KDOT CADD SUPPORT

Kansas Department of Transportation

NON-CIVIL SHEETING GUIDANCE

Using Named Boundaries for Details

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The Multi-Model Method – Using Named Boundaries

Models of the Sheeting Workflow

Design Model

The Design model is where any design work is completed. You may have some design level annotations, such as alignment stationing, that will persist through to the drawing/sheet model(s).

Drawing Model

The Drawing model is where detail level annotation should be done, such as dimensioning, plan labeling, etc. as it also has access to Civil data and can label station/offset, elevations, etc.

Sheet Model

The Sheet model references the drawing model. This is where you would place any sheet level annotations, such as a north arrow, sheet specific notes, etc. It doesn't have access to the civil information.

Advantages of Using the Named Boundary Method

Dynamic References

When a file referenced into the Design Model is updated, the changes in the reference are dynamically updated in the Design model. Some examples of files that could get updated are the Road Base File and the Survey Terrain/Topo File.

DGN can contain multiple models at differing scales

If your sheet requires the use of details/designs drawn in multiple scales, Named Boundaries allow you to encapsulate different areas from any of the models and place them onto one sheet.

Flexibility

Since the sheet model is composed of references generated by the named boundaries, multiple boundaries can be placed in a single sheet and adjustments can be made to the scale, location, etc. within the sheet so the final sheet has exactly what is desired.

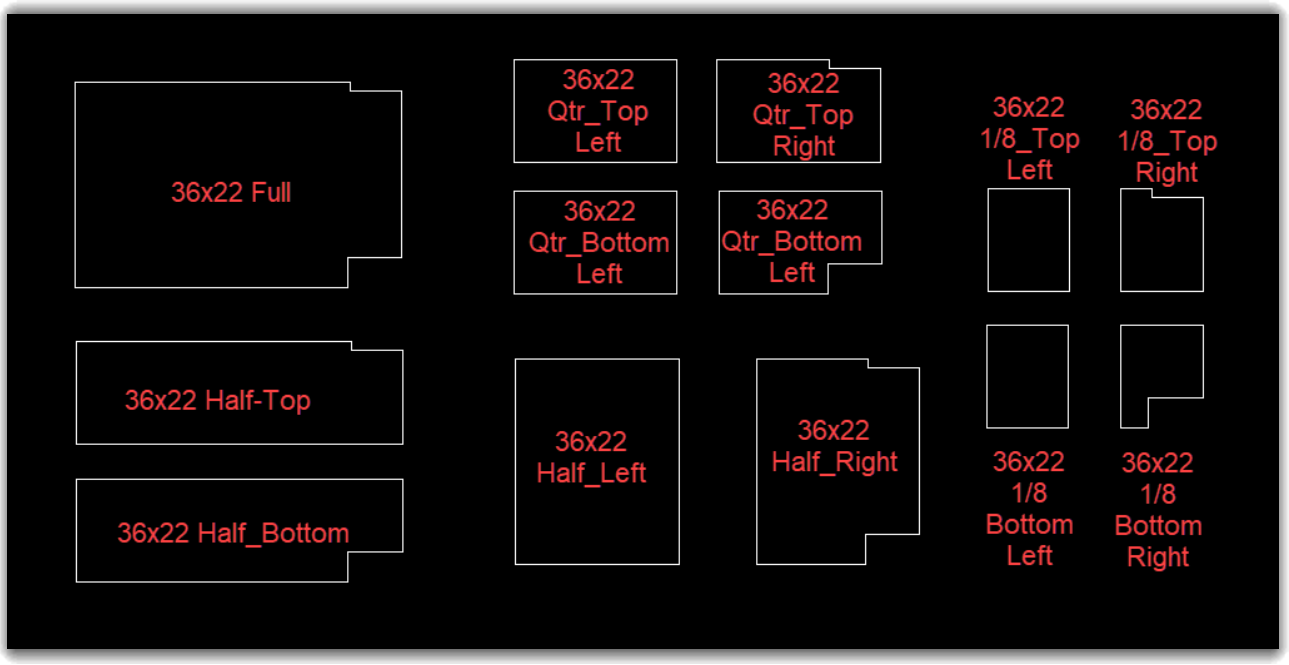
NOTE:
The video demonstrations linked in this document will show a variety of ways to compose a sheet. The methods demonstrated can be mixed and matched to get your desired sheeting outcome.

For additional information on Design, Drawing and Sheet models and their uses see: [Creating Sheet Models for Drawing Production (bentley.com)]

Named Boundary Non-Civil Detail Sheet Options

The non-civil sheeting workflow provides several choices to put together a sheet. The diagram below depicts the different choices available for 36x22 and 8.5x11 Sheeting. This document will walk through the basic process; however, multiple configurations are possible.

NOTE: Some boundaries include notched areas to coincide with the sheet cell. Boundaries will automatically place in a specific location on the sheet; however, they can be moved in the references dialog to your desired location. See Workaround-Moving the Reference



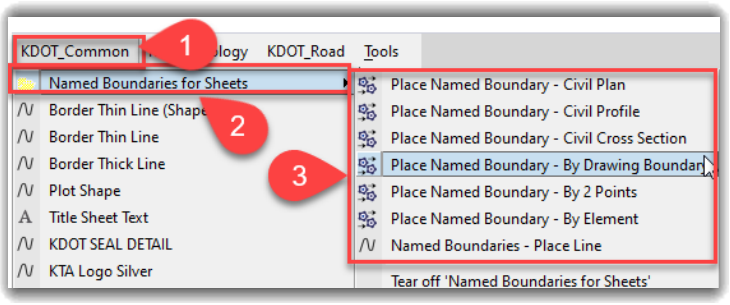
Sheeting Workflow Options

Layout Boundaries First and then Create Sheets

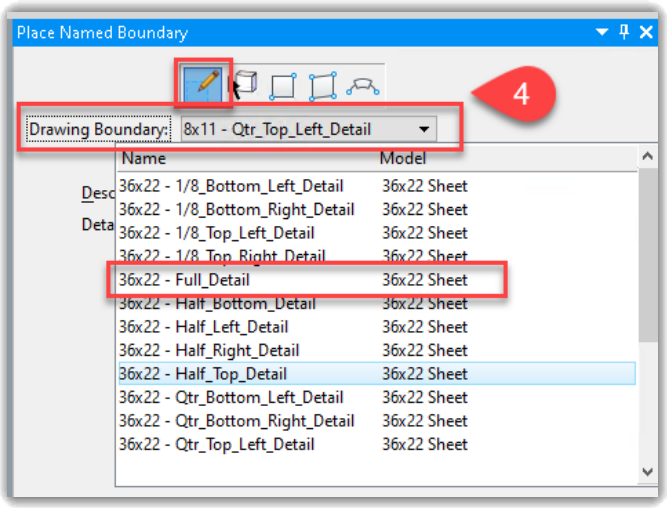
Demo Video #1 –Placing Boundaries Along A Line
Demo Video #2 – Placing Boundaries Around Details

In some cases, it may be beneficial to lay out all the boundaries prior to generating the sheets. Once you've completed your design work, which may include references, level adjustments, etc., the boundaries can be placed. These boundaries will eventually be placed on a sheet. Here are the steps to take when placing the Named Boundary once you have your design work completed. NOTE: You may want to rotate the view prior to placing boundaries.

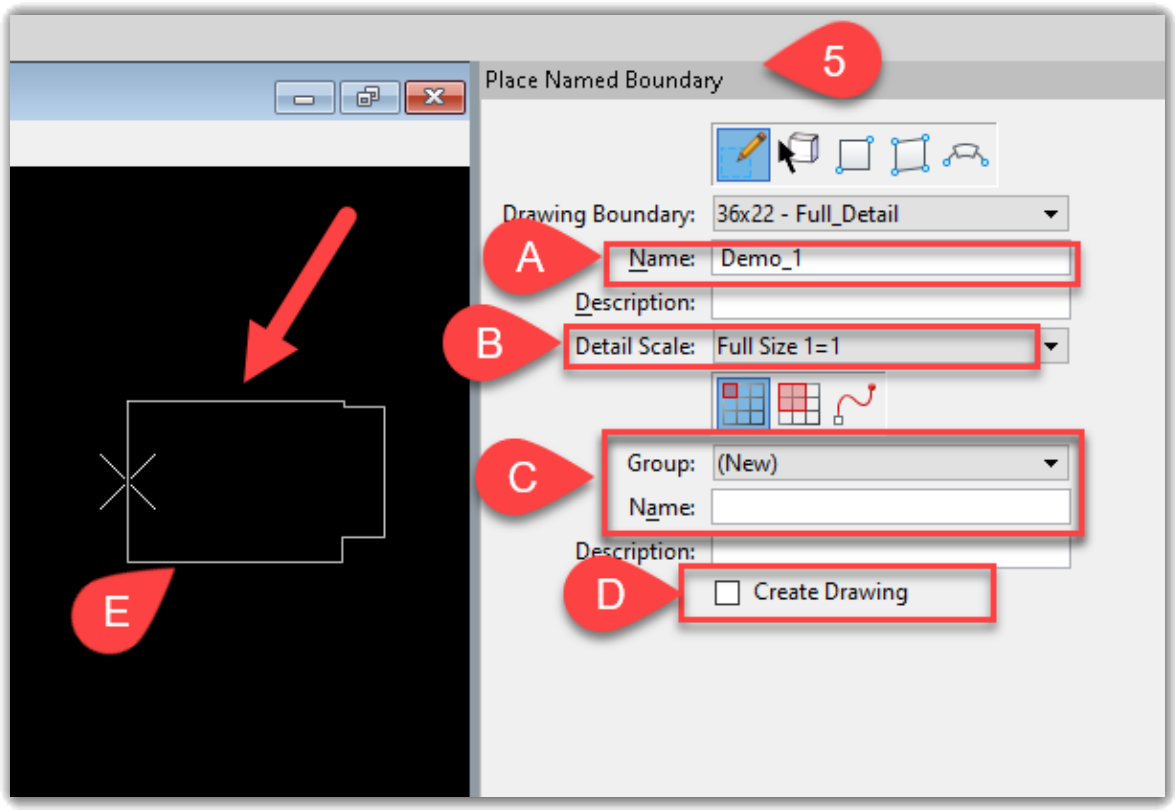
1. Go to the KDOT_Common CADconform menu
2. Click on "Named Boundaries for Sheets" Folder
3. Click "Place Named Boundary – XXXXX" (See Screenshot)
   NOTE: This will ensure the proper level and symbology is used when placing boundaries.



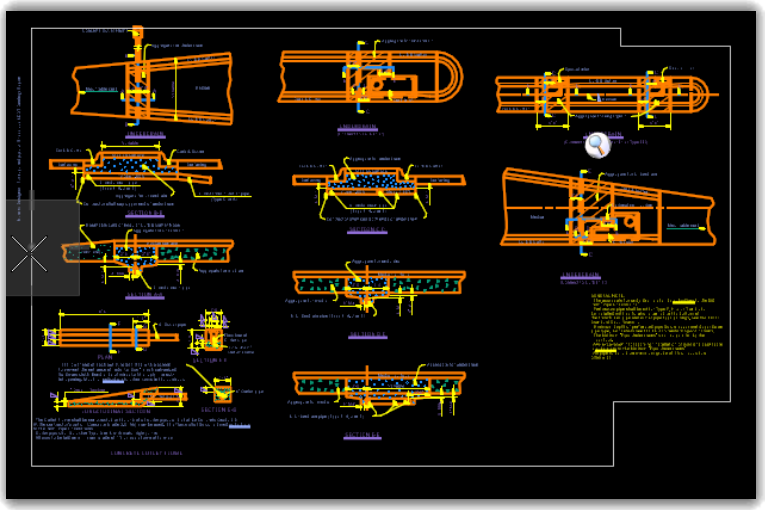
4. In the Place Named Boundary Dialog, click on the Pencil Icon "Place by Drawing Boundary" and select which Drawing Boundary to use.
   a. This demonstration will be using a boundary covering the full sheet.
   b. Whatever resides within the boundary will be placed on the sheet.
   c. Boundaries can be moved via the reference dialog on the sheet model if needed.
      i. See Workaround-Moving the Reference



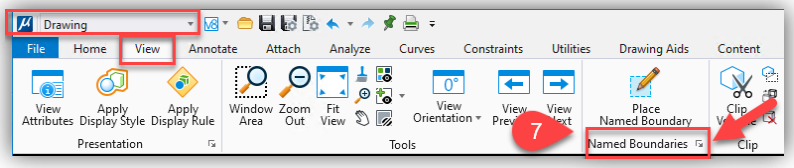
5. Fill out the remaining fields
    a. Name: This will be the name of the Drawing/Sheet model(s)
    b. Detail Scale: This will also determine the size of the boundary placed
    c. Group – Select New if you want to group your named Boundaries
        i. Highly recommended if you are placing boundaries first
    d. Toggle off the "Create Drawing" box (It should not be checked)
    e. You will notice an outline of the boundary floating on your cursor.



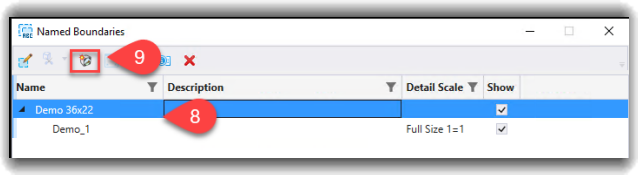
6. Move the boundary to the desired area to display on the sheet and **left click** to accept placement.



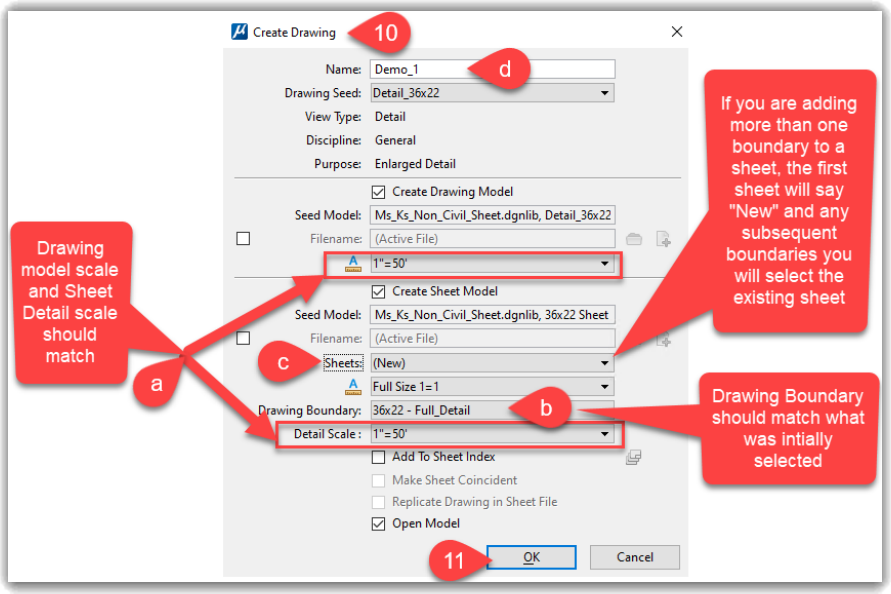
7. When you are ready to create the sheet(s), navigate to the View tab, and this time you will click on the tiny arrow in the lower right corner of the "Place Named Boundary" area



8. The Named Boundary manager will pop up and you will select which boundary you want to sheet.
    a. If you have a group, you can click on the group name, and it will create a sheet for each boundary in the group
        i. NOTE: This option is best used when the "Full Sheet" Boundary is used.
    b. You can also create each one separately by clicking the individual boundaries within the group.
9. Click on the cube icon "Create Drawing" and you will get the Create Drawing dialog



10. On the Create Drawing Dialog the following should be verified
    a. Drawing Model scale and Sheet Model detail scale should match
    b. Drawing Boundary field should match what was initially selected
    c. The first sheet placed will always be "new" and any subsequent boundaries to be placed on the same sheet, you would select that sheet in the dropdown.
        i. See **Adding another detail to an existing sheet**
    d. The name field will be the name of the sheet/drawing model(s)
11. Click "OK" - There will be a delay while the drawing/sheet models are created.

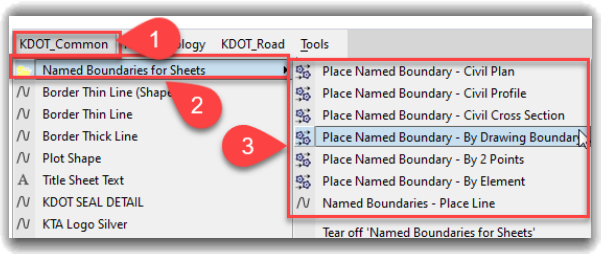


Create Sheets as Each Boundary is Placed

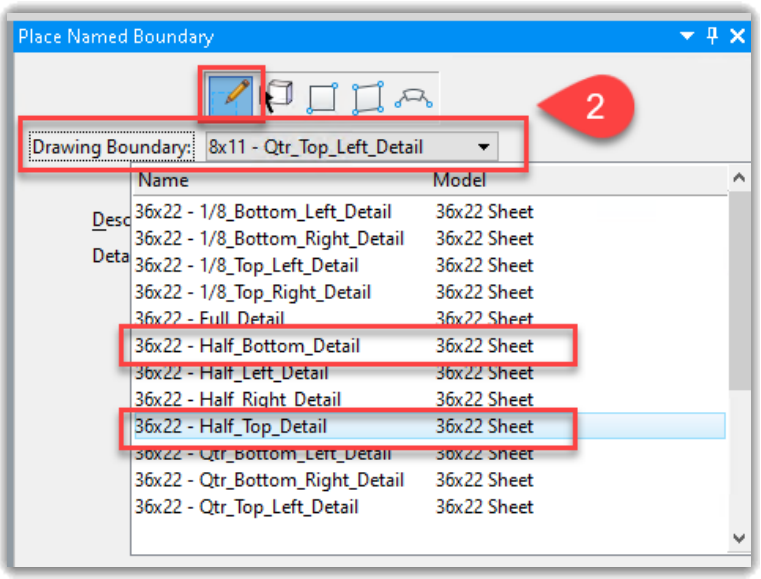
Demo Video #3 – Create Sheets as Each Boundary is Placed
Demo Video #4 - Creating a Sheet using Different Models and Methods

Another option to generate sheets is create them as the boundaries are placed. This is particularly useful when you need to place details from different design models into one sheet. This is just one example of many that can be used for sheet composition. Once the design work is done in all models, boundaries can be placed, and sheets can be created. Here are the steps to create a sheet or sheets from multiple details and/or models.
NOTE: You may prefer to rotate your view prior to placing boundaries.

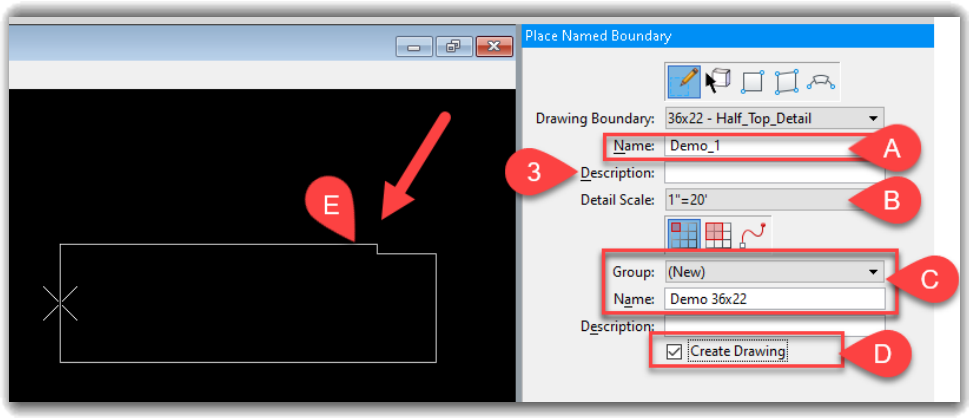
1. Go to the KDOT_Common CADconform menu→Named Boundaries for Sheets Folder→Place Named Boundary – XXXX (See Screenshot)
   NOTE: This will ensure the proper level and symbology is used when placing boundaries.



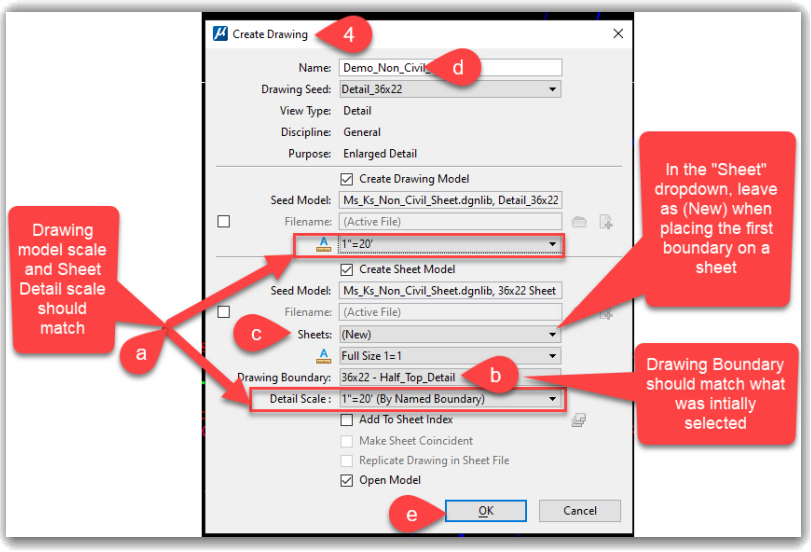
2. In the Place Named Boundary Dialog, click on the Pencil Icon "Place by Drawing Boundary" and select which Drawing Boundary to use.
   a. NOTE: The boundary indicates what will be placed on the sheet and where. Boundaries can be moved via the reference dialog on the sheet if needed.
      i. This example will show placing 2 different segments of the alignment onto one sheet by using the Half Bottom and Half Top Drawing Boundaries.



3. Fill out the remaining fields in the Place Named Boundary dialog
    a. Name: This will be the name of the Drawing/Sheet model(s)
    b. Detail Scale: (This will also determine the size of the boundary placed)
    c. Group – Select New if you want to group your named Boundaries
        i. In future placement of boundaries you can add to the existing group created, create another group, or choose None
    d. For this method, check the "Create Drawing" box
    e. You will notice an outline of the boundary floating on your cursor. Left Click to place the boundary when it encompasses the area that is to be shown on the sheet.
        i. Snaps can be utilized to snap to key locations such as a station
        ii. Named Boundary can be rotated after placement as needed

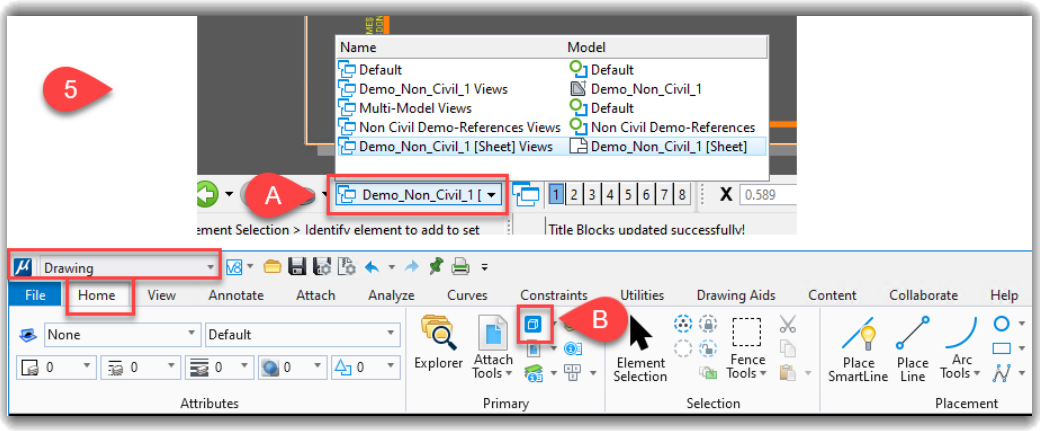


4. On the Create Drawing Dialog the following should be checked
    a. Drawing Model scale and Sheet Model detail scale should match
    b. Drawing Boundary field should match what was initially selected
    c. Sheet dropdown will be "new" for the first boundary on a sheet.
        i. You will use the dropdown to select an existing sheet if you are placing multiple boundaries on one sheet.
    d. The name field will be the name of the sheet/drawing model(s)
    e. Click OK to create the sheets

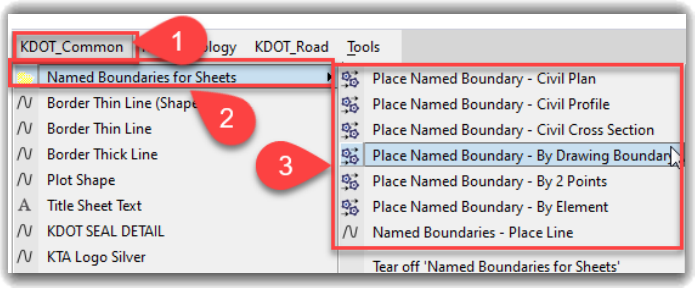


Adding another detail to an existing sheet

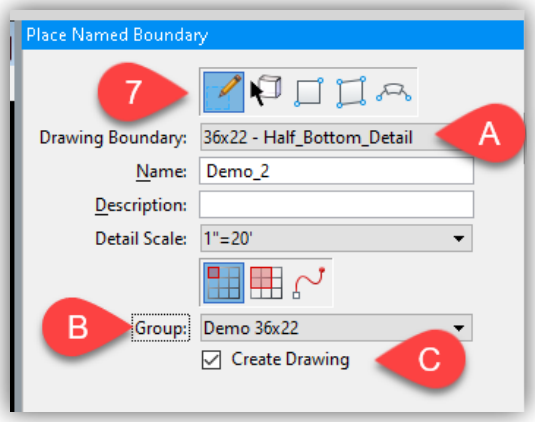
5. Go back to the design model one of two ways
    a. Using Views at the bottom left
    b. Using the Models dialog



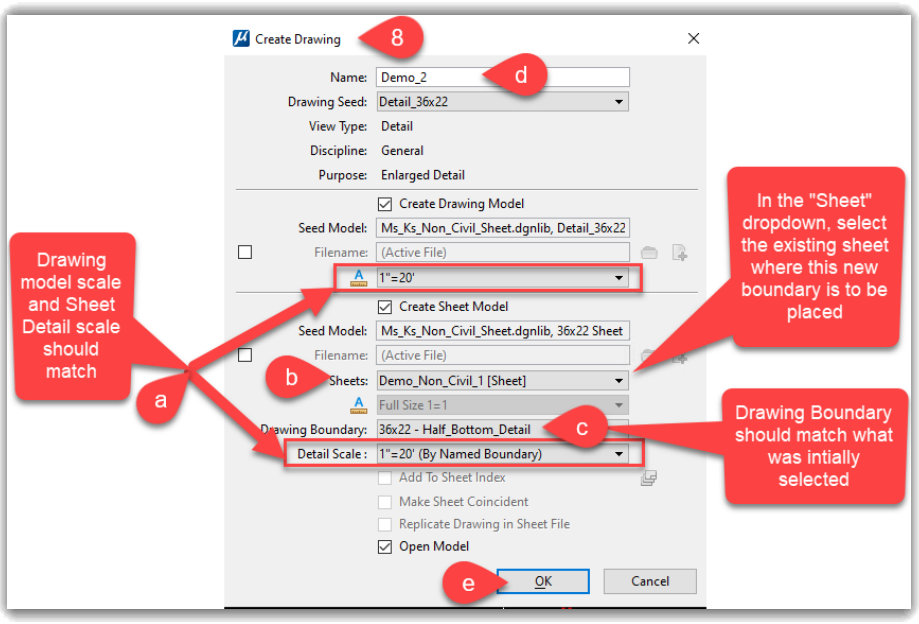
6. Go to the KDOT_Common CADconform menu→Named Boundaries for Sheets Folder→Place Named Boundary – XXX (See Screenshots)
    NOTE: This will ensure the proper level and symbology is used when placing boundaries.



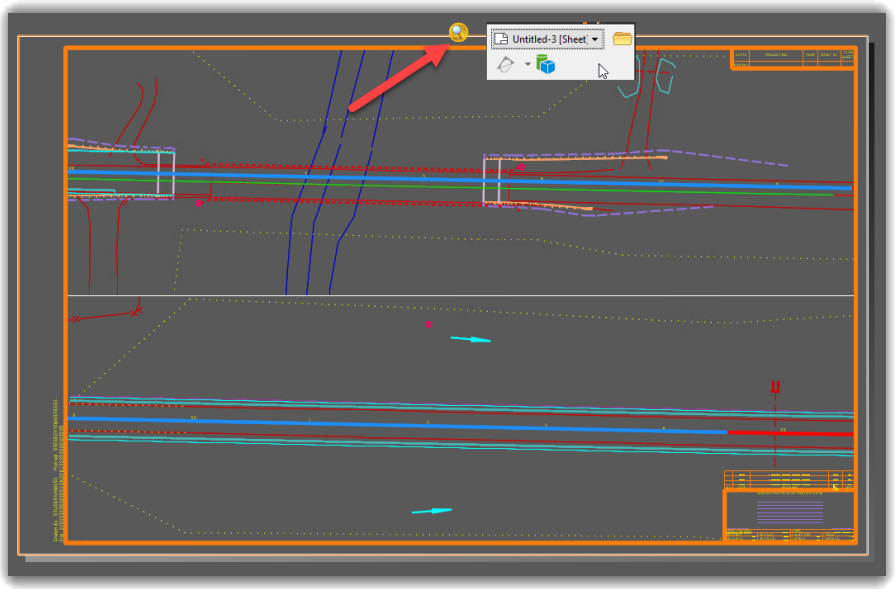
7. In the Place Named Boundary Dialog, click on the Pencil Icon "Place by Drawing Boundary" and select which Drawing Boundary to use.
    a. This time we will select the Half-Bottom.
    b. Add this to the existing group
    c. Make sure the Create Drawing is toggled on



8. This time on the create drawing dialog, there will be a few differences so the new boundary can be placed on the existing sheet.
    d. The Drawing Model Scale and Sheet model Detail scale should match
    e. On the "Sheets" dropdown, select the existing sheet
    f. On the "Drawing Boundary" dropdown select the one matching what you selected.
        i. In this case, 36x22 – Half_Bottom_Detail
    g. Enter a Name
    h. Click OK



9. You should now have 2 boundaries on one sheet
    i. NOTE: The magnifying glass can be used to switch between design, drawing, and sheet models for this boundary



Appendix A

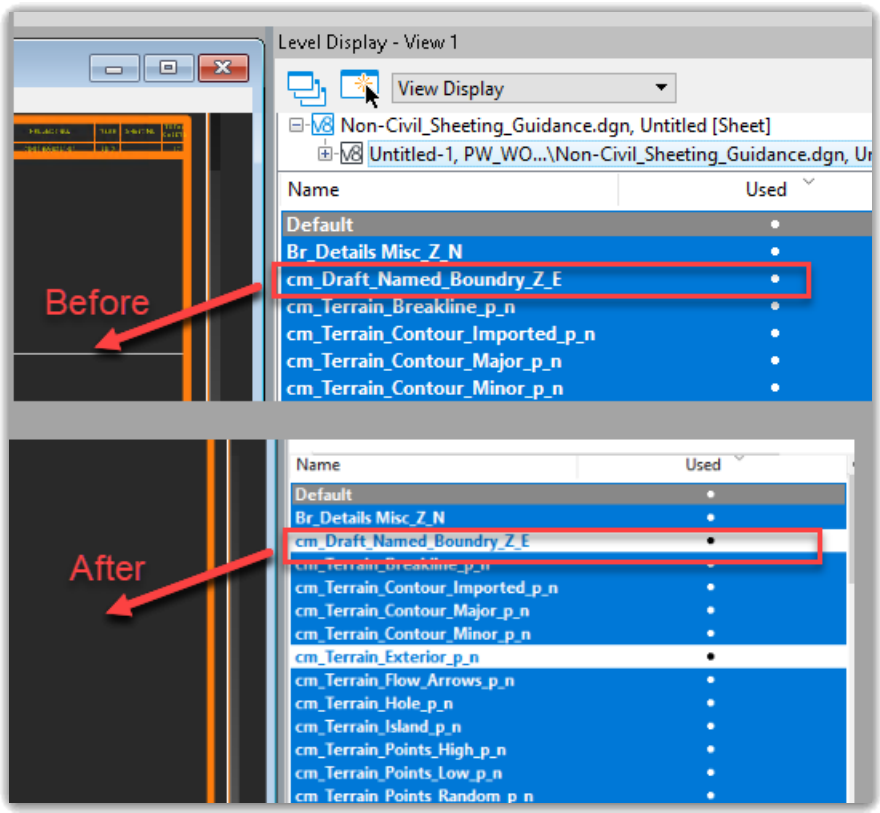
Known issues and workarounds

Demo Video #5 - Known Issues and Workarounds

Named Boundary Plotting

Issue – The borders of the named boundaries show up when printed. Levels from the sheet seed file are not being honored. Civil sheeting does honor the levels. Bentley has advised this is "working as designed" in Microstation and there is an enhancement request to allow the levels to perpetuate from the seed file through to sheets.
Please go to Named Boundary Level | MicroStation Ideas Portal (aha.io) and vote!

Workaround – In the Level Display, select the reference(s) that need the boundary display turned off and turn off "cm_Draft_Named_Boundry_Z_E" level then save settings.

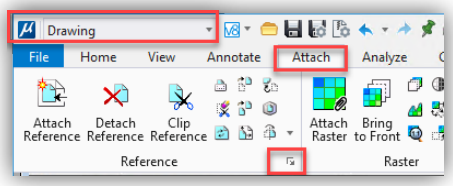


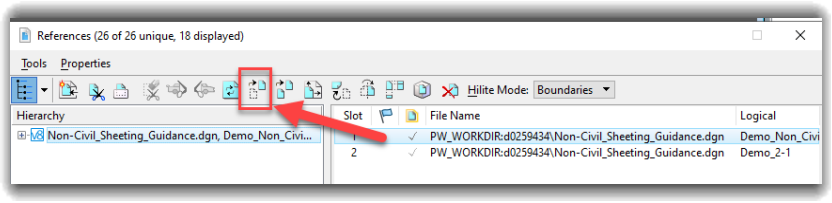
Named Boundary Shifting

Issue - The borders of the named boundary are set in the sheet seed to fit within the sheet cell border, however, sometimes these boundaries shift slightly and move outside of the sheet cell border. This is a defect per Bentley "Bug 933425"

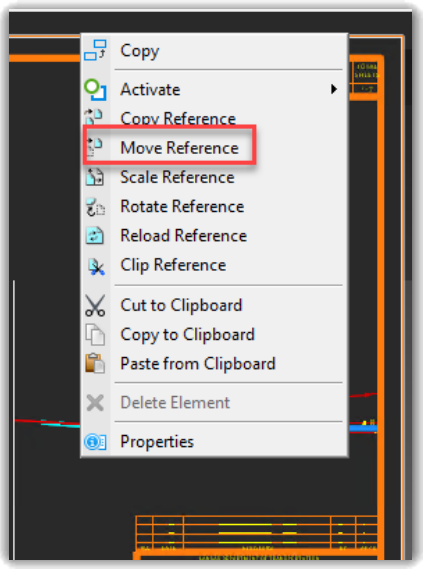
Workaround-Moving the Reference

1. On the sheet model, go to the references dialog (Drawing Workflow→Attach Tab→Reference) and click on the tiny arrow in the lower right-hand corner.
    a. Select the reference that needs to be moved, click the Move Icon, Select the boundary in the model and move it to the desired location.

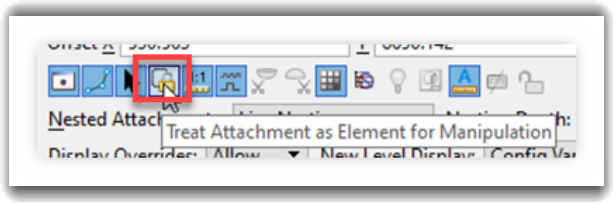




2. The reference can also be moved by selecting an element within the reference, holding down the right click mouse button and selecting "Move Reference"



3. You can also activate the button in the reference dialog to treat attachment as an element for manipulation and then you can move the reference via the right click option.

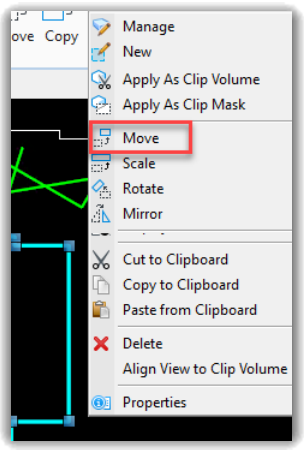


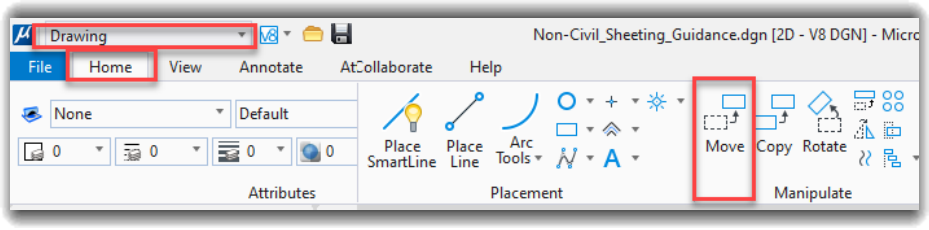
Moving/Deleting Named Boundaries

You may find it necessary to adjust the location of a named boundary in the Design Model.
There are two primary methods of making these changes.
Boundaries can be moved, or they can be deleted and replaced.

Moving Named Boundaries

Most named boundaries in the design model can be moved via the "Move" command in the Ribbon or via the Right Click Menu.
Select the boundary that you wish to move, hold the right click bottom on your mouse and select "Move" or go to the Drawing Workflow, Home Tab, Manipulate Section and select "Move".





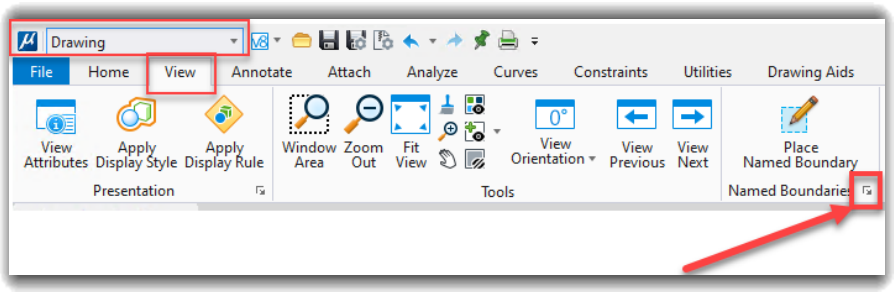
Once you have moved the boundary to the desired location you are ready to create the sheet.

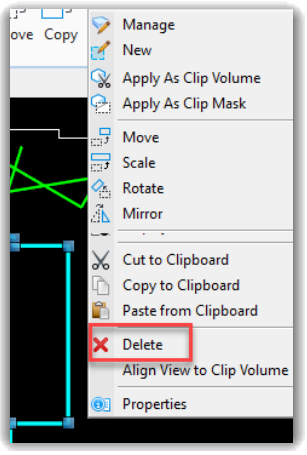
If you have already created the sheet, you may need to move the boundary via the reference dialog in the sheet model so it sits in the desired location within the sheet boundary.
See Workaround-Moving the Reference

Select the reference that needs to be moved, click the Move Icon, Select the boundary in the model and move it to the desired location.

Deleting Named Boundaries

If you are unable to move a Named Boundary or want to delete and start over, the Named Boundary can be deleted from the Named Boundary Manager dialog or by selecting the boundary, holding down right click and selecting "Delete"





NOTE: If you have already created the drawing/sheet model, you will get a warning dialog asking if you want to delete the Saved Views, select "Yes" and then you will need to go into the Models Dialog and delete those Drawing/Sheet Models.