

Workflow MS 7 - Creating Multiple Plan Sheets

This document guides you through manually assembling multiple plan sheets using MicroStation. Your first step will be to create a layout of how you want all your sheets printed out. Second, you will create the individual sheet files using those layouts. The major benefit of this workflow is the limits and orientations of plan sheets are determined early in the process. These sheet limits can be used to identify proper position, size, and rotation of text and tables.

Workflow Outline

Placing the Sheet Plan Limits Cell - The sheet limits cells are used to mark the location of each sheet on the project. The cells are placed along the project's alignment and rotated so that the alignment runs across the cell.

- ◆ **Commands Used: CDOT Menu > Drafting > Border** - Used to set the rotation and scale, select, and place cells.
- ◆ **Measure Angle** - Used to determine the rotation angle for the sheet.
- ◆ **Rotate** - Used to rotate the cell by the angle determined above.
- ◆ **Edit Text** - Use to record rotation angle and scale on the sheet limits cell.

Assembling the First Plan Sheet - The first sheet is created by rotating the view if necessary, adding the sheet border and other cells, and clipping reference files to the sheet limits.

- **Commands Used: rv=0,0,## key in** - A method to rotate the view.
- **CDOT Menu > Drafting > Border** - Used to set the rotation and scale, select, and place cells.
- **References > Clip Boundary** - Used to hide reference file data in areas outside of the clip boundary. The Element method is used to clip the references.

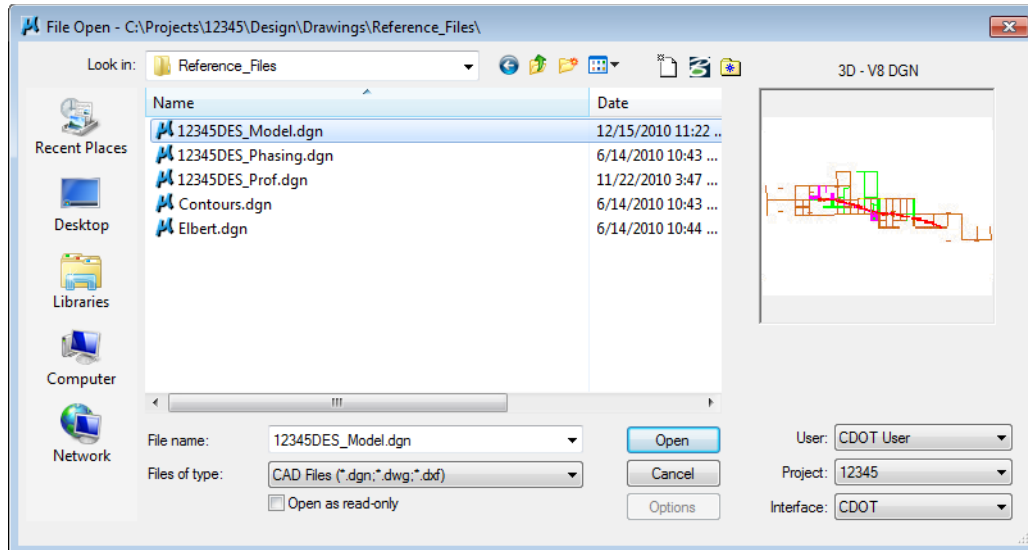
Assembling the Remaining Plan Sheets - The remaining sheets are created by Copying the first sheet then modifying the copy. This is done by moving the sheet border and other cells to the location of the new sheet, rotating them to match the sheet orientation, and reclipping the reference files.

sheet border and other cells, and clipping reference files to the sheet limits.

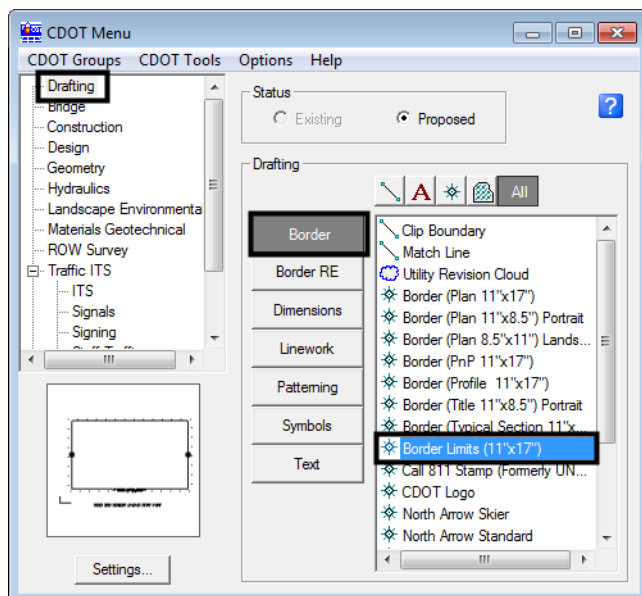
- **Commands Used: File > Save As** - Used to make a copy of the first pan sheet.
- **Move** - Used to reposition the border and other cells.
- **Rotate** - Used to rotate the cells to the proper angle for the new sheet.
- **rv=0,0,## key in** - A method to rotate the view.
- **References > Clip Boundary** - Used to hide reference file data in areas outside of the clip boundary. The Element method is used to clip the references.

Placing the Sheet Plan Limits Cell

1. Open a MicroStation model file that you will be basing your plan sheets on.



2. On the **CDOT Menu**, select the **Drafting** group.
3. <D> the **Border** button.
4. <D> on **Border Limits (11"x17")** in the options list.

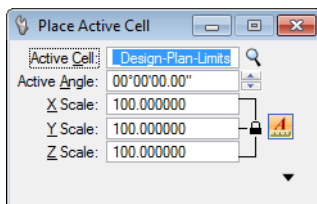


Note: About the Sheet Plan Limit cell: This cell helps to define the plan sheet limits in the model file before placing the border. It contains text characters that can be edited to indicate sheet name, rotation, & scale. The outer line-work depicts the maximum display limits for graphics as it relates to the border sheet. The inside shape reflects ½ inch inside this maximum limit and is the clipping boundary. All graphical information for this cell is on the MicroStation level, **DRAFT_INFO_No-Plot**.

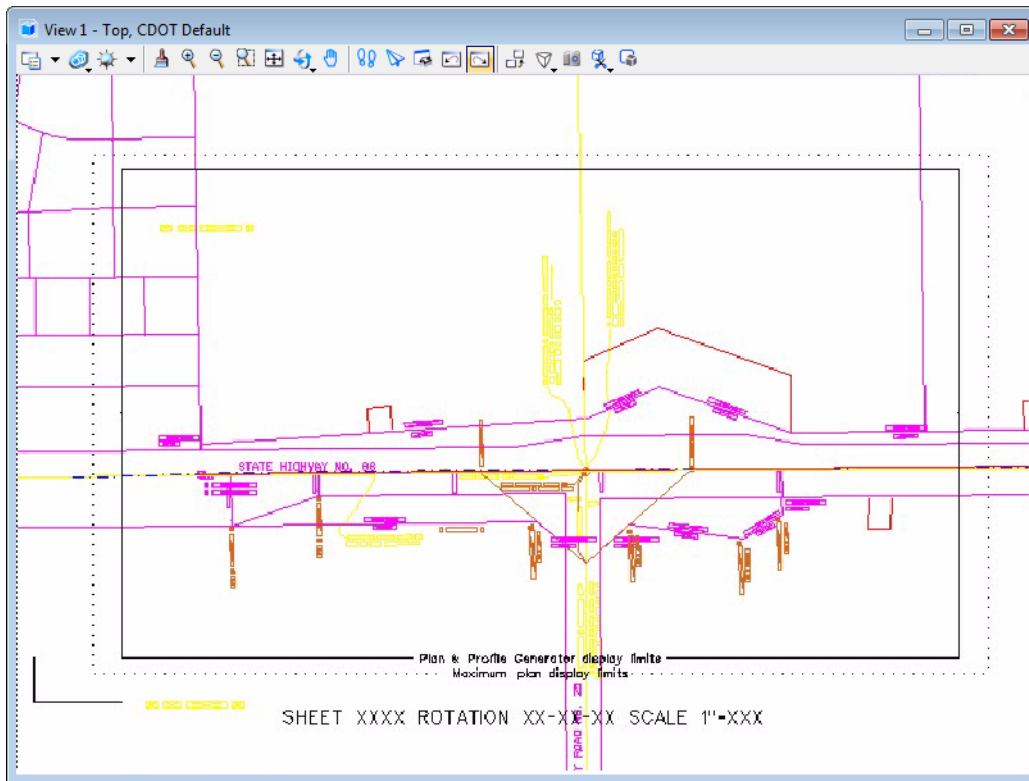


SHEET XXXX ROTATION XX-XX-XX SCALE 1"=XXX

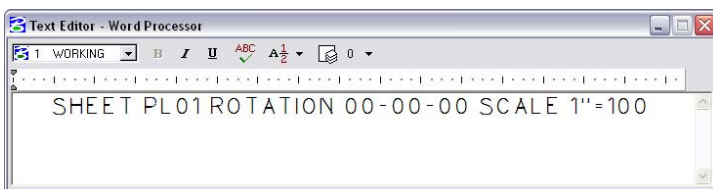
- In the **Place Active Cell** dialog box, set the **Active Scale** to the desired plot scale and set the **Active Angle** to **0**.



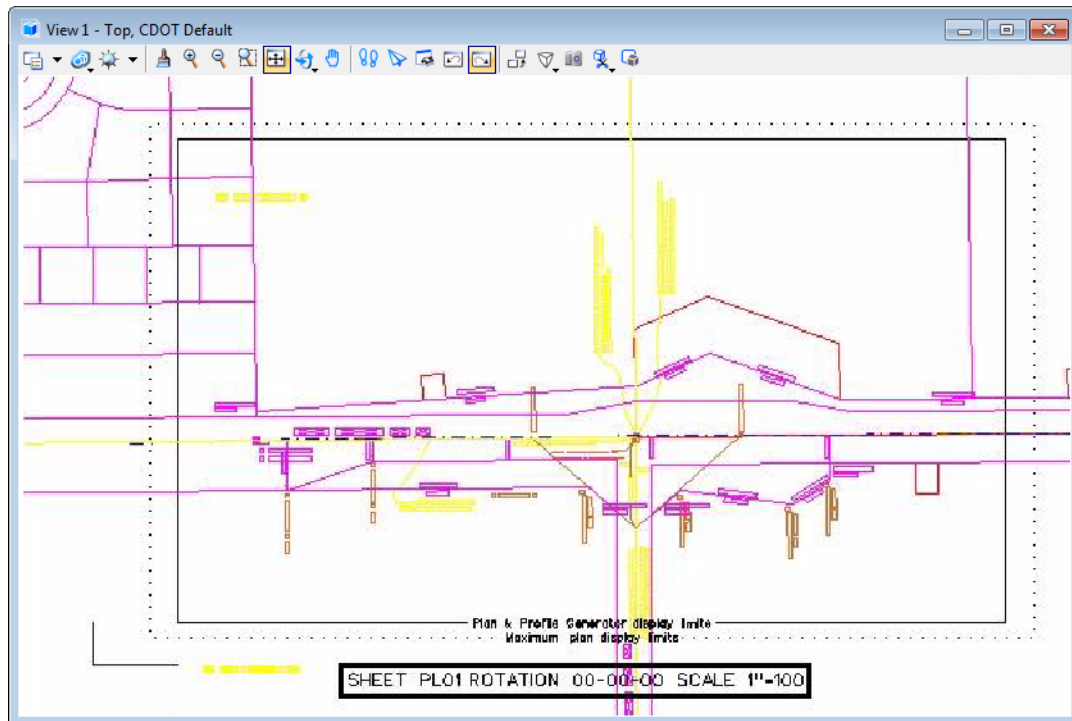
- Position the **Sheet Plan Limit** cell as you see fit in the MicroStation view, then place the cell in the model file.



- Use the **Edit Text** command to update the text at the bottom of the sheet. This will assist you in managing the sheet plan limits. Select the text at the bottom of the layout sheet and replace the appropriate sheet information in the **Text Editor**.



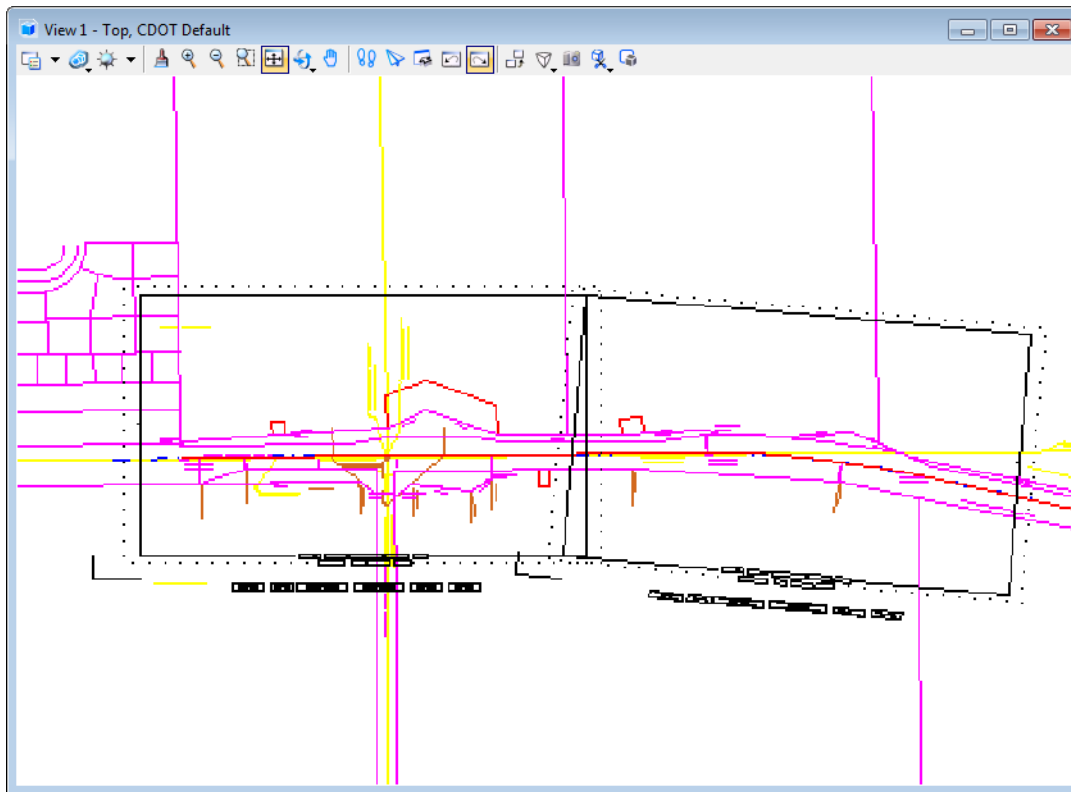
- The plan sheet information text will be updated.



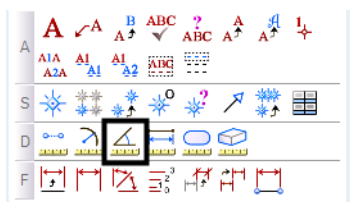
- Use the MicroStation **Copy** command to duplicate the cell graphics for the second sheet.
- Use the MicroStation **Rotate** command to align the graphics for the second sheet.

Note: Rotate the cell only and not the model file.

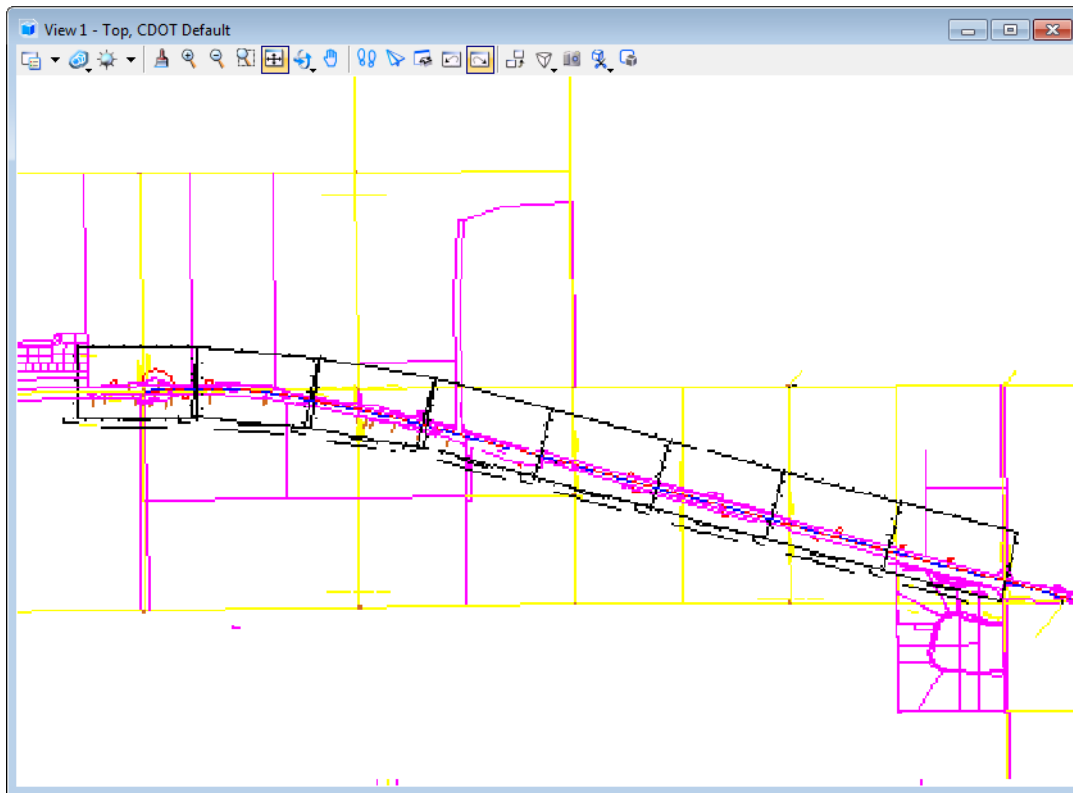
11. Edit the information based on the Sheet name and Rotation angle for the second sheet using the **Edit Text** command.



Note: If the *Sheet Plan Limits* cell is placed at an arbitrary rotation angle, you will have to manually measure the angle. This is done by drawing a line horizontal from the lower left hand corner of the Sheet Plan Limits cell and then using the **Measure Angle** command in MicroStation. Measure the angle in-between the horizontal line drawn and the bottom edge line of the cell.



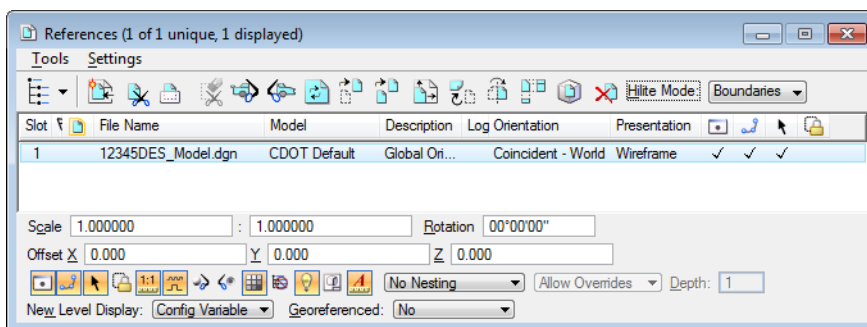
- Continue planning the sheet layout for the remainder of the project.



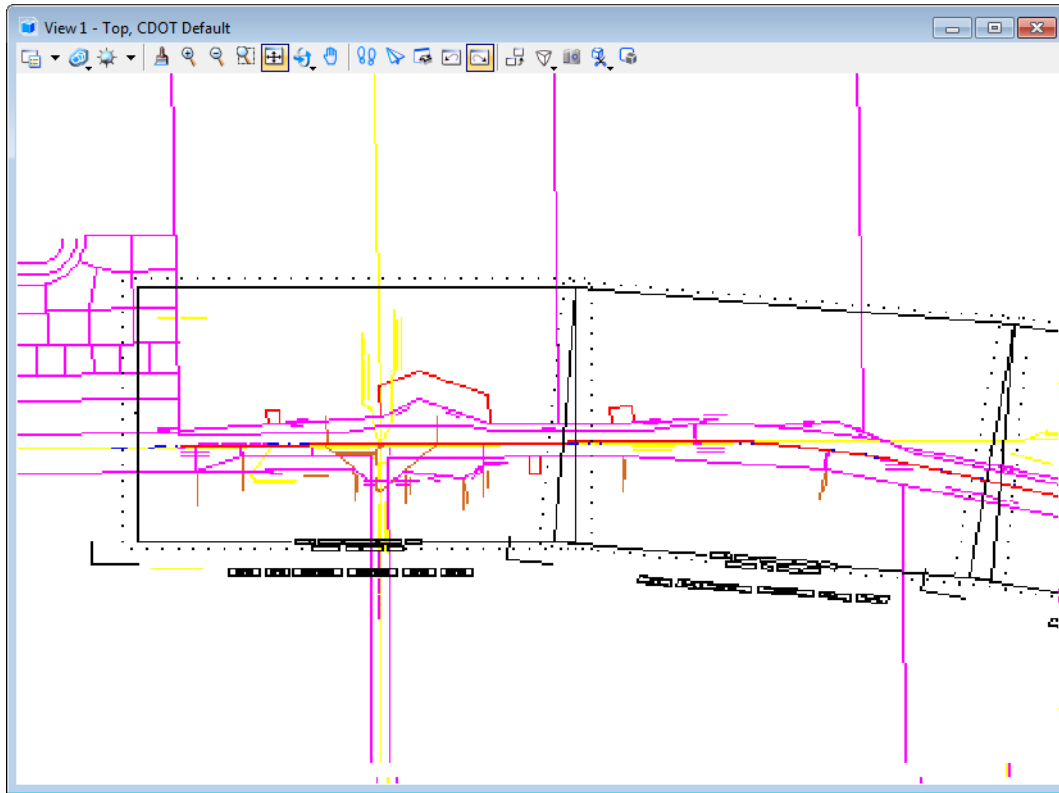
Note: The *Sheet Plan Limit* cell is to be placed side by side. This cell is setup to have no overlap in the plan view.

Assembling the plan sheets

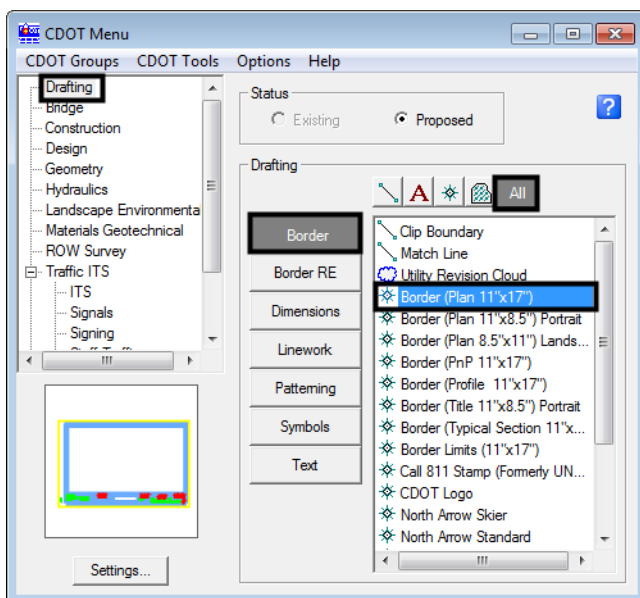
- Open up a MicroStation Sheet file and attach the model file that contains the *Sheet Plan Limit* cells.



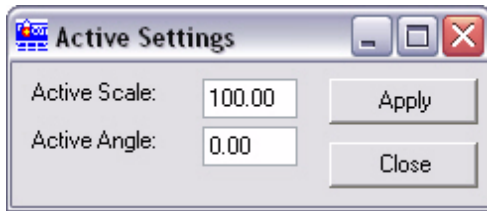
2. **Window** or **Zoom** into the beginning of the project so you can begin placing the border cell.



3. From the **CDOT Menu** select the **Drafting** from the group display area, <D> the **Border** button, use the **All** filter, and then select **Border (Plan 11x17)** from the item list.

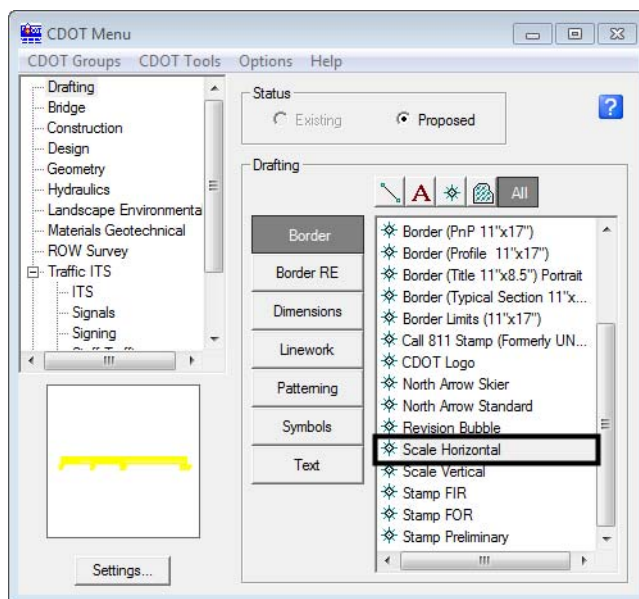


- <D> **Settings** if the desired sheet scale is something other than $1"=100'$. In the **Active Settings** dialog box you can change the **Active Scale** and the **Active Angle**.



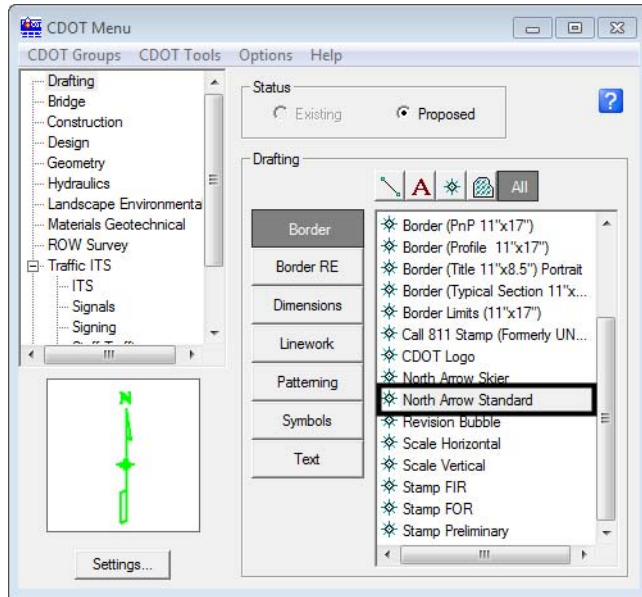
Note: The Active Angle is view independent and is not associated with view rotation. Therefore, the x-axis is always horizontal regardless of the view rotation. You will not need to set this for correct placement of the North Arrow or other cells.

- <D> **Apply** in the **Active Settings** dialog box after desired changes are made.
- <D> at the desired location in the MicroStation view to accept placement of the border.
- Select the **Scale Horizontal** from the item list.

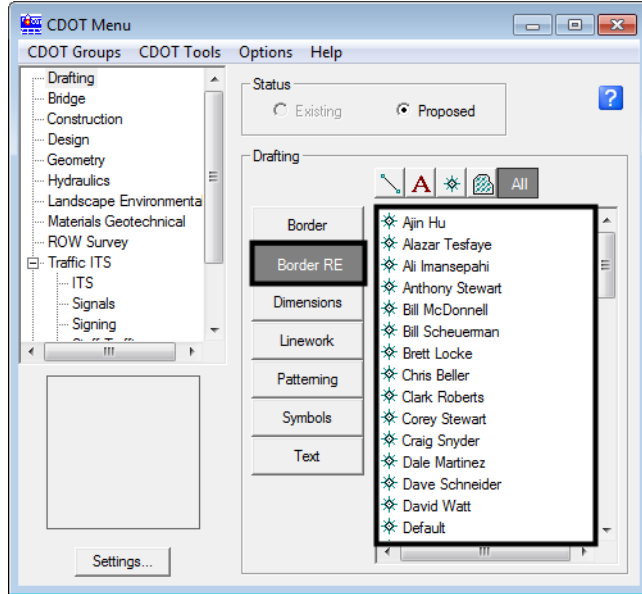


- <D> at the desired location inside of the sheet border to accept the placement of the bar scale.

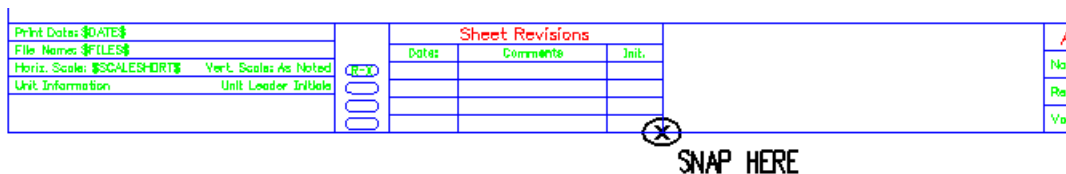
9. Select the **North Arrow Standard** from the item list.



10. <D> to accept the placement of the North Arrow inside the sheet border.
11. Select the **Border RE** button and then select the appropriate **Region Engineer** from the item list.



12. <T> the point as shown below and then <D> to accept placement of the cell.



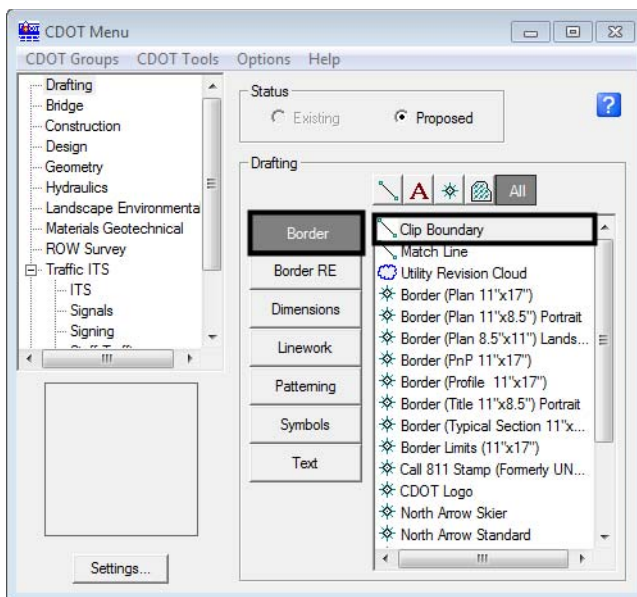
Note: Contact the CADD Manager if any edits need to be made to a Region Engineer cell. Remember, you *can* edit the cell with the **Edit Text** command until the changes are available in the next configuration.

13. Double click on any of the text fields in the border to add sheet specific information.

Note: 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

1. Select the **Border** button and then select the **Clip Boundary** from the item list.

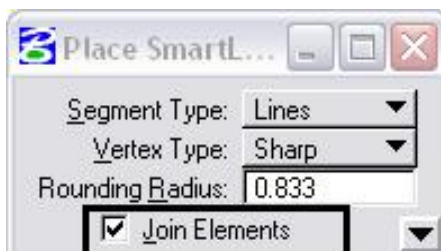



2. Once **Clip Boundary** has been selected, verify the **SHEET_Clip-Boundary** level is active.

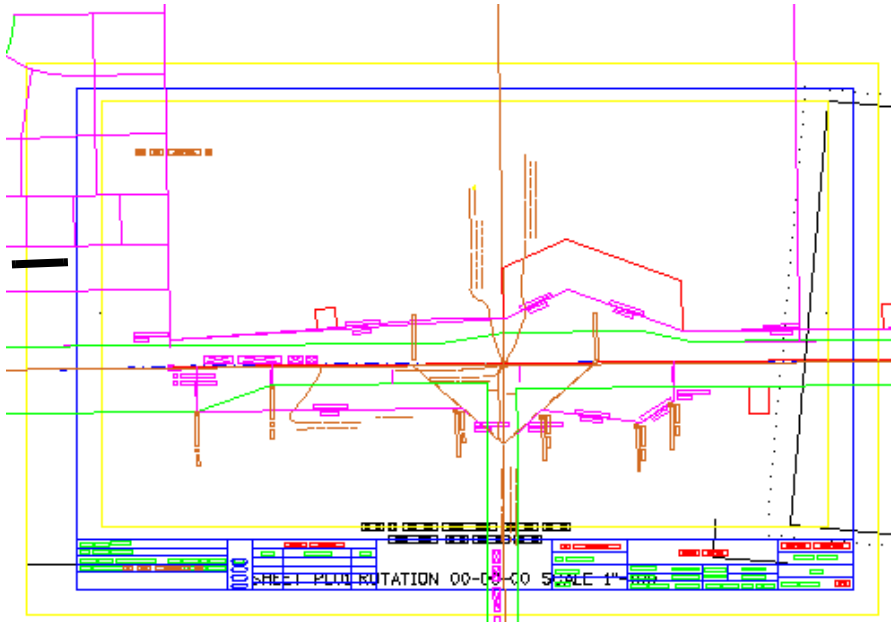


Note: The level **SHEET_Clip-Boundary** will not print.

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

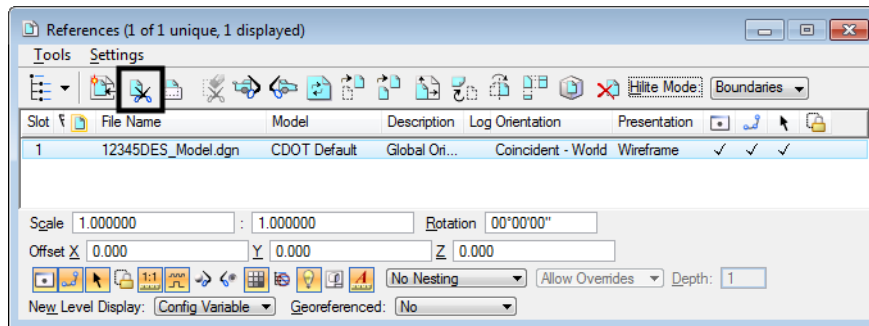


- If the clipping boundary shape is rectangular, select the **Place Block** command  from the **Drawing** task tab.



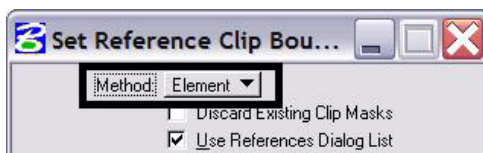
Clipping the Reference File

- In the References dialog box, highlight the Reference file to be clipped. <D> the Clip Reference icon.



Note: You can select more than one reference file at a time by holding the **Shift** or **Ctrl** keys down as you are making your selections. Multiple drawings can be clipped in one step when they are all selected.

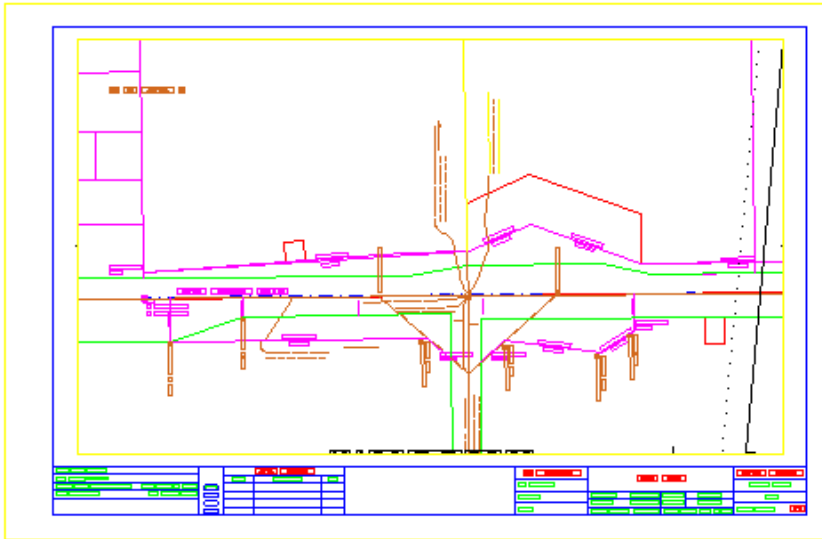
- The **Set Reference Clip Boundary** dialog box will open. Verify **Method** is set to **Element**.



3. You will be prompted to select the **Element** you want to clip the reference from. Select the rectangular element that was placed inside the border in the previous steps on the **SHEET_Clip-Boundary** level.

Set Reference Clip Element > Identify Clipping Element

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



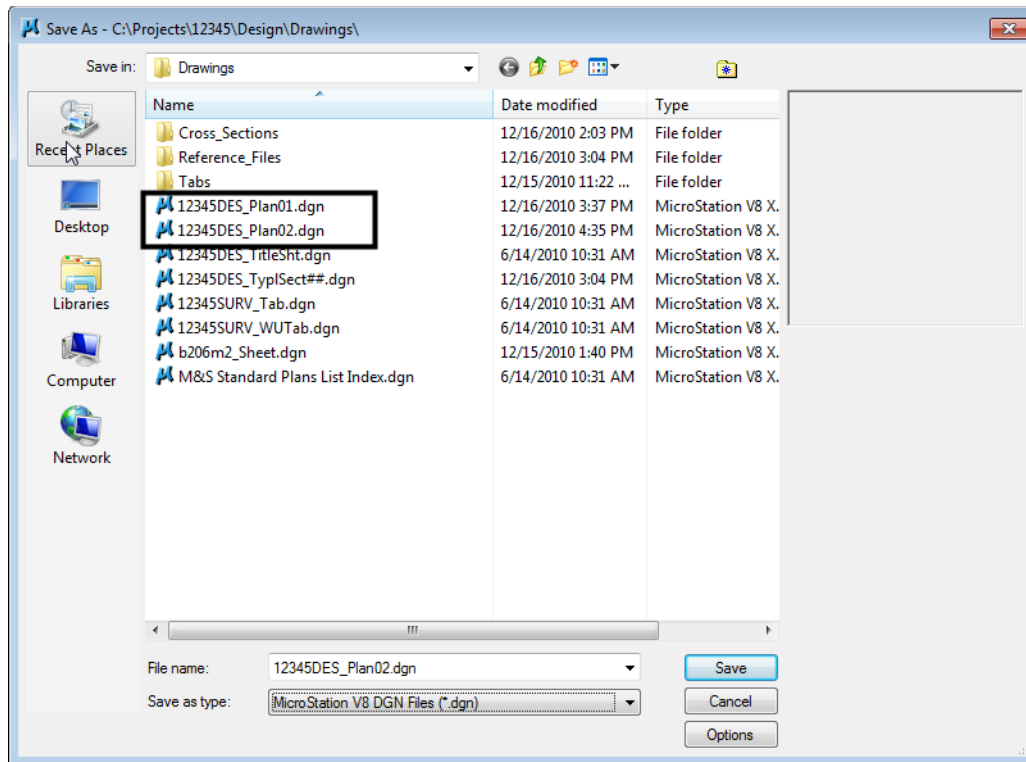
Note: Once the clipping boundary is placed, do not delete it. If it is deleted, the clipping region of the reference file will be lost.

5. Edit the title block text and add any sheet specific information. You can turn off the level **DRAFT_INFO_No-Plot** so the Sheet Plan Limits cell information does not display.
6. Select **File > Save Settings**.

Note: This completes the first sheet. It should be noted that setting up sheets this way maintains the coordinate based information and measurements are in real-world dimensions.

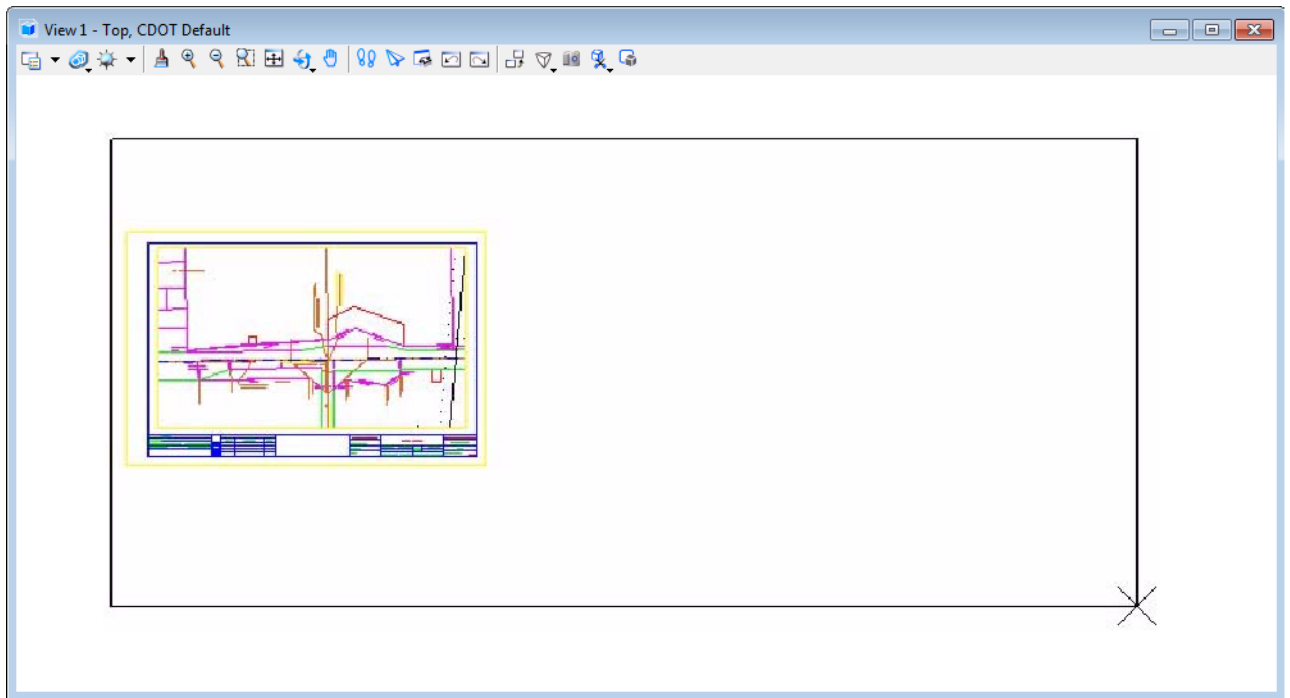
Subsequent sheet creation is accomplished by duplicating the first sheet. This process is streamlined because all the reference files already attached. The process for creating subsequent sheets involves moving the border sheet and redefining the clipping boundaries.

7. Select **File > Save As** and input the name of the next sheet file to be created (sheet file names should be numbered consecutively).

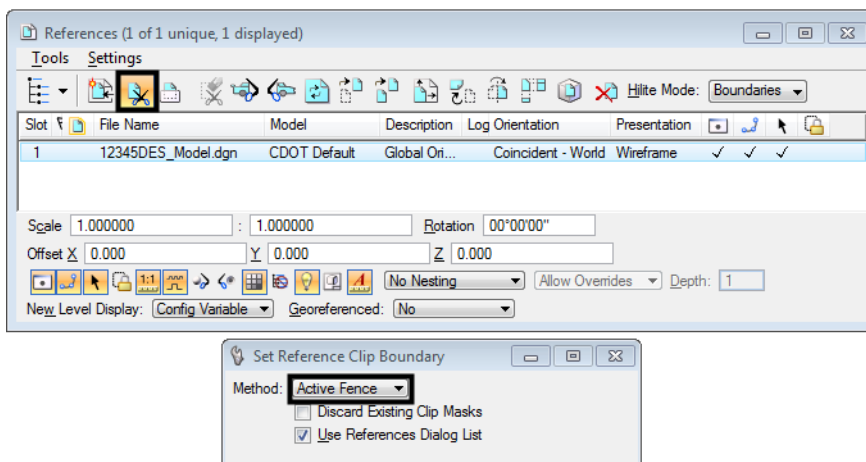


Note: The **Save As** command will automatically save the current drawing to the current directory, then copy and rename to the specified file name and open the new drawing.

- Place a MicroStation **fence** over an area that would encompass the next sheet in the set.

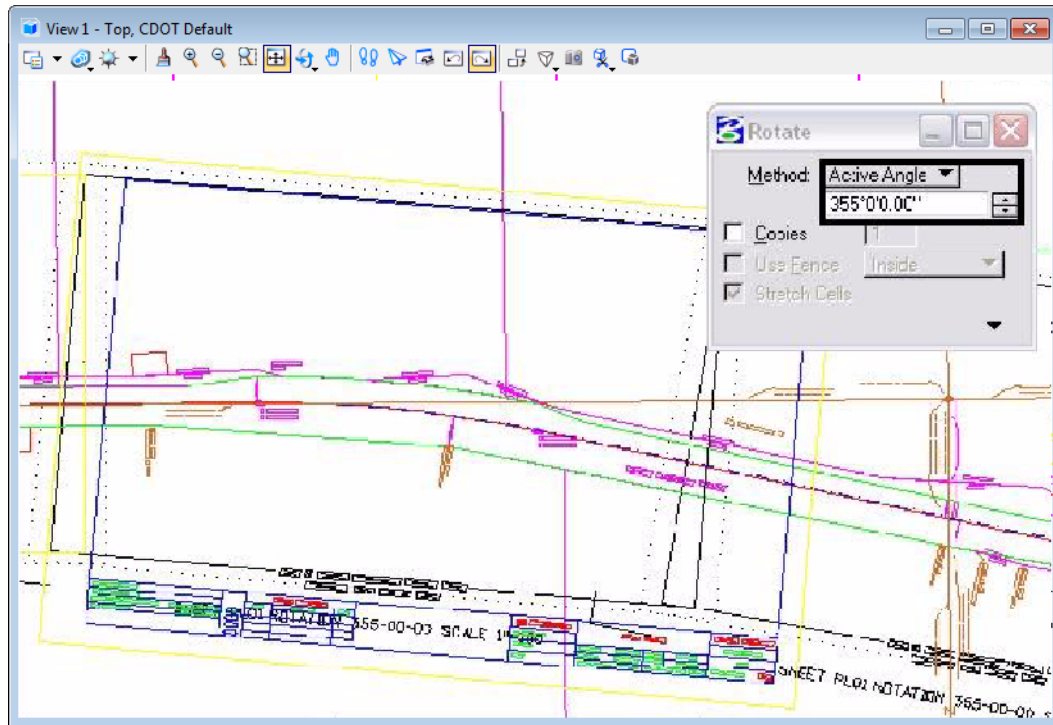


- In the References dialog, highlight all files and Select **Tools > Clip Boundary**. The **Method** should be set to **Active Fence**. <D> on the MicroStation screen to accept the new clip boundary. This will re-clip the previous Clip Boundary placed inside of the border cell.



- Turn On the level, **DRAFT_INFO_No-Plot** in the model file where the Sheet Plan Limits cells were placed.

- Use the MicroStation **Move** command to relocate the border cell. Also **Rotate** the border sheet to align with the predefined sheet limits if the Sheet Limits cell was placed at an angle. Remember, the value of the angle is located in the text of the Sheet Limits cell.



- You may need to rotate the MicroStation view depending on the layout of the sheet. If you are in a 3D file, key-in **rv = x,y,z** and press **Enter** or **Tab**.

Important! Use the following values when rotating a 3D view: **$x = 0$, $y = 0$, and $z = \text{Rotation Angle}$** . You are rotating the view about the z-axis because this is the axis perpendicular to the view. If you are in a 2D file, key-in **rv = angle of rotation**.

<D> in the active view window to initialize the rotation.

Note: Rotating a MicroStation view simply rotates the viewing of the graphics. The coordinate system is still relative to the graphics and any coordinate or alignment information extracted will be correct.

- Define the reference file clip boundaries as in the previous steps.
- Update information in the title block of the sheet as necessary
- Select **File > Save Settings**.
- Repeat this procedure to complete the remainder of the sheets.