

This document guides you through creating a new sheet file in MicroStation. We will be going over placing the sheet border around coordinate based model graphics. Setting up sheets this way maintains the coordinate based information and measurements are in real-world dimensions. This is a complimentary guide to Chapter 11, Drawing Composition from the Roadway Drafting Using MicroStation Manual.

# Setting up the Sheet File:

## **Beginning a New Drawing File**

1. From the MicroStation Manager, select File > New.

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"jles:	Directories:	
	C:\Projects\55555\	3D - V8 DGN
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MicroStation DGN Files [* dgn]		
Eead-Only		Cancel
C Show File Igons		
Workspace		
User User	CDOT User	*
Project	55555	
Interface:	CDOT	-

2. Enter a drawing file name that corresponds to the next consecutive sheet number and place it under the appropriate file location under C:\Projects\.....

55555DES_EarthworkQuant##.dgn 55555DES_GenNote##.dgn 55555DES_Plan##.dgn 55555DES_PnP##.dgn 55555DES_Prof##.dgn	Ch Cr. Ch Projects Ch 55555 Ch Design	
555550ES_SAQ##Ldgn 555550ES_StdPlanList.dgn 555550ES_TabConc##Ldgn 555550ES_TabConc##Ldgn 555550ES_TabMisc0H.dgn 555550ES_TabRem##Ldgn	Drawings Cross_Sections Reference_Files Tabs	<u>D</u> K Cancel
File <u>Type:</u> MicroStation DGN Files [*.dgn] 🗾 🔽	Drives:	

3. Verify that the desired **Seed File** is selected. If it is not, <D> **Select** and navigate to C:\Program Files\Workspace\_CDOT\Standards-Global\MicroStation\Seed\.

New		
Directory		
Files:	Directories:	
55555DES_Plan01.dgn	C:\Projects\55555\Design\Drawings\	
55555DES_EarthworkQuant##.dgn     55555DES_GenNorbe##t.dgn     55555DES_Plant#t.dgn     55555DES_Phof##t.dgn     55555DES_Phof##t.dgn     55555DES_SAQ##t.dgn     55555DES_SAQ##t.dgn     55555DES_SAQ##t.dgn     55555DES_TabConc##t.dgn     55555DES_TabCinc##t.dgn     55555DES_TabMisc0#t.dgn     55555DES_TabMisc0#t.dgn     55555DES_TabMisc0#t.dgn     55555DES_TabMisc0#t.dgn	C:\ Projects 55555 Design Drawings Cross_Sections Reference_Files Tabs	<u>D</u> K Cancel
File <u>T</u> ype:	Dri <u>v</u> es:	
MicroStation DGN Files [*.dgn]		<u>H</u> elp
Show File I <u>c</u> ons		
- Seed File	3D-Seed_CDOT.dgn	<u>S</u> elect

4. Highlight the desired file (for this example: **3D-Seed\_CDOT.dgn**) and **<D>OK**.

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iles	Directories:	
3D-Seed_CDOT.dgn	\Standards-Global\MicroStation\seed\	
2D-Seed_CDOT.dgn	🗁 C.\	
3D-Seed_CDOT.dgn	🗁 Program Files	
4-Sig-Fig-Seed_CDOT.dgn	Workspace-CDOT  Standards-Global  MicroStation  Seed	
		<u>0</u> K
		Cancel

<u>Note:</u> All disciplines use the 2D-Seed\_CDOT.dgn and the 3D-Seed\_CDOT.dgn. The 4-Sig-Fig-Seed\_CDOT.dgn is a special bridge seed file.

5. In the New dialog box, <D> OK.

New		
Directory Fijes: 55555DES_Plan01.dgn 55555DES_GenNote##.dgn 55555DES_GenNote##.dgn 55555DES_Plan##.dgn 55555DES_Plan##.dgn 55555DES_Stal##.dgn 55555DES_Stal#M.dgn 55555DES_TabCnot##.dgn 55555DES_TabCnot##.dgn 55555DES_TabMisc01.dgn 55555DES_TabMisc01.dgn 55555DES_TabRem##.dgn 55555DES_Tab	Directories: C:VProjects\55555\Design\Drawings\ C.\ Projects 55555 Design Drawings Cross_Sections Reference_Files Tabs	ŪĶ
File Type: MicroStation DGN Files [".dgn] Show File Igons Seed File \Standards-Global\MicroStation\seed\3	Drives: C: D-Seed_CD0T.dgn	Cancel Help

6. The file you created will be highlighted in the MicroStation Manager. <D> OK to open that file.

File Directory Help		
Files 55555DES_Plan01.dgn	Directories: C:\Projects\55555\Design\Drawings\	3D - V8 DGN
55555DES_Plan01.dgn 55555DES_PrP##t.dgn 55555DES_Soft#t.dgn 55555DES_StAQ##t.dgn 55555DES_StAQ##t.dgn 55555DES_TabConc##t.dgn 55555DES_TabConc##t.dgn 55555DES_TabRen##t.dgn 55555DES_TabRen##t.dgn 55555DES_TabRen#tt.dgn 55555DES_TabRen#tt.dgn	<ul> <li>C\</li> <li>Projects</li> <li>55555</li> <li>Design</li> <li>Drawings</li> <li>Cross_Sections</li> <li>Reference_Files</li> <li>Tabs</li> </ul>	
List Files of <u>T</u> ype: MicroStation DGN Files [*.dgn] <sup>™</sup> □ <u>R</u> ead-Only	Drives:	<u>D</u> K Cancel
☐ Show File I <u>c</u> ons		
<b>2</b>	User: [CDOT User 💌 oject: [00000 💌 face: [CDOT 👻	

# **Attaching Model Files to the Sheet File**

7. Select File > Reference.

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	Ctrl+O
Close	Ctrl+W
Save As	Ctrl+S
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Sa <u>v</u> e Settings	Cul+r
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Save Settings  Reference  Raster Manager  Models  Import Export Print Preview	,
Save Settings  Reference Raster Manager Models Import Export Print Preview Print Preview Print	

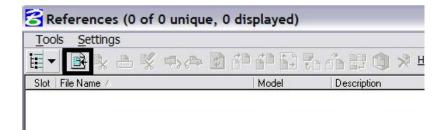
Or choose the **Reference** icon from the **Primary Tools** toolbar.

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8. From the Reference Manager tool bar select Tools > Attach

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Reload					
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Mirror Horizontal					
Mirror Vertical					
Clip <u>B</u> oundary	1				
Clip Mask					
Delete Clip					
Clip Front					
Clip Back	1				

Or choose the Attach Reference icon



9. Search for the model file and verify the Attachment Method is set to *Interactive*. <D> OK.

Attach Reference		
<u>File</u> <u>Directory</u>		
Fijles:	Directories:	
55555DesignModel01.dgn	\Design\Drawing\Reference_Files\	3D - V8 DGN
55555DES_Interchange.dgn	🔁 C:\	
55555DES_Intersec.dgn		the state of the s
55555DES_Model.dgn 55555DES_Phasing.dgn	25555 C Design	
55555DES Prof.dgn	Crawings	
	📂 Reference_Files	The second se
List Files of Type:	Drives:	Attachment Method:
MicroStation DGN Files [*.dgn]		Interactive
Save Relative Path		<u>OK</u> Cancel

**Note:** You can select more than one file at a time by holding the **Shift** or **Ctrl** keys down while making your selection. You can also *Drag and Drop* directly from Windows Explorer into the **Reference Manager** Tool box, selecting several files at one time as mentioned above.

In the Reference Attachment Settings dialog box, key in a logical name and a description. For instance, the logical name might be *Design* for the Design Model drawing. The other settings should not have to be edited. *Coincident-World* is selected by default. Also the Scale is set at 1:1 by default. Verify True Scale is checked ON. <D> OK.

Reference Attac	hment Settings for 55555DES_Model
Full Path:	55555DES_Model.dgn \Reference_Files\55555DES_Model.dgn CDDT Default
Logical Name: Description:	Global Origin aligned with Master File
Orientation:	
Name	Description 🔺
Coincident	Aligned with Master File
Coincident - World	Global Origin aligned with Master File
Top Front Right	Standard View Standard View Standard View
Scale (Master:	Ref) [1.000000[] : [1.0000000[] . ☑ <u>I</u> rue Scale
<u>N</u> ested Attachmu I <u>D</u> isplay Raster 	ents: <u>No Nesting</u> Depth: 1 References Cancel Options

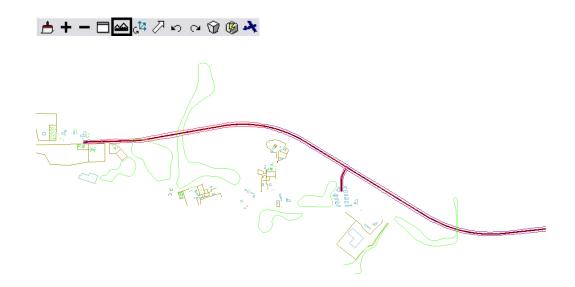
**Note:** When **Coincident World** under *Orientation* is selected and a **Scale** factor of **1:1** is entered, plan graphics are being referenced to the sheet file with the true coordinate information. All other attachment methods will not maintain the true coordinate values.

11. The files will be shown in the **References** dialog box.

<mark>З</mark> Ref	ferences (2 of 2 unique, 2 d	isplayed)			$\mathbf{X}$
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Slot	File Name	Model Description Logical	Presentation	• ಎ	
1	55555DES_Model.dgn	CDO Global Origin al	Wireframe	$\checkmark$ $\checkmark$	$\checkmark$
2	55555SURV_Model.dgn	CDO Global Origin al	Wireframe	$\checkmark \checkmark$	~
Scale	1.000000 : 1.000000 Rota	tion X 0°0'0'' Y 0°0'0'' Z 0°0'0''			
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**Note:** Whenever you make graphical model file changes, your sheet file will automatically update.

12. Fit View using the icon so all graphics are displayed.



13. Select File > Save Settings from the **Primary** toolbar.

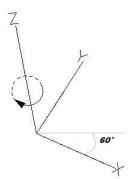
ile	Edit	Element	Settings	Tools	Utilities	Workspace	Window	Help	
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ž	Open								Ctrl+O
	Close								Ctrl+W
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### **Rotating the View**

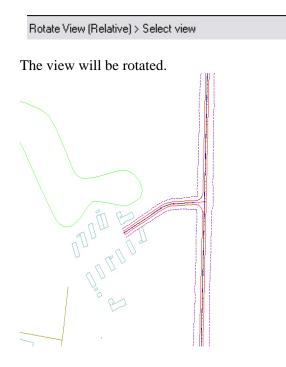
- 14. After the references are attached, you may need to rotate the view depending on the layout of the sheet. <u>Note:</u> You are not rotating the reference file(s). You are only rotating the view. The coordinate system will not change.
- 15. One option to rotate the view is to Key-in *rv* = *x*,*y*,*z* and press <**Enter**> or <**Tab**>.

Key-in	×
rv=0,0,-60	₹₹

**<u>Note:</u>** x = 0, y = 0, and z =Rotation Angle. You are rotating the view about the z-axis. This is the axis perpendicular to the view. Otherwise, if you are working in a 2D file the key-in would be *rv = value of rotation*.



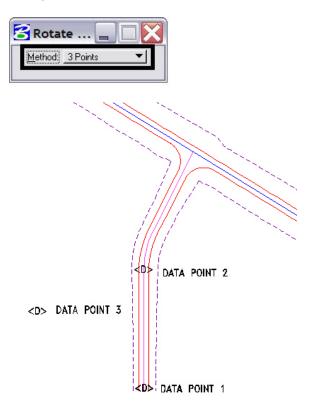
16. You will be prompted to select the view you would like to rotate in. **<D>** in the active view window to select the view.



17. You can also elect to rotate the graphics using **3 Points**. Select Rotate View.



Change the Method to 3 Points.



<u>Note:</u> Make sure you are picking a data point near the 3D element. Do not snap to 3D elements because you will be rotating along the z axis instead of just the x and y plane. Turn Accusnap off or you can hold the  $\langle Ctrl \rangle$  and  $\langle Enter \rangle$  keys down at the same time to temporarily disable Accusnap while you are locating the data points.

The view will be rotated.



### Attaching the Border, Bar Scale, North Arrow, and Resident Engineer/Survey Supervisor Cells

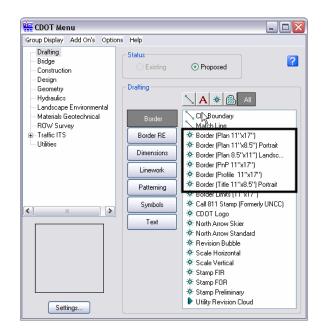
- 🙀 CDOT Menu \_ 🗆 🔀 Group Display Add On's Options Help Drafting Status Bridge ? Proposed Construction Design Drafting Geometry Hydraulics 🔨 A 🚸 🙆 🗛 Landscape Environmental 🔨 Clip Boundary Materials Geotechnical ROW Survey Match Line 🗄 - Traffic ITS Border RE 🔆 Border (Plan 11''x17'') Utilities \* Border (Plan 11"x8.5") Portrait Dimensions \* Border (Plan 8.5''x11'') Landsc... \* Border (PnP 11"x17") Linework \* Border (Profile 11"x17") 🔆 Border (Title 11''x8.5'') Portrait Patterning \* Border Limits (11"x17") \* Call 811 Stamp (Formerly UNCC) Symbols 🔆 CDOT Logo Text ✤ North Arrow Skier ✤ North Arrow Standard 🔅 Revision Bubble 🔆 Scale Horizontal 🔆 Scale Vertical 🔆 Stamp FIR \* Stamp FOR \* Stamp Preliminary Utility Revision Cloud Settings...
- 18. From the CDOT Menu, select Drafting > Borders.

19. <D> Settings if the desired sheet scale is something other than 1" = 100'. In the Active Settings dialog box you can change the Active Scale and the Active Angle.

🟪 Active Set	tings	_ 🗆 🖂
Active Scale:	100.00	Apply
Active Angle:	0.00	Close

**Note:** The Active Angle is view independent and not associated with view rotation. Therefore, the x-axis is always horizontal regardless of the view rotation. You will not need to set this for correct placement of the North Arrow or other cells.

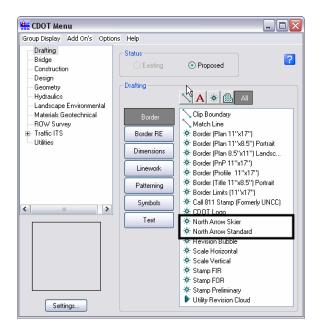
20. Select the desired sheet border cell from the list.



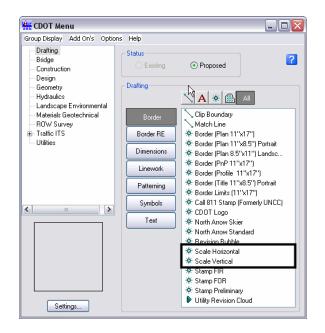
21. Once a sheet border is selected, you will be prompted to locate the lower left hand corner of the sheet border (the cell's origin). Move the cell to the desired location and <D>.

Place Active Cell > Enter cell origin

22. Select the desired North Arrow. Move the cell to the desired location and <D>.



23. Select a Bar Scale if desired. Move the cell to the desired location and <D>.



24. Finally, select the Border RE button, then select the desired Region Engineer cell. <T> to the location shown in the illustration below and <D> to accept placement.

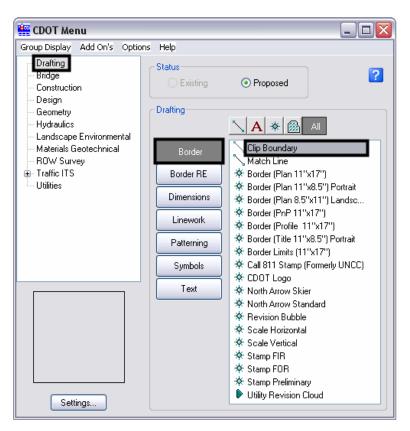
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**Note:** Contact the CADD Manager if any edits need to be made to a Region Engineer cell. Remember, you **can** edit the cell with the **Edit Text** command until the changes are available in the next configuration.

- 25. Double click on any of the text fields in the border to add sheet specific information.
- 26. Coordinate with the Region Surveyor when you are creating sheets that are not at a 1:100 scale. They will provide you with the topography and survey MicroStation files at a different scale. Otherwise, the line work and cells will not be the correct size for the print scale.

## **Placing a Clip Boundary**

27. From the CDOT Group Menus select **Drafting > Border > Clip Boundary**.

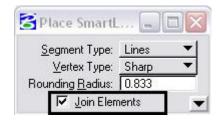


Verify the **SHEET\_Clip-Boundary** level is active.

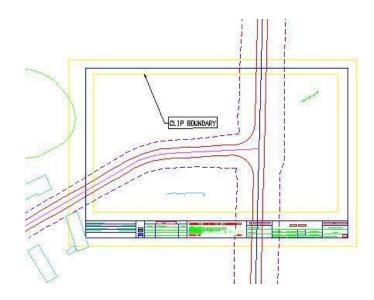


Note: The level SHEET\_Clip-Boundary will not print.

28. The Place Smart Line command will be active. Verify the option for Join Elements is checked ON and draw a closed shape that will represent your clipping boundary of the model file.



29. Otherwise, if the clipping boundary shape is rectangular, select the **Place Block** icon



from the **Main** toolbar.

### **Clipping the Reference File**

30. In **References** dialog box, highlight the Reference file to be clipped. Select the **Clip Reference** icon.

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Model	Description	Logical		21
CDOT Default	Global Origin aligne	Design	$\checkmark$	4 .
CDOT Default	Global Origin aligne	Survey	$\checkmark$	1.
	Model CDOT Default	Model Description CDOT Default Global Origin aligne	Model Description Logical CDOT Default Global Origin aligne Design	Model         Description         Logical           CDOT Default         Global Origin aligne         Design         ✓

**Note:** You can select more than one reference file at a time by holding the **<Shift>** or **<Ctrl>** keys down while you are making your selection. You can clip multiple drawings in one step when they are all selected.

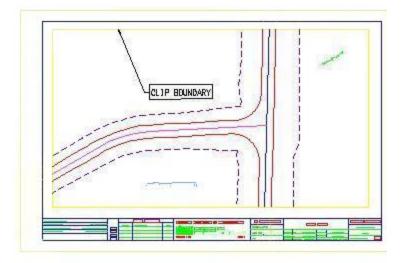
31. The following dialog box will open. Verify Method is set to *Element*.



32. You will be prompted to select the **Element** you want to clip the reference from. Select the rectangular element that was placed inside the boarder on **GEN\_SHEET\_Clip-Boundary** level.

Set Reference Clip Element > Identify Clipping Element

33. Fit the MicroStation view and Save Settings after clipping the reference files.



**Note:** Once the clipping boundary is placed, do not delete it. The clipping region of the reference file will be lost.

# **Additional Sheet File Information**

# Setting up Text and Dimension Scale in the Sheet File

34. You must change the Annotation Scale Factor if the border cell was scaled to a factor other than 1:100. Otherwise, the text size in the sheet file will not correspond to the scale factor chosen when placing the border cell.

Select File > Models from the **Primary** toolbar.

it Element	<u>S</u> ettings	<u>T</u> ools <u>U</u> tilit	ies Wor <u>k</u> space	<u>W</u> indow	<u>H</u> elp	Ctrl+N Ctrl+O Ctrl+W Ctrl+S
<u>A</u> s						Ctrl+O Ctrl+W
<u>A</u> s press						Ctrl+W
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35. Select the **Edit Model Properties** icon

3 Models		
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Type 2D/3D Name /	Description	※  Cell Type
🗇 📓 CDOT Default	Master Model	

36. The **Annotation Scale** factor defaults to 1:100. Select the arrow to change the scale factor. If you try to place text before setting this, it will be too large since the drawing plot scale is at a 1:40.

Name: CDOT Default	
escription: Master Model	
lef Logical:	
🛃 [1:100 💌 [100.0000] : [1:0	0000
Cell Properties	
Cell Type: Graphic 💌	

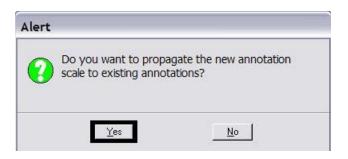
37. From the pull down, select the **Annotation Scale** factor to match the scale factor used when placing the border cell.

Model Pro	perties	
<u>I</u> ype:	Design 🔻	3D 💌
<u>N</u> ame:	CDOT Default	
Description:	Master Model	
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	1:200	e l
	1:100	<b></b>
	1:60	
	1:50	Cancel
	1:40	

38. In this example, an annotation scale factor of 1:40 is chosen. Select **OK**.

Type:	Design 🔻	3D 💌
<u>N</u> ame:	CDOT Default	
escription: 🗍	Master Model	
<u>R</u> ef Logical:		
<b>A</b> [	:40 💌	40.00000 : 1.00000
Cell Properties		5 — <u>565</u> — 51
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C	ell Type: Graphic	* .
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10 m		

39. You will be prompted with the following dialog box. *<D>Yes.* This selection results in the update of any text previously placed in your sheet file.



40. You can now add text to the new sheet file. It will be scaled to the correct height based on the plot scale or in this case 1:40.

🔁 Pl	ace Text		-		
Г	<u>M</u> ethod: Text Style Active <u>A</u> ngle: <u>H</u> eight: Width:	0°0'0.00'' 0.002		÷	
				Lock : (	ion Scale DN 10.000000 : 1

**Note:** Annotation Scale Lock must be turned **ON** when placing text or dimensions for the scale factor to take affect. Verify it is **ON** by hovering with your cursor over the  $\blacksquare$  icon.

41. Select File > Save Settings before you exit MicroStation.