			Flowline Other			Tee Section (DR14
Ξ			Flowline Other			Reducer
=			DR205 Inlet Apron Top			
31			Total Length Left	145.00		Remarks:
<u>32</u>			Total Length Right	145.00		
_			Trenchless Total	I	0 🔺	
M			Extension Left			
3			Extension Right			
			Cl Al I. I EL			

The next two fields are for if the design is to extend the existing structure. Enter the total distance in the direction of the extension that is to be constructed.

Design Q.	42		-	туре	
Headwater:		Proposed Apron Out:	1		
Standard		Connection Type:	\sim		
DR	DR-601 ~	Flume Description:			
А		Grade:	972.50		
В		Flowline Left:	971.69	Apron Guard (Df	R213)
С		Flowline Right:	969.95	Diaphragm (DR5	01)
D		Flowline Other		Tee Section (DR1	142)
E		Flowline Other		Reducer	
F		DR205 Inlet Apron Top		Domorka	
G1		Total Length Left	145.00	Remarks:	
G2		Total Length Right	145.00		
L		Trenchless Total	0		
Μ		Extension Left			
R		Extension Right			
Х		Skew Ahead Left			
Elbow 1		Skew Ahead Right			
Elbow 2					
Standard Dr					

The next two fields are for if the structure is skewed, enter the degree of the angle of the skew in the appropriate field Right or Left.

Station:	414+29	0.00	Bedding Class:	C ~	
Offset:			Proposed Camber DR102:		Contr
(ind:	RCP	\sim	Design Cover:	2.42	Left/F
Size:	54	1 ~	Pipe Class:	2000 ~	Locat
Design No:			Length New Construction:	290	Top E
Design Q:	42		Proposed Apron In:	1	Туре
Headwater:			Proposed Apron Out:	1	
Standard			Connection Type:	~	
DR	DR-601	\sim	Flume Description:		
4			Grade:	972.50	
3			Flowline Left:	971.69	Apron
2			Flowline Right:	969.95	Diaph
)			Flowline Other		Tee S€
-			Flowline Other		Reduc
-			DR205 Inlet Apron Top		
51			Total Length Left	145.00	Remar
52			Total Length Right	145.00	
-			Trenchless Total	0	
VI			Extension Left		
3			Extension Right		
<			Skew Ahead Left		
Elbow 1			Skew Ahead Right		_
Elbow 2					
Standard Dr					

The next five fields are for when a dike is included in the drainage design.

	C ~		DIKE
2:		Control	
	2.42	Left/Right	
	2000 ~	Location Statio	
1 :	290	Top Elevation	
	1	Туре	
	1		
	~		

The next field is for if the design has an <u>DR-213</u>. Enter the number that is needed for that structure.

1	Туре		Nur
~			
972.50			
971.69	Apron Guard (DR	213)	
969.95	Diaphragm (DR50	01)	
	Tee Section (DR1	42)	
	Reducer		
	Remarks:		
145.00			
145.00			

The next field is for when the design has an <u>DR-501</u>. Enter the number that is needed for that structure.

1	Туре		Nur
972.50			
971.69	Apron Guard (D	R213)	
969.95	Diaphragm (DR	501)	 _
	Tee Section (DR	142)	
	Reducer		
	Pomarka		
145.00	Netharks:		
145.00			

The next field is for when the design has an <u>DR-142</u>. Enter the number that is needed for that structure.

1 1 ~	Туре			Nur
972.50				
971.69	Apron Guard (D	R213)		
969.95	Diaphragm (DR	501)		
	Tee Section (DR	142)	+	
	Reducer			
	Remarks:			
145.00	Nemarks.			
145.00				

The next field is for when the design has a Reducer. Enter the number and size that is needed for that structure.

1	Туре			Nur
972.50				
971.69	Apron Guard (D	R213)		
969.95	Diaphragm (DR5	501)		
	Tee Section (DR	142)		
	Reducer			
145.00	кетагкs:			
145.00				

The next field is for Remarks. This is intended for the designer to include the design intent and direction on the staging of the replacement for the proposed structure.

Examples of typical remarks:

Plug and abandon exist median drain at Sta 1451+26. Jack 78' of 24" RCP then lay one 6' DR141 Type "D" double bevel section + apron on inlet end at Sta. 1452+25 – 51' Lt

or

Remove 30 ft of existing 36 in RCP. Replace with 42 ft of 36 in RCP with one DR-141 7.5-degree D section beveled end to the RT. Tie new pipe to old pipe with longitude tie bars.

The purpose of the remarks is to eliminate questions during the construction phase of the project.

PROPOSED STRUCTURE

Station:	414+29.00	Bedding Class:	C ~		DIKE	
Offset:		Proposed Camber DR102:		Control		
Kind:	RCP v	Design Cover:	2.42	Left/Right	~	
Size:	54 ~	Pipe Class:	2000 ~	Location Statio		
Design No:		Length New Construction:	290	Top Elevation		Roadway
Design Q:	42	Proposed Apron In:	1	Туре		Number
Headwater:		Proposed Apron Out:	1			
Standard		Connection Type:	~			
DR	DR-601 V	Flume Description:				
A		Grade:	972.50			
В		Flowline Left:	971.69	Apron Guard (DF	R213)	
С		Flowline Right:	969.95	Diaphragm (DR5	01)	
D		Flowline Other		Tee Section (DR1	142)	
E		Flowline Other		Reducer		
F		DR205 Inlet Apron Top				
G1		Total Length Left	145.00	Remarks:	Remove or plug and abandon exis RCP at Sta. 141+91.90 Replace wi	ting 54" th 290' 54"
G2		Total Length Right	145.00	F	RCP at Sta. 141+29.00 with inlet a	nd outlet
L		Trenchless Total	0	á	aprons. Cut and cover.	
Μ		Extension Left				
R		Extension Right				
Х		Skew Ahead Left				
Elbow 1		Skew Ahead Right				
Elbow 2						
Standard Dr						

Once all the correct fields that corresponds with that structure standard are entered in the record, move to the next record and repeat the process. If the next structure is to be replacing an existing structure, find the records that were imported from the CCRRRPPP_PINKS.sccdb that corresponds with that structure. If the next structure does not replace an existing structure, make a new record.

Click the buttons at the bottom of the record or the arrow buttons in the access database task bar to navigate to the desired record.



Once a record for each structure in the drainage design is finished, create the Schedule Sheet. Click on the Schedule Sheet button at the bottom of the record.

59	Apron Gu	ard (DR213)					
9 5	Diaphrag	m (DR501)					
	Tee Section	on (DR142)					
	Reducer						
00	Remarks:	Remove RCP at 5 RCP at 5 aprons.	e or plug and aban Sta. 141+91.90 Rej Sta. 141+29.00 wit . Qut and cover.	don existing 5 olace with 290 h inlet and ou	4" ' 54" tlet		
M Last	χ	Delete Curren	t	ain Menu		Schedule Sheet 🖡	

All the records in the project are compiled onto a Schedule Sheet.

५ ∙ ∂	- -			Bridges8	Structures :	: Datab	oase- W	:\Highw	vay∖De:	sign\C	ADD\A	ccess\B	ridges & S	itructur	es Data	base\	Bridges&	Structu	res.accdt	o (Acce	ss 2007	- 2016	file for	rmat)	- Acce	ess	9Y	R	liedric	h, Eric 🕚	~9
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BRIDGE AND CULVERT SCHEDULE				FILE NO	DESIGNER IN CHARGE							A B		C Z	M	1	MW RECEIVE CLEAR TO ROA					DESIGN				NO. DESIGNS NO. PIPES					
PROJECT NO NHSN-034-8(159)2R-51			PIN NO 21-51-034-010				DRAINAGE Claman\Diedrich							BW		E	х					TO FINAL DESIGN									
LOCATION	0.3 mi	E of Bus 34 In	terchange to 0.4 n	n	то			TRAFF	IC COUN	п		VPD	YR	S	EE ROAD	DESIG	N TYPICAL I	۹0.		Date											
DESIGN		PRESEN	STRUCTURE					PROPOSED						STRUCTURE												DIKE					
				LOCA	TION	-					APRON	ADAPTER DR-122	6			ELEVA	TION	DR-20			IONS (E)	ENSIONS	SKEW /	AHEAD REES)							
NUMBER	DRAINAGE AREA	SURVEY	DESCRIPTION	STATION	OFFSET	DR	SIZE	KIND	LGTH NEW CONST	DESIGN COVER (H)		T TYPE NO	FLUME DESCRIPTIO	N GRADE	LEFT	RIGHT	OTHER OTH	APROI TOP ER ELEV	N LEFT RI	GHT TO	NCH SS TAL LEF	r RIGHT	LEFT	RIGHT	CNTR	LT/RT	LOCATION	TOP	TOP	DISPOSITION OF PRESENT	
	19.15- Rolling	414+91.90	54"x289'	414+29.00		DR-601	54	RCP	290	2.42	1 1			972.50	971.69	169.95			145.00 14	15.00)									Poor	Remove or p at Sta. 141+ at Sta. 141+
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The next step, will be to create a PDF of the Schedule Sheet. Click on the Create PDF button at the top of the Schedule Sheet.

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Home	e Cre	ate Ex	ternal Data	Database	Tools	Help	\$	O Tel	l me v	/hat y	ou wa	nt to	do																			
																		Create			te PDF			Entry	Form		Main Menu					
BRIDGE	AND CL	JLVERT S	CHEDULE	E NO.					DESIGNER IN CHARGE							С		M		MW	Î.	RECEIVED				NO. DESIGNS						
PROJECT N	O NHSN-I)34-8(159)2	R-51	PIN NO	ROAD Holst\Ackerman DRAINAGE Claman\Diedrich							BI	w	E		x		CLEAR	FINAL	DESIGN				DESIGNS								
LOCATION	0.3 mi	E of Bus 34 In	terchange to 0.4 n	то					TRAFFIC COUNT VPD YR						SEE ROAD DESIGN TYPICAL NO.						Date											
DESIGN		PRESENT	STRUCTURE					PR						PROPOSED STRUCTURE													DIKE					
NUMBER	DRAINAGE AREA	SURVEY STATION	DESCRIPTION	LOCA	OFFSET	DR	SIZE	KIND	LGTH NEW CONST	DESIGN COVER (H)		ADAP DR-3	TERS 122 NO. DES	LUME	GRADE I	LEFT N	GHT OTH	R OTHER	DR-205 INLET APRON TOP ELEV	DI TOTAL	TRENCH LESS IT TOTAL LE	NSIONS	SKEW (DEG	HEAD REES)	CNTR	LT/RT	LOCATION	TOP	TOP	DISPOSITION OF PRESENT		
	19.15- Rolling	414+91.90	54*x289'	414+29.00		DR-601	54	RCP	290	2.42	1 1				972.50 9	71.69 96	9.95			145.00 145.	0 0									Poor	Remove or plug at Sta. 141+91.9 at Sta. 141+29.0 aprons. Cut and	
	11.5-Hilly	228+15.65	54"x432'							I											0									Fair		

It will open the dialog box asking to select a directory to save the PDF file. For this example, use the C:\WORK directory that was created to download the CCRRRPPP_PINKS.sccdb to. Once the directory is selected, click the OK button.


It will create the PDF of the Schedule Sheet in that directory and name the file Project NumberScheduleSheet.PDF. For this example it would be named "NHSN-034-8(159)—2R-51ScheduleSheet.pdf". It will display this message to indicate when it is done. Click the OK button to dismiss.

Microsoft Access	×
Your file was saved at C:\WORK\NHSN-034-8(159)2R-51ScheduleSheet.pdf	
ОК	

Next, exit the database. Click on the Main Menu button at the top of the Schedule Sheet.

				Bridges8	kStructures	: Datab		\Highw	ay∖Desi	gn\CAD		\Bridges &		s Databas	e\Bridges8			Access			format)					Diedric	h, Eric	0	
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DRIDGE	AND C	OLVERTS	CHEDOLE	FILE NO				ROAD	Ho	lst\Ackern	nan		E		Z	т		CLEAR			TO ROAD	DESIGN				NO. PI	PES		
PROJECT NO	D NHSN-	034-8(159)	R-51	PIN NO	21-51	L-034-010)	DRAIN	AGE Cla	man\Died	rich		E	W	E	Х					TO FINAI	DESIGN				DESIG	NS		
LOCATION	0.3 mi	E of Bus 34 In	nterchange to 0.4 n	n	то			TRAFFI	C COUNT		Vi	PD YR	SE	ROAD DES	IGN TYPICAL	NO.	1	Date											
DESIGN		PRESEN	T STRUCTURE									PROPOSED :	STRUCTURE											DIKE		_			
				LOCA	TION						ADAPI	TERS		ELE	VATION		DI	MENSIO	NS (E)	SKE	W AHEAD						- I		
NUMBER	DRAINAGE AREA	SURVEY	DESCRIPTION	STATION	OFFSET	DR	SIZE	KIND	LGTH C NEW CONST	DESIGN COVER (H) IN	OUT TYPE	FLUM	E ION GRADE	LEFT RIGH	T OTHER OTH	DR-205 INLET APRON TOP ER ELEV	LEFT RIGH	TRENCI	LEFT RIGI	IS (DI	EGREES)	CNTR	LT/RT	LOCATION	TOP	TOP	DISF DSI	ITION OF	
	19.15-	414+91.90	54"x289'	414+29.00		DR-601	54	RCP	290	2.42 1	1		972.50	71.69 969.1	5		145.00 145.0	0 0									P	oor	Remove or p
	Rolling																												at Sta. 141+ at Sta. 141+ aprens. Cut
	11 S-Milly	228+15.65	54"x432'						Ĩ									0									1	air	

Once in the Main Menu, click on the Exit Database button.

e Home	Create	External Data	Database Tools	Help	٩	Tell me what you want to do
		Main	Menu			
		<u>Proje</u>	ect List			
		<u>Survey</u>	<u>Records</u>			
		Create Nev	/ Project File		N	
		₽_Export	to 104-3		13	
		 Export Sch 	edule Sheet			
		💌 Exit D	atabase 🔶			

Place the Project NumberScheduleSheet.pdf file in the Bridge\Design Events\B01\ folder of the project directory in project wise.