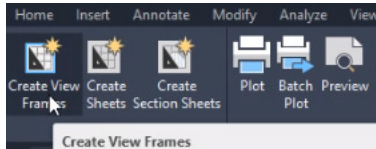# 806 - Plan Sheets

Wednesday, June 22, 2022   2:05 PM

Creating Plan Sheets

The plan sheets will be a separate file. Look at the road design plan and profile sheets and match the begin and end stations of each sheet. The best practice is to keep the stationing the same but the sheets can be adjusted if needed to encompass r/w design features. The road design PLP file can be viewed in BIM360 without opening the file.

Creating View Frames

The view frames are created in the model space of the ROMAP file. Under the Output tab, Plan Production ribbon, select Create View Frames.


Under Alignment set the Alignment to RWBL and set the Station Range to User specified and change the begin station to match the road design plp sheet, click Next. Under Sheets, Sheet Settings, select Plan only, under Template for Plan sheet browse to the folder shown below, select RightOfWay-Layouts.dwt, select the correct plan scale, i.e. RW-Plan (200). This needs to match the road design plan scale. View Frame Placement is Along alignment. Select Next.
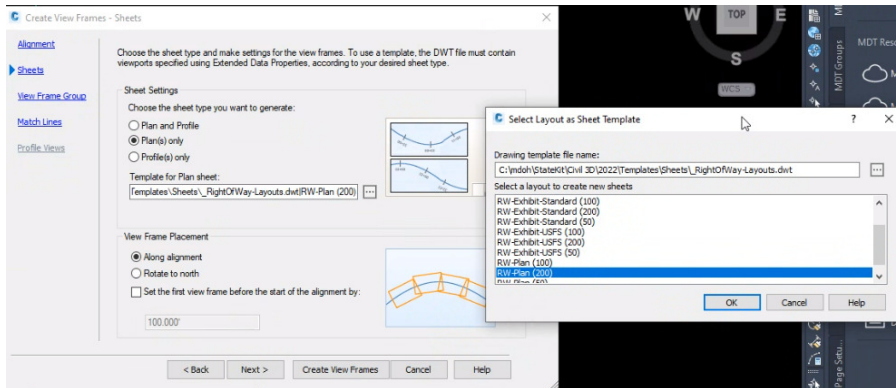

Within the View Frame Group, edit the name to be RIGHT OF WAY PLAN. Under View Frame, select the Edit View frame name button to the right of the Name field. Delete the text below Name, under Property fields select View Frame Group Name and click on the Insert button to the right. Go back to Property fields, select View Frame Start Raw Station and click the Insert button. Select OK.

Set the Style to _MDT-Default and the Label style to _MDT-Default. Click Next.
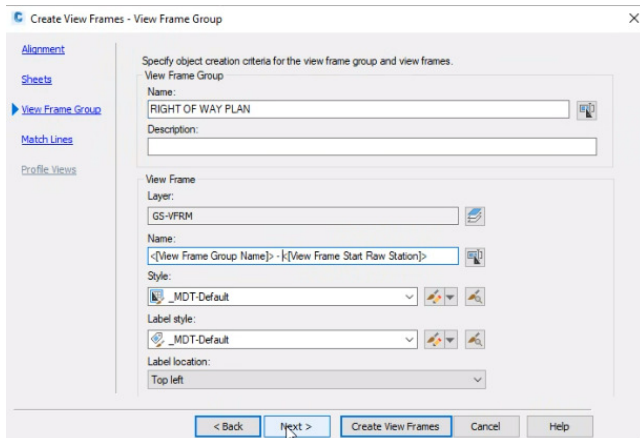
Under Match Lines select the Edit View Frame match line name button (red) and set to the information below. The plan view area should match road design. Place a check in the box next to 'Allow additional distance for repositioning'. If road design uses 2500' per sheet, place 500' in the box. The sheets will display 2500' vs. 3000' on a 200 scale project. Set the Style, Labels left & right to _MDT-Default
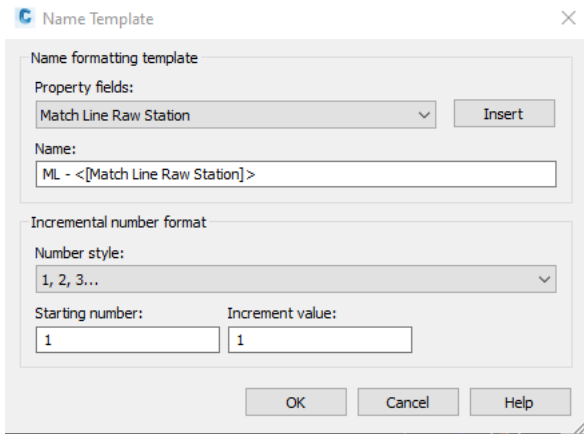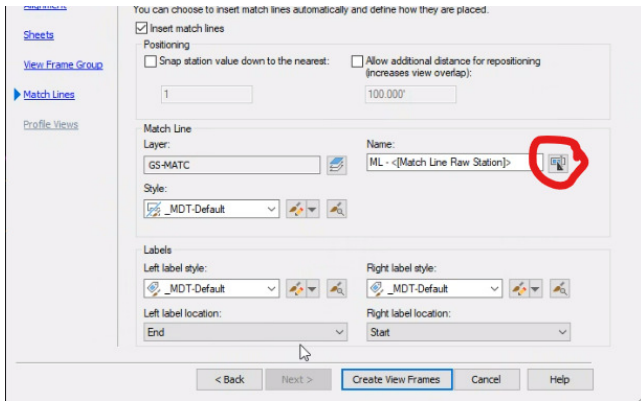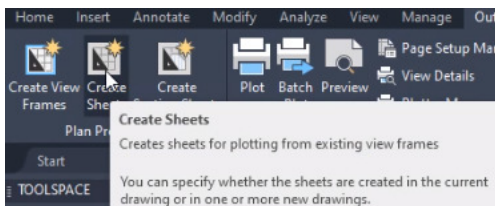
Select Create View Frames. The view frames will appear in the model space of the ROMAP file.

Set layer GS-VFRM to no plot so it does not appear in the plan.

Creating Plan Sheets

Under the Output tab, Plan Production ribbon, select Create Sheets.

Under View Frame Group and Layouts set the View Frame Group to RIGHT OF WAY PLAN (the view frames that were just created), View Frame range is All. Layout Creation is set to Number of layouts per new drawing with 10 (maximum) entered in the box. This is somewhat flexible. Eleven layouts can fit in one drawing or this could be split into 6 layouts in one file and 5 layouts in another file. Too many layouts in one file will slow the file down.

Under Layout name select the Edit Layout Name (arrow button), under Property fields select the View Frame Start Station Value, delete everything under Name, select Insert, and hit Okay.

It is easiest to place the north arrow in the ROMAP in model space. For instructions, see the notes under Placing Blocks.
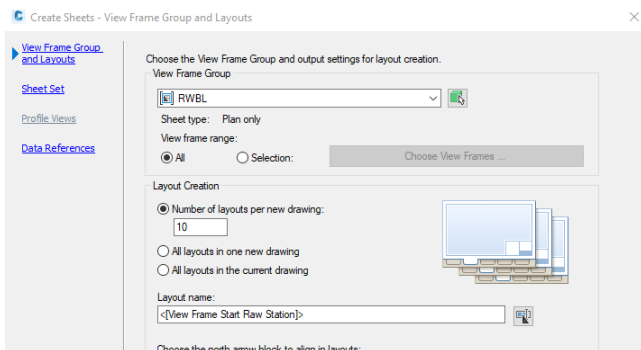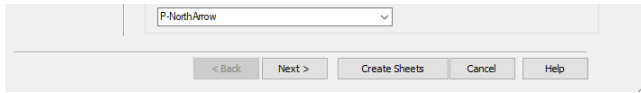
Under Sheet Set select New sheet, set the name to XXXXXXXROPLN001. Or if already created, select Add to existing sheet set, browse to the folder and select the .dst file. Under Sheets, Sheet files storage location, navigate to the RO folder for the project in Autodesk Docs. Under Sheets, Sheet File Name, select the Edit sheet files name button, delete everything under Name, under Name set the name to XXXXXXXROPLN00, set the Property Fields to Next Counter and insert behind the name, see below. Select OK. Select Next.
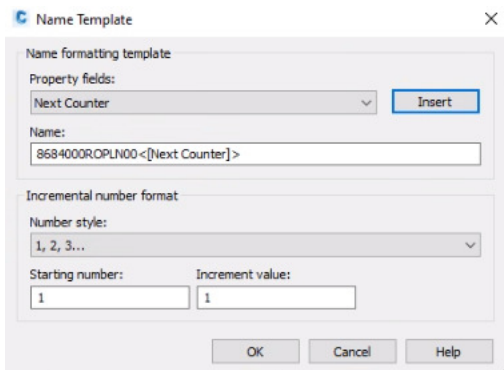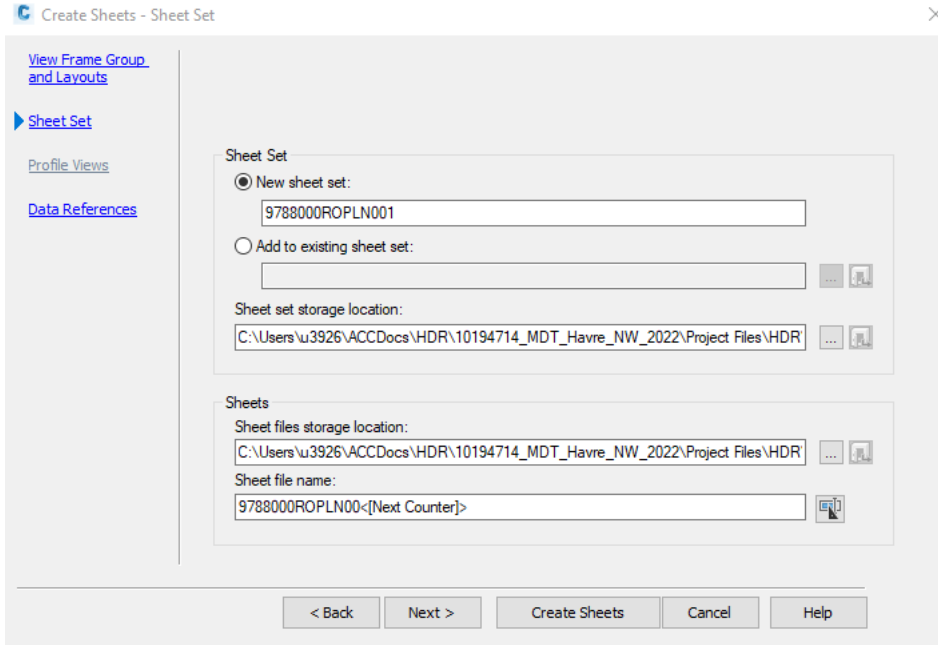
Under Data Reference verify that the RWBL alignment is checked. Do not check the *copy pipe network labels to destination.* Select Create Sheets. Close the Event Viewer if the box pops up.

The plan sheet file(s) will be saved in the RO folder under the project. Rename layout tabs as necessary to follow standard naming conventions. Open the newly created plan sheets file.

Set the annotation scale in the plan sheet model space to show linestyles correctly.

I M P O R T A N T - Check the Xref Manager to verify that all the reference file types are set to Overlay not as Attachment. Reference files set to Attachment can cause problems.

Scale Block

Plan sheets do not contain a scale bar. Place block SCALE in the bottom left corner of the plan sheet.

In paper space (layout tab) Select the sheet border, right click, and select block editor. Select and place the SCALE block. Select Close Block Editor on the ribbon and save changes. This will modify all the borders in the ROPLN file.

2. ALL STATIONS AND OFFSETS FOR R/W BREAKS
    ARE IN REFERENCE TO THE R/W BASELINE.

0   50'   100'   200'   300'

Ownership Sheet Note

The Title sheet no longer contains the note "SEE SHEET NO. _ FOR OWNERSIP NAMES, ADDRESSES, ETC……". This information is easily identified in the plan set.

Gray Scaling Existing Topography

Open the Layer Manager, browse to the existing topography xreference file(s), select all the topography file layers, change the color to 253. Apply gray scale to other reference files as needed.

Customize Viewports to show sheet areas without overlap or gray shaded areas

The plan sheets can be clipped on the match line, clipped to show an overlap, or clipped to expand the plan sheet.

To clip to the match line -

Within the ROPLN file click on the Paper Space Layout tab, click on Clip within the Layout Viewports Ribbon on the Layout Tools tab.
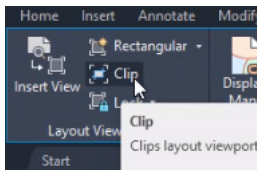
Select the viewport, on the command line select Polygonal and draw a polyline around the clip area and select Close. You cannot snap exactly to the intersection of the matchline and the sheet border, the polyline location will be approximate. The polyline can be edited by clicking on the vertex points to show the desired view. There may be multiple objects on top of each other. Toggle on Selection Cycling to make it easier to pick the viewport.

To show an overlap or expand the plan sheet -

Follow the directions above but stretch the viewport polygon to the desired distance from the matchline.

To mask an object -

1. Additional points can be added to the viewport polygon to clip out features from xref's.

2. The command XCLIP clips the display of a selected xref or block reference to a specified boundary. The clipping boundary determines the portion of a xref or block instance that is hidden, either outside or inside the boundary. Type XCLIP in the command line, select new boundary, invert, and rectangular.

   To change the XCLIP syst variable, type XCLIPFRAME in the command line. Settings are shown below.

Value	Description
0	The frame is not visible and it is not plotted. The frame temporarily reappears during selection preview or object selection.
1	The clipped xref frame is displayed and plotted
2	The clipped xref frame is displayed but not plotted

Only one clip boundary can be placed in a file. Place the clip boundary in the plan sheet. (verify this section)

Gray Shaded Area -

The gray shaded area will print unless it is turned off. To turn the gray shaded area off -

Within Toolspace, go to Match Line, Match Line Styles, select PLN Plan ML, right click and select Edit.
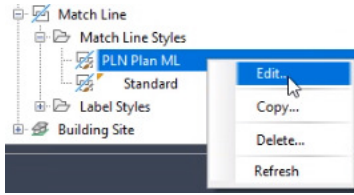
Under the Display tab turn off Visibility for Match line mask.

If not already set, freeze layer GS-MATC in the referenced ROMAP. Set layer GS-VPRT to no plot so these layers do not appear in the plans.

Attaching the Data Shortcuts

The data shortcuts will not be copied when the plans sheets are created and need to be added.
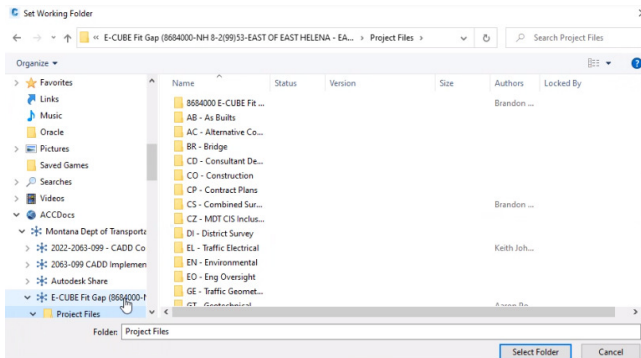
Within the model space of the plan sheet file select Toolspace and scroll down to Data Shortcuts.
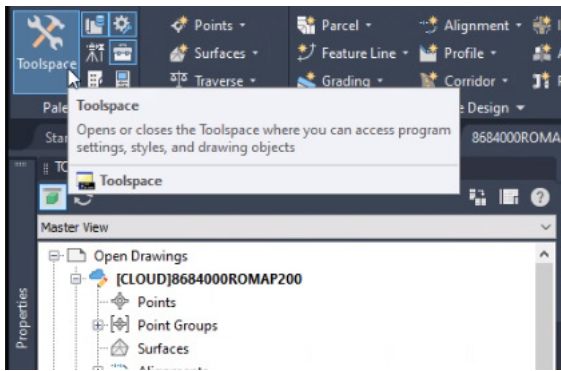
The Working Folder should already be set but if it is not - right click on Data Shortcuts and select Set Working Folder.
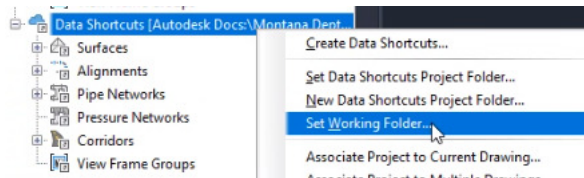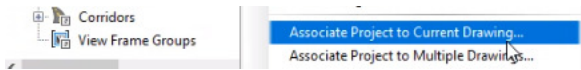
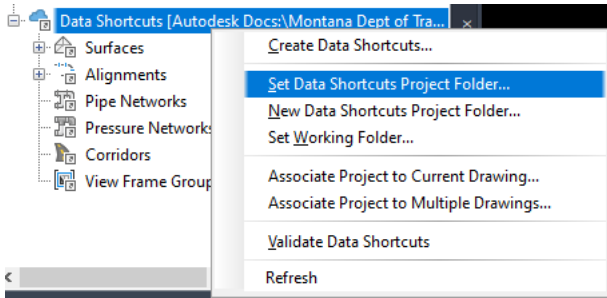Set the folder to Project Files under the project name and click on Select Folder.

The project should already be associated to the current drawing but if it is not - on Data Shortcuts right click and select Associate Project to Current Drawing.
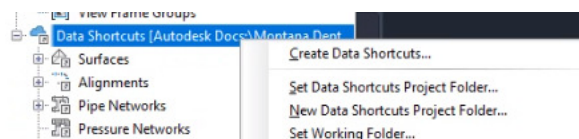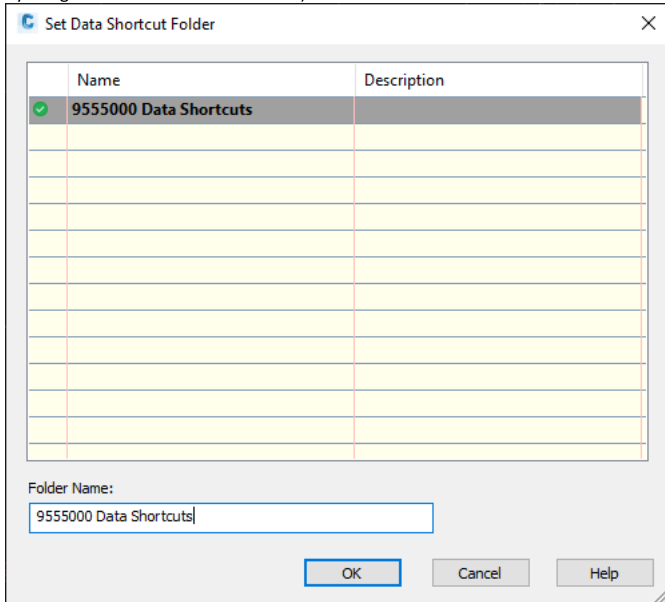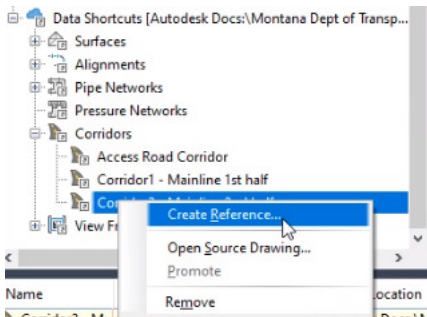
Setting Data Shortcuts Project Folder.

The Data Shortcuts folder that is at the top of the Project Files folder should appear in the list. Select the folder (verified by the green check in the left column) and select OK.
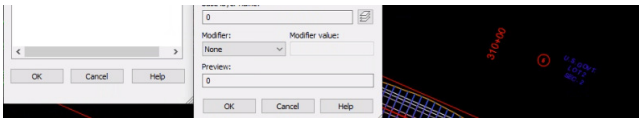
Under Data Shortcuts browse to the Corridors, right click on the corridor(s) and select Create Reference.
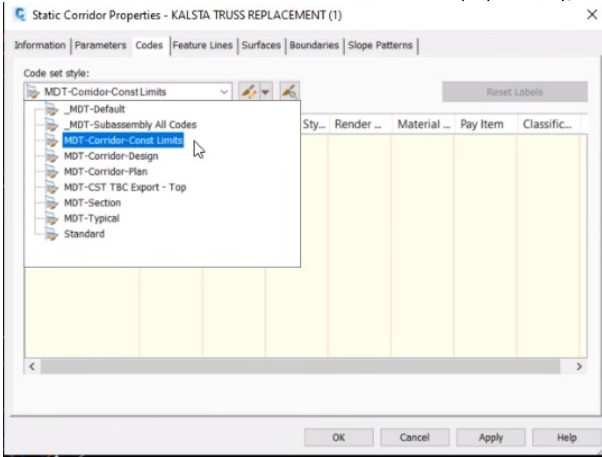
Set the Corridor style to MDT DES Corridor to display the construction limits. Set the Corridor layer to C-CRDR. Select OK.
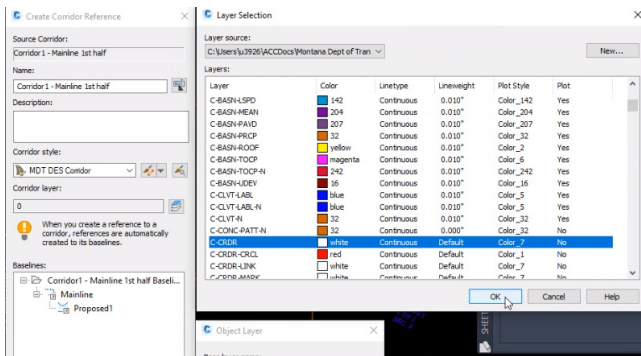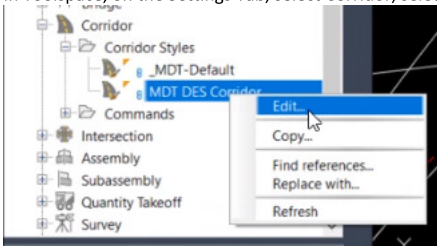
Select the corridor, right click, select Corridor Properties. On the Codes Tab, under Code set style, select MDT Corridor Const Limits. Select OK. If the construction limits don't display correctly, follow the additional steps below.


In Toolspace, on the Settings Tab, select Corridor, select the MDT DES Corridor, right click, select Edit.

Turn off Region Boundaries and Assembly Insertion Stations. Select Make a local copy of the style. The constructions limits should be displayed properly.
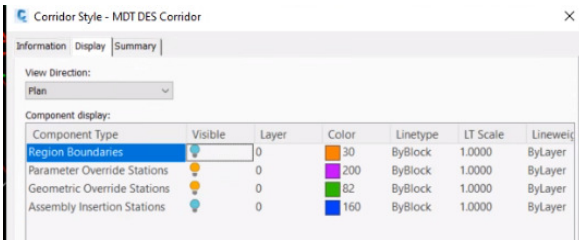
Attach the Alignment Data Shortcut(s). Set the Alignment style to DES Alignment and the Alignment layer to C-ALGN-RWBL. Select OK.
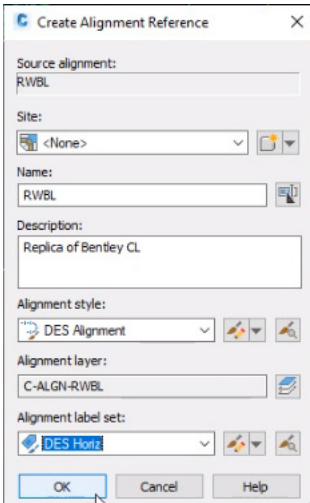
Check data shortcuts to see what is available and attach as needed, i.e. existing surface, culverts, etc. The data shortcuts are shared from other work groups.

Attach reference files, such as the cadastral survey, as necessary. Change all reference attachments to Overlay in the X-XREF Manager.

The project information on the right side of the sheet border is filled in by using the Sheet Set Manager. Before this information can be entered a plan sheet set needs to be created, see directions.

Road Design View Frames

Data Shortcut the RD view frames. The RD view frames will provide a visual representation of the RD plan sheet area, similar to the orange dotted line in MicroStation. All information that shows in RD plan and profile sheets needs to be within this boundary. Do not attach the RD view frames before creating the r/w plans sheets. Civil 3D will create the r/w plan sheets based on the RD view frames, not the r/w view frames. The RD view frames can be promoted into the drawing, allowing the color and line types to be changed as desired.
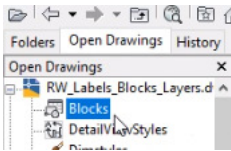
Placing Blocks

All blocks need to be placed in the model space of the ROMAP file. This will allow the blocks to be referenced into the r/w plans & exhibits and as needed by other work areas. (our blocks need to be added to the StateKit)

Until the blocks are placed in the StateKit they can be copied from file RW_Labels_Blocks_Layers.dwg located \\state\mdt\prd\Helena\ROW\Manuals\Civil3D. The ROMAP and RW_Labels_Blocks_Layers drawings must both be open to copy the blocks. From within the ROMAP file navigate to the Palettes Ribbon on the Home tab, click the drop down and select Design Center (Key in ADC)
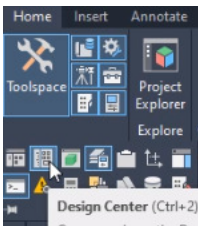

Under Open Drawings select file RW_Labels_Blocks_Layer, click on Blocks, select the blocks that are needed, right click and select Insert Blocks. All of the r/w blocks begin with RW-.

Placing Blocks and Text So They Are Aligned With the Sheet View -

The model space view can be rotated by using Rotate View under MDT Tools. On the Home tab, Palettes ribbon, select the Tool Palettes icon. On the MDT Tools tab, under Drawing Tools, select Rotate View.
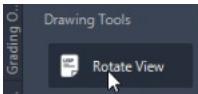

This is useful for aligning blocks and text with sheet views.

A shortcut for the command is to type DVTW and hit Enter.

Pick a point on the sheet view frame and then select an endpoint on the sheet view frame and hit enter. The drawing view will be rotated. In the command line type UCS and select View. This will rotate the cross hairs on the curser relative to the view. Any text or blocks placed in this sheet view frame will be placed with a rotation of zero.

To rotate the view back, in the Command Line type UCS, select Enter, and select World or the view can also be rotated back by clicking on the drop down box below the ViewCube and selecting WCS (World).
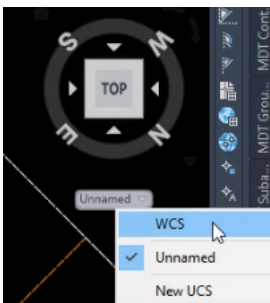
To rotate the cross hairs back, in the Command Line type PLAN, select World.

To align blocks with the view frames type UCS, select Object, select the bottom left corner of the view frame. For projects where north is pointing down select the upper right corner. The blocks and text that can be placed at angle 0 and will be aligned with the view frame. To stop rotating with the view frames type UCS, select World, hit Enter. Right click on the ViewCube, select ViewCube Setting, and check the box next to Orient ViewCube to current UCS.
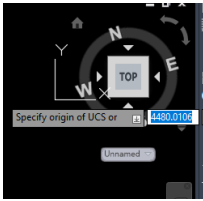
Make sure to change the UCS back to World when finished. Type UCS and select World.

Blocks and text can be rotated after they are placed by selecting the block or text, right clicking and selecting Properties. Under Misc, click the the box next to Rotation to change the angle.
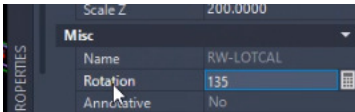
North Arrow Block - Insert the RW-NAR or RW-NAR180 block, the Edit Attributes will open, add labels for Township and Range.

To edit the Township or Range, double click the north arrow block and edit in the line next to Value.
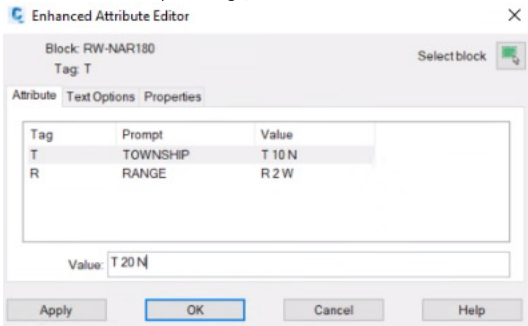
Calculating Section Ties

Insert block CORTIE into the model space, explode the block, edit, and group (type GROUP). The block can be copied, ungrouped, edited, and regrouped for additional section ties.

Use OSNAPZ setting to force a 2D measurement to a 3D object. Type OSNAPZ at the command line, and toggle the setting to 1. An OSNAPZ setting of 0 will allow OSNAP to use the Z value of the object being snapped to. An OSNAPZ setting of 1 will constrain OSNAP to using the Z value set for the current UCS. In other words, the Z or elevation value will remain constant in order to grab 2D measurements.

To calculate section ties, draw a line on layer VL-PLSS-TIEL-NPLT from the section corner to the r/w baseline. Use the Apparent Intersection snap to snap to the intersection of the r/w baseline and the section line. The Apparent Intersection snap works well when lines have elevations and cross on different planes. On the Labels & Tables ribbon on the Annotate tab select Line and Curve and then select Add Single Segment Line/Curve Label.
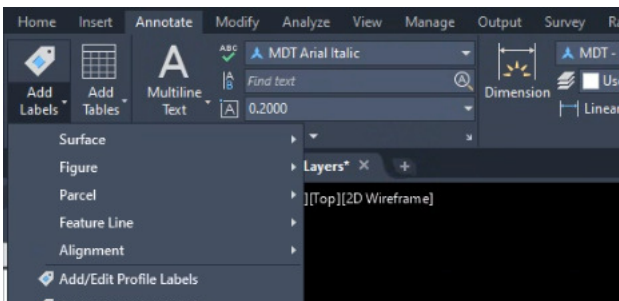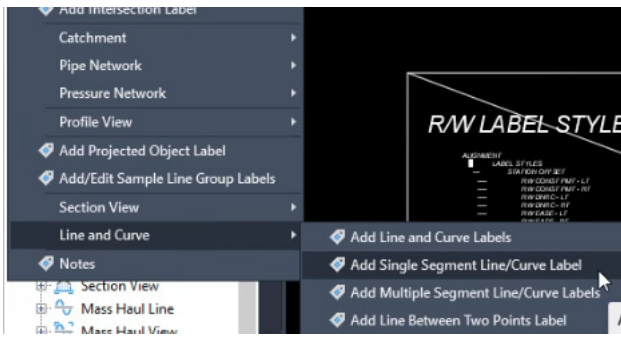
Click on each end of the line to place the distance and bearing label. Leave this label on layer VL-PLSS-TIEL-NPLT in the file for checking.
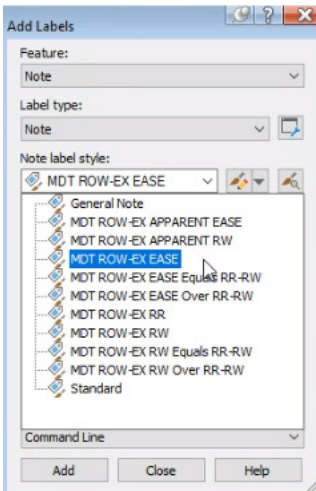
Existing r/w & easement callouts and dimension notes

All of these callouts and dimension lines will be placed in the ROMAP file.

Existing right of way and easements calls will be placed as labels. From the Annotate tab, Labels & Tables ribbon, click the tag on Add Labels.
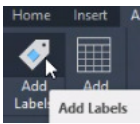

Se the Feature to Note, the Label type to Note and under Note label style select accordingly.

The Marker style is set to None. Select Add, snap to the existing r/w line and left click to place the label. Move the label by selecting it and clicking on the square.

To place dimensions from the Dimensions Ribbon on the Annotate Tab select Dimension, set the Dimension Style to MDT – RW or MDT - RW 180, and dimension r/w width. Make sure the correct layer is set. To rotate the dimension text 180 degrees select the dimension, right click and select Properties, under Misc change Dim style to MDT-RW 180. On a radius set the type of dimension (drop down by linear) to Aligned, select nearest snap for the first point and perpendicular snap for the second point.
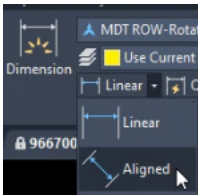
These notes are annotative. In model space the notes will appear at the annotation scale of the current view.
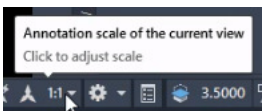
In paper space the notes will be scaled by the view port scale.
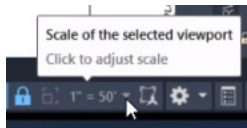
If the scale is not correct, in the plan drawing in paper space, select the viewport, right click, select properties, change display locked to unlock, set the annotation scale and all labels will display at the proper scale. When the viewport display is unlocked, you can change the annotation scale in the settings at the bottom of the screen and the labels will update.